APPENDIX C – BIOLOGICAL RESOURCES REPORTS

PETERS CANYON REGIONAL PARK (PECA)
RESOURCE MANAGEMENT PLAN

County of Orange, California

DRAFT BIOLOGICAL RESOURCES REPORT

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May 2016
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Michael Baker
INTERNATIONAL

PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN

COUNTY OF ORANGE, CALIFORNIA

DRAFT Biological Resources Report

The undersigned certify that this report is a complete and accurate account of the findings and conclusions of a biological resources assessment for the above-referenced project.

Dan Rosie
Project Manager/Biologist
Natural Resources/Regulatory Permitting

Richard Beck, PWS, CEP, CPESC
Vice President
Natural Resources/Regulatory Permitting

May 2016

Executive Summary

On behalf of OC Parks, Michael Baker International (Michael Baker) has prepared this Biological Resources Report (BRR) for the 340-acre Peters Canyon Regional Park (PECA; survey area) Resource Management Plan (RMP), located in Orange County, California.

This report was prepared to document all biological resources identified within the survey area during a general biological resources survey and vegetation/land use mapping, jurisdictional delineation, and information gathered during focused avian surveys conducted by Michael Baker, which includes the preliminary results of presence/absence surveys for least Bell's vireo (*Vireo bellii pusillus*; a Federally- and State-listed as Endangered species [FE/SE]) and coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*; a California Species of Special Concern [SSC]). Ongoing presence/absence surveys for coastal California gnatcatcher (*Polioptila californica californica*; a Federally-listed as Threatened species [FT] and SSC) are being conducted by Harmsworth Associates, Inc.

Additionally, because PECA is located within and is subject to the requirements and provisions set forth in the Central Subarea of the County of Orange Central and Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan (County NCCP/HCP), this report provides an in-depth assessment of the suitability of the habitats on-site to support the three "Target Species" of the County NCCP/HCP, which include coastal California gnatcatcher, coastal cactus wren, and orange-throated whiptail (*Aspidoscelis hyperythra*; SSC). The NCCP/HCP specifies that the populations of the target species shall be subject to long-term monitoring and that these taxa shall be treated as if they were listed under CESA/FESA.

Ultimately, the findings and conclusions report is intended for use by OC Parks as a baseline study of existing biological resources within PECA and the potential to support various special-status biological resources as guidance for the RMP in consideration of future management decisions at the park.

Special-status flora and fauna identified on-site during the surveys include four (4) plant species and twelve (12) wildlife species, including least Bell's vireo, coastal cactus wren, coastal California gnatcatcher, and orangethroat whiptail dispersed throughout their respective habitats. Areas associated with Peters Canyon Wash (PCW) and Upper Peters Canyon Reservoir (UPCR) include special-status vegetation communities mapped as southern cottonwood-willow riparian forest, southern riparian scrub (i.e., mule fat scrub), and southern willow scrub. The County NCCP/HCP primarily focuses on the protection of coastal sage scrub, found throughout the survey area in various forms and stages, and the organisms that depend on it for continued survival. Further, based on 4-quadrangle database record searches, Michael Baker determined

that the survey area also contains suitable habitat for eight (8) other special-status plant species and eleven (11) other special-status wildlife species.

Jurisdictional features on-site include a man-made reservoir (UPCR; currently dry) at the northern end, which is surrounded by associated wetland and riparian vegetation, including two basins and a few inlets, and fed by Santiago Canyon, urban runoff, and direct rainfall. Downstream of the dam, flows enter PCW, an intermittent stream, via groundwater from UPCR and by direct rainfall. PCW consists of a wetland/riparian corridor that conveys flows along the western side of the canyon (adjacent to residences), with relatively steep upland slopes to the east. At the southern end, the wash conveys flows into an off-site detention basin. Further, there are eight (8) ephemeral drainage features and eight (8) culverts throughout PECA that convey flows primarily from off-site sources and are tributary to UPCR and PCW.

Any proposed impacts will require a refined assessment of the resources mentioned above.

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Appendices

Section 1 Introduction

On behalf of OC Parks, Michael Baker International (Michael Baker) has prepared this Biological Resources Report for the Peters Canyon Regional Park (PECA; survey area) Resource Management Plan (RMP). This report describes the biological resources record searches and literature review, survey methodologies, and results of the general and focused surveys conducted within the survey area to determine the presence or potential occurrence of State-listed and/or Federally-listed as rare, threatened, or endangered, and other special-status plants, animals, and natural communities.

1.1 SITE LOCATION

PECA, a regional park within the OC Parks, is located within the Cities of Orange and Tustin, Orange County, California (Figure 1, *Regional Vicinity*). Specifically, the park is located within Section 36 of Township 4 South, Range 9 West; Section 31 of Township 4 South, Range 8 West; Section 6 of Township 5 South, Range 8 West; and Section 1 of Township 5 South, Range 9 West, of the U.S. Geological Survey (USGS) *Orange, California* 7.5-minute topographic quadrangle map (Figure 2, *Site Vicinity*).

PECA (Figure 3, *Peters Canyon Regional Park*) is bounded by Skylark Place and Canyon View Avenue to the north (City of Orange); Cowan Heights residential development to the west (City of Tustin); a residential development, Jamboree Road, and State Route 261 to the east (City of Tustin); and Peters Canyon Road and a residential development to the south (City of Tustin).

1.2 BACKGROUND

OC Parks includes regional, wilderness, and historical facilities, in addition to coastal areas throughout the County of Orange in California. OC Parks has about 60,000 acres of parkland, open space, and shoreline, with facilities that offer plenty of opportunities for the public to enjoy nature and learn about the history of Orange County.

PECA was originally part of the Spanish land grant, Rancho Lomas de Santiago. In 1897, the ranch was purchased by James Irvine, who then leased the canyon out to several farmers. James Peters, whom the canyon is named for, dry-farmed beans and barley in the upper canyon and is also responsible for planting the historical eucalyptus grove located near the off-site Lower Peters Canyon Retarding Basin (detention basin). To supply the increasing water needs for Irvine Ranch's growing agricultural industry, two reservoirs were constructed. The Upper Peters Canyon Reservoir (UPCR) was completed in 1931, followed by the off-site lower reservoir in 1940. Both reservoirs were used to regulate the Irvine Company's draft from Santiago Reservoir, in addition to conservation of run-off from Peters Canyon watershed. Today, the lower reservoir serves as a flood control basin and is under the purview of OC Public Works. On March 3, 1992, the Irvine

5/23/2016 JN M:\Mdata\152478\GIS\MXD\Ex01 Regional Vicinity.mxd

PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN
BIOLOGICAL RESOURCES REPORT

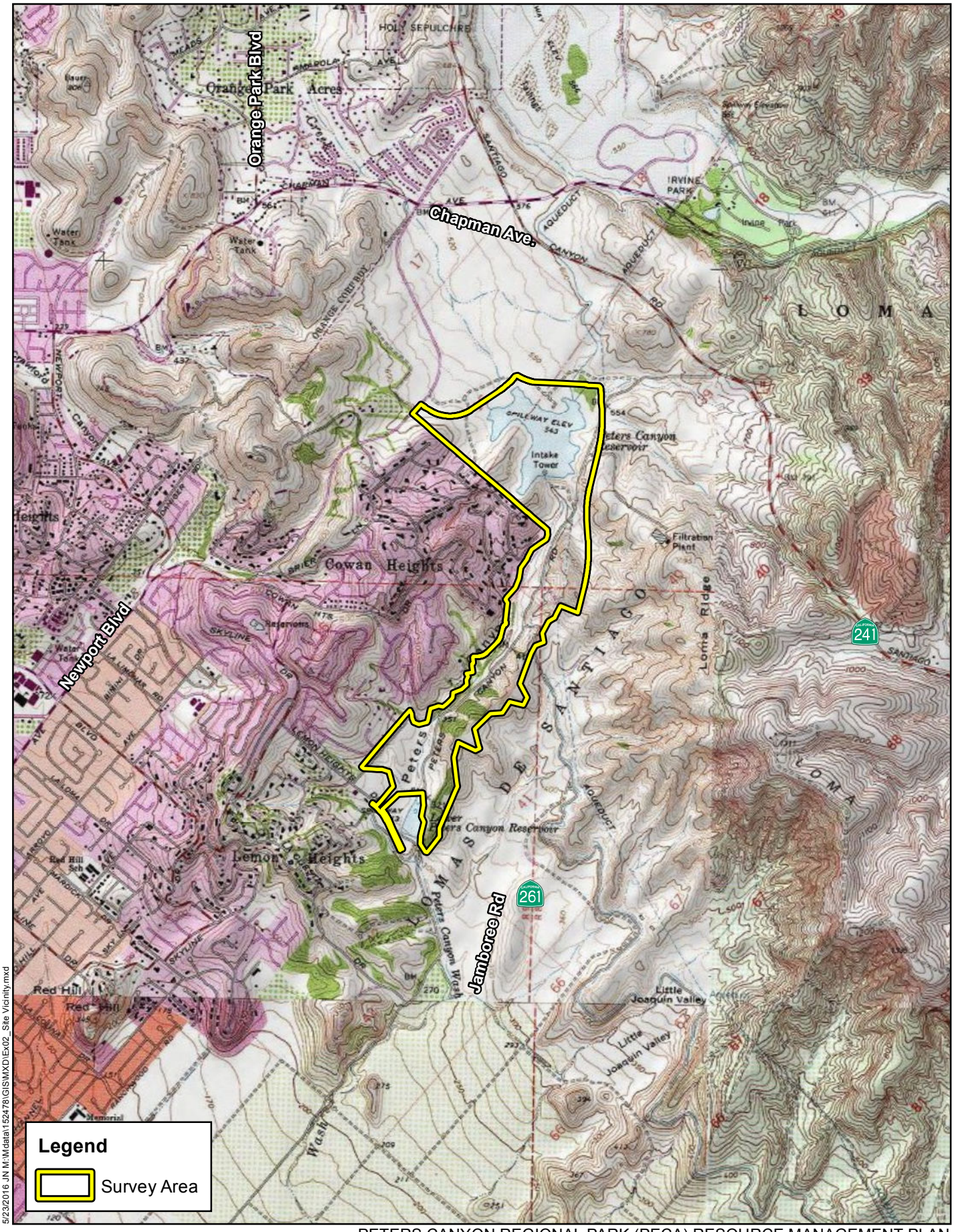
Michael Baker INTERNATIONAL

0 2.5 5 Miles

Source: ArcGIS Online

Regional Vicinity

Figure 1



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PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN
BIOLOGICAL RESOURCES REPORT

Michael Baker INTERNATIONAL

0 0.25 0.5 Miles

Source: Eagle Aerial Imaging - 2014

Site Vicinity

Figure 2

5/23/2016 JN M:\Mdata\152478\GIS\MXD\Ex03 Project Site.mxd

PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN
BIOLOGICAL RESOURCES REPORT

Michael Baker INTERNATIONAL

0 400 800 Feet

Source: Eagle Aerial - 2014

Peters Canyon Regional Park

Figure 3

Company donated 340 acres of Peters Canyon to the County of Orange to be preserved as open space.

1.3 PURPOSE OF DOCUMENT

This report documents all biological resources identified within the survey area during a general biological resources survey and vegetation/land use mapping, jurisdictional delineation, and information gathered during focused avian surveys conducted by Michael Baker, which includes the preliminary results of presence/absence surveys for least Bell's vireo (*Vireo bellii pusillus*; a Federally- and State-listed as Endangered species [FE/SE]) and coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*; a California Species of Special Concern [SSC]), with presence/absence surveys for coastal California gnatcatcher (*Polioptila californica californica*; a Federally-listed as Threatened species [FT] and SSC) being conducted by Harmsworth Associates, Inc. In addition, this report includes an analysis of the potential for the various on-site biological resources to support other special-status plant and animal species and special-status vegetation communities that are subject to provisions of the Federal Endangered Species Act of 1973 (FESA), Migratory Bird Treaty Act (MBTA), California Endangered Species Act (CESA), California Environmental Quality Act (CEQA), California Fish and Game Code (CFGC), California Native Plant Protection Act (NPPA), Bald and Golden Eagle Protection Act (BGEPA), and other local policies and ordinances protecting biological resources. Further, this report summarizes the results of a formal jurisdictional delineation of the survey area (Michael Baker 2016) that identifies jurisdictional aquatic features pursuant to the Federal Clean Water Act (CWA), CFGC, and the California Porter-Cologne Water Quality Control Act (Porter-Cologne).

Additionally, this report provides an in-depth assessment of the suitability of the habitats on-site to support the three "Target Species" of the County of Orange Central and Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan (County NCCP/HCP), which include coastal California gnatcatcher, coastal cactus wren, and orange-throated whiptail (*Aspidoscelis hyperythra*; SSC).

Ultimately, the findings and conclusions report is intended for use by OC Parks as a baseline study of existing biological resources within PECA and the potential to support various special-status biological resources as guidance for the RMP in consideration of future management decisions at the park.

Section 2 Methodology

2.1 LITERATURE REVIEW AND DATABASE SEARCHES

Prior to conducting the field work, Michael Baker reviewed literature relevant to PECA, including documentation of previous special-status species surveys and other relevant studies, and environmental setting information. Further, based on the position of PECA on the *Orange, California* quadrangle (southeast corner), Michael Baker conducted a 4-quadrangle (Orange, Black Star Canyon, Tustin, and El Toro) search of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) RareFind 5 (CDFW, Biogeographic Data Branch 2016) and the California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants (CNPS 2016), and generated a Species and Resources List queried from the USFWS Information for Planning and Conservation (IPaC) online system (USFWS 2016a), to identify special-status plant and wildlife species, vegetation communities, and other biological resources that have been previously documented within, near, and/or have the potential to occur within the survey area. The *Special Animals List* (CDFW 2016a) and the *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2016b) were reviewed for the current status of rare and endangered plant and wildlife species. Other resources reviewed include the CNPS California Rare Plant Ranking System (CRPR); recent aerial photography (Google Earth Pro 2016); the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) *Soil Survey for Orange County and Western Part of Riverside County, California* (USDA, NRCS 1978); the National Hydric Soils List (USDA, NRCS 2015); and the National Wetland Inventory (NWI; USFWS 2016b).

2.2 GENERAL BIOLOGICAL RESOURCES SURVEYS

Following the literature review and database searches, on March 25, 2016, Michael Baker biologists Richard Beck, Dan Rosie, and Stephen Anderson conducted an initial site reconnaissance to familiarize with the survey area and surroundings, identify access points, and strategize field work.

On March 29, 30, and 31, 2016, Mr. Rosie and Mr. Anderson conducted a general biological resources survey of the entire survey area to document existing site conditions and biological resources, and to evaluate habitat with the potential to support various special-status plant and wildlife resources, including suitable habitat for least Bell's vireo and coastal cactus wren, and jurisdictional aquatic features. Representative photographs of PECA are provided at the end of this report in Appendix A, *Site Photographs*.

2.2.1 Vegetation/Land Use Mapping and Plant Species Inventory

Classification of the on-site vegetation communities and other land uses is based on the descriptions of terrestrial vegetation classification systems described in *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), with modifications to better represent existing conditions in the field using the *Draft Vegetation Communities of San Diego County* (Oberbauer et al. 2008), an expanded vegetation classification system based on Holland (1986). Plant species nomenclature and taxonomy follow *The Jepson Manual: Vascular Plants of California, second edition* (Baldwin et al. 2012). All plant species encountered were noted and identified at minimum to the lowest possible taxonomic level necessary to determine rarity. For a complete list of plant species observed on-site, refer to Appendix B of this report.

2.2.2 General Wildlife Observations

Wildlife identification and nomenclature followed standard reference texts, including The American Ornithologists' Union *Checklist of North and Middle American Birds* (The American Ornithologists' Union 2016), the *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, With Comments Regarding Confidence In Our Understanding* (Crother 2012), and *Mammals of North America, Second Edition* (Kays and Wilson 2009). All wildlife observed and/or otherwise detected through sign (e.g., tracks, scat) were recorded. Other wildlife may occupy the site, but are not easily detectable during the day (i.e., nocturnal) and without extraordinary survey efforts during the appropriate season, in addition to several species being transient and potentially occupying the site other times of the year. For a complete list of wildlife species observed or otherwise detected on-site, see Appendix B.

2.3 JURISDICTIONAL DELINEATION

On April 5, 2016, Mr. Rosie, and Michael Baker Biologist Linda Nguyen conducted a site reconnaissance to identify all jurisdictional resources within the survey area, including all ephemeral tributaries that convey storm flows from off-site (via culverts), in need of a formal jurisdictional delineation to determine the limits subject to each regulatory agency.

On April 5, 14, 20, 26, 27, and 28, 2016, Michael Baker biologists Mr. Rosie, Mr. Anderson, Ms. Nguyen, Mr. Beck, Lauren Mack, and/or Anisha Malik conducted a formal jurisdictional delineation following the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0* (Regional Supplement; Corps 2008a) to identify the limits of wetland waters of the U.S. (WoUS), *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Corps 2008b) to identify the limits of non-wetland WoUS, and the most recent CDFW guidelines to identify the limits of streambed/banks and associated riparian vegetation subject to regulatory jurisdiction.

For details regarding survey methodology of the jurisdictional delineation, refer to the stand-alone document (Michael Baker 2016a).

2.4 FOCUSED AVIAN SURVEYS

2.4.1 Focused Least Bell's Vireo Survey

Michael Baker biologists Mr. Rosie, Mr. Anderson, Ms. Nguyen, and/or Ryan Winkleman conducted a focused survey for least Bell's vireo, beginning on April 12, with the last survey completed on May 24, 2016. The survey was conducted following the USFWS *Least Bell's Vireo Survey Guidelines* (USFWS 2001), modified with a USFWS-approved reduction in total visits based on an adequate understanding of site use by least Bell's vireo, no impacts proposed, and the results being limited to baseline information only (per e-mail correspondence with Stacey Love [USFWS] on March 24, 2016). The survey was conducted in all habitats within the survey area suitable to support least Bell's vireo. All focused surveys will be appended to this report once the survey windows close and the reports are complete.

2.4.2 Focused Coastal Cactus Wren Survey

Michael Baker biologists Mr. Rosie, Mr. Anderson, and/or Ms. Nguyen conducted a focused survey for coastal cactus wren on April 13 and May 9 and 25, 2016. The focused presence/ absence survey for coastal cactus wren was conducted in all habitats within the survey area suitable to support coastal cactus wren following a modified version of the general survey guidelines described by Mitrovich and Hamilton (2007).

2.4.3 Focused Coastal California Gnatcatcher Survey

An ongoing focused coastal California gnatcatcher survey following the USFWS *Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Guidelines* conducted by Paul Gavin of Harmsworth Associates, Inc. began in May 2016. The survey, following the three-part Natural Community Conservation Plan (NCCP) protocol, is being conducted in all habitats within the survey area suitable to support coastal California gnatcatcher.

For details regarding survey methodology of the focused avian surveys, refer to the forthcoming stand-alone documents (Michael Baker 2016b, Michael Baker 2016c, and Harmsworth 2016, respectively).

Section 3 Existing Conditions

The following is a summarization of the results of the literature and database reviews and general and focused biological resources surveys. Discussions regarding the general environmental setting, vegetation communities and other land uses present, and plant and animal species observed are presented below. Representative photographs of the survey area are provided in Appendix A, and a complete list of all the plant and animal species observed on-site during the field surveys is presented as Appendix B.

3.1 ENVIRONMENTAL SETTING

PECA is located within the Southwestern California region, near the border of the South Coast and Peninsular Ranges subregions (i.e., foothills of the Santa Ana Mountains), of the California Floristic Province. Specifically, PECA consists of UPCR (a man-made reservoir; currently dry) located at the northern end, which is immediately surrounded by associated wetland and riparian scrub and forest, including basins to the northeast and northwest, and inlets throughout subject to reservoir-influenced hydrology. For the purposes of this report, UPCR was broken into three portions: the western basin, the eastern basin, and the inner reservoir. The two basins are distinguished from the inner reservoir via the southern cottonwood-willow riparian forest, freshwater marsh, and mule fat scrub vegetation classifications on the eastern and western portions of the reservoir.

Several ephemeral tributaries to UPCR originate from culverts that convey nuisance flows from surrounding developments to the north and west, and from off-site natural drainage features to the east. Upland areas surrounding UPCR include moderate to steep slopes dominated coastal sage scrub vegetation (some intact and relatively undisturbed, with other areas ranging from low- to high-quality restoration) or non-native grasslands and other disturbed areas. Limited development occurs scattered throughout this portion of the park, which includes an unpaved parking lot and restroom facility at the north end; a vehicle access road (Peters Canyon Trail); the reservoir pump station and associated facilities along the eastern side; and recreational trails meandering throughout.

Downstream of the dam, Peters Canyon Wash (PCW) consists of a lengthy wetland/riparian corridor that conveys flows along the western side of the canyon (adjacent to residences), with relatively steep upland slopes to the east primarily dominated by coastal sage scrub (north) and eucalyptus woodland/coastal sage scrub (south). Further, additional ephemeral tributaries throughout the canyon convey flows from arroyos originating from the eastern slopes. At the southwest end, disturbed areas and non-native grasslands dominate the uplands, with two riparian tributaries that convey off-site flows and merge prior to converging with PCW. At the southern end, the wash conveys these flows into an off-site detention basin (not a part of the

survey area), which retains most storm waters, but only inundates when subjected to frequent and/or significant storm events. The lower basin outfall consists of a spill way that discharges extraordinary flows into a box culvert and the local storm drain system.

3.1.1 Climate

PECA, located in the foothills of the Santa Ana Mountains, has a climate characterized as Mediterranean, with cool, mild winter rains and hot, dry summers. Average annual temperatures typically range from 50 to 75 degrees Fahrenheit (°F), with highs in the summer averaging 85 °F and lows in the winter averaging 40 °F. Average annual precipitation for the Tustin, California, area is approximately 14 inches (U.S. Climate Data 2016).

3.1.2 Watershed

PECA is located within the Santa Ana River Hydrologic Unit (HU 801.0), Lower Santa Ana River Hydrologic Area (HA 801.10), and East Coastal Plain Subarea (HSA 801.11) of the Santa Ana Hydrologic Basin Planning Area. The Santa Ana River HU is a roughly rectangular-shaped area of about 150 square miles, extending from the Santiago Canyon foothills on the east to the Pacific Ocean on the west, and from the City of Orange on the north to the City of Lake Forest on the south. The unit includes the Cities of Irvine, Tustin, Orange, Newport Beach, Santa Ana, Costa Mesa, and Lake Forest. Waters from PECA are ultimately conveyed to Upper Newport Bay and the Pacific Ocean.

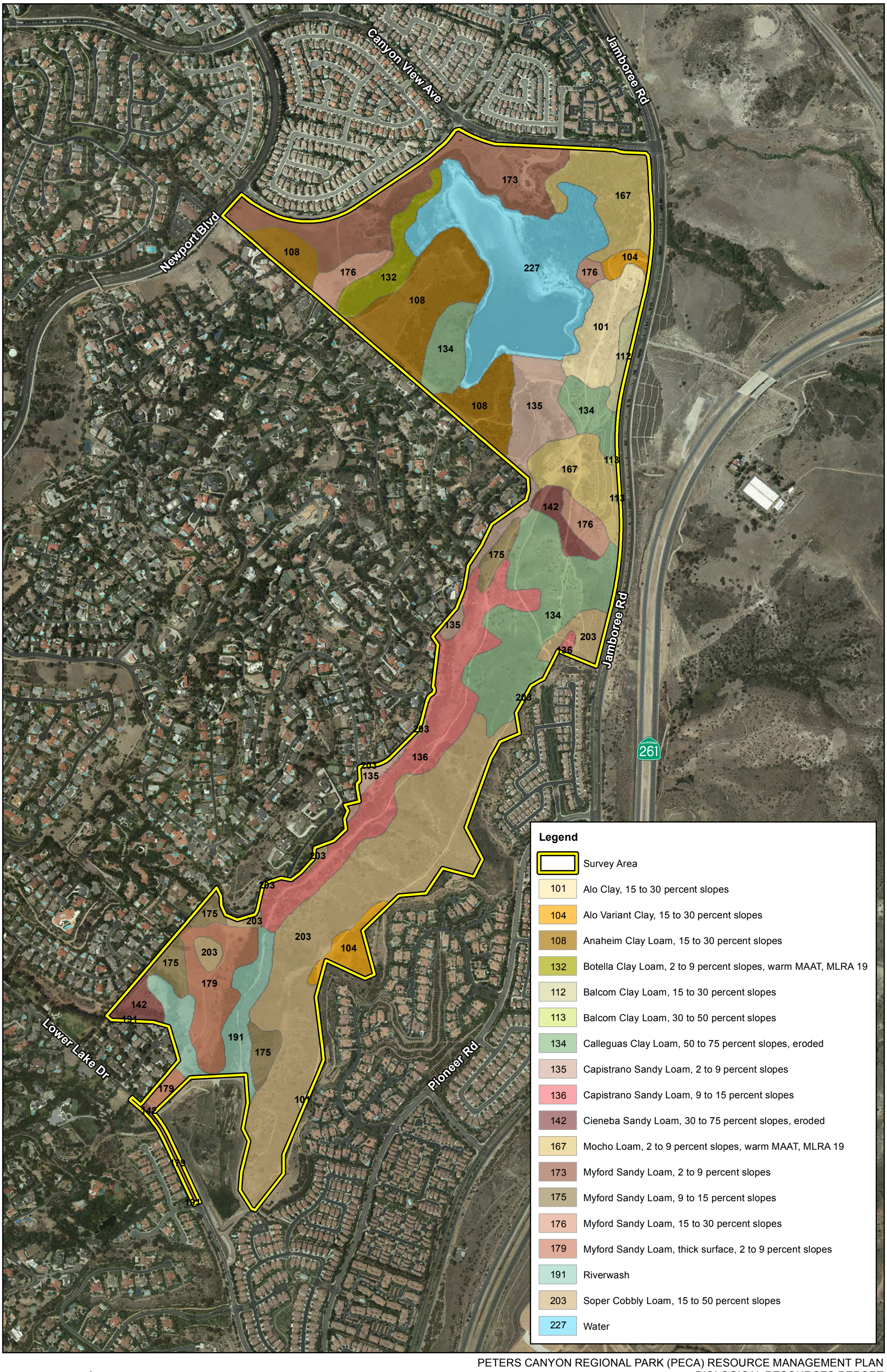
Michael Baker searched the Federal Emergency Management Agency (FEMA) – 100 Year Flood Zones for flood data within the survey area (ArcGIS 2016). Based on the FEMA – 100 Year Flood Zones map, portions of the survey area are within the 100-year flood zone.

3.2 TOPOGRAPHY AND SOILS

The general area that PECA is situated in is characterized by rolling hills and valleys dominated by coastal sage scrub and disturbed areas/non-native grasslands in the uplands, with riparian-scrub and -forested corridors lining valley bottoms and surrounding other water bodies. Elevations on-site range from approximately 320 to 700 feet above mean sea level (amsl).

On-site and adjoining soils were reviewed prior to the field visits using the USDA, NRCS *Soil Survey for Orange County and Western Part of Riverside County, California* (USDA, NRCS 1978). The following soil types have been mapped within the survey area (see Figure 4, *USDA Soils*):

- Alo clay, 15 to 30 percent slopes (101)
- Alo variant clay, 15 to 30 percent slopes (104)
- Anaheim clay loam, 15 to 30 percent slopes (108)
- Balcom clay loam, 15 to 50 percent slopes (112)
- Botella clay loam, 2 to 9 percent slopes, warm MAAT, MLRA 19 (132)



5/25/2016 JN M:\Mdata\152478\GIS\MXD\Fig 04 Soils.mxd

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0 400 800 Feet

Source: USDA Web Soil Survey, Eagle Aerial - 2014

PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN
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USDA Soils

Figure 4

- Calleguas clay loam, 50 to 75 percent slopes, eroded (134)
- Capistrano sandy loam, 2 to 9 percent slopes (135)
- Capistrano sandy loam, 9 to 15 percent slopes (136)
- Cieneba sandy loam, 30 to 75 percent slopes, eroded (142)
- Mocho loam, 2 to 9 percent slopes, warm MAAT, MLRA 19 (167)
- Myford sandy loam, 2 to 9 percent slopes (173)
- Myford sandy loam, 9-15 percent slopes (175)
- Myford sandy loam, 15 to 30 percent slopes (176)
- Myford sandy loam, thick surface, 2 to 9 percent slopes (179)
- Riverwash (191)
- Soper cobbly loam, 15 to 50 percent slopes (203)
- Water (227)

Michael Baker then reviewed the National Hydric Soils List (NRCS, December 2015) to identify soils mapped within the survey area that are considered to be hydric. It should be noted that lists of hydric soils along with soil survey maps are good off-site ancillary tools to assist in wetland determinations, but they are not a substitute for on-site investigations. According to the soils list, the following hydric soils mapped on-site include the following:

- Alo clay, 15 to 30 percent slopes (101)
- Myford sandy loam, 2 to 9 percent slopes (173)
- Myford sandy loam, thick surface, 2 to 9 percent slopes (179)
- Riverwash (191)

Soil textures identified on-site were generally consistent with those mapped by the Soil Survey; however, hydric soils were confirmed only by examination of test pits to identify jurisdictional wetlands. Refer to the Jurisdictional Delineation Report (Michael Baker 2016c) for wetlands mapped on-site.

3.3 VEGETATION COMMUNITIES AND OTHER LAND USES

Several terrestrial vegetation communities were identified on-site during the field surveys. Vegetation classification was based on Holland (1986), and modifications were made based on Oberbauer (2008). A complete list of plant species observed during the surveys is provided in Appendix B. A map that illustrates the extent of the terrestrial vegetation communities and other land uses observed within PECA, including the locations of special-status plants and wildlife observed on-site (discussed in Section 4 below), is presented as Figure 5, *Vegetation Communities, Land Uses, and Special-Status Species*. Table 1, below, provides the acreages of each vegetation community/land use on-site, with each discussed in detail below.

Legend

- Survey Area

Vegetation Communities/Land Uses

- Diegan Coastal Sage Scrub (32500)
- Low-quality Diegan Coastal Sage Scrub
- Southern Cottonwood-Willow Riparian Forest (61330)
- Southern Willow Scrub (63320)
- Valley Freshwater Marsh (52410)
- Mule Fat Scrub (63310)
- Disturbed Wetland (11200)
- Tamarisk Scrub (63810)
- Non-Native Grassland (42200)
- Disturbed Habitat (11300)
- Urban/Developed (12000)
- Bare Ground

Special-Status Species Observations

Birds

- Coastal California gnatchatcher
- Coastal cactus Wren
- Cooper's Hawk
- Least Bell's vireo
- Little willow flycatcher
- Northern harrier
- Yellow warbler
- Yellow-breasted Chat

Plant

- Coulter's matilija poppy
- San Diego County needle grass
- Southern California black walnut

Reptiles

- Orangethroat whiptail
- Western Pond Turtle
- red-diamond rattle snake

Newport Blvd
Skylark Pl
Canyon View Ave
Jamboree Rd

Figure 5a
Figure 5b

Peters Canyon Regional Park
Sunrise Ln
Newport Blvd
Rangeview Dr
Equestrian Dr
Peters Canyon Rd

5/25/2016 JN M:\Mdata\152478\GIS\MXD\Fig 05 Vegetation Communities.mxd

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0 200 400 Feet

Source: USDA Web Soil Survey, Eagle Aerial - 2014

PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN
BIOLOGICAL RESOURCES REPORT

Vegetation Communities, Land Uses, and Special-Status Species

Figure 5a

Figure 5a
Figure 5b
Figure 5c
Figure 5d

Jamboree Rd

Pioneer Rd

261

Peters Canyon Regional Park

Sunrise Ln

Rangeview Dr

Newport Blvd

Equestrian Dr

CA-261

Legend

Survey Area

Vegetation Communities/Land Uses

- Diegan Coastal Sage Scrub (32500)
- Low-quality Diegan Coastal Sage Scrub
- Southern Cottonwood-Willow Riparian Forest (61330)
- Southern Willow Scrub (63320)
- Valley Freshwater Marsh (52410)
- Mule Fat Scrub (63310)
- Eucalyptus Woodland (79100)
- Non-Native Grassland (42200)
- Disturbed Habitat (11300)
- Urban/Developed (12000)
- Bare Ground

Special-Status Species Observations

Birds

- Coastal California gnatchatcher
- Least Bell's vireo
- Yellow-breasted Chat

5/25/2016 JN M:\Mdata\152478\GIS\MXD\Fig 05 Vegetation Communities.mxd

Michael Baker INTERNATIONAL

0 200 400 Feet

Source: USDA Web Soil Survey, Eagle Aerial - 2014

PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN
BIOLOGICAL RESOURCES REPORT

Vegetation Communities, Land Uses, and Special-Status Species

Figure 5b

Figure 5a
Figure 5b
Figure 5c
Figure 5b
Lower Lake Dr
Pioneer Rd
Peters Canyon Regional Park
Sunrise Ln
Newport Blvd
Rangeview Dr
Equestrian Dr
Peters Canyon Rd
CA-261
261

Legend

- Survey Area

Vegetation Communities/Land Uses

- Diegan Coastal Sage Scrub (32500)
- Low-quality Diegan Coastal Sage Scrub
- Southern Cottonwood-Willow Riparian Forest (61330)
- Southern Willow Scrub (63320)
- Valley Freshwater Marsh (52410)
- Mule Fat Scrub (63310)
- Disturbed Wetland (11200)
- Eucalyptus Woodland (79100)
- Non-Native Grassland (42200)
- Disturbed Habitat (11300)
- Urban/Developed (12000)
- Bare Ground

Special-Status Species Observations

Birds

- Coastal California gnatchatcher
- Least Bell's vireo
- Sharp-shinned Hawk
- Yellow-breasted Chat

5/25/2016 JN M:\Mdata\152478\GIS\MXD\Fig 05 Vegetation Communities.mxd

Michael Baker INTERNATIONAL

0 200 400 Feet

Source: USDA Web Soil Survey, Eagle Aerial - 2014

PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN
BIOLOGICAL RESOURCES REPORT

Vegetation Communities, Land Uses, and Special-Status Species

Figure 5c

Table 1. Vegetation Communities/Land Uses within the Survey Area

Vegetation Community/Land Use	Acreage
Diegan Coastal Sage Scrub (32500)	127.88
Low-quality Diegan Coastal Sage Scrub	40.32
Southern Cottonwood-Willow Riparian Forest (61330)	31.30
Southern Willow Scrub (63320)	15.82
Valley Freshwater Marsh (52410)	4.94
Mule Fat Scrub (63310)	10.31
Disturbed Wetland (11200)	3.99
Tamarisk Scrub (63810)	5.16
Eucalyptus Woodland (79100)	13.50
Non-Native Grassland (42200)	24.23
Disturbed Habitat (11300)	27.24
Urban/Developed (12000)	9.44
Bare Ground	26.01
TOTAL*	**340.15**

* Total may not equal to sum due to rounding.

Diegan Coastal Sage Scrub (Holland Code: 32500)

Coastal sage scrub occurs throughout the survey area in various forms and stages. Most of the coastal sage scrub on-site has been left relatively intact (i.e., mature with limited disturbance or non-native, invasive species encroachment; mapped as coastal sage scrub). Several areas surrounding the parking lot, reservoir trail system, and in various areas along the access road within the canyon have undergone limited restoration efforts. These areas primarily consist of widely-spaced container plant installations; however, they appear relatively unmaintained. The installations are small and appear to be struggling, while all areas in between are densely vegetated with non-native, invasive grasses and forbs. In addition, some areas near the southern end of the park consist of relatively intact coastal sage scrub vegetation, but include scattered individuals and remnant snags of red gum (*Eucalyptus camaldulensis*) that provide unfair perching for raptors and corvids and thereby preclude various wildlife species such as the coastal California gnatcatcher. These areas have been mapped as low-quality coastal sage scrub.

Other coastal sage scrub restoration areas, including those surrounding the upper reaches of PCW, are mature, healthy, and nearly devoid of non-native vegetation (thereby, they are mapped as coastal sage scrub). Areas that consist of a mosaic of scattered, intact coastal sage scrub shrubs with interstitial spacing dominated by non-native grasses and forbs were mapped as low-quality coastal sage scrub as these areas appear to be recovering from previous disturbances.

The intact coastal sage scrub on-site varies considerably in composition. Dominant shrubs relatively consistent throughout primarily include California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), California encelia (*Encelia californica*), purple needle grass (*Stipa*

pulchra), California buckwheat (*Eriogonum fasciculatum*), deerweed (*Acmispon glaber*), wild cucumber (*Marah macrocarpa*), and foothill needle grass (*Stipa lepida*). Other dominants present throughout include laurel sumac (*Malosma laurina*), toyon (*Heteromeles arbutifolia*), lemonade berry (*Rhus integrifolia*), white sage (*Salvia apiana*), bush monkeyflower (*Mimulus aurantiacus*), California matchweed (*Gutierrezia californica*), and/or common sandaster (*Corethrogyne filaginifolia*). Depending upon substrate and/or slope aspect, some coastal sage scrub areas include various combinations of the above-mentioned shrubs, but with a greater component of coast prickly pear (*Opuntia littoralis*) and coastal cholla (*Cylindropuntia prolifera*) on east- and south-facing slopes; poison oak (*Toxicodendron diversilobum*), chaparral mallow (*Malacothamnus fasciculatus*), and giant wild rye (*Elymus condensatus*) on west- and north-facing slopes; and patches of Palmer's rabbitbrush (*Ericameria palmeri* var. *pachylepis*), coastal goldenbush (*Isocoma menziesii*), or coyote brush (*Baccharis pilularis*) in specific locations.

Southern Cottonwood-Willow Riparian Forest (61330)

The UPCR basins and inlets that are subject to reservoir-influenced hydrology primarily consist of mature southern cottonwood-willow riparian forest vegetation dominated by Goodding's black willow (*Salix gooddingii*), Fremont cottonwood (*Populus fremontii*), western sycamore (*Platanus racemosa*), red willow (*Salix laevigata*), and sandbar willow (*Salix exigua*), with mule fat (*Baccharis salicifolia*) primarily located along the fringes. The understory is relatively absent in the western inlets, whereas California blackberry (*Rubus ursinus*), poison oak, California wild grape (*Vitis californica*), California wild rose (*Rosa californica*), and stinging nettle (*Urtica dioica*) dominate the understory in the eastern basin of UPCR. Various portions of the eastern basin are highly disturbed with the presence of Mexican fan palm (*Washingtonia robusta*), common fig (*Ficus carica*), tamarisk (*Tamarix ramosissima*), and Canary Island date palm (*Phoenix canariensis*), with poison hemlock (*Conium maculatum*), smilo grass (*Stipa miliacea* var. *miliacea*), and milk thistle (*Silybum marianum*). Alkali mallow (*Malvella leprosa*) occurs in some locations on the outer fringes of mule fat.

PCW primarily consists of mature southern cottonwood-willow riparian forest vegetation dominated by Goodding's black willow, Fremont cottonwood, western sycamore, red willow, and isolated patches of sandbar willow. Within the upper reaches of the wash, the stream banks are dominated by black cottonwood (*Populus trichocarpa*), with California mugwort (*Artemisia douglasiana*) along the fringes closer to the UPCR dam. The lower reaches of PCW include an understory dominated by yerba mansa (*Anemopsis californica*), California bulrush (*Schoenoplectus californicus*), and Spanish false fleabane (*Pulicaria paludosa*), with non-natives such as Mexican fan palm, shamel ash (*Fraxinus uhdei*), and Chinese elm (*Ulmus parvifolia*) scattered throughout. Southern California black walnut (*Juglans californica*; CRPR 4.2) occurs in a few locations within the middle reaches, with an understory consisting of Baltic rush (*Juncus balticus*) pockets and California blackberry.

Southern Willow Scrub (63320)

Vegetation surrounding UPCR (adjacent to upland habitat), including swaths and patches of vegetation within the reservoir basin/inlets and throughout PCW, consist of southern willow scrub vegetation dominated by red willow, and are relatively absent of black willow, sycamore, and cottonwood that typically comprise a woodland or forest.

Valley Freshwater Marsh (52410)

Pockets of native freshwater marsh vegetation are present throughout the survey area. Specifically, swaths of California bulrush line the reservoir margins, with stands of California bulrush dominating portions of the basin and inlets of the reservoir and along portions of Peter Canyon Wash. Few areas within the basin and along PCW also include stands of broadleaf cattail (*Typha latifolia*). Further, isolated pockets of Mexican rush (*Juncus mexicanus*) occur within the reservoir inlets, with pockets of Baltic rush, American bulrush, and California bulrush dominating small portions of PCW.

Mule Fat Scrub (63310)

Mule fat scrub occurs in dense, essentially monotypic thickets of mule fat (*Baccharis salicifolia*) along the reservoir margins between the riparian woodland and upland surroundings, in patches within the basin and inlets associated with the reservoir, within the middle of the dry reservoir (extensive growth since the reservoir dried), and along the canyon primarily on the fringes of the riparian corridor.

Disturbed Wetland (11200)

Within several of the areas described as mule fat scrub above, tamarisk is equally prevalent, thereby displacing the native riparian vegetation, mule fat. These areas are transitional between the intact mule fat scrub and tamarisk scrub described below.

Tamarisk Scrub (63810)

Based on a review of a recent timeline of aerial photographs on Google Earth Pro (2016), what appears to have established within the inner rims of the reservoir (including portions within the inlets) are extensive stands of tamarisk that were not present when the reservoir was inundated, nor up until the reservoir no longer supported standing water. Tamarisk is prolific and continuing to expand in areas within the park, particularly within and surrounding the reservoir, which poses extensive management difficulties in maintaining quality riparian habitat.

Eucalyptus Woodland (79100)

Along the southernmost end of the survey, a historic eucalyptus woodland dominated by red gum covers the eastern slopes, with an understory either absent or dominated by non-native grasses such as common ripgut grass (*Bromus diandrus*) and foxtail chess (*B. rubens*). A few portions, particularly increasing to the north, where scattered red gum trees are dead or struggling include

relatively intact coastal sage scrub vegetation in the understory, are mapped as low-quality coastal sage scrub. Several ornamental blue gum (*Eucalyptus globulus*) are scattered along or line the western side of PCW, adjacent to residences, but do not constitute a woodland.

Non-Native Grassland (42200)

Non-native grassland vegetation was mapped within the northwest corner of the survey area, west of UPCR, and within the southwest portion of the survey area. These areas have undergone substantial disturbance, but are now dominated by various non-native grasses, primarily common ripgut grass, foxtail chess, wild oat (*Avena fatua*), and rattail fescue (*Festuca myuros*).

Disturbed Habitat (11300)

Disturbed habitat on-site consists of areas that have undergone substantial disturbance, and either are frequently and repeatedly disturbed through grading or compaction or are dominated by non-native, annual, opportunistic, weed species that preclude the reestablishment of native vegetation communities.

Urban/Developed (12000)

Developed portions of the survey area include buildings and other structures, the reservoir side of the dam, and various ornamental trees, shrub, and ground cover associated with developed properties.

Bare Ground

Bare ground mapped on-site includes unpaved access roads (and parking lot) and trails that are maintained to be devoid of vegetation.

3.4 GENERAL WILDLIFE OBSERVATIONS

The park contains multiple vegetation communities described above that are suitable to support a variety of wildlife species. Species common to each habitat type or land use described above were observed during the general and focused surveys. Species observed and typically occurring within coastal sage scrub include special-status species including red-diamond rattlesnake (*Crotalus ruber*), coastal California gnatcatcher, and coastal cactus wren, and other common species such as wrentit (*Chamaea fasciata*), California quail (*Callipepla californica*), greater roadrunner (*Geococcyx californianus*), California towhee (*Melozone crissalis*), Bewick's wren (*Thryomanes bewickii*), western scrub-jay (*Aphelocoma californica*), and desert cottontail (*Sylvilagus audubonii*). Species observed that are typical of riparian scrub and woodland vegetation include common yellowthroat (*Geothlypis trichas*), black-headed grosbeak (*Pheucticus melanocephalus*), and orange-crowned warbler (*Vermivora celata*), in addition to special-status species, Cooper's hawk (*Accipiter cooperii*; a Watch List [WL] species) and least Bell's vireo (FE/SE). Other wildlife species common throughout the survey area include western fence lizard (*Sceloporus occidentalis*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo*

jamaicensis), American crow (*Corvus brachyrhynchos*), house finch (*Haemorhous mexicanus*), northern mockingbird (*Mimus polyglottos*), black phoebe (*Sayornis nigricans*), lesser goldfinch (*Spinus psaltria*), mourning dove (*Zenaida macroura*), and California ground squirrel (*Otospermophilus beecheyi*). For a complete list of wildlife species observed during the general and focused avian surveys are provided in Appendix B.

Section 4 Special-Status Biological Resources

The following discusses the observed presence of and the potential for special-status plant and wildlife species and special-status vegetation communities to occur within the survey area. 'Potential to occur' is based on the presence or absence of suitable habitat for each special-status species evaluated, as well as the general ecological requirements for each species and known occurrences on and/or within the vicinity of the survey area. All CNDDB occurrences documentation of special-status species and vegetation communities and USFWS-designated critical habitats within a 5-mile radius of the survey area are shown in Figure 6, *Special-Status Biological Resources Documented Within a 5-mile Radius*. An evaluation of the potential for each species identified in the database records search to occur on-site is presented in Appendix C.

4.1 SPECIAL-STATUS SPECIES

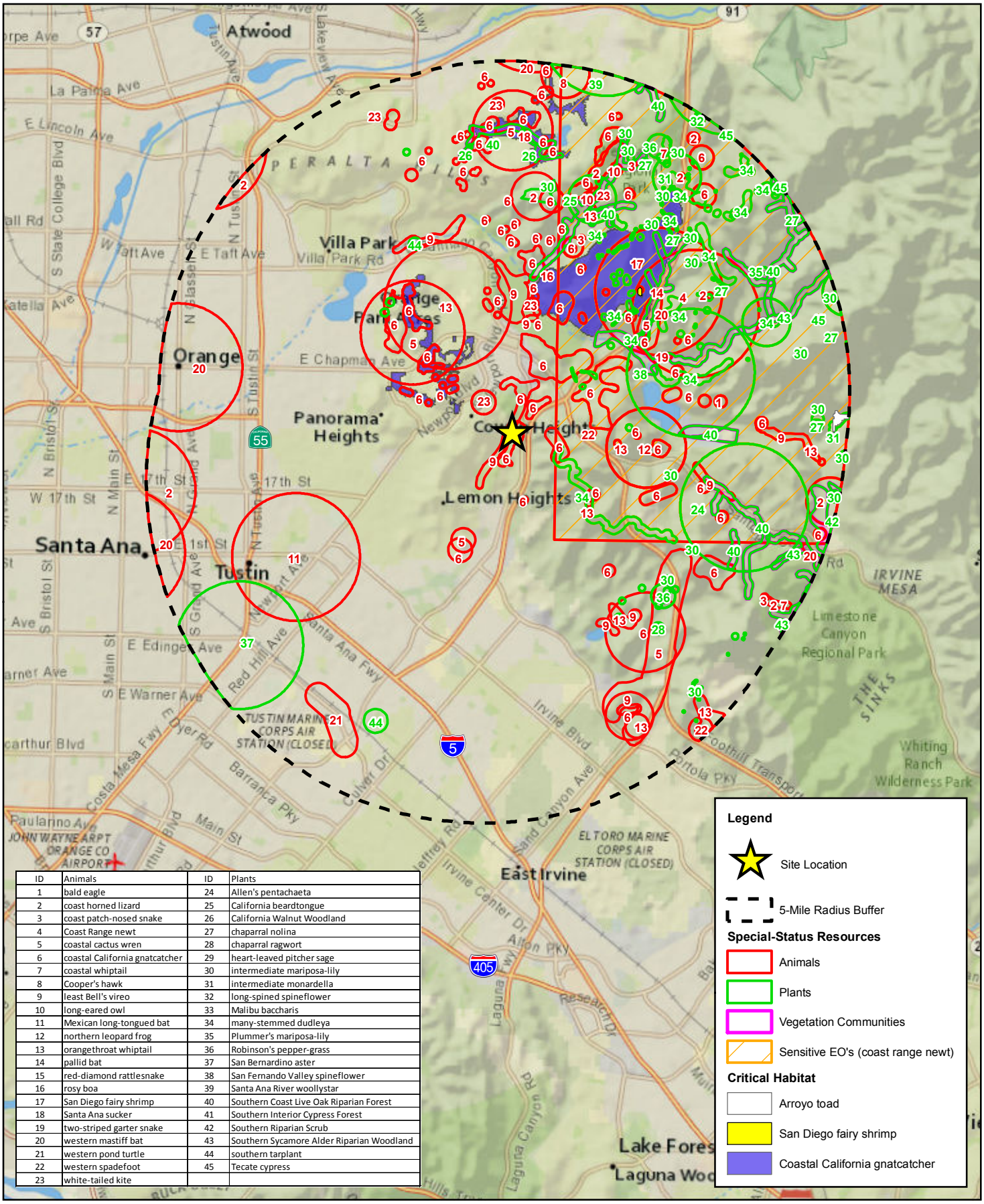
The results of the 4-quadrangle database record searches revealed documented occurrences for a total of thirty-one (31) special-status plants species and a total of forty-six (46) special-status wildlife species. Many of the special-status species with documented occurrences were evaluated by Michael Baker as having a "Low" or "Not Expected" potential for occurrence and are therefore not discussed further. Species determined to have a "Moderate" or "High" potential for occurring, and those observed on-site during the surveys (includes a few species not previously documented in the area by CNDDB or CNPS), warrant a discussion.

Four (4) special-status plant species and twelve (12) special-status wildlife species were identified on-site during the surveys. In addition, based on the literature review and database searches and on-site habitat suitability assessment, Michael Baker determined that the survey area also contains suitable habitat for eight (8) other special-status plant species and eleven (11) other special-status wildlife species. These species are discussed below.

4.1.1 Special-Status Plant Species

Special-status plants species observed on-site include the following:

- Catalina mariposa lily (*Calochortus catalinae*; CRPR 4.2) - Dozens of individuals were observed near the north end of the eucalyptus woodland surrounding Scout Trail that connects the East Ridge View Trail with Peters Canyon Trail.
- Southern California black walnut (*Juglans californica*; CRPR 4.2) - A few mature individuals of were observed within the middle to upper reaches of PCW. No other special-status plant species were observed within the survey area during the surveys.
- Coulter's matilija poppy (*Romneya coulteri*; CRPR 4.2) - Several individuals were observed at the main park entrance north of UPCR, adjacent to (east of) the parking lot;



ID	Animals	ID	Plants
1	bald eagle	24	Allen's pentachaeta
2	coast horned lizard	25	California beardtongue
3	coast patch-nosed snake	26	California Walnut Woodland
4	Coast Range newt	27	chaparral nolina
5	coastal cactus wren	28	chaparral ragwort
6	coastal California gnatcatcher	29	heart-leaved pitcher sage
7	coastal whiptail	30	intermediate mariposa-lily
8	Cooper's hawk	31	intermediate monardella
9	least Bell's vireo	32	long-spined spineflower
10	long-eared owl	33	Malibu baccharis
11	Mexican long-tongued bat	34	many-stemmed dudleya
12	northern leopard frog	35	Plummer's mariposa-lily
13	orangethroat whiptail	36	Robinson's pepper-grass
14	pallid bat	37	San Bernardino aster
15	red-diamond rattlesnake	38	San Fernando Valley spineflower
16	rosy boa	39	Santa Ana River woollystar
17	San Diego fairy shrimp	40	Southern Coast Live Oak Riparian Forest
18	Santa Ana sucker	41	Southern Interior Cypress Forest
19	two-striped garter snake	42	Southern Riparian Scrub
20	western mastiff bat	43	Southern Sycamore Alder Riparian Woodland
21	western pond turtle	44	southern tarplant
22	western spadefoot	45	Tecate cypress
23	white-tailed kite		

Legend

- Site Location
- 5-Mile Radius Buffer

Special-Status Resources

- Animals
- Plants
- Vegetation Communities
- Sensitive EO's (coast range newt)

Critical Habitat

- Arroyo toad
- San Diego fairy shrimp
- Coastal California gnatcatcher

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PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN
BIOLOGICAL RESOURCES REPORT

Michael Baker INTERNATIONAL

0 1 2 Miles

Source: CNDDB, U.S. Fish and Wildlife Service, ArcGIS Online

Special-Status Biological Resources Documented within a 5-Mile Radius

Figure 6

but, these individuals appear to have been installed as part of native (ornamental) restoration efforts.

- San Diego County needle grass (*Stipa diegoensis*; CRPR 4.2) - Several individuals were observed along the Lake View Trail where it connects to a Scenic Overlook spur trail southwest of UPCR.

No other special-status plant species were observed during the surveys. However, Michael Baker determined that the following special-status plant species have a moderate or high potential for occurring within the survey area: Plummer's mariposa-lily (*Calochortus plummerae*; CRPR 4.2), intermediate mariposa-lily (*Calochortus weedii* var. *intermedius*; CRPR 1B.2), Lewis' evening-primrose (*Camissoniopsis lewisii*; CRPR 3), Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*; CRPR 4.3), Allen's pentachaeta (*Pentachaeta aurea* ssp. *allenii*; CRPR 1B.1), white rabbit-tobacco (*Pseudognaphalium leucocephalum*; CRPR 2B.2), chaparral ragwort (*Senecio aphanactis*; CRPR 2B.2), and San Bernardino aster (*Symphyotrichum defoliatum*; CRPR 1B.2).

Plummer's mariposa-lily, intermediate mariposa-lily, Lewis' evening-primrose, Lewis' evening-primrose, Allen's pentachaeta, and chaparral ragwort are typically found in openings and/or dry, sandy soils in coastal sage scrub and grasslands that are present on-site. White rabbit-tobacco and San Bernardino aster are also found in coastal sage scrub in addition to riparian areas similar to those areas throughout the survey area.

4.1.2 Special-Status Wildlife Species

Special-status plants species observed on-site include the following:

- Least Bell's vireo (FE/SE) – Approximately 13 territories of least Bell's vireos have been detected throughout the southern willow scrub and southern cottonwood-willow riparian forest from the lower detention basin, up through the majority of PCW, and throughout the basin and inlets surrounding UPCR. A focused survey conducted by Michael Baker began in April 2016 and was completed on May 24, 2016. Details regarding locations and distribution within and surrounding PECA will be included in the stand-alone report (Michael Baker 2016c).
- Coastal cactus wren (SSC) – Two coastal cactus wren territories have been detected within the survey area, one south of Gnatcatcher Trail and west of the East Ridge View Trail and the other west of the reservoir and south of the southern portion of Cactus Point Trail, both pairs nesting in coastal cholla (*Cylindropuntia prolifera*). A focused survey conducted by Michael Baker began in April 2016 and was completed on May 25, 2016. Details regarding locations and distribution within PECA will be included in the stand-alone report (Michael Baker 2016b).
- Coastal California gnatcatcher (FT/SSC) – Several coastal California gnatcatchers have been detected (incidentally) throughout the intact coastal sage scrub from the midway

point of the survey area to the coastal sage scrub surrounding the lower half of reservoir, particularly where consistently low-growing shrubs dominate and taller shrubs, tree, and snags are essentially absent. A protocol-level survey being conducted by Harmsworth Associates, Inc. began in May 2016 and is ongoing. A total number of on-site breeding pairs and individuals will be determined following the focused survey.

- Little willow flycatcher (*Empidonax traillii* cf. *brewsteri*; SE) – An individual was detected in mule fat scrub southwest of the main parking lot north of UPCR.
- Cooper's hawk (WL) - An individual was observed flying within and around the southern willow scrub near the northern reaches of PCW.
- Sharp-shinned hawk (*Accipiter striatus*; WL) - An individual was observed attempting to forage on trapped brown-headed cowbird (*Molothrus ater*) individuals at the southern end of the survey area west of PCW.
- Northern harrier (*Circus cyaneus*; SSC) - An individual was observed flying over near the basin east of the reservoir.
- Yellow-breasted chat (*Icteria virens*; SSC) - A few individuals were observed within the southern cottonwood-willow riparian forest east of the reservoir (basin) and near the southern end of PCW.
- Yellow warbler (*Setophaga petechia*; SSC) - An individual was observed within the southern cottonwood-willow riparian forest east of the reservoir (basin).
- Orangethroat whiptail (*Aspidoscelis hyperythra*; SSC) - A few mature and juvenile individuals were observed within disturbed areas recovering and areas being restored to coastal sage scrub along the eastern terraces of the upper-mid reaches of PCW.
- Red-diamond rattlesnake (*Crotalus ruber*; SSC) - An individual was observed near the upper reaches of PCW where Gnatcatcher Trail and Peters Canyon Trail meet.
- Western pond turtle (*Emys marmorata*; SSC) - A few mature individuals were observed in the culvert outlet of the UPCR dam; carapaces only (deceased) were observed in the western portion of the dried reservoir and upper reach of PCW.

No other special-status wildlife species were observed during the surveys. However, Michael Baker determined that the following special-status wildlife species have a moderate or high potential for occurring within the survey area: Crotch bumble bee (*Bombus crotchii*[1]), coastal whiptail (*Aspidoscelis tigris stejneger*), coast horned lizard (*Phrynosoma blainvillii*; SSC), coast patch-nosed snake (*Salvadora hexalepis virgultea*; SSC), great blue heron (*Ardea herodias*),

[1] Note: Special-status wildlife species not showing a designated status following the scientific name do not have USFWS or CDFW rating, rather only Global and State Ranks as per as per NatureServe and CDFW's CNDDB RareFind5.

long-eared owl (*Asio otus*; SSC), white-tailed kite (*Elanus leucurus*; FP), pallid bat (*Antrozous pallidus*; SSC), Mexican long-tongued bat (*Choeronycteris mexicana*; SSC), western mastiff bat (*Eumops perotis californicus*; SSC), and Yuma myotis (*Myotis yumanensis*).

Crotch bumble bee is known to occur within the vicinity of the survey area and food plants are abundant on-site. Coastal whiptail, coast horned lizard, and coast patch-nosed snake are typically found in coastal sage scrub, grassland, and/or riparian woodland similar to those areas mapped as such throughout the survey area. Great blue heron, long-eared owl, and white-tailed kite are known to occur in marshes and riparian areas, along the margins, and in adjacent grasslands found throughout the survey area. Foraging habitat such as grasslands, shrublands, and/or riparian woodlands and forests suitable to support pallid bat, Mexican long-tongued bat, western mastiff bat, and Yuma myotis are present throughout the survey area; however, suitable rooting habitat (e.g., rocky cliffs and caves), with the exception of trees suitable to support roosting western mastiff bat, is not present on-site.

4.2 SPECIAL-STATUS VEGETATION COMMUNITIES

The CNDDB records search revealed a total of ten (10) special-status habitats/vegetation communities. Present throughout the survey area in PCW and surrounding UPCR are mapped as southern cottonwood-willow riparian forest (G3/S3.2), southern riparian scrub (i.e., mule fat scrub; G3/S3.2), and southern willow scrub (G3/S2.1). Although southern California black walnut was observed within PCW, these scattered individuals do not constitute the California Walnut Woodland classification.

Although not listed in the CNDDB as a special-status habitat/vegetation community, coastal sage scrub is considered a “rare and worthy of consideration” plant community by CDFW due to loss and fragmentation along the foothills in southern California. Additionally, the County NCCP/HCP primarily focuses on the protection of coastal sage scrub and the organisms that depend on it for continued survival. Coastal sage scrub is found throughout the survey area in various forms and stages.

No other special-status habitats/vegetation communities were observed within the survey area.

4.3 JURISDICTIONAL AQUATIC FEATURES

On-site, jurisdictional features include a man-made reservoir (UPCR; currently dry) at the northern end, which is surrounded by associated wetland and riparian vegetation, including two basins and a few inlets, and fed by Santiago Canyon, urban runoff, and direct rainfall. Downstream of the dam, flows enter PCW, an intermittent stream, via groundwater from UPCR and by direct rainfall. PCW consists of a wetland/riparian corridor that conveys flows along the western side of the canyon (adjacent to residences), with relatively steep upland slopes to the east. At the southern end, the wash conveys flows into a detention basin, which detains most waters and inundates

depending on the frequency of storm events, but remains dry for the majority of each year. The lower basin consists of a flood spill way that discharges extraordinary flows into a box culvert and the local storm drain system. Further, there are eight (8) ephemeral drainage features and eight (8) culverts throughout PECA that convey flows primarily from off-site sources and are tributary to UPCR and PCW.

For details regarding the results of the jurisdictional delineation and total areas on-site subject to jurisdiction of each regulatory agency, refer to the stand-alone document (Michael Baker 2016a).

4.4 NESTING BIRDS AND WILDIFE MOVEMENT

The survey area provides a wide variety of habitats suitable to support nesting opportunities for numerous bird species. Avian species are capable of using the survey area for nesting, but also migration and dispersal as undeveloped lands are located directly to the north and east. Conversely, ground-moving wildlife can utilize the majority of the 340-acre survey area to forage and breed, but are limited in dispersal and establishing new residents as the site is entirely surrounded by housing developments and/or roadways that are likely to cause significant mortalities. Non-avian wildlife movement within the survey area is therefore restricted by development and infrastructure, allowing limited access within, but no movement through as PCW terminates at the southern end of the survey area, which then enters the local, underground storm drain system eventually discharging into Upper Newport Bay. Large mammals that typically use riparian corridor for regional movement and migration have not been observed, nor are expected for the reasons mentioned above.

4.5 CRITICAL HABITAT

Currently, no USFWS-designated critical habitats (proposed or final) have been mapped within the survey area. The nearest critical habitat is located approximately 1/3-mile to the northwest and over a mile to the north-northeast, both final for coastal California gnatcatcher.

4.6 LOCAL POLICIES AND ORDINANCES

The County of Orange Central and Coastal Subregional NCCP and Habitat Conservation Plan (County NCCP/HCP) is a comprehensive, multi-jurisdictional habitat conservation plan focusing on conservation of species and their associated habitats in Orange County. The NCCP/HCP focuses on protection of coastal sage scrub habitat and three designated “Target Species:” the coastal California gnatcatcher, coastal cactus wren, and orangethroat whiptail. A reserve area was created to meet the ecological requirements of these three (3) species and thirty-six (36) other “Identified Species,” with the understanding that the three target species would serve as “surrogates” for the broader suite of organisms that depend upon coastal sage scrub for their continued survival in the County NCCP/HCP planning area (Appendix E, NCCP/HCP Target and Identified Species). The Implementation Agreement (IA) satisfies the State and Federal mitigation

requirements for designated development and adequately provides for the conservation and protection of 39 species and their habitats identified in the County NCCP/HCP.

Specifically, PECA is located within the Central Subarea of the County NCCP/HCP and is subject to the requirements and provisions set forth in the County NCCP/HCP. The NCCP/HCP specifies that the populations of the target species shall be subject to long-term monitoring and that these taxa shall be treated as if they were listed under CESA/FESA. Refer to Appendix C for species known to or have the potential to occur within the survey area and surrounding vicinity that are covered by the NCCP/HCP.

There are no other local policies or ordinances within the Cities of Orange and Tustin known to be applicable to PECA.

Section 5 Recommendations

The following discusses the possible adverse impacts to biological resources that may occur from implementation of any proposed activities and suggests appropriate mitigation measures that would reduce those impacts to less than significant levels.

5.1 SPECIAL-STATUS SPECIES

Michael Baker biologists identified fifteen (15) special-status species on-site during the surveys, four (4) plant species and eleven (11) wildlife species. In addition, Michael Baker determined that the survey area contains suitable habitat for nineteen (19) special-status species, eight (8) plant species and eleven (11) wildlife species. Therefore, a total of thirty-four (34) special-status species were either observed or have a moderate to high potential to occur on-site.

5.1.1 Special-Status Plant Species

Due to the abundance of suitable habitat throughout the survey area, a focused rare plant survey during the appropriate blooming periods would be necessary to determine presence or absence of the eight (8) special-status plant species with a moderate or high potential to occur throughout the survey area, and any additional sightings of those already observed; however, focused surveys could be limited to areas proposed for disturbance. Proposed impacts to Federally- and/or State-listed plant species would be subject to "take" under FESA/CESA, respectively, if not a species covered for take when in compliance with the County NCCP/HCP. Proposed impacts to special-status species with a CRPR 1 or 2 would require CEQA disclosure; and although they warrant no legal protection, a lead agency may require mitigation in the form of off-site preservation or translocation, for example, if not covered by the County NCCP/HCP. Impacts to CRPR 3 and 4 species are not considered significant under CEQA and warrant no legal protection, but may simply require CEQA disclosure.

5.1.2 Special-Status Wildlife Species

There is habitat with moderate or high potential to support the eleven (11) special-status wildlife species throughout the survey area. Focused surveys for reptiles, nesting birds, and roosting bats may be required by CDFW for any proposed impacts that may affect suitable habitat. If the target species are detected within areas that could result in take, mitigation measures including avoidance and/or minimization may be required, such as allowing wildlife to move out of harm's way and establishing avoidance areas around active bird nests and roosting bats.

5.2 SPECIAL-STATUS VEGETATION COMMUNITIES

Present throughout the survey area in PCW and surrounding the UPCR are mapped as southern cottonwood-willow riparian forest (G3/S3.2), southern riparian scrub (i.e., mule fat scrub;

G3/S3.2), and southern willow scrub (G3/S2.1). Although southern California black walnut was observed within PCW, these scattered individuals do not constitute the California Walnut Woodland classification. Impacts to these aquatic vegetation communities is discussed below in Section 5.3.

In addition, coastal sage scrub occurs throughout the survey. Special-status vegetation communities should be avoided to the extent practical. Impacts to coastal sage scrub vegetation communities are discussed in Section 5.6 below.

5.3 JURISDICTIONAL AQUATIC FEATURES

The streambed/banks and associated southern cottonwood-willow riparian forest, southern willow scrub, valley freshwater marsh, mule fat scrub, disturbed wetland, and tamarisk scrub vegetation communities on-site are subject to jurisdiction of the California Department of Fish and Wildlife (CDFW) pursuant to Sections 1600 et seq. of the California Fish and Game Code (CFGC). Portions of these vegetation communities that meet the three-parameter wetland criteria (wetland WoUS) and other non-riparian areas simply displaying an OHWM (non-wetland WoUS) are subject to jurisdiction of U.S. Army Corps of Engineers (Corps) pursuant to Section 404 of the Federal Clean Water Act (CWA) and Regional Water Quality Control Board (Regional Board) pursuant to Section 401 of the CWA. There are no aquatic features on-site classified as State waters subject to Section 13263 of the California Porter-Cologne Water Quality Control Act (Porter-Cologne).

Proposed impacts (i.e., alteration and/or the discharge of dredge/fill material) to jurisdictional resources would require notification to and subsequent permitting/ authorization from CDFW for streambed alteration, Regional Board for water quality certification, and Corps for dredge or fill activities in wetland and non-wetland WoUS. A formal jurisdictional delineation specific to those areas proposed for impacts may be necessary to refine jurisdictional limits at that scale once a standalone project is proposed.

5.4 NESTING BIRDS AND WILDIFE MOVEMENT

Proposed project activities should avoid the general bird breeding season (typically January through July for raptors and February through August for other avian species), if feasible. If breeding season avoidance is not feasible, a qualified biologist should conduct a pre-construction nesting bird survey to determine the presence/absence, location, and status of any active nests on or adjacent to the project site. The extent of the survey buffer area surrounding the site should be established by the qualified biologist to ensure that direct and indirect effects to nesting birds are avoided. To avoid the destruction of active nests and to protect the reproductive success of birds protected by MBTA and the CFGC, nesting bird surveys shall be performed twice per week during the three weeks prior to the scheduled vegetation clearance. In the event that active nests are discovered, a suitable buffer (distance to be determined by the biologist or overriding

agencies) should be established around such active nests and no construction within the buffer allowed until the biologist has determined that the nest is no longer active (i.e., the nestlings have fledged and are no longer reliant on the nest). No ground disturbing activities shall occur within this buffer until the biologist has confirmed that breeding/nesting is completed and the young have fledged the nest. Nesting bird surveys are not required for construction activities occurring September through December.

5.5 CRITICAL HABITAT

Currently, no USFWS-designated critical habitat have been mapped within the survey area; therefore no recommendations are provided at this time.

5.6 LOCAL POLICIES AND ORDINANCES

PECA is located within the boundaries of the Central Subregion of the County NCCP/HCP, within the designated Reserve System. Any activities with the PECA must be consistent with the management requirements for the Reserve System.

The park is considered to be a permitted use within the Reserve System according to Section 5.3 of the NCCP/HCP. According to Section 5.3, recreation and public access is permitted within the Reserve as long as it is consistent with the policies contained in the NCCP/HCP's adaptive management program. The adaptive management program is intended to allow management actions within the Reserve to adapt to changing conditions over time through long-term monitoring. As summarized in Section 5.2 of the NCCP/HCP, the major elements of the adaptive management program include the following:

- Monitoring and associated adaptive management of the biological resources located within the Reserve System;
- Restoration and enhancement actions (other than the creation of new CSS habitat) such as eradication of invasive, non-native plant species; predator control; grazing management plans; and construction of additional western spadefoot toad (*Spea hammondii*; SSC) breeding sites;
- Adaptive management carried out by means of short-term and long-term fire management programs within the Reserve System;
- Adaptive management of public access and recreational uses within the Reserve System;
- Adaptive management measures to minimize the impacts of ongoing operations/ maintenance of uses within the Reserve System that existed prior to approval of the Subregional NCCP/HCP;
- Assurance that permitted infrastructure uses proceed in a manner provided for in the NCCP/HCP in order to minimize impacts of new uses allowed within the Reserve System;

- Interim management of privately-owned lands for all of the above adaptive management elements prior to transfer of legal title to permanent public or non-profit ownership within the Reserve System; and
- Restoration and enhancement through: (a) the acquisition of existing coastal sage scrub habitat or (b) the creation of new coastal sage scrub habitat to offset potential loss of net long-term habitat value due to development of coastal sage scrub habitat outside the Reserve System on the part of "non-participating landowners."

Under the NCCP/HCP, permitted recreation and public access actions include the following:

- Passive recreation activities such as hiking, nature interpretation, and picnicking;
- Mountain biking and equestrian activities on designated trails;
- Camping in designated locations;
- Continued operation of pre-existing park facilities, including active recreation facilities within disturbed areas, provided that existing active facility expansions, or conversion of passive use facilities to active use must be consistent with the NCCP/HCP;
- Within the Coal Canyon Ecological Reserve, public access and hunting as determined appropriate by CDFW;
- Park and Reserve administrative and interpretive facilities; and
- Construction, operation, and maintenance of new facilities necessary to support permitted recreation uses, including concessions that support permitted uses/activities within the Reserve.

An analysis of permitted public access and recreation policies is provided in Section 5.8 of the NCCP/HCP, specifically in Section 5.8.3. The policies in this section are intended to define recreational uses within the Reserve in a manner that would be consistent with the protection and management of coastal sage scrub and other habitats.

As described in Section 7.2 of the County NCCP/HCP and Section 9.2 of the IA, participating and non-participating landowners are authorized to take a certain amount of coastal sage scrub under the County NCCP/HCP. According to Table 7-1 in the NCCP/HCP, a total of 512 acres of coastal sage scrub habitats are authorized for Incidental Take within the Reserve by participating landowners. Impacts to this habitat and incidental take of associated coastal California gnatcatchers within the Reserve is authorized "based on the mitigation provided by the creation of the permanent habitat Reserve System and implementation of the 'adaptive management' program within the Reserve System." Before removing coastal sage scrub habitat, the project proponent would be required to calculate the acreage of coastal sage scrub that would be removed and subsequently verify that the amount of coastal sage scrub take remaining from the

portions of 512 acres authorized by the County NCCP/HCP remain available and can be used by this project.

Section 6 Survey Limitations

This Biological Resources Report has been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The biological investigation is limited by the scope of work performed. Biological surveys for the presence or absence of certain taxa have been conducted as part of this assessment, but were not necessarily performed during a particular blooming period, nesting period, or particular portion of the season when positive identification would be expected if present, and therefore, cannot be considered definitive. The biological surveys are limited also by the environmental conditions present at the time of the surveys. In addition, general biological (or protocol) surveys do not guarantee that the organisms are not present and will not be discovered in the future within the site. In particular, mobile wildlife species could occupy the site on a transient basis, or re-establish populations in the future. Our field studies were based on current industry practices, which change over time and may not be applicable in the future. No other guarantees or warranties, expressed or implied, are provided.

The findings and opinions conveyed in this report are based on findings derived from site reconnaissance, jurisdictional areas, review of CNDDB RareFind5 and CNPS Online Inventory, and specified historical and literature sources. Standard data sources relied upon during the completion of this report, such as the CNDDB, may vary with regard to accuracy and completeness. In particular, the CNDDB is compiled from research and observations reported to CDFW that may or may not have been the result of comprehensive or site-specific field surveys. Although Michael Baker believes the data sources are reasonably reliable, Michael Baker cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary research and analysis.

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Appendix A: Site Photographs

Photo 1 – Looking over a non-native grassland in the northeast portion of Peters Canyon Regional Park

Photo 2 – Looking north into UPCR from the Lake View Trail

Photo 3 – Looking southeast into PCW from the Lake View Trail vista point

Photo 4 – Looking south from the reservoir dam into Peters Canyon Wash

Photo 5 – Looking northwest from the reservoir dam into the dry reservoir

Photo 6 – Coastal sage scrub habitat along PCW, with eucalyptus woodlands in the background

Photo 7 – Looking southwest into the historic eucalyptus woodland from the East Ridge View Trail

Photo 8 – Southern cottonwood-willow riparian forest edge within PCW

Appendix B: Plant and Wildlife Species Observed List

Appendix B: Plants and Wildlife Species Observed List

Scientific Name*	Common Name	Cal-IPC Rating** or Special-Status***
Plants		
Acacia sp.	acacia	
*Acer saccharum**	sugar maple	
Acmispon glaber	deerweed	
Acourtia microcephala	sacapellote	
*Agave americana**	blue agave	
Agrostis pallens	leafy bent grass	
*Ailanthus altissima**	tree of heaven	Moderate
*Amaranthus albus**	pigweed amaranth	
Ambrosia psilostachya	western ragweed	
Amorpha fruticosa	desert indigobush	
Amsinckia menziesii	small flowered fiddleneck	
Anemopsis californica	yerba mansa	
*Apium graveolens**	wild celery	
*Aptenia cordifolia**	baby sun rose	
Artemisia californica	California sagebrush	
Artemisia douglasiana	California mugwort	
Artemisia dracunculus	wild tarragon	
*Arundo donax**	giant reed	High
Asclepias fascicularis	narrow leaf milkweed	
Atriplex lentiformis	big saltbush	
*Atriplex semibaccata**	Australian saltbush	Moderate
Atriplex sp.*	saltbush	
*Avena barbata**	slender wild oat	Moderate
*Avena fatua**	wild oat	Moderate
Baccharis pilularis	coyote brush	
Baccharis salicifolia	mule fat	
Bloomeria crocea	common goldenstar	
*Brachypodium distachyon**	purple false brome	Moderate
*Brassica nigra**	black mustard	Moderate
Brickellia californica	California brickellbush	
*Bromus catharticus**	rescue grass	
Bromus carinatus	California brome grass	
*Bromus diandrus**	common ripgut grass	Moderate
*Bromus hordeaceus**	soft chess	Limited
Bromus sp.	brome	

Scientific Name*	**Common Name**	**Cal-IPC Rating** or Special-Status****
*Bromus rubens**	foxtail chess	High
Calandrinia menziesii	red maids	
Calochortus catalinae	Catalina mariposa lily	CRPR 4.2
Calochortus splendens	splendid mariposa lily	
Calystegia macrostegia	island morning glory	
Camissoniopsis bistorta	California sun cup	
*Capsella bursa-pastoris**	Shepherd's purse	
Cardionema ramosissimum	sand mat	
*Carduus pycnocephalus**	Italian thistle	Moderate
*Carpobrotus edulis**	Hottentot fig	High
Castilleja exserta	purple owl's clover	
*Centaurea melitensis**	tocalote	Moderate
*Chenopodium album**	lamb's quarters	
Chenopodium californicum	California goosefoot	
*Chenopodium murale**	nettle leaf goosefoot	
Cirsium occidentale	cobweb thistle	
*Cirsium vulgare**	bull thistle	Moderate
Clematis ligusticifolia	western virgin's bower	
*Conium maculatum**	poison hemlock	Moderate
*Convolvulus arvensis**	bindweed	
Corethrogyne filaginifolia	common sandaster	
*Cortaderia selloana**	pampas grass	High
Crassula connata	sand pygmyweed	
*Crassula ovata**	jade plant	
Croton setiger	dove weed	
Cryptantha intermedia	common cryptantha	
Cucurbita foetidissima	coyote gourd	
*Cupaniopsis anacardioides**	carrotwood	
Cuscuta californica	California dodder	
Cylindropuntia prolifera	coastal cholla	
*Cynara cardunculus**	artichoke thistle	Moderate
*Cynodon dactylon**	Bermuda grass	Moderate
Cyperus eragrostis	tall flatsedge	
*Cyperus involucratus**	umbrella sedge	
Datura wrightii	jimsonweed	
Deinandra fasciculata	fascicled tarweed	
Dichelostemma capitatum	blue dicks	
Distichlis spicata	saltgrass	
Dudleya lanceolata	lanceleaf liveforever	
Dudleya pulverulenta	chalk liveforever	

Scientific Name*	**Common Name**	**Cal-IPC Rating** or Special-Status****
*Echium candicans**	pride of Madeira	Limited
*Ehrharta erecta**	panic veldtgrass	Moderate
Elymus condensatus	giant wild rye	
Elymus triticoides	beardless wild rye	
Encelia californica	California encelia	
Ericameria palmeri var. *pachylepis*	Palmer's rabbitbrush	
Erigeron canadensis	Canada horseweed	
Eriogonum fasciculatum	California buckwheat	
Eriophyllum confertiflorum	golden yarrow	
*Erodium botrys**	longbeak filaree	
*Erodium cicutarium**	redstem filaree	Limited
*Erodium moschatum**	whitestem filaree	
Eschscholzia californica	California poppy	
*Eucalyptus camaldulensis**	red gum	Limited
*Eucalyptus globulus**	blue gum	Moderate
Eucrypta chrysanthemifolia	spotted hideseed	
Eulobus californicus	California primrose	
Euphorbia albomarginata	rattlesnake sandmat	
*Euphorbia lathyris**	compass plant	
*Euphorbia maculata**	spotted surge	
*Euphorbia peplus**	petty spurge	
*Festuca myuros**	rattail fescue	Moderate
*Festuca perennis**	Italian rye grass	Moderate
*Ficus carica**	common fig	Moderate
*Foeniculum vulgare**	sweet fennel	High
Fraxinus sp.	ash	
*Fraxinus uhdei**	shamel ash	
Funastrum cynanchoides	climbing milkweed	
Galium angustifolium	narrowleaf bedstraw	
Geranium carolinianum	Carolina geranium	
Gilia angelensis	chaparral gilia	
*Glebionis coronaria**	crown daisy	Moderate
*Grevillea robusta**	silkoak	
Grindelia camporum	common gumplant	
Gutierrezia californica	California matchweed	
Hazardia squarrosa	sawtooth goldenbush	
*Hedera helix**	English ivy	High
Helianthus annuus	common sunflower	
Heliotropium curassavicum	salt heliotrope	
*Helminthotheca echioides**	bristly ox-tongue	Limited

Scientific Name*	**Common Name**	**Cal-IPC Rating** or Special-Status****
Hesperoyucca whipplei	chaparral yucca	
Heteromeles arbutifolia	toyon	
Heterotheca grandiflora	telegraph weed	
*Hirschfeldia incana**	short pod mustard	Moderate
*Hordeum murinum**	foxtail barley	Moderate
*Iris pseudacorus**	water iris	Limited
Isocoma menziesii	coastal goldenbush	
Juncus balticus	Baltic rush	
Juncus mexicanus	Mexican rush	
Juglans californica	southern California black walnut	CRPR 4.2
*Lactuca serriola**	prickly lettuce	
*Lamarckia aurea**	goldentop grass	
*Lepidium didymum**	lesser swine cress	
Lepidium nitidum	shining pepper grass	
Leptochloa fusca ssp. *uninervia*	Mexican sprangletop	
*Logfia gallica**	narrowleaf cottonrose	
Lupinus succulentus	arroyo lupine	
Lupinus truncatus	truncate leaf lupine	
*Lysimachia arvensis**	scarlet pimpernel	
Malacothamnus fasciculatus	chaparral mallow	
Malacothrix saxatilis	cliff aster	
Malosma laurina	laurel sumac	
*Malus pumila**	apple	
*Malva nicaeensis**	bull mallow	
*Malva parviflora**	cheeseweed	
Malvella leprosa	alkali mallow	
Marah macrocarpa	wild cucumber	
*Marrubium vulgare**	horehound	Limited
Matricaria discoidea	pineapple weed	
*Medicago polymorpha**	bur clover	Limited
Melica imperfecta	coast range melic	
*Melilotus albus**	white sweetclover	
*Melilotus indicus**	yellow sweetclover	
*Mesembryanthemum crystallinum**	crystalline ice plant	Moderate
Mimulus aurantiacus	bush monkeyflower	
Mirabilis laevis var. *crassifolia*	wishbone bush	
Muhlenbergia rigens	deergrass	
*Myoporum laetum**	lollypop tree	Moderate
*Nerium oleander**	oleander	
*Nicotiana glauca**	tree tobacco	Moderate

Scientific Name*	Common Name	Cal-IPC Rating** or Special-Status***
Nicotiana quadrivalvis	Indian tobacco	
*Olea europaea**	olive	Limited
*Opuntia ficus-indica**	Indian fig	
Opuntia littoralis	coast prickly pear	
*Oxalis pes-caprae**	Bermuda buttercup	Moderate
*Parkinsonia aculeata**	Mexican palo verde	
*Pennisetum setaceum**	fountaingrass	Moderate
Persicaria lapathifolia	common knotweed	
Phacelia cicutaria	caterpillar phacelia	
Phacelia parryi	Parry's phacelia	
Phacelia ramosissima	branching phacelia	
*Phoenix canariensis**	Canary Island date palm	Limited
Pinus sp.*	pine tree	
Plagiobothrys sp.	popcornflower	
*Plantago major**	common plantain	
Platanus racemosa	western sycamore	
Pluchea odorata	salt marsh fleabane	
*Plumbago auriculata**	Cape leadwort	
*Poa pratensis**	Kentucky blue grass	Limited
Poa secunda	one sided blue grass	
*Polygonum aviculare**	prostrate knotweed	
*Polypogon interruptus**	ditch beard grass	
*Polypogon monspeliensis**	annual beard grass	Limited
Populus fremontii	Fremont cottonwood	
Populus trichocarpa	black cottonwood	
Prunus ilicifolia	holly leaf cherry	
Pseudognaphalium biolettii	two-color rabbit-tobacco	
Pseudognaphalium californicum	ladies' tobacco	
Pseudognaphalium canescens	Wright's cudweed	
*Pseudognaphalium luteoalbum**	Jersey cudweed	
*Pulicaria paludosa**	Spanish false fleabane	
Quercus agrifolia	coast live oak	
*Raphanus sativus**	wild radish	Limited
Rhamnus ilicifolia	hollyleaf redberry	
Rhus integrifolia	lemonade berry	
*Ricinus communis**	castor bean	Limited
Romneya coulteri	Coulter's matilija poppy	CRPR 4.2
Rosa californica	California wild rose	
Rubus ursinus	California blackberry	
*Rumex crispus**	curly dock	Limited

Scientific Name*	**Common Name**	**Cal-IPC Rating** or Special-Status****
Rumex salicifolius	willow dock	
Salix exigua	sandbar willow	
Salix gooddingii	Goodding's black willow	
Salix laevigata	red willow	
*Salsola tragus**	Russian thistle	Limited
Salvia apiana	white sage	
Salvia columbariae	chia sage	
Salvia mellifera	black sage	
Sambucus nigra ssp. *caerulea*	blue elderberry	
*Schinus molle**	Peruvian pepper tree	Limited
*Schinus terebinthifolius**	Brazilian pepper tree	Limited
*Schismus barbatus**	common Mediterranean grass	Limited
Schoenoplectus americanus	American bulrush	
Schoenoplectus californicus	California bulrush	
Selaginella bigelovii	Bigelow's spike moss	
*Senecio vulgaris**	common groundsel	
*Silene gallica**	common catchfly	
*Silybum marianum**	milk thistle	Limited
*Sisymbrium altissimum**	tumble mustard	
*Sisymbrium irio**	London rocket	Moderate
Sisyrinchium bellum	blue-eyed grass	
Solanum americanum	white nightshade	
*Sonchus oleraceus**	common sow thistle	
Sonchus asper ssp. *asper**	prickly sow thistle	
*Stellaria media**	chickweed	
Stephanomeria virgata	wreath plant	
Stipa lepida	foothill needle grass	
Stipa miliacea var. *miliacea**	smilo grass	Limited
Stipa pulchra	purple needle grass	
Stipa diegoensis	San Diego needle grass	CRPR 4.2
*Tamarix ramosissima**	tamarisk	High
Toxicodendron diversilobum	poison oak	
*Tribulus terrestris**	puncture vine	
*Tropaeolum majus**	garden nasturtium	
Typha latifolia	broadleaf cattail	
*Ulmus parvifolia**	Chinese elm	
Urtica dioica	stinging nettle	
*Urtica urens**	dwarf nettle	
Verbena lasiostachys	common verbena	

Scientific Name*	Common Name	Cal-IPC Rating** or Special-Status***
*Veronica anagallis-aquatica**	water speedwell	
*Vicia villosa**	hairy vetch	
*Vinca major**	bigleaf periwinkle	Moderate
Vitis californica	California wild grape	
*Washingtonia robusta**	Mexican fan palm	Moderate - ALERT
Xanthium strumarium	cockleburr	
Invertebrates		
Adelpha californica	California sister	
Agraulis vanillae	gulf fritillary	
Anthocharis sara	Sara orangetip	
Apodemia virgulti	Behr's metalmark	
Brephidium exilis	western pygmy blue	
Erynnis funeralis	funereal duskywing	
Junonia coenia	common buckeye	
Nymphalis antiopa	mourning cloak	
Papilio zelicaon	anise swallowtail	
Plebejus acmon	acmon blue	
Pontia protodice	checkered (common) white	
Zerene eurydice	California dogface	
Amphibians		
Pseudacris regilla	Pacific tree frog	
Reptiles		
Aspidoscelis hyperythra	orangethroat whiptail	SSC
Crotalus oreganus helleri	southern Pacific rattlesnake	
Crotalus ruber	red-diamond rattlesnake	SSC
Diadophis punctatus pulchellus	coral-bellied ring-necked snake	
Emys marmorata	western pond turtle	SSC
Sceloporus occidentalis	western fence lizard	
Uta stansburiana	common side-blotched lizard	
Birds		
Accipiter cooperii	Cooper's hawk	WL (nesting)
Accipiter striatus	sharp-shinned hawk	WL (nesting)
Agelaius phoeniceus	red-winged blackbird	
*Amazona viridigenalis**	red-crowned parrot	Endangered in native northeast Mexico
Anas platyrhynchos	mallard	
Aphelocoma californica	western scrub-jay	
Ardea alba	greater egret	

Scientific Name*	**Common Name**	**Cal-IPC Rating** or Special-Status****
Bombycilla cedrorum	cedar waxwing	
Bubo virginianus	great horned owl	
Buteo jamaicensis	red-tailed hawk	
Buteo lineatus	red-shouldered hawk	
Callipepla californica	California quail	
Calypte anna	Anna's hummingbird	
Calypte costae	Costa's hummingbird	
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	SSC
Cardellina pusilla	Wilson's warbler	
Cathartes aura	turkey vulture	
Catharus guttatus	hermit thrush	
Chamaea fasciata	wrentit	
Charadrius vociferus	killdeer	
Circus cyaneus	northern harrier	SSC (nesting)
Corvus brachyrhynchos	American crow	
Corvus corax	common raven	
Egretta thula	snowy egret	
Empidonax difficilis	Pacific-slope flycatcher	
Empidonax traillii cf. *brewsteri*	little willow flycatcher	SE (nesting)
Geococcyx californianus	greater roadrunner	
Geothlypis tolmiei	MacGillivray's warbler	
Geothlypis trichas	common yellowthroat	
Haemorhous mexicanus	house finch	
Hirundo rustica	barn swallow	
Icteria virens	yellow-breasted chat	SSC (nesting)
Icterus bullockii	Bullock's oriole	
Icterus cucullatus	hooded oriole	
Lonchura punctulata	scaly-breasted munia	
Melanerpes formicivorus	acorn woodpecker	
Melospiza melodia	song sparrow	
Melozone crissalis	California towhee	
Mimus polyglottos	northern mockingbird	
Molothrus ater	brown-headed cowbird	
Pandion haliaetus	osprey	
Passer domesticus	house sparrow	
Passerina amoena	Lazuli bunting	
Passerina caerulea	blue grosbeak	

Scientific Name*	Common Name	Cal-IPC Rating** or Special-Status***
Petrochelidon pyrrhonota	cliff swallow	
Pheucticus melanocephalus	black-headed grosbeak	
Picoides nuttallii	Nuttall's woodpecker	
Picoides pubescens	downy woodpecker	
Pipilo maculatus	spotted towhee	
Piranga ludoviciana	western tanager	
Polioptila caerulea	blue-gray gnatcatcher	
Polioptila californica californica	coastal California gnatcatcher	FT/SSC
Psaltriparus minimus	bushtit	
Sayornis nigricans	black phoebe	
Sayornis saya	Say's phoebe	
Selasphorus sasin	Allen's hummingbird	
Setophaga coronata	yellow-rumped warbler	
Setophaga nigrescens	black-throated gray warbler	
Setophaga petechia	yellow warbler	SSC (nesting)
Setophaga townsendi	Townsend's warbler	
Spinus lawrencei	Lawrence's goldfinch	
Spinus psaltria	lesser goldfinch	
Spinus tristis	American goldfinch	
Sturnus vulgaris	European starling	
Tachycineta bicolor	tree swallow	
Tachycineta thalassina	violet-green swallow	
Taeniopygia guttata	zebra finch	
Thryomanes bewickii	Bewick's wren	
Toxostoma redivivum	California thrasher	
Troglodytes aedon	house wren	
Tyrannus verticalis	western kingbird	
Tyrannus vociferans	Cassin's kingbird	
Vermivora celata	orange-crowned warbler	
Vireo bellii pusillus	least Bell's vireo	FT/ST (nesting)
Vireo gilvus	warbling vireo	
Zenaida macroura	mourning dove	
Zonotrichia leucophrys	white-crowned sparrow	
Mammals		
Canis latrans	coyote	
Microtus californicus	California vole	
Otospermophilus beecheyi	California ground squirrel	
Sylvilagus audubonii	desert cottontail	

* Non-native plant species

** **California Invasive Plant Council (Cal-IPC) Ratings**

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.

*** **California Rare Plant Rank (CRPR)**

1A Plants presumed extirpated in California and either rare or extinct elsewhere
1B Plants rare, threatened, or endangered in California and elsewhere
2A Plants presumed extirpated in California, but common elsewhere
2B Plants rare, threatened, or endangered in California, but more common elsewhere
3 Plants about which more information is needed - a Review List
4 Plants of limited distribution - a Watch List

Threat Ranks

.1 Seriously threatened in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
.2 Moderately threatened in California (20 to 80 percent occurrences threatened/moderate degree and immediacy of threat)
.3 Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known)

FESA Classifications

FE Federally Endangered
FT Federally Threatened
FC Federal Candidate
FD Federally Delisted

CESA Classifications

SE State Endangered
ST State Threatened
SSC California Species of Special Concern
FP Fully Protected
WL Watch List

Appendix C: Special-Status Species Table

Appendix C: Special-Status Species Table

Scientific Name **Common Name**	**Status*** Federal / State CRPR *or* G-Rank / S-Rank NCCP/HCP	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
PLANTS			
Abronia villosa var. *aurita* **chaparral sand verbena**	-- / -- 1B.1 N	Annual herb. Blooms January through September. Grows in sandy soils within chaparral, coastal scrub, and desert dune habitats. Found at elevations ranging from 245 to 5,250 feet amsl.	**Low.** Suitable substrate (sandy soils) is present in limited areas. This species was not observed during the surveys.
Astragalus brauntonii **Braunton's milk-vetch**	FE / -- 1B.1 N	Perennial herb. Blooms January through August. Occurs in chaparral and Tecate cypress woodland. The seeds germinate following fire or physical disturbance. Known elevations ranging from 655 to 2,135 feet amsl.	**Not Expected.** Suitable habitat (chaparral or Tecate cypress woodland) are not present within the survey area, and this species was not observed during the surveys.
Atriplex coulteri **Coulter's saltbush**	-- / -- 1B.2 N	Perennial herb. Blooms March through October. Generally associated with alkaline or clay soils that occur in grasslands and coastal bluff habitats. Known elevations range from 30 to 1,440 feet amsl.	**Low.** Suitable habitat (grasslands with clay or moderately alkaline soils) is marginally present within the survey area. This species was not observed during the surveys.
Atriplex pacifica **south coast saltscale**	-- / -- 1B.2 N	Annual herb. Blooms March through October. Occurs on alkali soils in coastal scrub, coastal bluff, and playas. Known elevations range from 3 to 1,640 feet amsl.	**Low.** Suitable habitat (coastal scrub with moderately alkaline soils) is marginally present within the survey area. This species was not observed during the surveys.
Atriplex serenana var. *davidsoni* **Davidson's saltscale**	-- / -- 1B.2 N	Annual herb. Blooms April through October. Occurs in coastal bluff scrub and coastal scrub on alkaline soils. Known elevations range from 30 to 660 feet amsl.	**Low.** Suitable habitat (coastal scrub with moderately alkaline soils) is marginally present within the survey area. This species was not observed during the surveys.

Scientific Name **Common Name**	**Status*** Federal / State CRPR *or* G-Rank / S-Rank NCCP/HCP	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Baccharis malibuensis **Malibu baccharis**	-- / -- 1B.1 N	Shrub. Blooms in August. Found in coastal sage scrub, chaparral, and cismontane woodland. Generally occurs in the Santa Monica Mountains and Simi Hills. Known elevations range from 490 to 855 feet amsl.	**Low.** Suitable habitat (coastal sage scrub) is present within the survey area; however, this perennial shrub species was not observed during the surveys.
Brodiaea filifolia **thread-leaved brodiaea**	FT / SE 1B.1 N	Perennial herb (bulb). Blooms March through June. Typically occurs on clay-silt soils in vernal pools, coastal scrub, and valley and foothills grasslands. Known elevations range from 80 to 3,675 feet amsl.	**Low.** Suitable habitat (coastal scrub and grasslands with clay soils) is marginally present within the survey area. This species was not observed during the surveys.
Calochortus catalinae **Catalina mariposa-lily**	-- / -- 4.2 Y	Perennial herb (bulb). Blooms March through June. Typically occurs in heavy soils, open slopes, and openings in brush within valley and foothill grassland, chaparral, coastal scrub, and cismontane woodland habitats. Known elevations range from 15 to 2,300 feet amsl.	**Present.** Several individuals of this species were observed near the north end of the eucalyptus woodland within open areas of coastal sage scrub and grasslands.
Calochortus plummerae **Plummer's mariposa-lily**	-- / -- 4.2 N	Perennial herb (bulb). Blooms May through July. Prefers openings in chaparral, foothill woodland, coastal sage scrub, valley and foothill grasslands, cismontane woodland, lower montane coniferous forest, and yellow pine forest. Found on dry, rocky slopes and soils, and brushy areas. Can be very common after fire. Known elevations range from 325 to 5,580 feet amsl.	**Moderate.** Suitable habitat (openings in coastal sage scrub and grasslands) is present within the survey area. This species was not observed during the surveys.
Calochortus weedii var. *intermedius* **intermediate mariposa-lily**	-- / -- 1B.2 Y	Perennial herb (bulb). Blooms May through July. Found in chaparral, coastal sage scrub, and valley and foothill grasslands, as well as rocky outcrops. Known elevations range from 340 to 2,805 feet amsl.	**Moderate.** Suitable habitat (coastal sage scrub and grasslands) is present within the survey area. This species was not observed during the surveys.

Scientific Name **Common Name**	**Status*** Federal / State CRPR *or* G-Rank / S-Rank NCCP/HCP	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Camissoniopsis lewisii **Lewis' evening-primrose**	-- / -- 3 N	Annual herb. Blooms March through June. Occurs on sandy or clay soils in valley and foothill grassland, coastal bluff scrub, cismontane woodland, coastal dunes, and coastal scrub. Known elevations range from 0 to 1,740 feet amsl.	**Moderate.** Suitable habitat (sandy and clay soils in coastal scrub and grasslands) is present within the survey area. This species was not observed during the surveys.
Centromadia parryi ssp. *australis* **southern tarplant**	-- / -- 1B.1 N	Annual herb. Blooms May through November. Occurs in disturbed areas near coastal salt marshes, grasslands, vernal pools, and coastal sage scrub habitats. Prefers seasonally moist (saline) grasslands near the coast. Known elevations range from 0 to 1,395 feet amsl.	**Low.** Suitable habitat (in coastal sage scrub and seasonally moist grasslands) is marginally present within the survey area. This species was not observed during the surveys.
Chorizanthe parryi var. *fernandina* **San Fernando Valley spineflower**	FC / SE 1B.1 N	Annual herb. Blooms April through July. Found in dry, sandy places from the San Fernando Valley to Orange and San Diego Counties. Known elevations range from 490 to 4,005 feet amsl.	**Low.** Suitable habitat (dry, sandy places) is marginally present within the survey area. This species was not observed during the surveys.
Chorizanthe polygonoides var. *longispina* **long-spined spineflower**	-- / -- 1B.2 N	Annual herb. Blooms April through July. Typically found on clay lenses that are largely devoid of shrubs. Can be found on the periphery of vernal pool habitat and even on the periphery of montane meadows near vernal seeps. Known elevations range from 95 to 5,020 feet amsl.	**Low.** Suitable habitat (clay lenses largely devoid of vegetation) is marginally present within the survey area. This species was not observed during the surveys.
Dodecahema leptoceras **slender-horned spineflower**	FE / SE 1B.1 N	Annual herb. Blooms April through June. Found on sandy soils and flood deposited terraces and washes in chaparral, cismontane woodland, and coastal scrub (alluvial fan sage scrub). Associates include *Encelia*, *Dalea*, *Lepidospartum*, etc. Known elevations range from 655 to 2,690 feet amsl.	**Low.** Suitable habitat (sandy soils in coastal scrub) is marginally present within the survey area. This species was not observed during the surveys.

Scientific Name **Common Name**	**Status*** Federal / State CRPR *or* G-Rank / S-Rank NCCP/HCP	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Dudleya multicaulis **many-stemmed dudleya**	-- / -- 1B.2 N	Perennial herb. Blooms April through July. Occurs on heavy, often clayey soils or grassy slopes in chaparral, coastal scrub, and valley and foothill grassland habitats. Known elevations range from 45 to 3,280 feet amsl.	**Low.** Suitable habitat (heavy, clayey soils in coastal scrub and grasslands) is marginally present within the survey area. This species was not observed during the surveys.
Eriastrum densifolium ssp. *sanctorum* **Santa Ana River woollystar**	FE / SE 1B.1 N	Perennial herb. Blooms May through September. Found only within open washes and early successional alluvial fan scrub; on open slopes above main watercourses on fluvial deposits where flooding and scouring occur at a frequency that allows the persistence of open shrublands; substrate comprised of patchy distribution of gravelly soils, sandy soils, rock mounds, and boulder fields. Known elevations range from 295 to 2,005 feet amsl.	**Not Expected.** Suitable habitat (open washes and fluvial deposits) is not present within the survey area, and this species was not observed during the surveys.
Helianthus nuttallii ssp. *parishii* **Los Angeles sunflower**	-- / -- 1A N	Perennial herb (rhizomatous). Blooms August through October. Occurs in marshes, swamps, and on damp river banks. Know elevations range from 15 to 5,495 feet amsl.	**Not Expected.** Suitable habitat (marshes and damp river banks) is present within the survey area. However, this species is presumed extinct, and was not observed during the surveys.
Hesperocyparis forbesii **Tecate cypress**	-- / -- 1B.1 Y	Coniferous tree. Grows in chaparral and woodland habitats. In Orange County stands are located in Coal, Fremont, and Gypsum Canyons of the northern Santa Ana Mountains. Known elevations range from 260 to 4,925 feet amsl.	**Not Expected.** Suitable habitat (chaparral and woodlands) is not present within the survey area, and this species was not observed during the surveys.

Scientific Name **Common Name**	**Status*** Federal / State CRPR *or* G-Rank / S-Rank NCCP/HCP	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Hordeum intercedens **vernal barley**	-- / -- 3.2 N	Annual grass. Blooms March through June. Occurs on dry, saline streambeds and alkaline flats in valley and foothill grassland, vernal pools, coastal dunes, and coastal scrub. Known elevations range from 15 to 3,280 feet amsl.	**Not Expected.** Suitable habitat (dry, saline streambeds and alkaline flats) is not present within the survey area, and this species was not observed during the surveys.
Horkelia cuneata var. *puberula* **mesa horkelia**	-- / -- 1B.1 N	Perennial herb. Blooms February through July. Found in sandy or gravelly sites in chaparral, cismontane woodland, and coastal scrub habitats. Known elevations range from 45 to 5,400 feet amsl.	**Low.** Suitable habitat (sandy or gravelly sites in coastal scrub) is marginally present within the survey area. This species was not observed during the surveys.
Juglans californica **southern California black walnut**	-- / -- 4.2 N	Tree. Blooms March through June. Found in slopes, canyons, and alluvial habitats of chaparral, coastal scrub, and cismontane woodland. Known elevations range from 15 to 5,875 feet amsl.	**Present.** Individuals of this species were observed within the middle to upper reaches of Peters Canyon Wash.
Lasthenia glabrata ssp. *coulteri* **Coulter's goldfields**	-- / -- 1B.1 N	Annual herb. Blooms February through June. Usually found in alkaline soils in marshes, playas, vernal pools, and valley and foothill grasslands. Known elevations range from 3 to 4,595 feet amsl.	**Low.** Suitable habitat (alkaline soils in marshes and grasslands) is marginally present within the survey area. This species was not observed during the surveys.
Lepechinia cardiophylla **heart-leaved pitcher sage**	-- / -- 1B.2 Y	Shrub. Blooms April through July. Occurs in closed-cone coniferous forest, chaparral, and cismontane woodland. Known elevations range from 1,800 to 4,495 feet amsl.	**Not Expected.** The survey area is outside of its known elevation range. Further, this perennial shrub species was not observed during the surveys.
Lepidium virginicum var. *robinsonii* **Robinson's pepper-grass**	-- / -- 4.3 N	Annual herb. Blooms January through July. Found on dry soils in chaparral and coastal sage scrub. Known elevations range from 3 to 2,905 feet amsl.	**High.** Suitable habitat (dry soils in coastal sage scrub) is present within the survey area. This annual species was not observed during the surveys.

Scientific Name **Common Name**	**Status*** Federal / State CRPR *or* G-Rank / S-Rank NCCP/HCP	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Monardella hypoleuca ssp. *intermedia* **intermediate monardella**	-- / -- 1B.3 N	Perennial herb. Blooms June through August. Often found on steep, brushy areas in lower montane coniferous forest, cismontane woodland, and chaparral. Known elevations range from 980 to 4,100 feet amsl.	**Low.** Suitable habitat (steep, brushy areas) is marginally present within the survey area. This species was not observed during the surveys.
Nama stenocarpa **mud nama**	-- / -- 2B.2 N	Annual herb. Blooms March through May. Grows on the muddy embankments of ponds and lakes. Also reported to utilize river embankments. Known elevations range from 15 to 1,640 feet amsl.	**Low.** Suitable habitat (muddy embankments) is marginally present within the survey area. This species was not observed during the surveys.
Nolina cismontana **chaparral nolina**	-- / -- 1B.2 N	Shrub. Blooms May through July. Generally associated with sandstone or gabbro soils in chaparral and coastal scrub. Known elevations range from 455 to 4,185 feet amsl.	**Not Expected.** Suitable habitat (sandstone or gabbro soils) is not present within the survey area, and this perennial shrub species was not observed during the surveys.
Penstemon californicus **California beardtongue**	-- / -- 1B.2 N	Perennial herb. Blooms May through June. Occurs on granitic and sandy soils and stony slopes in chaparral, coniferous forest, and pinyon-juniper woodlands. Known elevations range from 3,805 to 7,550 feet amsl.	**Low.** Suitable habitat (granitic and sandy soils) is marginally present within the survey area. This species was not observed during the surveys.
Pentachaeta aurea ssp. *allenii* **Allen's pentachaeta**	-- / -- 1B.1 N	Annual herb. Blooms March through June. Occurs in coastal scrub openings and valley and foothill grasslands. Known elevations range from 225 to 1,560 feet amsl.	**Moderate.** Suitable habitat (openings in coastal scrub and grasslands) is present within the survey area. This species was not observed during the surveys.

Scientific Name **Common Name**	**Status*** Federal / State CRPR *or* G-Rank / S-Rank NCCP/HCP	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Pseudognaphalium leucocephalum **white rabbit-tobacco**	-- / -- 2B.2 N	Perennial herb. Blooms August through November. Found in sandy, gravelly soils in chaparral, cismontane woodland, coastal scrub, and riparian woodlands. Known elevations range from 3 to 6,890 feet amsl.	**Moderate.** Suitable habitat (sandy, gravelly soils in coastal scrub and riparian woodlands) is present within the survey area. This species was not observed during the surveys.
Romneya coulteri **Coulter's matilija poppy**	-- / -- 4.2 Y	Perennial herb (rhizomatous). Blooms March through July. Occurs in washes and on slopes (also after burns) in coastal scrub and chaparral. Known elevations range from 65 to 3,940 feet amsl.	**Present.** Several individuals were observed at the main entrance adjacent to (east of) the parking lot, but appear installed as part of restoration efforts.
Senecio aphanactis **chaparral ragwort**	-- / -- 2B.2 N	Annual herb. Blooms January through April. Occurs in coastal sage scrub, cismontane woodland, and alkaline flats. Known elevations range from 45 to 2,625 feet amsl.	**Moderate.** Suitable habitat (coastal scrub) is present within the survey area. This species was not observed during the surveys.
Stipa diegoensis **San Diego County needle grass**	-- / -- 4.2 N	Perennial grass. Blooms February through June. Occurs on rocky slopes, sea cliffs, and stream banks (often in mesic sites) in chaparral and coastal scrub. Known elevations range from 30 to 3,380 feet amsl.	**Present.** Several individuals were observed along the Lake View Trail southwest of the reservoir.
Symphyotrichum defoliatum **San Bernardino aster**	-- / -- 1B.2 N	Perennial herb (rhizomatous). Blooms July through November. Grows in grasslands and disturbed areas in the San Gabriel and San Bernardino Mountains and Peninsular Range. Occurs in vernally wet sites including ditches, streams, and springs in many plant communities. Know elevations range from 5 to 6,695 feet in elevation amsl.	**Moderate.** Suitable habitat (grasslands, disturbed areas, and streams) is present within the survey area. This species was not observed during the surveys.

Scientific Name **Common Name**	**Status*** Federal / State CRPR or G-Rank / S-Rank NCCP/HCP	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
INVERTEBRATES			
Bombus crotchii **Crotch bumble bee**	-- / -- G3G4 / S1S2 N	Found from coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum*.	**High.** Suitable habitat (food plants) is present within the survey area.
Branchinecta sandiegonensis **San Diego fairy shrimp**	FE / -- G2 / S2 Y	Occupies vernal pools in chaparral and coastal scrub habitats, a wetland endemic to San Diego and Orange County coastal mesas and cismontane valleys.	**Not Expected.** Suitable habitat (vernal pools) is not present within the survey area.
Streptocephalus woottoni **Riverside fairy shrimp**	FE / -- G1G2 / S1S2 Y	Endemic to western Riverside, Orange, and San Diego counties in areas of tectonic swales/earth slump basins and vernal pools in grassland and coastal sage scrub habitats. Inhabits seasonally astatic pools filled by winter/spring rains. Hatches in warm water later in the season.	**Not Expected.** Suitable habitat (slump basins or vernal pools) is not present within the survey area.
Tryonia imitator **mimic tryonia (=California brackishwater snail)**	-- / -- G2 / S2 N	Inhabits coastal lagoons, estuaries, salt marshes, and where creek mouths that join tidal marshes from Sonoma County south to San Diego County. Found only in permanently submerged areas in a variety of sediment types; able to withstand a wide range of salinities.	**Not Expected.** Suitable habitat (mouths to tidal marshes) is not present within the survey area.
FISH			
Catostomus santaanae **Santa Ana sucker**	FT / -- G1 / S1 N	Endemic to the south coastal flowing streams of the Los Angeles Basin. Habitat generalists, but prefer sand-rubble-boulder bottoms; cool, clear water; and algae.	**Not Expected.** Suitable habitat (coastal flowing streams) is not present within the survey area.
Rhinichthys osculus ssp. 3 **Santa Ana speckled dace**	-- / SSC G5T1 / S1 N	Occurs in the headwaters of the Santa Ana and San Gabriel Rivers, usually in areas with shallow cobble and gravel riffles. Requires permanent water flow with summer water temperatures between 17 and 20 degrees Celsius, and clear, well oxygenated water with movement due to current or waves.	**Not Expected.** Suitable habitat (areas with shallow cobble and gravel riffles) is not present within the survey area.

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AMPHIBIANS			
Anaxyrus californicus **arroyo toad**	FE / SSC G2G3 / S2S3 Y	Inhabits washes, arroyos, sandy riverbanks, and riparian areas with willows, sycamores, oaks, and cottonwoods. Has extremely specialized habitat needs, which include exposed sandy streamsides with stable terraces for burrowing with scattered vegetation for shelter, and areas of quiet water or pools free of predatory fishes with sandy or gravel bottoms without silt for breeding.	**Not Expected.** Suitable habitat (exposed sandy streamsides with stable terraces) is not present within the survey area.
Lithobates pipiens (Native populations only) **northern leopard frog**	-- / SSC G5 / S2 N	Native range is east of Sierra Nevada-Cascade Crest. Near permanent or semi-permanent water in a variety of habitats. Highly aquatic species. Shoreline cover, submerged, and emergent aquatic vegetation are important habitat characteristics.	**Not Expected.** Survey area is outside of the species native range. Occurrence is from 1957 identified as a transplant.
Spea hammondii **western spadefoot**	-- / SSC G3 / S3 Y	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washed, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rain pools, which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	**Not Expected.** Suitable breeding habitat (rain pools) is not present within the survey area.
Taricha torosa (Monterey Co. and south only) **Coast Range newt**	-- / SSC G4 / S4 N	Found in coastal drainages from Mendocino County to San Diego County. Lives in terrestrial habitats and will migrate over 1 kilometer to breed in ponds, reservoirs, and slow moving streams. In southern California, it is found in drier chaparral, oak woodland, and grasslands.	**Low.** Suitable habitat (coastal drainages, grasslands) is marginally present within the survey area, particularly when the reservoir is inundated.

Scientific Name **Common Name**	**Status*** Federal / State CRPR or G-Rank / S-Rank NCCP/HCP	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
REPTILES			
Aspidoscelis hyperythra **orangethroat whiptail**	-- / SSC G5 / S2 Y	Inhabits low-elevation coastal scrub, chaparral, and cismontane woodlands. Prefers washes and other sandy areas with patches of brush and rocks. Often found on the edge of intact vegetation and disturbed areas. Perennial plants necessary for its primary food, termites.	**Present.** Several individuals were observed within disturbed areas recovering and areas being restored to coastal sage scrub along the mid-upper reaches of Peters Canyon Wash.
Aspidoscelis tigris stejneger **coastal whiptail**	-- / -- G5T3T4 / S2S3 Y	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland and riparian areas. Ground may be firm soil, sandy, or rocky.	**High.** Suitable habitat (areas with sparse vegetation and open areas, riparian areas) is present within the survey area.
Charina trivirgata **rosy boa**	-- / -- G4G5 / S3S4 Y	Often inhabits rocky areas in coastal sage scrub, chaparral, and desert scrub environments from the coast to the Mojave and Colorado deserts. Prefers moderate to dense vegetation and rocky cover.	**Low.** Suitable habitat (rocky areas in coastal sage scrub) is marginally present within the survey area.
Crotalus ruber **red-diamond rattlesnake**	-- / SSC G4 / S3 Y	Found in chaparral, woodland, grassland, and desert scrub habitats from coastal San Diego County to the eastern slopes of the mountains. Occurs in rocky areas and dense vegetation. Needs rodent burrows, and cracks in rocks or surface cover objects.	**Present.** One individual was observed near the upper reaches of Peters Canyon Wash.
Emys marmorata **western pond turtle**	-- / SSC G3G4 / S3 N	A thoroughly aquatic turtle of ponds, lakes, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000 feet amsl. Needs basking sites (logs, rocks, cattail mats, and exposed banks) and suitable upland habitat (sandy banks or grassy open fields) up to 0.5 kilometer from water for egg-laying.	**Present.** A few individuals were observed in the culvert outlet of the reservoir dam. Carapaces only were observed in the western portion of the dried reservoir and upper reach of Peters Canyon Wash.

Scientific Name **Common Name**	**Status*** Federal / State CRPR or G-Rank / S-Rank NCCP/HCP	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Phrynosoma blainvillii **coast horned lizard**	-- / SSC G3G4 / S3S4 Y	Frequents a wide variety of habitats, including coastal sage scrub, annual grassland, chaparral, oak woodland, riparian woodland, and coniferous forest, along sandy washes with scattered low bushes. Prefers open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants and other insects.	**Moderate.** Suitable habitat (coastal sage scrub, grassland, and riparian woodland) is present within the survey area.
Salvadora hexalepis virgultea **coast patch-nosed snake**	-- / SSC G5T4 / S2S3 N	Found in brush or shrubby vegetation (coastal sage scrub) throughout coastal southern California, using small mammal burrows for refuge and overwintering sites.	**Moderate.** Suitable habitat (coastal sage scrub) is present within the survey area.
Thamnophis hammondii **two-striped garter snake**	-- / SSC G4 / S3S4 N	Highly aquatic, found in or near permanent fresh water of marshes, swamps, and riparian scrub and woodlands, often along streams with rocky beds and riparian growth, up to 7,000 feet amsl.	**Low.** Suitable habitat (permanent fresh water of marshes and riparian scrub, and woodlands with rocky beds) is marginally present within the survey area.
BIRDS			
Accipiter cooperii (Nesting) **Cooper's hawk**	-- / WL G5 / S4 N	Generally found in forested areas up to 3,000 feet in elevation, especially near edges and rivers. Prefers hardwood stands and mature forests, but can be found in urban and suburban areas where there are tall trees for nesting. Common in open areas during nesting season.	**Present.** This species was observed within and around the riparian scrub near the northern reaches of Peters Canyon Wash.
Accipiter striatus (Nesting) ***sharp-shinned hawk***	-- / WL G5 / S4 Y	Occurs in pine, fir, and aspen forests. They can be found hunting in forest interior and edges from sea level to near alpine areas. Can also be found in rural, suburban and agricultural areas, where they often hunt at bird feeders. Typically found in southern California in the winter months.	**Present.** This species was observed attempting to forage on trapped brown-headed cowbird (*Molothrus ater*) individuals at the southern end of the survey area.
Aimophila ruficeps canescens **southern California rufous-crowned sparrow**	-- / WL G5 / S4 Y	Frequents relatively steep, often rocky hillsides with grass and forb patches in coastal sage scrub and sparse mixed chaparral habitats.	**Low.** Suitable habitat (coastal sage scrub on rocky, steep slopes) is marginally present within the survey area.

Scientific Name **Common Name**	**Status*** Federal / State CRPR or G-Rank / S-Rank NCCP/HCP	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Ardea herodias (Nesting colony) **great blue heron**	-- / -- G5 / S4 N	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, riparian forests, lake margins, tidal flats in estuaries, rivers and streams, and wet meadows.	**Moderate.** Suitable habitat (marshes, riparian forests, lake margins, and streams) is present within the survey area, particularly when the reservoir is inundated.
Asio otus (Nesting) **long-eared owl**	-- / SSC G5 / S3? N	Occurs in riparian bottomlands grown to tall willows and cottonwoods; also, belts of live oak (*Quercus agrifolia*) paralleling stream courses. Requires adjacent open grasslands productive of mice for night hunting and the presence of old nests of crows, hawks, or magpies for breeding.	**Moderate.** Suitable habitat (riparian woodlands and adjacent open grasslands) is present within the survey area.
Athene cunicularia (Burrow sites and some wintering sites) **burrowing owl**	-- / SSC G4 / S3 N	Primarily found in open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation, but it persists and even thrives in some landscapes highly altered by human activity, such as earthen canals, berms, rock piles, and pipes. Subterranean nester, most often dependent upon burrowing mammals, most notably, the California ground squirrel (*Otospermophilus beecheyi*).	**Low.** Suitable habitat (open grasslands and scrublands) is marginally present within the survey area.
Buteo regalis (Wintering) **ferruginous hawk**	-- / WL G4 / S3S4 N	Primarily found in open grasslands, sagebrush flats, desert scrub, and low foothills and fringes of pinyon and juniper habitats, and agricultural and open fields. Feeds primarily on lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	**Low.** Suitable habitat (open grasslands and scrublands) is marginally present within the survey area.
Campylorhynchus brunneicapillus sandiegensis (San Diego and Orange Counties only) **coastal cactus wren**	-- / SSC G5T3Q / S3 Y	From southern Ventura County and southwestern San Bernardino County to northwestern Baja California, occupies coastal sage scrub largely consisting of tall stands of coastal prickly pear (*Opuntia littoralis*) or cholla (*Cylindropuntia* spp.) cacti for nesting and roosting.	**Present.** Two nesting pairs were observed, one near the northern end of the canyon on the eastern side and one west of the reservoir.

Scientific Name **Common Name**	**Status*** Federal / State CRPR or G-Rank / S-Rank NCCP/HCP	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Circus cyaneus (Nesting) **northern harrier**	-- / SSC G5 / S3 Y	Found in coastal salt and freshwater marsh. Nests on ground in shrubby vegetation, usually at marsh edges, and forages in grasslands, from salt grass in desert sinks to mountain cienagas. Nests consist of a large mound of sticks in wet areas.	**Present.** An individual was observed near the basin east of the reservoir.
Coccyzus americanus occidentalis (Nesting) **western yellow-billed cuckoo**	FT / SE G5T2T3 / S1 N	Obligate willow-cottonwood riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods (*Populus* spp.), with the lower story dominated by blackberry, nettles (*Urtica* spp.), and/or wild grape (Vitis sp.).	**Not Expected.** Suitable habitat (broad, lower flood-bottoms of larger river systems) is not present within the survey area.
Elanus leucurus (Nesting) **white-tailed kite**	-- / FP G5 / S3S4 N	Often found in rolling foothills and valley margins with scattered oaks, riparian bottomlands, or marshes next to deciduous woodland. Prefers isolated, dense-topped trees for nesting and perching near open valley and foothill grasslands, meadows, or marshes for foraging.	**Moderate.** Suitable habitat (riparian woodlands and marshes, and adjacent open grasslands) is present within the survey area.
Empidonax traillii extimus (Nesting) **southwestern willow flycatcher**	FE / SE G5T2 / S1 Y	Occurs in broad riparian woodlands in southern California. Typically requires large areas of willow thickets in broad valleys and canyon bottoms, or around ponds and lakes. These areas typically have standing or running water, or are at least moist.	**Low.** Suitable habitat (broad riparian woodlands with standing or running water) is marginally present within the survey area, particularly when the reservoir is inundated.
Haliaeetus leucocephalus (Nesting and wintering) **bald eagle**	FD / SE, FP G5 / S2 N	Found along the ocean shores, lake margins, and on rivers, where it both nests and winters, typically within one mile of water. Nests in large, old-growth, or dominant live trees with open branches, favoring ponderosa pines. Roosts communally in winter.	**Low.** Suitable habitat (lake margins, dominant live trees with open branches) is marginally present within the survey area, particularly when the reservoir is inundated.

Scientific Name **Common Name**	**Status*** Federal / State CRPR or G-Rank / S-Rank NCCP/HCP	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Icteria virens (Nesting) **yellow-breasted chat**	-- / SSC G5 / S3 N	Summer resident that inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, and wild grape. Breeding habitat must be dense to provide shade and concealment. Forages and nests within 10 feet of ground.	**Present.** A few individuals were observed within the riparian woodland east of the reservoir and near the southern end of Peters Canyon Wash.
Laterallus jamaicensis coturniculus **California black rail**	-- / ST, FP G3G4T1 / S1 N	Inhabits freshwater marshes, wet meadows, and shallow margins of saltwater marshes bordering larger bays. Needs water depths of approximately 1 inch that do not fluctuate during the year, and dense upland buffer and marsh vegetation for nesting habitat.	**Not Expected.** Suitable habitat (freshwater marshes, with shallow, non-fluctuating standing waters) is not present within the survey area.
Passerculus sandwichensis beldingi **Belding's savannah sparrow**	-- / SE G5T3 / S3 N	Inhabits coastal salt marshes, from Santa Barbara south through San Diego County. Nests in pickleweed (*Salicornia* spp.) on and around margins of tidal flats.	**Not Expected.** Suitable habitat (coastal salt marshes) is not present within the survey area.
Polioptila californica californica **coastal California gnatcatcher**	FT / SSC G4G5T2Q / S2 Y	Obligate, permanent resident of coastal sage scrub below 2,500 feet amsl in Southern California. Occurs in low, coastal sage scrub in arid washes, and on mesas, bowls, and slopes lacking tall perching vegetation. Not all areas classified as coastal sage scrub are occupied.	**Present.** Several individuals, some paired, were observed throughout coastal sage scrub habitat.
Rallus longirostris levipes **light-footed clapper rail**	FE / SE, FP G5T1T2 / S1 N	Found in salt marshes traversed by tidal sloughs, where dense growths of cordgrass (*Spartina foliosa*) and pickleweed dominate for nesting. Requires shallow water and mudflats for foraging on mollusks and crustaceans, with adjacent higher vegetation for cover during high water.	**Not Expected.** Suitable habitat (coastal salt marshes) is not present within the survey area.

Scientific Name **Common Name**	**Status*** Federal / State CRPR or G-Rank / S-Rank NCCP/HCP	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Setophaga petechia **yellow warbler**	-- / SSC G5 / S3S4 N	Nests in riparian scrub, woodland, and forest in close proximity to water. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants, including cottonwoods, sycamores (*Platanus* spp.), ash (*Fraxinus* spp.), and alders (*Alnus* spp.). May use oaks (*Quercus* spp.), conifers, and urban areas near streams courses. Also nests in mature chaparral and in montane shrubbery in open conifer forests in Cascades and Sierra Nevada.	**Present.** An individual was observed in the riparian basin east of the reservoir.
Sternula antillarum browni (Nesting colony) **California least tern**	FE / SE, FP G4T2T3Q / S2 N	Colonial breeder on bare or sparsely vegetated, flat substrates, including sand beaches, alkali flats, landfills, or paved areas. Prefers broad, level expanses of open sandy or gravelly beach, dredge spoil, and other open shoreline areas, and broad river valley sandbars. Nests along the coast from San Francisco Bay south to northern Baja California.	**Not Expected.** Suitable habitat (open sandy or gravelly beach or sandbar) is not present within the survey area.
Vireo bellii pusillus (Nesting) **least Bell's vireo**	FE / SE G5T2 / S2 Y	Summer resident of Southern California. Occurs below 2000 feet amsl in riparian scrub, woodland, and forest habitats, preferably with a developed, wetland understory, often in the vicinity of water. Nests are stitched onto horizontal twig branches, typically of willow, mule fat, and tamarisk a few feet above ground.	**Present.** Approximately 13 territories were observed throughout the riparian woodlands surrounding the reservoir, within Peters Canyon Wash, and within the lower detention basin.
MAMMALS			
Antrozous pallidus **pallid bat**	-- / SSC G5 / S3 N	Occupies deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Moderate.** Suitable foraging habitat (grasslands, shrublands, woodlands, and forests) is present within the survey area; however, suitable roosting habitat (rocky areas) is not.

Scientific Name **Common Name**	**Status*** Federal / State CRPR or G-Rank / S-Rank NCCP/HCP	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Choeronycteris mexicana **Mexican long-tongued bat**	-- / SSC G4 / S1 N	Occasionally found in San Diego County, which is on the periphery of their range, in pinyon and juniper woodlands, riparian scrub, and Sonoran thorn woodland. Feeds on nectar and pollen of night-blooming succulents. Roosts in relatively well-lit caves, and in and around buildings.	**Moderate.** Suitable foraging habitat (riparian scrub) is present within the survey area; however, suitable roosting habitat (well-lit caves) is not.
Eumops perotis californicus **western mastiff bat**	-- / SSC G5T4 / S3S4 N	Primarily a cliff-dwelling species, occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts on cliff faces, high buildings, trees, and tunnels.	**High.** Suitable foraging habitat (woodlands, coastal scrub, and grasslands) and roosting habitat (trees) are present within the survey area.
Myotis yumanensis **Yuma myotis**	-- / -- G5 / S4 N	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies occupy caves, mines, buildings, or crevices in montane coniferous forest and riparian forest and woodland habitats.	**Moderate.** Suitable foraging habitat (forests and woodlands with sources of water) is present within the survey area; however, suitable roosting habitat (caves, mines, buildings, or crevices) is not.
Neotoma lepida intermedia **San Diego desert woodrat**	-- / SSC G5T3T4 / S3S4 Y	From San Diego County to San Luis Obispo County, prefers moderate to dense canopies of coastal scrub, and in areas particularly abundant in rock outcrops, and rocky cliffs and slopes.	**Low.** Suitable habitat (coastal scrub, with rocky outcrops) is marginally present within the survey area.
Perognathus longimembris pacificus **Pacific pocket mouse**	FE / SSC G5T1 / S1 Y	Inhabits the narrow coastal mesas from the Mexican border north to El Segundo, Los Angeles County. Seems to prefer soils of fine alluvial sands and sandy slopes of coastal scrub near the ocean, but much remains to be learned.	**Not Expected.** Suitable habitat (sandy slopes of coastal scrub) is marginally present within the survey area; however, current distribution is limited to a few known localities.

Scientific Name **Common Name**	**Status*** Federal / State CRPR or G-Rank / S-Rank NCCP/HCP	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Sorex ornatus salicornicus **southern California saltmarsh shrew**	-- / SSC G5T1? / S1 N	Inhabits coastal salt marshes of Los Angeles, Orange, and Ventura Counties. Requires dense vegetation and woody debris for cover.	**Not Expected.** Suitable habitat (coastal salt marshes) is not present within the survey area.

* **California Rare Plant Rank (CRPR)**

1A Plants presumed extirpated in California and either rare or extinct elsewhere
1B Plants rare, threatened, or endangered in California and elsewhere
2A Plants presumed extirpated in California, but common elsewhere
2B Plants rare, threatened, or endangered in California, but more common elsewhere
3 Plants about which more information is needed - a Review List
4 Plants of limited distribution - a Watch List

Threat Ranks

.1 Seriously threatened in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
.2 Moderately threatened in California (20 to 80 percent occurrences threatened/moderate degree and immediacy of threat)
.3 Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known)

FESA Classifications

FE Federally Endangered
FT Federally Threatened
FC Federal Candidate
FD Federally Delisted

CESA Classifications

SE State Endangered
ST State Threatened
SSC California Species of Special Concern
FP Fully Protected
WL Watch List

County of Orange Natural Community Conservation Plan and Habitat Conservation Plan (NCCP/HCP)

Y/N Species “take” covered when in compliance with the NCCP/HCP?

G-Rank / S-Rank

Global Rank and State Rank as per NatureServe and CDFW’s CNDDB RareFind5, ranging from critically imperiled (G1/S1) to demonstrably secure (G5/S5)

PETERS CANYON REGIONAL PARK (PECA)
RESOURCE MANAGEMENT PLAN

Orange County, California

DRAFT JURISDICTIONAL DELINEATION REPORT

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May 2016

JN 152478 (153422)

Michael Baker INTERNATIONAL

PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN

CITIES OF ORANGE AND TUSTIN, CALIFORNIA

DRAFT Jurisdictional Delineation Report

The undersigned certify that this report is a complete and accurate account of the findings and conclusions of jurisdictional wetland and non-wetland "waters of the U.S.," "waters of the State," and streambed/banks and associated riparian vegetation delineation for the above-referenced project.

Dan Rosie
Biologist
Natural Resources/Regulatory Permitting

Richard Beck, PWS, CEP, CPESC
Vice President
Natural Resources/Regulatory Permitting

May 2016

Executive Summary

On behalf of OC Parks, Michael Baker International (Michael Baker) has prepared this Jurisdictional Delineation Report for the Peters Canyon Regional Park (PECA; survey area) Resource Management Plan (RMP), located in the Cities of Orange, Tustin, and Irvine, Orange County, California.

This delineation documents the field work conducted by Michael Baker on April 5, 14, 20, 26, 27, 28, 2016, to identify aquatic features within the survey area that are potentially subject to the jurisdiction of the U.S. Army Corps of Engineers (Corps) pursuant to Section 404 of the Federal Clean Water Act (CWA), Regional Water Quality Control Board (Regional Board) pursuant to Section 401 of the CWA and/or Section 13263 of the California Porter-Cologne Water Quality Control Act (Porter-Cologne), and California Department of Fish and Wildlife (CDFW) pursuant to Sections 1600 et seq. of the California Fish and Game Code. Delineation methods followed the most recent, acceptable guidelines for conducting a jurisdictional delineation in this region[1].

Table 1 provides a breakdown of total acreages of jurisdictional features as they relate to each regulatory agency. As noted, this report presents Michael Baker's best effort at determining the jurisdictional boundaries using the most up-to-date regulations, written policy, and guidance from the regulatory agencies; however, as with any jurisdictional delineation, only the regulatory agencies can make a final determination of jurisdiction.

Table 1. Jurisdictional Limits within the Survey Area

Feature	Jurisdictional Limits		
	Corps/Regional Board (non-wetland)	Corps/Regional Board (wetland)	CDFW
	Acres	Acres	Acres
Reservoir	13.81	23.80	66.10
Canyon	0.37	9.16	19.67
Total	14.18	32.96	85.77

OC Parks is required to obtain the following regulatory approvals prior to commencement of any construction activities (i.e., placement of fill material and/or feature alteration) within the identified jurisdictional areas: Corps CWA Section 404 permit for impacts associated with dredge and fill material to waters of the United States (WoUS); Regional Board CWA Section 401 Water Quality Certification (WQC) for impacts associated with dredge and fill material;

[1] The project area was surveyed pursuant to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0 (Corps 2008); the Practices for Documenting Jurisdiction under Section 404 of the CWA Regional Guidance Letter (Corps 2007); and Minimum Standards for Acceptance of Preliminary Wetland Delineations (Corps 2001).

and/or a CDFW Section 1602 Streambed Alteration Agreement for impacts/alteration to streambed/banks and associated riparian vegetation[2].

[2] The CDFW can issue other approvals in-lieu of a formal Agreement such as an Operation-by-Law letter or Letter of Non-Substantial Impact. A formal notification must first be submitted to the CDFW prior to approval.

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LIST OF ACRONYMS

CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CWA	Clean Water Act
EPA	Environmental Protection Agency
GPS	Global Positioning System
MSL	Mean Sea Level
NWP	Nationwide Permit
OHWM	Ordinary High Water Mark
Michael Baker	Michael Baker International
RPW	Relatively Permanent Water
SAA	Streambed Alteration Agreement
SBBM	San Bernardino Base and Meridian
SWANCC	Solid Waste Agency of Northern Cook County
TNW	Traditionally Navigable Water
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WoUS	Waters of the United States

Section 1 Introduction

On behalf of OC Parks, Michael Baker International (Michael Baker) has prepared this Jurisdictional Delineation Report for the Peters Canyon Regional Park (PECA; survey area) Resource Management Plan (RMP). This report describes the regulatory setting, methodologies, and results of the jurisdictional delineation, including recommendations for any future proposed impacts to potentially jurisdictional resources. This report presents our best effort at determining the jurisdictional boundaries using the most up-to-date regulations, written policy, and guidance from the regulatory agencies; however, only the regulatory agencies can make a final determination of jurisdictional boundaries.

1.1 SITE LOCATION

PECA, a regional park within the OC Parks System, is located within the Cities of Orange and Tustin, Orange County, California (Figure 1, *Regional Vicinity*). Specifically, the park is located within Section 36 of Township 4 South, Range 9 West; Section 31 of Township 4 South, Range 8 West; Section 6 of Township 5 South, Range 8 West; and Section 1 of Township 5 South, Range 9 West, of the U.S. Geological Survey (USGS) *Orange, California* 7.5-minute topographic quadrangle map (Figure 2, *Site Vicinity*).

PECA (Figure 3, *Peters Canyon Regional Park*) is bounded by Skylark Place and Canyon View Avenue to the north (City of Orange); Cowan Heights residential development to the west (City of Tustin); a residential development, Jamboree Road, and State Route 261 to the east (City of Tustin); and Peters Canyon Road and a residential development to the south (City of Tustin).

1.2 BACKGROUND

OC Parks includes regional, wilderness, and historical facilities, in addition to coastal areas throughout the County of Orange in California. OC Parks has approximately 60,000 acres of parkland, open space, and shoreline, with facilities that offer plenty of opportunities for the public to enjoy nature and learn about the history of Orange County.

PECA was originally part of the Spanish land grant, Rancho Lomas de Santiago. In 1897, the ranch was purchased by James Irvine, who then leased the canyon out to several farmers. James Peters, whom the canyon is named for, dry-farmed beans and barley in the upper canyon and is also responsible for planting the historical eucalyptus grove located near the off-site Lower Peters Canyon Retarding Basin (detention basin). To supply the increasing water

5/23/2016 JN M:\Mdata\152478\GIS\MXD\Ex01 Regional Vicinity.mxd

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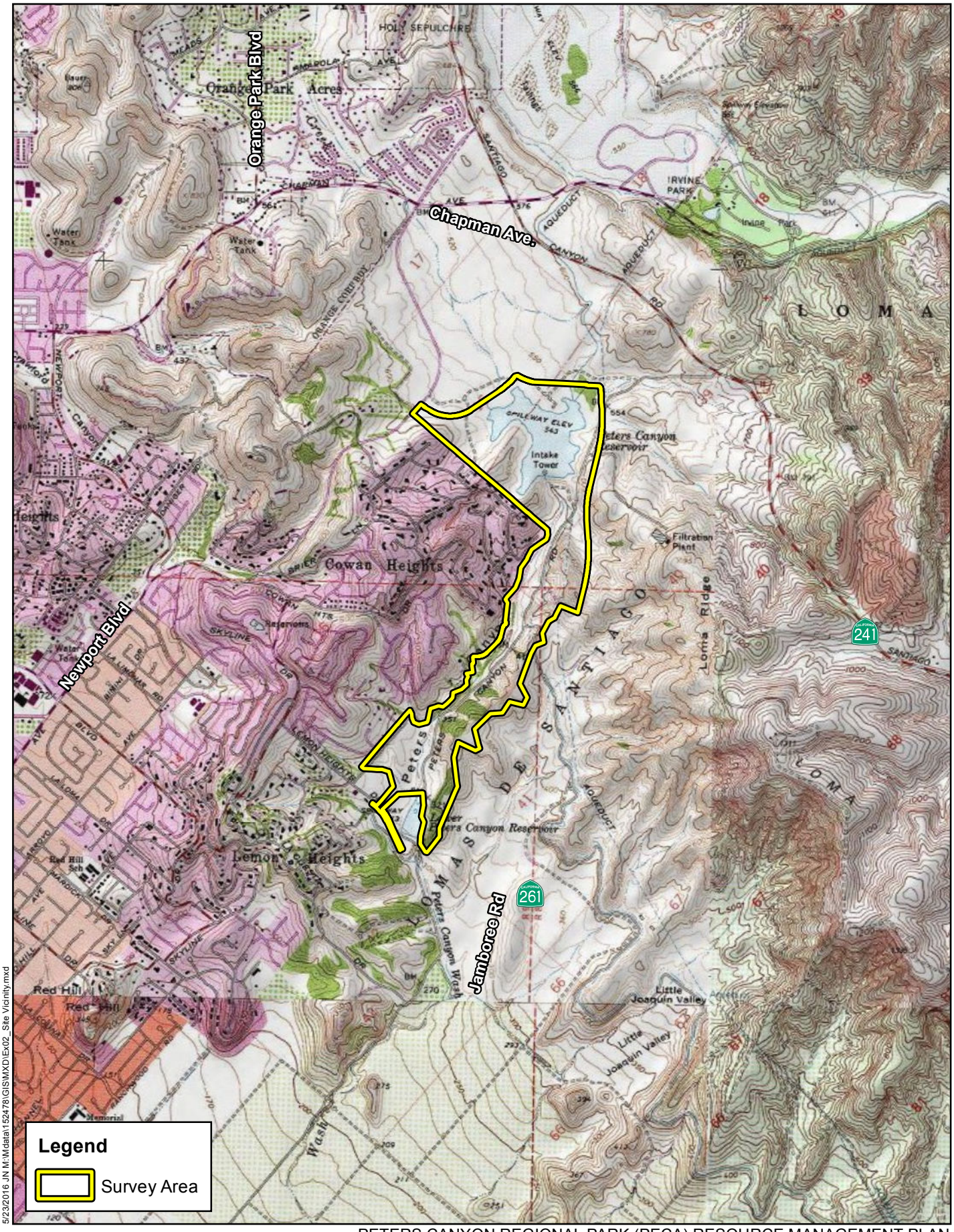
0 2.5 5 Miles

Source: ArcGIS Online

PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN
JURISDICTIONAL DELINEATION REPORT

Regional Vicinity

Figure 1



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Site Vicinity

Figure 2

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0 0.25 0.5 Miles

Source: Eagle Aerial Imaging - 2014

5/23/2016 JN M:\Mdata\152478\GIS\MXD\Ex03 Project Site.mxd

PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN
JURISDICTIONAL DELINEATION REPORT

Michael Baker INTERNATIONAL

0 400 800 Feet

Source: Eagle Aerial - 2014

Peters Canyon Regional Park

Figure 3

needs for Irvine Ranch's growing agricultural industry, two reservoirs were constructed. The Upper Peters Canyon Reservoir was completed in 1931, followed by the off-site lower reservoir in 1940. Both reservoirs were used to regulate the Irvine Company's draft from Santiago Reservoir, in addition to conservation of run-off from Peters Canyon watershed. Today, the lower reservoir serves as a flood control basin operated by OC Public Works. On March 3, 1992, the Irvine Company donated 340 acres of Peters Canyon to the County of Orange to be preserved as open space.

1.3 ENVIRONMENTAL SETTING

PECA consists of primarily undeveloped open space, with a network of trails for public access throughout. Peters Canyon Wash conveys flows primarily through the western portion of the site and is dammed near the northern end of the site, thereby supporting a man-made reservoir. Surrounding areas consist mainly of residential housing, roadways, and expansive open space to the east.

1.3.1 Climate

PECA, located in the foothills of the Santa Ana Mountains, has a climate characterized as Mediterranean, with cool, mild winter rains and hot, dry summers. Average annual temperatures typically range from 50 to 75 degrees Fahrenheit (°F), with highs in the summer averaging 85 °F and lows in the winter averaging 40 °F. Average annual precipitation for the Tustin, California, area is approximately 14 inches (U.S. Climate Data 2016).

1.3.2 Vegetation

Michael Baker reviewed the U.S. Fish and Wildlife Service (USFWS) NWI maps online. Four wetlands features have been mapped within the survey area as follows: Freshwater Forested/Shrub Wetland, Freshwater Emergent Wetland, Riverine, and Lake. These mapped areas were used as reference while documenting all potentially jurisdictional features as observed on-site during the JD.

The jurisdictional vegetation types found within PECA are southern cottonwood-willow riparian forest, southern willow scrub, valley freshwater marsh, mule fat scrub, tamarisk scrub, and non-native grassland.

1.3.3 Hydrology

The survey area is located within the Santa Ana River Hydrologic Unit (HU 801.0), Lower Santa Ana River Hydrologic Area (HA 801.10), and East Coastal Plain Subarea (HSA 801.11) of the Santa Ana Hydrologic Basin Planning Area. The Santa Ana River HU is a roughly rectangular-shaped area of about 150 square miles, extending from the Santiago Canyon foothills on the east to the Pacific Ocean on the west, and from the city of Orange on the north to the city of Lake Forest on the south. The unit includes the Cities of Irvine, Tustin, Orange, Newport Beach,

Santa Ana, Costa Mesa, and Lake Forest. Waters from PECA are ultimately conveyed to Upper Newport Bay and the Pacific Ocean.

Michael Baker searched the Federal Emergency Management Agency (FEMA) – 100 Year Flood Zones for flood data within the survey area (ArcGIS 2016). Based on the FEMA – 100 Year Flood Zones map, portions of the survey area are within the 100-year flood zone. These portions include upper Peters Canyon reservoir and the entire length of Peters Canyon wash.

1.3.4 Topography and Soils

The general area that PECA is situated in is characterized by rolling hills and valleys dominated by coastal sage scrub and disturbed areas/non-native grasslands in the uplands, with riparian-scrub and forested corridors lining valley bottoms and surrounding other water bodies. Elevations on-site range from approximately 320 to 700 feet above mean sea level (amsl).

On-site and adjoining soils were reviewed prior to the field visits using the USDA, NRCS *Soil Survey for Orange County and Western Part of Riverside County, California* (USDA, NRCS 1978). The following soil types have been mapped within the survey area (see Figure 4, *USDA Soils*):

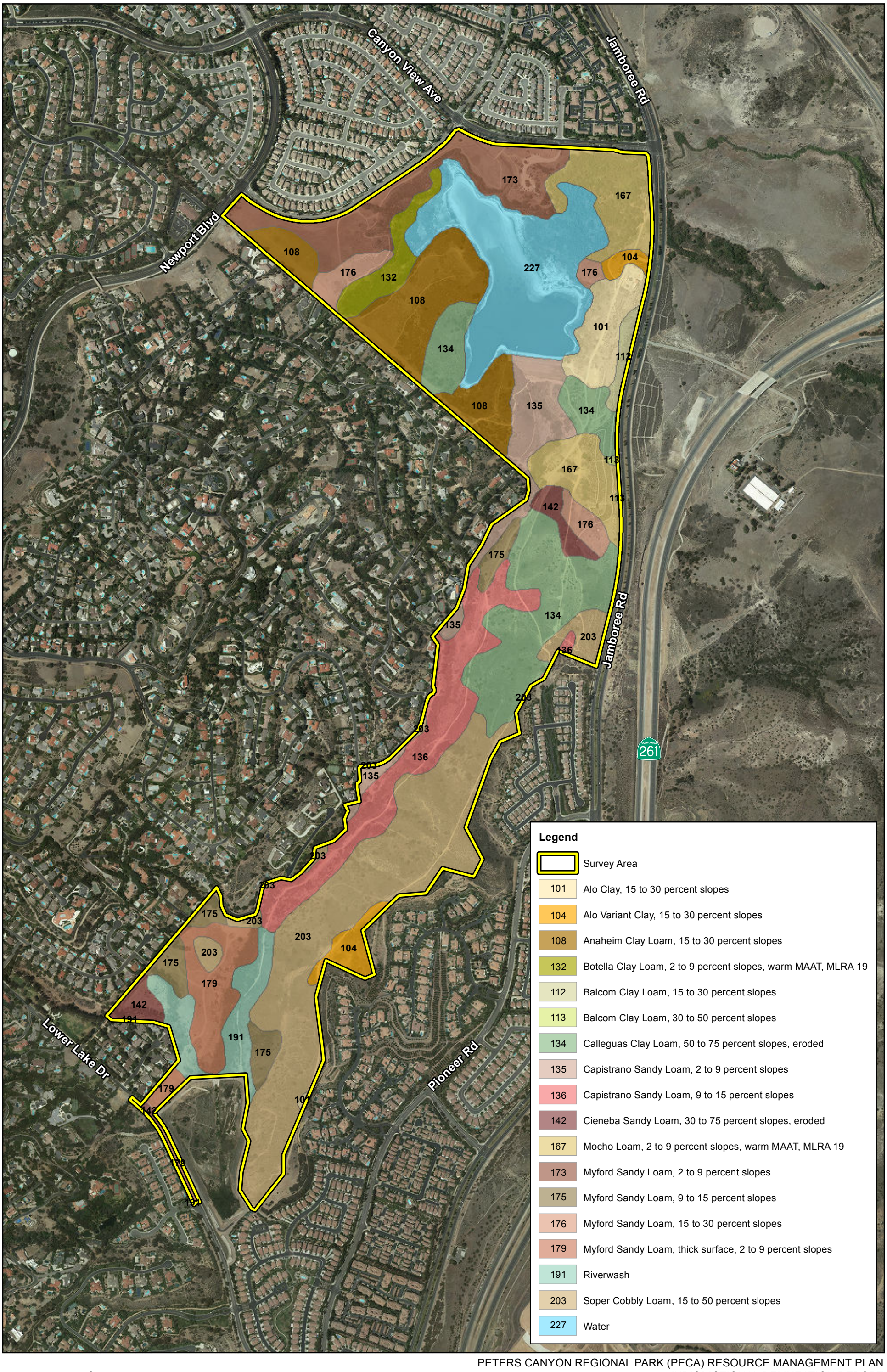
- Alo clay, 15 to 30 percent slopes (101)
- Alo variant clay, 15 to 30 percent slopes (104)
- Anaheim clay loam, 15 to 30 percent slopes (108)
- Balcom clay loam, 15 to 50 percent slopes (112)
- Botella clay loam, 2 to 9 percent slopes, warm MAAT, MLRA 19 (132)
- Calleguas clay loam, 50 to 75 percent slopes, eroded (134)
- Capistrano sandy loam, 2 to 9 percent slopes (135)
- Capistrano sandy loam, 9 to 15 percent slopes (136)
- Cieneba sandy loam, 30 to 75 percent slopes, eroded (142)
- Mocho loam, 2 to 9 percent slopes, warm MAAT, MLRA 19 (167)
- Myford sandy loam, 2 to 9 percent slopes (173)
- Myford sandy loam, 9-15 percent slopes (175)
- Myford sandy loam, 15 to 30 percent slopes (176)
- Myford sandy loam, thick surface, 2 to 9 percent slopes (179)
- Riverwash (191)
- Soper cobbly loam, 15 to 50 percent slopes (203)
- Water (227)

Michael Baker reviewed the National Hydric Soils List (NRCS, December 2015) to identify soils mapped within the survey area that are considered to be hydric. It should be noted that lists of hydric soils along with soil survey maps are good off-site ancillary tools to assist in wetland

determinations, but they are not a substitute for on-site investigations. According to the soils list, the following hydric soils mapped on-site include the following:

- Alo clay, 15 to 30 percent slopes (101)
- Myford sandy loam, 2 to 9 percent slopes (173)
- Myford sandy loam, thick surface, 2 to 9 percent slopes (179)
- Riverwash (191)

Soils observed on-site were generally consistent with those mapped by the Soil Survey. A total of 27 Soil Pits (SP) were dug on-site. Ten (10) of these (SP 8, 12, 15, 17, 18, 19, 22, 24, 25, and 26) were within a wetland, and the other 17 (SP 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 13, 14, 16, 20, 21, 23, and 27) were not within a wetland.



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PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN
JURISDICTIONAL DELINEATION REPORT

Michael Baker INTERNATIONAL

0 400 800 Feet

Source: USDA Web Soil Survey, Eagle Aerial - 2014

USDA Soils

Figure 4

Section 2 Summary of Regulations

There are three agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Division regulates activities pursuant to Section 404 of the CWA. Of the State agencies, the CDFW regulates activities under the California Fish and Game Code Sections 1600-1616, and the Regional Board regulates activities pursuant to Section 401 of the CWA and/or Section 13263 of Porter-Cologne.

2.1 U.S. ARMY CORPS OF ENGINEERS

Since 1972, the Corps and U.S. Environmental Protection Agency (EPA) jointly regulate discharges of dredged or fill material into "waters of the U.S." (WoUS), including wetland and non-wetland aquatic features, pursuant to Section 404 of the CWA. Section 404 is founded on the findings of a significant nexus (or connection) between the aquatic feature in question and interstate commerce via Relatively Permanent Waters (RPW), and ultimately Traditional Navigable Waters (TNW). The term WoUS is defined under 33 Code of Federal Regulations (CFR) Section 328.3(a). The Corps typically regulates as WoUS any aquatic feature displaying and ordinary high water mark (OHWM), or beyond the OHWM to the limit of any adjacent wetlands, if present (33 CFR 328.4). The OHWM is defined as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area." Wetlands, a subset of jurisdictional waters, jointly defined by the Corps and EPA, are defined as "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions."

2.2 REGIONAL WATER QUALITY CONTROL BOARD

Applicants for a federal license or permit for activities which may discharge to WoUS must seek Water Quality Certification from the state or Indian tribe with jurisdiction. [3] Such Certification is based on a finding that the discharge will meet water quality standards and other applicable requirements. In California, there are nine Regional Boards that issue or deny Certification for discharges within their geographical jurisdiction. Water Quality Certification must be based on a finding that the proposed discharge will comply with water quality standards, which are defined as numeric and narrative objectives in each Regional Board's Basin Plan. Where applicable, the State Water Resources Control Board has this responsibility for projects affecting waters within multiple Regional Boards. The Regional Board's jurisdiction extends to all waters of the State and to all WoUS, including wetlands.

[3] Title 33, United States Code, Section 1341; Clean Water Act Section.

Additionally, the California Porter-Cologne Water Quality Control Act gives the State very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. The Porter-Cologne Act has become an important tool post *Solid Waste Agency of Northern Cook County v. United States Corps of Engineers*[4] (SWANCC) and *Rapanos v. United States*[5] (Rapanos) court cases regulatory environment, with respect to the state's authority over isolated and insignificant waters. Generally, any person proposing to discharge waste into a water body that could affect its water quality must file a Report of Waste Discharge in the event that there is no Section 404/401 nexus. Although "waste" is partially defined as any waste substance associated with human habitation, the Regional Board also interprets this to include fill discharged into water bodies.

2.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

California Fish and Game Code Sections 1600-1616 establishes a fee-based process to ensure that projects conducted in and around lakes, rivers, or streams do not adversely impact fish and wildlife resources, or, when adverse impacts cannot be avoided, ensures that adequate mitigation and/or compensation is provided.

Fish and Game Code Section 1602 requires any person, state, or local governmental agency or public utility to notify the CDFW before beginning any activity that will do one or more of the following:

(1) substantially obstruct or divert the natural flow of a river, stream, or lake;

(2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or

(3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state.

4 Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, 531 U.S. 159 (2001)

5 Rapanos v. United States, 547 U.S. 715 (2006)

Section 3 Methodology

Review of relevant literature and materials often aids in preliminarily identification of areas that potentially fall under an agency's jurisdiction. Topographic, National Wetlands Inventory (NWI; USFWS 2016), and U.S. Department of Agriculture (USDA) Soils maps were used as reference. In addition, a timeline of aerial photography (Google Earth Pro 2013) was reviewed to identify changing conditions within the recent drought (refer to Section 6.0 for a complete list of references used during the course of this delineation).

The analysis presented in this document is supported by field surveys and verification of current conditions within the survey area conducted by Michael Baker biologists Dan Rosie, Stephen Anderson, Linda Nguyen, Lauren Mack, Anisha Malik, and/or Richard Beck on April 5, 14, 20, 26, 27, 28, 2016. Data were collected using the ESRI ArcGIS Collector application on an Apple iPad connected via Bluetooth to an iSX Blue II+ GNSS Global Positioning System (GPS) unit with sub-meter accuracy for recording and identifying soil pits, picture locations, and the jurisdictional limits of aquatic features. A Garmin GPS Map62 unit was also used to record and identify soil pits and drainage features. These data were then transferred as shapefiles, added to the jurisdictional map, and measurements calculated using Geographic Information System (GIS) software.

Classification of the on-site vegetation communities and other land uses is based on the descriptions of terrestrial vegetation classification systems described in *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), with modifications to better represent existing conditions in the field using the *Draft Vegetation Communities of San Diego County* (Oberbauer et al. 2008), an expanded vegetation classification system based on Holland (1986). Plant species nomenclature and taxonomy follow *The Jepson Manual: Vascular Plants of California, second edition* (Baldwin et al. 2012).

Drought conditions have developed over the past four years in California. Evaluation of temporal shifts in vegetation and periodic lack of hydrology indicators during periods of below-normal rainfall, drought conditions, and unusually low-winter snowpack is considered during the field review. To the extent possible, the hydrophytic vegetation decision is based on the plant community that is normally present during the wet portion of the growing season in a normal rainfall year. The evaluation of hydrology considers the timing of the site visit in relation to normal seasonal and annual hydrologic variability, and whether the amount of rainfall prior to the site visit has been normal. In drought conditions, direct observation of plants and hydrology indicators may be misleading or problematic, so other methods of making wetland decisions may be appropriate. In general, wetland determinations on difficult or problematic sites must be based on the best information available to the field inspector, interpreted in light of his or her professional experience and knowledge of the ecology of wetlands in the region. Wetland determinations are based on a preponderance of all available information, including in many

cases remote sensing and longer term data, not just the field data collected under drought conditions.[6]

3.1 WATERS OF THE U.S.

3.1.1 Non-wetland Waters of the U.S.

In the absence of wetlands (i.e., non-wetland WoUS), the limits of Corps and Regional Board jurisdiction in non-tidal waters extend to the OHWM. Indicators of an OHWM are defined in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Corps 2008a). An OHWM can be determined by, but not limited to, the observation of benches, breaks in bank slope, particle size distribution, sediment deposits, drift, litter, and/or changes in plant communities.

3.1.2 Wetland Waters of the U.S.

Corps jurisdictional wetland WoUS are delineated following the methods outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0* (Regional Supplement; Corps 2008b). The Regional Supplement presents wetland indicators, delineation guidance, and other information that is specific to the Arid West Region, one of a series of Regional Supplements to the 1987 Corps Wetland Delineation Manual (1987 Manual; Environmental Laboratory 1987). According to the 1987 Manual, identification of wetlands is based on a three-parameter approach involving the predominance or prevalence of hydrophytic vegetation, and indicators of hydric soil and wetland hydrology. Hydrophytic vegetation (plants that are found occurring at least 50 percent in wetlands) is based on designations provided in the *National Wetland Plant List: 2014 update of wetland ratings* (Lichvar et al. 2014). Hydric soils are those permanently or seasonally saturated by water resulting in anaerobic conditions. Hydric soils mapped by the USDA, Natural Resources Conservation Service (NRCS) are listed on the *National Hydric Soils List 2015* (2015), which were used for reference. Hydric soils on-site, identified examining soil profile characteristics using *Munsell Soil Color Charts* (Munsell Color 2009), are those that meet hydric soil indicators as defined in the Regional Supplement. Wetland hydrology is present upon identifying at least one primary or two secondary indicators, as provided in the Regional Supplement. In order to be considered a wetland, an area must exhibit at least minimal characteristics within these three parameters.

Where wetlands were suspect (i.e., areas where wetland vegetation and hydrology were evident), soil samples were examined by excavating a soil pit. If wetlands were determined present, areas with similar consistency were extrapolated. Where there were changes in vegetation consistency, additional pits were examined to identify the boundaries between

[6] Corps Sacramento District, Public Notice SPK-2014-00005, *Guidance on Delineations in Drought Conditions*, February 2014.

wetland and upland. Vegetation, soils, and hydrology data were then documented on the Corps *Wetland Determination Data Form – Arid West Region*.

3.2 WATERS OF THE STATE

Aquatic features lacking a nexus to (i.e., isolated from) adjacent or downstream waters are potentially considered waters of the State. Currently for this region (Santa Ana Regional Board), Regional Board jurisdiction coincides with Corps jurisdiction by defining an OHWM and utilizing the three-parameter approach for wetlands.

3.3 STREAMBED/BANKS AND RIPARIAN VEGETATION

CDFW jurisdiction applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State of California. CDFW regulatory authority extends to include riparian habitat (including wetlands) supported by a river, stream, or lake regardless of the presence or absence of hydric soils or saturated soil conditions. Generally, CDFW jurisdiction is mapped to the top of the active bank of the stream or to the outer drip line of the associated riparian vegetation, whichever is greater. For SAA notification purposes, vegetated and non-vegetated streambed were distinguished.

Section 4 Results

The following is a discussion of the existing on-site aquatic resources based on the literature review and the results of the formal JD conducted within the survey area.

4.1 AQUATIC FEATURES

PECA consists of a man-made dam and associated reservoir at the northern end, surrounded by associated wetland and riparian vegetation, including two basins and approximately 5-7 inlets, which convey flows from Santiago Canyon, urban runoff, and direct rainfall. For the purposes of this report, the upper reservoir was broken into three portions: the western basin, the eastern basin, and the inner reservoir. The two basins are distinguished from the inner reservoir via the southern cottonwood-willow riparian forest, freshwater marsh, and mule fat scrub vegetation classifications on the eastern and western portions of the reservoir. Currently the reservoir has no above ground water present; however, soils are still saturated in various locations of the reservoir. Downstream of the dam, flows enter Peters Canyon Wash via groundwater from the reservoir, the outlet from the dam, and by direct rainfall and flow via its tributaries. Peters Canyon Wash consists of a wetland/riparian corridor that conveys flows along the western side of the canyon (adjacent to residences), with relatively steep upland slopes to the east. At the southern end, the wash conveys flows into an off-site detention basin (Lower Peters Canyon Reservoir. Further, there are eight (8) ephemeral drainage features and eight (8) culverts throughout PECA that convey flows primarily from off-site sources and are tributary to Upper Peters Canyon Reservoir and Peters Canyon Wash. Upland vegetation surrounding these features is primarily dominated by non-native grassland (NNG), coastal sage scrub (CSS), eucalyptus woodland (EUC), and disturbed habitat (DIST). The following are brief descriptions of the aquatic features identified on-site:

4.1.1 Upper Peters Canyon Reservoir

The northern portion of PECA consists of a large reservoir containing a mosaic of vegetation communities. Due to current drought conditions, the reservoir (and associated inlets and culvert contributions) is completely dry with native and non-native vegetation aggressively encroaching into the empty reservoir. The southern portion of reservoir nearest to the dam is bare ground (at the time of this report). The middle portion is recently dominated by dense mule fat (*Baccharis salicifolia*) and widely scattered (but rapidly increasing in cover) Goodding's black willow (*Salix gooddingii*). The northern portion of the reservoir has been quickly invaded by an herbaceous layer of disturbed habitat dominated by common sow thistle (*Sonchus oleraceus*), prickly sow thistle (*Sonchus asper*), bristly ox-tongue (*Helminthotheca echioides*), and Russian thistle (*Salsola tragus*). Since drying, the entire inner rim of the reservoir has been heavily invaded by a broad swath of tamarisk scrub dominated by Mediterranean tamarisk (*Tamarix ramosissima*), including within portions of mule fat scrub in the basins/inlets. Beyond the tamarisk, the entire

reservoir is lined with valley freshwater marsh vegetation dominated by California bulrush (*Schoenoplectus californicus*), and to a lesser extent, broadleaf cattail (*Typha latifolia*). Goodding's black willow and red willow (*Salix laevigata*), then mule fat, dominate the outer edge of the reservoir.

There are two basins associated with the reservoir. The western basin consists of a mosaic of southern cottonwood-willow riparian forest dominated by Goodding's black willow and red willow, mule fat scrub dominated by mule fat, and valley freshwater marsh dominated by California bulrush. The understory is relatively devoid of vegetation. The eastern basin is dominated by southern cottonwood-willow riparian forest dominated by Goodding's black willow and red willow, with a few areas heavily invaded by non-native Mexican fan palm (*Washingtonia robusta*) and common fig (*Ficus carica*). The dense understory consists of mule fat, poison oak (*Toxicodendron diversilobum*), California blackberry (*Rubus ursinus*), sandbar willow (*Salix exigua*), California wild rose (*Rosa californica*), and stinging nettle (*Urtica dioica*), with native species displacement from encroaching poison hemlock (*Conium maculatum*), smilo grass (*Stipa miliacea*), and milk thistle (*Silybum marianum*).

Two culverts convey off-site storm flows into the western basin: one from the residential neighborhood to the north under Skylark Place into Upper Peters Canyon Reservoir Drainage 2, and the other from the residential neighborhood to the west under Lake View Trail directly into the western basin. In addition, an on-site feature (Upper Peters Canyon Reservoir Drainage 1), contributes to the western basin. An additional culvert conveys flows into Upper Peters Canyon Reservoir Drainage 3 from under Canyon View Avenue, directly into the reservoir. There are five other culverts that convey off-site nuisance flows into the eastern basin; two from storm drains associated with Jamboree Road, and three from the residential neighborhood to the north under Canyon View Avenue. These five inlets briefly create a 3 foot Corps jurisdictional ordinary high water mark, but quickly dissipate into sheet flow into the reservoir.

Soil pits were dug within and around the reservoir to determine the limits of potentially jurisdictional wetlands. SP 8, 12, 24, and 25, 26, showed evidence of hydric soils by meeting the indicator criterion for Redox Dark Surface (F6) or Sandy Redox (S5). Wetland hydrology indicators were present via Sediment Deposits (B2), Surface Soil Cracks (B6), Aquatic Invertebrates (B13), and Oxidized Rhizospheres along Living Roots (C3). The western basin and a rim around the reservoir that includes portions of valley freshwater marsh and tamarisk scrub vegetation qualify as wetland WoUS.

4.1.2 Upper Peters Canyon Reservoir Drainage 1

Upper Peters Canyon Reservoir Drainage 1, an unnamed tributary, is an ephemeral drainage that is entirely contained within PECA, receiving sheet flows from the surrounding non-native grassland. This drainage feature is a tributary to the western basin of Upper Peters Canyon Reservoir. It is characterized by non-native grassland in the upper reach, and southern

cottonwood-willow riparian forest in the lower reach. Surface water was not present in this feature during the site visit, and evidence of an OHWM was observed via surface water scouring. Due to lack of hydrophytic vegetation, a soil pit was not dug within this feature. The Corps OHWM is approximately 6 foot in width, surrounded by CDFW associated riparian vegetation.

4.1.3 Upper Peters Canyon Reservoir Drainage 2

Upper Peters Canyon Reservoir Drainage 2, an unnamed tributary, is an ephemeral drainage that appears to receive nuisance flows from the surrounding development. This drainage feature is a tributary to the western basin of Upper Peters Canyon Reservoir. The upper portion of this feature consists of ornamental trees, while the majority is characterized by southern cottonwood-willow riparian forest. Surface water was not present in this feature during the site visit, and evidence of an OHWM was observed via surface water scouring. Two soil pits were dug within the riparian vegetation of this feature to determine if wetlands were present. All three wetland parameters were not met within this feature. The Corps OHWM is approximately 6 feet in width, surrounded by CDFW associated riparian vegetation.

4.1.4 Upper Peters Canyon Reservoir Drainage 3

Upper Peters Canyon Reservoir Drainage 3, an unnamed tributary, is an ephemeral drainage that appears to receive nuisance flows from the surrounding development. The drainage feature is a tributary to Upper Peters Canyon Reservoir. It is dominated by mule fat with an herbaceous layer dominated by foxtail chess (*Bromus rubens*). Surface water was not present in the drainage during the site visit, and evidence of an OHWM was not observed. It is not within Corps jurisdiction, but is considered CDFW associated riparian vegetation. A soil pit was dug to determine if any portion of this drainage is considered wetland. All three wetland parameters were not met within this drainage.

4.1.5 Peters Canyon Wash

The southern portion of PECA consists of a main riparian corridor, Peters Canyon Wash, with five ephemeral drainage features that convey flows into the main channel. The northern half of Peters Canyon Wash primarily consists of southern cottonwood-willow riparian forest dominated by Goodding's black willow, red willow, and mule fat, with some portions dominated by black cottonwood (*Populus trichocarpa*), or with a few scattered individuals of southern California black walnut (*Juglans californica*). The understory in the northern half of Peters Canyon Wash is relatively absent, but includes California mugwort (*Artemisia douglasiana*) and various wetland plants scattered throughout. The southern half of Peters Canyon Wash primarily consists of southern cottonwood-willow riparian forest vegetation dominated by large, mature Goodding's black willow, red willow, Fremont cottonwood (*Populus fremontii*), and western sycamore (*Platanus racemosa*), with a few areas heavily invaded by non-native Chinese elm (*Ulmus parvifolia*), shamel ash (*Fraxinus uhdei*), Canary Island date palm (*Phoenix canariensis*), and

Mexican fan palm. The understory within the southern half of Peters Canyon Wash consists of, or various combinations of, yerba mansa (*Anemopsis californica*), American bulrush (*Schoenoplectus americanus*), California mugwort, California bulrush (*Schoenoplectus californicus*), common ripgut grass (*Bromus diandrus*), foxtail chess, coastal goldenbush (*Isocoma menziesii*), sandbar willow, and/or bare ground.

Peters Canyon Wash is an intermittent drainage (i.e., without storm flows, includes surface waters via an elevated water table in several locations) that receives flows from direct rainfall, from its tributaries on-site, and off-site nuisance flows from the surrounding development. Evidence of an OHWM was observed via surface water scouring. The Corps OHWM is approximately 8 feet in width, surrounded by CDFW associated riparian vegetation.

Soil pits were dug within Peters Canyon Wash to determine if wetlands were present. SP 15, 17, 18, 19, and 22 had evidence of hydric soils via Depleted Matrix (F3), Redox Dark Surface (F6), and/or Sandy Redox (S5). Wetland hydrology indicators were present via Water-Stained Leaves (B9), Drainage Patterns (B10), and Water Marks (B1). The entire length of the Peters Canyon Wash riparian corridor within areas showing wetland hydrology qualify as wetland WoUS.

4.1.6 Peters Canyon Wash Drainage 1

Peters Canyon Wash Drainage 1, an unnamed tributary, is an ephemeral drainage that enters PECA via a culvert and appears to receive nuisance flows from the surrounding development. This drainage feature is a tributary to Peters Canyon Wash. It is dominated by coyote brush (*Baccharis pilularis*), black mustard (*Brassica nigra*), Russian thistle, and mule fat. Surface water was not present in this feature during the site visit, and evidence of an OHWM was observed via surface water scouring. Due to the lack of hydrophytic vegetation, a soil pit was not dug within this feature. The Corps OHWM is approximately 3 feet in width, and the CDFW streambed is approximately 5 feet in width.

4.1.7 Peters Canyon Wash Drainage 2

Peters Canyon Wash Drainage 2, an unnamed tributary, is an ephemeral drainage that is completely contained within PECA and does not receive nuisance flows from the surrounding development. This drainage feature is a tributary to Peters Canyon Wash. It is dominated by mule fat, California sagebrush (*Artemisia californica*), and nonnative grasses. Surface water was not present in the feature during the site visit, and evidence of an OHWM was observed via surface water scouring. Due to lack of hydrophytic vegetation, a soil pit was not dug within this feature. The Corps OHWM is approximately 3 feet in width, and the CDFW streambed is approximately 5 feet in width.

4.1.8 Peters Canyon Wash Drainage 3

Peters Canyon Wash Drainage 3, an unnamed tributary, is an ephemeral drainage that is completely contained within PECA and does not receive nuisance flows from the surrounding development. This drainage feature is a tributary to Peters Canyon Wash. It is surrounded by lemonade berry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), and non-native grasses. The area surrounding this feature is dominated by coastal sage scrub and non-native grasses. Surface water was not present in this feature during the site visit, and evidence of an OHWM was observed via surface water scouring. Due to lack of hydrophytic vegetation, a soil pit was not dug within this feature. The Corps OHWM is approximately 3 feet in width, and the CDFW streambed is approximately 5 feet in width.

4.1.9 Peters Canyon Wash Drainage 4

Peters Canyon Wash Drainage 4, an unnamed tributary, is an ephemeral drainage that appears to receive nuisance flows from the surrounding development. This drainage feature is a tributary to Peters Canyon Wash. It is dominated by black willow, blue elderberry (*Sambucus nigra* ssp. *caerulea*), and a mix of exotic species. Surface water was not present in this feature during the site visit, and evidence of an OHWM was observed via surface water scouring. A soil pit was dug to determine if any portion of this feature is considered wetland. All three wetland parameters were not met within this feature. It is not within Corps jurisdiction, but is considered CDFW associated riparian vegetation.

4.1.10 Peters Canyon Wash Drainage 5

Peters Canyon Wash Drainage 5, an unnamed tributary, is an ephemeral drainage that appears to receive nuisance flows from the surrounding development. This drainage feature is a tributary to Peters Canyon Wash. It is composed of two drainages that merge into one and convey flow into Peters Canyon Wash. It is dominated by black willow, blue elderberry (*Sambucus nigra* ssp. *caerulea*), and a mix of exotic species. Surface water was not present in this feature during the site visit, and evidence of an OHWM was observed via surface water scouring. A soil pit was dug to determine if any portion of this feature is considered wetland. All three wetland parameters were not met within this feature. The Corps OHWM is approximately 3 feet in width, surrounded by CDFW associated riparian vegetation.

4.2 JURISDICTIONAL FEATURES

This delineation has been prepared for OC Parks in order to delineate the Corps, Regional Board, and CDFW jurisdictional authority within the project site. This report presents Michael Baker International's best effort at determining the jurisdictional boundaries using the most up-to-date regulations, written policy, and guidance from the regulatory agencies. However, as with any jurisdictional delineation, only the regulatory agencies can make a final determination of jurisdictional boundaries within a project site/property. Jurisdictional limits within the survey area are outlined in Table 1, below:

Table 2. Jurisdictional Limits within the Survey Area

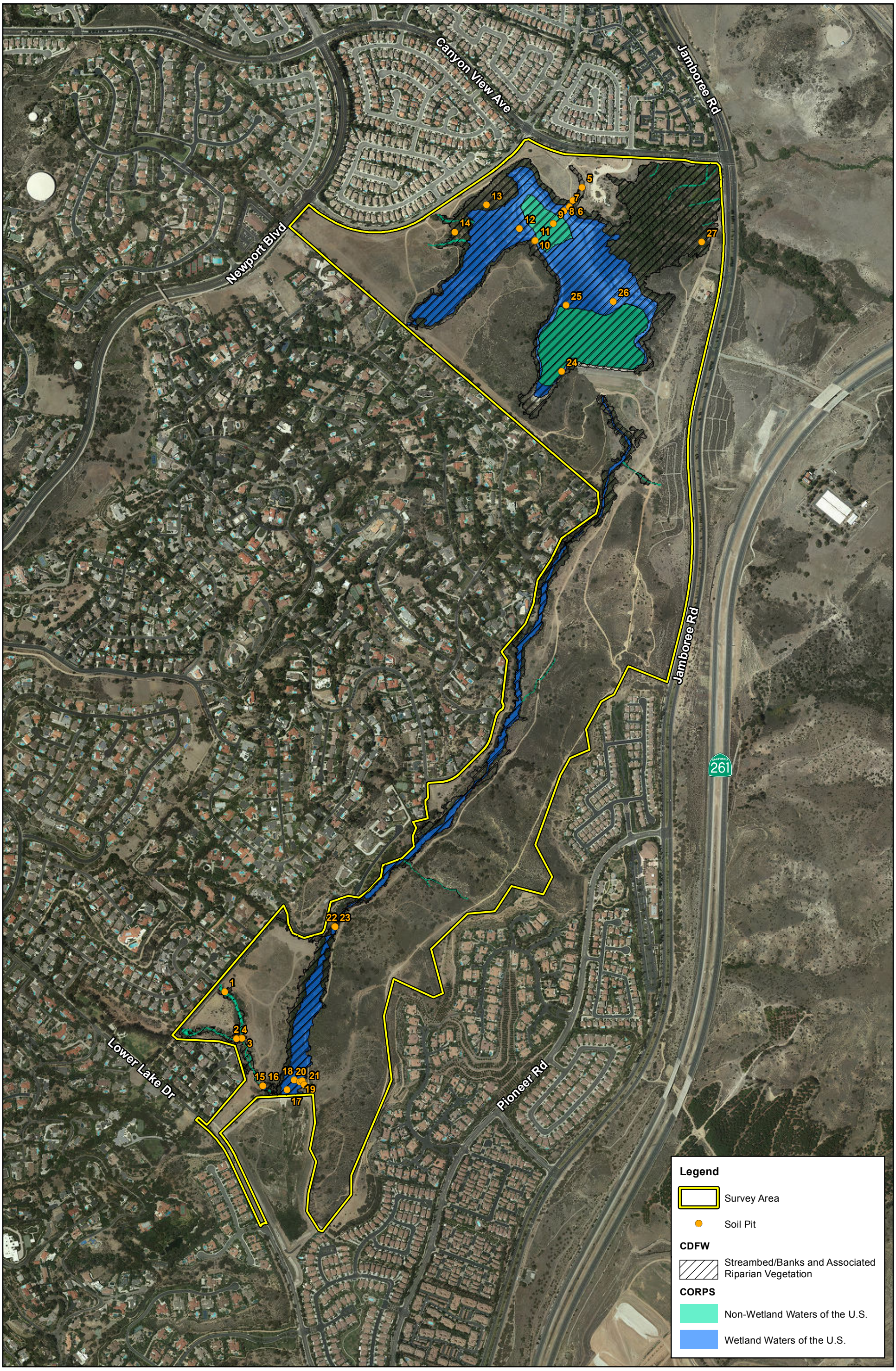
Feature	Jurisdictional Limits		
	Corps/Regional Board (non-wetland)	Corps/Regional Board (wetland)	CDFW
	Acres	Acres	Acres
Reservoir	13.81	23.80	66.10
Canyon	0.37	9.16	19.67
Total	14.18	32.96	85.77

4.2.1 U.S. Army Corps of Engineers/Regional Water Qulaity Control Board

The entire length of Peters Canyon Wash, a portion of Peters Canyon Wash Drainage 5, the western basin located at the reservoir, the mule fat scrub within the reservoir, and the rim around the reservoir are within the limits of ordinary hydrology and thus qualify as wetland WoUS, totaling approximately 32.96 acres within PECA. Peters Canyon Wash Drainages 1, 2, 3, and 4, a portion of Peters Canyon Wash Drainage 5, along with Upper Peters Canyon Reservoir Drainages 1, 2, and 3 had evidence of an OHWM, and would thus qualify as non-wetland WoUS, totaling approximately 14.18 acre within PECA (refer to Exhibit 5).

4.2.2 California Department of Fish and Wildlife

The entire length of Peters Canyon Wash and Peters Canyon Wash Drainages 1, 2, 3, 4, and 5 exhibited a bed and bank, and are considered CDFW jurisdictional streambed. The western and eastern basins within Upper Peters Canyon Reservoir, along with portions surrounding the reservoir, is considered CDFW associated vegetation. It is determined that approximately 85.77-acre of CDFW jurisdictional streambed and associated riparian vegetation is located within PECA (refer to Exhibit 5).



5/25/2016 JN M:\Mdata\152478\GIS\MXD\Fig 05 Potential Jurisdictional Resources.mxd

Michael Baker INTERNATIONAL

0 400 800 Feet

Source: USDA Web Soil Survey, Eagle Aerial - 2014

PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN
JURISDICTIONAL DELINEATION REPORT

Jurisdictional Resources

Figure 5

Section 5 Conclusions and Recommendations

The following is a summary of the total area of potential jurisdiction for each regulatory agency and the various permits, agreements, and certifications required before any temporary or permanent impacts to jurisdictional areas may occur.

5.1 U.S. ARMY CORPS OF ENGINEERS

A total of 32.96 acres of potential wetland WoUS and 14.18 acres of potential non-wetland WoUS have been mapped within the survey area. The Corps regulates discharges of dredged or fill materials into WoUS pursuant to Section 404 of the CWA. Permit authorization will be required from the Corps prior to commencement of any construction activities (i.e., dredge or fill) within the Corps delineated jurisdictional areas.

5.2 REGIONAL WATER QUALITY CONTROL BOARD

The Regional Board regulates discharges to surface waters with a nexus to a TNW under the Federal CWA, and the California Porter-Cologne Water Quality Control Act for those that do not. Because all features on-site have a significant nexus to downstream WoUS, the totals acres jurisdictional under the Regional Board mirrors that of the Corps (32.96 acres of wetland WoUS and 14.18 acres of non-wetland WoUS). For a Corps 404 permit to be authorized, a 401 Water Quality Certification from the Regional Board will be required. The Regional Board also requires that CEQA compliance be obtained prior to obtaining the 401 Certification. A Regional Board application fee is required with the application package, and is calculated based on the acreage and linear feet of jurisdictional impacts.

5.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

A total of 85.77 acres of potential streambed/banks and associated riparian vegetation have been mapped within the survey area. The CDFW regulates alteration to streambeds and associated vegetation under Sections 1600 et seq. of the CFGC. The CDFW must be notified prior to activities that alter jurisdictional areas. A SAA from the CDFW would be required prior to commencement of any construction activities within the CDFW delineated jurisdictional areas. A CDFW application fee is required with the application package, and is calculated based on project costs.

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Appendix A Site Photographs

Photo 1 – UPCR Drainage 3 looking south downstream

Photo 2 – Soil pit within non-wetland conditions

Photo 3 – Inside the dry reservoir looking southeast

Photo 4 – Inside the dry reservoir looking west

Photo 5 –Inside the dry reservoir looking north toward tamarisk swathe

Photo 6 – Soil pit within transitional area between non-wetland and wetland

Photo 7 – Looking west into the dry reservoir

Photo 8 – Looking northwest from dam into dry reservoir

Photo 9 – Looking south from dam into Peters Canyon Wash

Photo 10 – Looking south inside of Peters Canyon Wash

Photo 11 – Looking southwest into the historic eucalyptus woodlands from the East Ridge View Trail

Photo 12 – Looking southeast down Peters Canyon Wash

Photo 13 – Southern cottonwood-willow riparian edge within PCW

Photo 14 – Soil pit within wetland

Appendix B Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Peters Canyon City/County: Orange Sampling Date: 4/14/16

Applicant/Owner: County of Orange State: CA Sampling Point: SP1

Investigator(s): D. Rosie, L. Nguyen Section, Township, Range: T4S, R9W

Landform (hillslope, terrace, etc.): Arroyo Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): Arid West Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes No X	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	80%	Y	
2. Sambucus nigra ssp. cerulea	10	N	
3.			
4.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

Herb Stratum (Plot size: ____)			
1. Stipa milacea	5	N	
2. Ricinus communis	2	N	
3. Erigeron canadensis	3	N	
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR4/4	100					SL	sediment material
4-10	10YR 3/3	100					SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Peters Cyn. City/County: Tustin / Orange Sampling Date: 4/14/16

Applicant/Owner: OC Parks State: CA Sampling Point: SP2

Investigator(s): D. Rosie, L. Nguyen Section, Township, Range: T4S, R9W

Landform (hillslope, terrace, etc.): arroyo Local relief (concave, convex, none): concave Slope (%): 3-5

Subregion (LRR): Arid West Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes No X	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20' rad.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix goodingii	50	Y	FACW
2. Washingtonia robusta	<5	N	UPL
3. Quercus agrifolia	5	N	UPL
4. Fraxinus	20	Y	
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 20' rad.)			
1. Baccharis salicifolia	20	Y	FAC
2. Baccharis pilularis	<5	N	UPL
3. Cortaderia selloana	<5	N	?
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5' rad)			
1. Ricinus communis	<2	N	UPL
2. Oxalis pes-caprae	<5	N	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: 20' rad)			
1. Ornamental honeysuckle	<5	N	UPL
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 2/2 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-10	10YR 3/1.5	50	–				clay loam	
0-10	10YR 5/4	50	–				loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Roots

Depth (inches): NA

Hydric Soil Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- X Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Peters Canyon City/County: Orange Sampling Date: 4/14/16

Applicant/Owner: County of Orange State: CA Sampling Point: SP 3

Investigator(s): L. Nguyen, D. Rosie Section, Township, Range: T4S, R9W

Landform (hillslope, terrace, etc.): arroyo Local relief (concave, convex, none): concave Slope (%): 3-5

Subregion (LRR): Arid West Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix goodingii	60	Y	FACW
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10)			
1. Artemesia californica	15	N	
2. Baccaris pilularis	5	N	
3. ~~Plant~~			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: ____)			
1. Phacelia ramosissima	20	N	
2. Bromus diandrus	5	N	
3. Oxalis pes-caprae	<2	N	
4. Osteospermum poliolanis	5	N	
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

Sampling Point: 3

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/2	40	—				CL	
0-10	10YR 4/3	60	—				SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Peters Canyon City/County: Orange Sampling Date: 4/14/16

Applicant/Owner: County of Orange State: CA Sampling Point: SP4

Investigator(s): D. Rosie, L. Nguyen Section, Township, Range: T4S, R9W

Landform (hillslope, terrace, etc.): Arroyo Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR): Arid West Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No	**Is the Sampled Area within a Wetland?** Yes No ✓
Hydric Soil Present?	Yes No ✓	
Wetland Hydrology Present?	Yes ✓ No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Black willow Salix gooddingii	60	Y	FACW
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft)			
1.			
2. Baccaris pilularis	10	N	
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Cyperus eragrostis	5	N	
2. Phacelia ramosissima	<2	N	
3. Stipa ~~me~~ milacea	<1	N	
4. Artemesia douglasiana	<2	N	
5. Eriogeron canadunsis	<3	N	
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

Sampling Point: 2

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2.5	100					SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Orange County Sampling Date: 4/20/16

Applicant/Owner: OC Parks State: CA Sampling Point: SP5

Investigator(s): L. Mack, S. Anderson Section, Township, Range: T4S, R4W

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): Arid West Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____ No ✓	
Wetland Hydrology Present?	Yes ____ No ✓	

Remarks:
located in swale below culvert, drought conditions

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. Baccharis salicifolia	60	Y	FAC
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Melilotus indicus	45	Y	UPL
2. Bromus madritensis ssp. rubens	34	Y	UPL
3. Isacoma menziesii	1	N	
4.			
5.			
6.			
7.			
8.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

Sampling Point: 1

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/4	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard compacted soils

Depth (inches): 12"

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Tustin/Orange Sampling Date: 4/20/16

Applicant/Owner: OC Parks State: CA Sampling Point: SP6

Investigator(s): Stephen Anderson & Lauren Mack Section, Township, Range: T4S, R9W

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): Arid West Lat: 33°47'3.44"N Long: 117°45'46.07"W Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation X, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No ✓

Hydric Soil Present? Yes ____ No ✓

Wetland Hydrology Present? Yes ____ No ✓

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:
drought conditions present
located within swale below culvert

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Brassica nigra	3	N	UPL
2. Isocoma menziesii	5	N	FAC
3. Melilotus indicus	50	Y	UPL
4. Schoenoplectus californicus	3	N	OBL
5. Bromus madritensis ssp. rubens	4	N	UPL
6.			
7.			
8.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 35 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	3	x 1 =	3
FACW species	____	x 2 =	____
FAC species	5	x 3 =	15
FACU species	____	x 4 =	____
UPL species	57	x 5 =	285
Column Totals:	65 (A)		303 (B)

Prevalence Index = B/A = 4.66

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:
dead/cut Schoenoplectus with some re-sprouting

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 6/4	97	7.5YR 4/6	3	C	M	loamy sand	
12-16	10YR 4/4	95	7.5YR 4/6	5	C	M	sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard compact soils

Depth (inches): 16"

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Tustin/Orange Sampling Date: 4/20/16

Applicant/Owner: OC Parks State: CA Sampling Point: SP7

Investigator(s): L. Mack, S. Anderson Section, Township, Range: T4S, R9W

Landform (hillslope, terrace, etc.): top of bank Local relief (concave, convex, none): no Slope (%): 0

Subregion (LRR): Arid West Lat: 33°47'2.19"N Long: 117°45'47.03"W Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____ No ✓	
Wetland Hydrology Present?	Yes ____ No ✓	

Remarks: drought conditions
pH located at base of swale & top of slope of basin

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Schoenoplectus californicus	10	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 90 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

dug in area of dead Schoenoplectus with some resprouting

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 4/2	98	7.5YR 4/6	2	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Tustin/Orange Sampling Date: 4/20/16

Applicant/Owner: OC Parks State: CA Sampling Point: SP8

Investigator(s): L. Mack, S. Anderson Section, Township, Range: T4S, R9W

Landform (hillslope, terrace, etc.): bank slope Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): Arid west Lat: 33°47'1.20"N Long: 117°45'47.85"W Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No /

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

located at base of slope of basin, drought conditions

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Schoenoplectus californicus	15	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 85 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	2.5Y 5/3	100					sand	
1-18	10YR 3/2	95	5YR 4/6	5	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✓ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Soil surface crack located 5' away.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Tustin/Orange Sampling Date: 4/20/16

Applicant/Owner: OC Parks State: CA Sampling Point: SP9

Investigator(s): Mack, Anderson Section, Township, Range: T4S, R9W

Landform (hillslope, terrace, etc.): dry basin Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Arid West Lat: 33°47'00.23" N Long: 117°45'49.10" W Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation X, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No ✓	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks: drought conditions
located in basin

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. T			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. Tamarix ramosissima	5	Y	UPL
2. Baccharis salicifolius	10	Y	FAC
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: ____)			
1. Salsola tragus	20	Y	UPL
2. Sonchus oleraceus	10	Y	UPL
3. Chenopodium murale	2	N	FACU
4. Melilotus indicus	3	N	UPL
5. Lactuca serriola	5	N	FAC
6.			
7.			
8.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species 10	x 3 = 30
FACU species 7	x 4 = 28
UPL species 38	x 5 = 190
Column Totals: 55 (A)	248 (B)

Prevalence Index = B/A = 4.51

Hydrophytic Vegetation Indicators:

__ Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

drought conditions have reduced water in basin and allowed non-natives to come in

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
6-10	10YR 4/2	99	7.5YR 4/6	1	C	PL	C	
10-18	Gley1 2.5/N	97	10YR 4/6	3	C	M	C	
0-1	10YR 6/2	100					S	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✓ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PGCA City/County: Tustin/Orange Sampling Date: 4/20/16

Applicant/Owner: OC Parks State: CA Sampling Point: SP10

Investigator(s): Mack, Andersen Section, Township, Range: T4S, R9W

Landform (hillslope, terrace, etc.): bank slope Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): Arid West Lat: 33°46'58.51"N Long: 117°45'51.01"W Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____ No ✓	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
drought conditions
located at base of basin slope

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 10)			
1. Baccharis salicifolia	40	Y	FAC
2. Tamarix ramosissima	10	Y	FAC
3.			
4.			
5.			
	50 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Schoenoplectus californicus	10	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 90 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:
dead schoenoplectus

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/3	98	5YR 5/6	2	C	PL	S	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✓ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Tustin/Orange Sampling Date: 4/20/16
Applicant/Owner: OC Parks State: CA Sampling Point: SP11
Investigator(s): Mack, Anderson Section, Township, Range: T4S, R9W
Landform (hillslope, terrace, etc.): base of slope Local relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): Arid West Lat: 33°46'53.58"N Long: 117°45'50.91"W Datum:
Soil Map Unit Name: NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No ✓
Hydric Soil Present? Yes ✓ No ____
Wetland Hydrology Present? Yes ✓ No ____
Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
drought conditions
located at base of basin slope

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 10)			
1. Baccharis salicifolia	15	Y	FAC
2. Tamrix ramosissima	40	Y	UPL
3.			
4.			
5.			
	55 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Salsola tragus	45	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	45 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 55 % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species ____	x 1 =	____
FACW species ____	x 2 =	____
FAC species 15	x 3 =	45
FACU species ____	x 4 =	____
UPL species 85	x 5 =	425
Column Totals: 100 (A)		____ (B)

Prevalence Index = B/A = 4.70

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
due to drought conditions have increased presence of upland veg

Sampling Point: 6

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 6/2	100					S	
1-18	10YR 3/1	95	5YR 5/8	5	C	PL	SC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✓ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): _____

Water Table Present? Yes ___ No ___ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PUCA City/County: Tustin/Orange Sampling Date: 4/20/16
Applicant/Owner: OC Parks State: CA Sampling Point: SP12
Investigator(s): Stephen Anderson & Lauren Mack Section, Township, Range: T4S, R9W
Landform (hillslope, terrace, etc.): basin floor Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Arid West Lat: 33°46'59.60"N Long: 117°45'57.64"W Datum:
Soil Map Unit Name: NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____
Is the Sampled Area within a Wetland? Yes X No ____

Remarks:
Drought conditions

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	25	Y	FACW
2.			
3.			
4.			
	25 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. Baccharis salicifolia	25	Y	FAC
2. Tamrix ramosissima	20	Y	FAC
3.			
4.			
5.			
	45 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Nicotiana glauca	3	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	3 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 97 % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
__ Prevalence Index is ≤3.0[1]
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 6/2	100					S	
1-18	10YR 3/2	90	7.5YR 5/8	10	C	M	LS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✓ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Tustin/Orange Sampling Date: 4/20/16

Applicant/Owner: OC Parks State: CA Sampling Point: SP13

Investigator(s): Mack, Anderson Section, Township, Range: T4S, R9W

Landform (hillslope, terrace, etc.): Top of bank of basin Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Arid West Lat: 33°47'1.66"N Long: 117°45'56.17"W Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____ No ✓	
Wetland Hydrology Present?	Yes ____ No ✓	

Remarks: drought conditions
located at top of basin slope

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	35	Y	FACW
2.			
3.			
4.			
	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. Baccharis salicifolia	25	Y	FAC
2. Tamrix ramosissima	10	Y	UPL
3.			
4.			
5.			
	35	= Total Cover	
Herb Stratum (Plot size: 5)			
1. Melilotus indicus	65	Y	UPL
2. Brassica nigra	2	N	UPL
3. Schoenoplectus californicus	1	N	OBL
4.			
5.			
6.			
7.			
8.			
	68	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____	= Total Cover	

% Bare Ground in Herb Stratum 32 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

Sampling Point: 8

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/3	97	5YR 5/8	3	C	M	LS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard compacted soils

Depth (inches): 14"

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Tustin/Orange Sampling Date: 4/7/16

Applicant/Owner: OC Parks State: CA Sampling Point: SP14

Investigator(s): Mack, Anderson Section, Township, Range: T4S, R9W

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Arid West Lat: 33°46'59.19"N Long: 117°45'59.53"W Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____ No ✓	
Wetland Hydrology Present?	Yes ____ No ✓	

Remarks:
Drought conditions

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	40	Y	FACW
2.			
3.			
4.			
	40 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. Baccharis salicifolia	80	Y	FAC
2.			
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/3	99	7.5YR 5/8	1	C	M	S	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Tustin / Orange Sampling Date: 4/26/16

Applicant/Owner: OC Parks State: _____ Sampling Point: SP 15

Investigator(s): D. Rosie, L. Nguyen Section, Township, Range: T4S, R9W

Landform (hillslope, terrace, etc.): channel Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): Arid West Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: Cattail and/or willow within the OHWM is wetland (always)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	20	YES	FACW
2. Salix laevigata	5	NO	FACW
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 20' r)			
1. Typha latifolia	50	YES	OBL
2. Baccharis salicifolia	<5	NO	FAC
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: _____)			
1. Cyperus involucratus	75	YES	FACW
2. Pulicaria paludosa	<5	NO	FAC
3. Washingtonia robusta	<5	NO	FACW
4. Helmenothoca echioides	<5	NO	FACU
5.			
6.			
7.			
8.			
= Total Cover			
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum <5 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	80	10YR 7/1	20	C	M	SL	Manganese ?
0-8	10YR 3.5/3	45	5YR 5/8	5	C	M	SCL	Iron

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- X Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- X Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 0

Water Table Present? Yes X No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 0

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Peters Canyon City/County: ORANGE Sampling Date: 4/26/16

Applicant/Owner: OC Parks State: CA Sampling Point: SP16

Investigator(s): L. Nguyen, D. Rose Section, Township, Range: T4S, R4W

Landform (hillslope, terrace, etc.): channel Local relief (concave, convex, none): convex Slope (%): N/A

Subregion (LRR): Arid West Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No	**Is the Sampled Area within a Wetland?** Yes No ✓
Hydric Soil Present?	Yes No ✓	
Wetland Hydrology Present?	Yes No ✓	

Remarks: Willows outside of OHWM are not wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	30	Y	FACW
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Pulicaria paludosa	<5	N	
2. Melilotus indica	15	N	
3. Melilotus alba	<5	N	
4. Phacelia ramosissima	<5	N	
5. Risonus communis	<5	N	
6. Helmenothera echioides	<5	N	
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No

Remarks: Willows outside of OHWM are not wetland

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/4	100					SL	
8-10	10YR 4/4	100					C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Peters Canyon City/County: Tustin/Orange Sampling Date: 4/27/16
Applicant/Owner: OC Parks State: CA Sampling Point: SP17
Investigator(s): D. Rosie, S. Anderson Section, Township, Range: T4S, R4W
Landform (hillslope, terrace, etc.): canyon bottom Local relief (concave, convex, none): concave Slope (%): <1
Subregion (LRR): Arid West Lat: Long: Datum:
Soil Map Unit Name: NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes X No
Wetland Hydrology Present? Yes X No
Is the Sampled Area within a Wetland? Yes X No

Remarks: Yerba-mansa with willow is wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix goeddingii	35	YES	FACW
2. Salix laevigata	45	YES	FACW
3.			
4.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. Baccharis salicifolia	<5	YES	FAC
2.			
3.			
4.			
5.			
	3 = Total Cover		
Herb Stratum (Plot size:)			
1. Anemopsis californica	80	YES	OBL
2. Schoenoplectus americanus	<5	NO	OBL
3. Pulicaria paludosa	<5	NO	FAC
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum <5 % Cover of Biotic Crust

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
__ Prevalence Index is ≤3.0[1]
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					SC	
6-10	10YR 5/2	97	10YR 5/8	3	C	PL,M	LS	
10-12	10YR 4/2	98	10YR 5/8	2	C	M	SC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Tustin / Orange Sampling Date: 4/27/16
Applicant/Owner: OC Parks State: CA Sampling Point: SP18
Investigator(s): D. Rosie, S. Anderson Section, Township, Range: T4S, R4W
Landform (hillslope, terrace, etc.): arroyo bottom Local relief (concave, convex, none): Concave Slope (%): _____
Subregion (LRR): Arid West Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
CA bulrush w/ black willow is wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft rad)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	30	yes	FACW
2.			
3.			
4.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20ft rad)			
1.			
2.			
3.			
4.			
5.			
	_____	= Total Cover	
Herb Stratum (Plot size: 20ft rad)			
1. Schoenoplectus americanus	80	yes	OBL
2. Polygonum pat. sca	40	yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	120	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	90	5YR 5/8	10	C	M	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Tustin / Orange Sampling Date: 4/27/16

Applicant/Owner: OC Parks State: CA Sampling Point: SP19

Investigator(s): D. Rosie, S. Anderson Section, Township, Range: T4S, R9W

Landform (hillslope, terrace, etc.): drainage Local relief (concave, convex, none): Concave Slope (%): <1

Subregion (LRR): ~~C - Mediterranean~~ Arid West Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

Significant drought conditions present. Fleabane with willow is wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20'r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix goodingii	40	YES	FACW
2. Populus fremontii	10	YES	FAC+?
3.			
4.			
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1. Isocoma menziesii	<5	YES	FAC
2.			
3.			
4.			
5.			
	<5	= Total Cover	
Herb Stratum (Plot size: ____)			
1. Pylicaria paludosa	50	YES	FAC
2. Sonchus oleraceus	<2	No	UPL
3. Stipa milacea	<2	NO	FACU
4. Bromus diandrus	2	NO	UPL
5. Rumex crispus	<1	No	FAC
6. Helminotheca echioides	<1	NO	FACU
7. Lactuca serriola	<1	NO	UPL
8.			
	57	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____	= Total Cover	

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	90	7.5YR 4/6	10	C	M	LS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Tustin / Orange Sampling Date: 4/27/16

Applicant/Owner: OC Parks State: CA Sampling Point: SP20

Investigator(s): D. Rosie, S. Anderson Section, Township, Range: T4S, R9W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 2

Subregion (LRR): Arid West Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No

Hydric Soil Present? Yes X No

Wetland Hydrology Present? Yes No X

Is the Sampled Area within a Wetland? Yes No X

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. Isocoma menziesii	90	YES	FAC
2.			
3.			
4.			
5.			
	90 = Total Cover		
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	98	7.5YR 5/8	2	C	M	LS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Tustin / Orange Sampling Date: 4/27/16
Applicant/Owner: OC Parks State: CA Sampling Point: SP21
Investigator(s): D. Rosie, S Anderson Section, Township, Range: T4S, R4W
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): _____ Slope (%): 3
Subregion (LRR): Arid West Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No X
Hydric Soil Present? Yes X No _____
Wetland Hydrology Present? Yes _____ No X
Is the Sampled Area within a Wetland? Yes _____ No X

Remarks: Outside of willow and goldenbush is not wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Isocoma menziesii	15	YES	FAC
2. Baccharis pilularis	5	YES	UPL
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Stipa milacea	15	YES	UPL
2. Bromus rubens	15	YES	UPL
3. Bromus hordaceus	5	NO	UPL
4. Sonchus oleraceus	7	NO	UPL
5. Melilotus indica	<5	NO	UPL
6. Hirschfeldia incana	10	NO	UPL
7. Salsola tragus	<5	NO	UPL
8.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust _____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species 15	x 3 =	45
FACU species	x 4 =	
UPL species 65	x 5 =	325
Column Totals: 80 (A)		370 (B)

Prevalence Index = B/A = 4.625

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

Sampling Point: 5

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	50	5YR 5/8	50	C	M	LS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- X Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): _____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Tustin / Orange Sampling Date: 4/27/16
Applicant/Owner: OC Parks State: CA Sampling Point: SP22
Investigator(s): D. Rosie / S. Anderson Section, Township, Range: T4S, R9W
Landform (hillslope, terrace, etc.): arroyo Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): Arid West Lat: Long: Datum:
Soil Map Unit Name: NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	80	YES	FACW
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Pulicaria paludosa	<5	YES	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	<5 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 95+ % Cover of Biotic Crust

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
__ Prevalence Index is ≤3.0[1]
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

Sampling Point: _____

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100					SiCL	
4-10	10YR 5/2	90	5YR 5/8	10	C	M	SaL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- X Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Tustin/Orange Sampling Date: 4/29/16
Applicant/Owner: OC Parks State: CA Sampling Point: SP23
Investigator(s): D. Rosie, S. Anderson Section, Township, Range: T4S, R9W
Landform (hillslope, terrace, etc.): arroyo Local relief (concave, convex, none): Concave Slope (%): _____
Subregion (LRR): Arid West Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	60	YES	FACW
2. Salix gooddingii	15	YES	FACW
3.			
4.			
	75	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Bromus diandrus	<5	YES	UPL
2. Ambrosia psilostachya	<5	YES	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	5	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum 90 % Cover of Biotic Crust _____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

Sampling Point: 7

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					LSa	
6-10	10YR 3/2	98	5YR 5/8	2	C	M	SaL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Soil sample collected from redoximorphic features of hydric soil [illegible]

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Orange Sampling Date: 04/28/16
Applicant/Owner: OC Parks State: CA Sampling Point: SP 24
Investigator(s): Richard Beck, Anisha Naik Section, Township, Range: T4S, R9W
Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR): C - Arid West Lat: Long: Datum:
Soil Map Unit Name: NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No X
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: r = 10')			
1. Schoenoplectus californicus	40	Y	OBL
2. tamarisk ramosissima	40	Y	FAC
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: r = 5')			
1. NONE			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1. NONE			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum % Cover of Biotic Crust

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
__ Prevalence Index is ≤3.0[1]
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

Sampling Point: SP1

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/5	90					C	with pore linings
END								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

[illegible] indicators observed. Pore linings present with high deposition.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- X Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): NONE

Water Table Present? Yes ___ No X Depth (inches): >18"

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): >18"

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Orange Sampling Date: 04/28/16

Applicant/Owner: OC Parks State: CA Sampling Point: SP25

Investigator(s): Richard Beck, Anisha Malik Section, Township, Range: T4S, R4W

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): _____

Subregion (LRR): C - Arid West Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=20')	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: r=10')			
1. tamarix ramosissima	40	Y	FAC
2. Baccharis salicifolia	20	Y	FAC
3.			
4.			
5.			
	60 = Total Cover		
Herb Stratum (Plot size: r=5')			
1. NONE			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: 20% bare ground

SOIL

Sampling Point: SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	5Y 4/1	60					C	
END								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ____ Depth (inches): _____

Water Table Present? Yes ____ No ____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No ____ Depth (inches): _____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: Orange Sampling Date: 04/28/14
Applicant/Owner: OC Parks State: CA Sampling Point: SP26
Investigator(s): Richard Beck, Anisha Malik Section, Township, Range: T4S, R9W
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): ____
Subregion (LRR): C - Arid West Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: ____ NWI classification: ____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 20')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: r = 10')			
1. Baccharis salicifolia	30	Y	FAC
2. Sherspeckia californicus	30	Y	OBL
3. Tamarix ramosissima	30	Y	UPL
4.			
5.			
	90 = Total Cover		
Herb Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species ____	x 1 =	____
FACW species ____	x 2 =	____
FAC species ____	x 3 =	____
FACU species ____	x 4 =	____
UPL species ____	x 5 =	____
Column Totals: ____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
__ Prevalence Index is ≤3.0[1]
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: 10% bare ground

Sampling Point: SP 3

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5Y 6/2	50	10YR 6/4	50	C	M	S	
END								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- X Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): NONE

Water Table Present? Yes ___ No X Depth (inches): >18"

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): >18"

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PECA City/County: orange Sampling Date: 04/28/16
Applicant/Owner: OC Parks State: CA Sampling Point: SF27
Investigator(s): Richard Beck, Anisha Malik Section, Township, Range: T4S, R4W
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): _____ Slope (%): _____
Subregion (LRR): C Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. arroyo willow	50	Y	FACW
2.			
3.			
4.			
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: r = 10')			
1. mulefat	10	Y	FAC
2. coyotebush	30	Y	UPL
3.			
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: r = 5')			
1. Mugwort	10	Y	UPL
2. western ragweed	10	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	20	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 50	x 2 = 100
FAC species 10	x 3 = 30
FACU species 10	x 4 = 40
UPL species 40	x 5 = 200
Column Totals: 110 (A)	370 (B)

Prevalence Index = B/A = 3.36

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 4/3	100					LS	
END								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): NONE

Water Table Present? Yes _____ No X Depth (inches): >18"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >18"

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C Soil Report

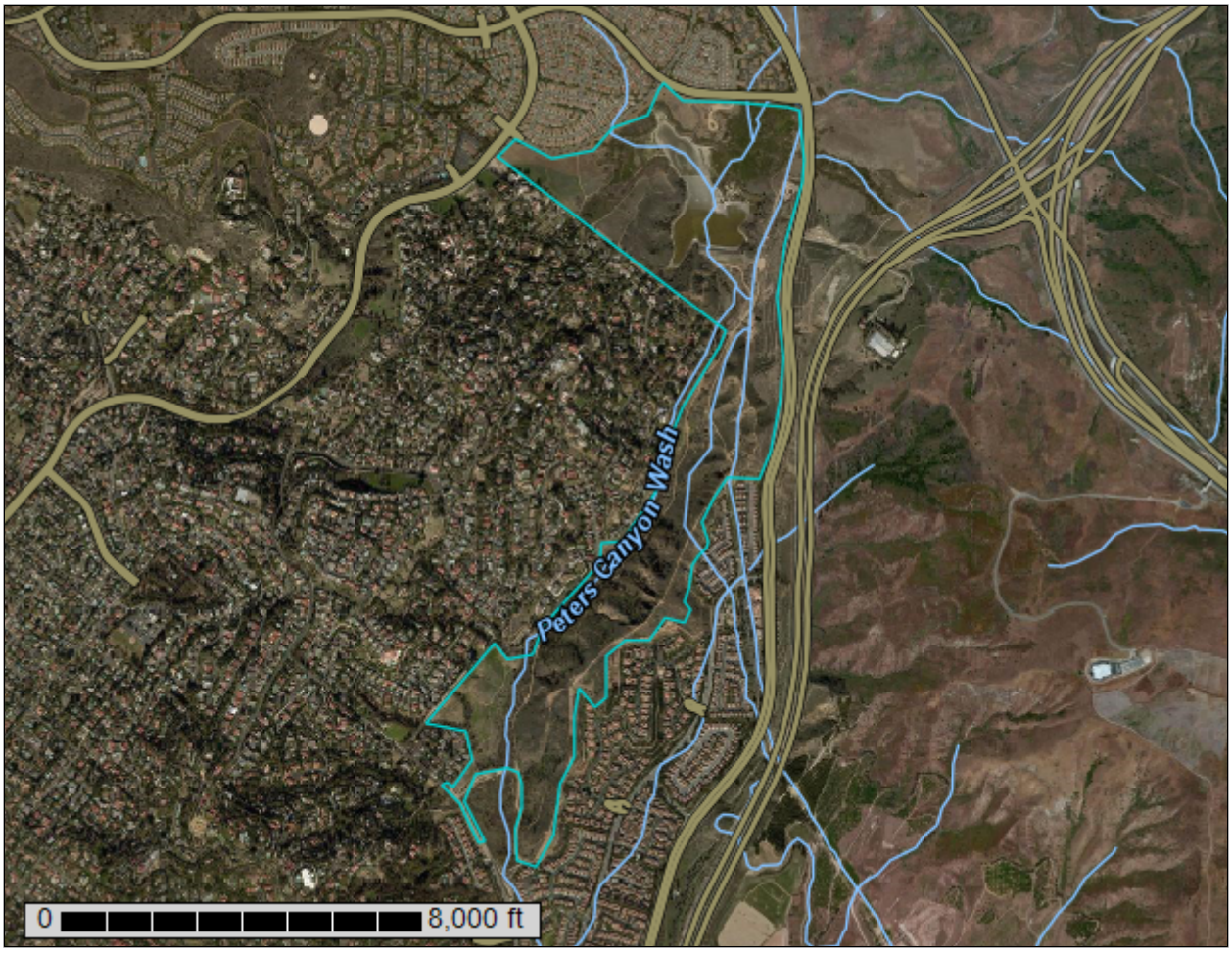
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Orange County and Part of Riverside County, California



February 23, 2016

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

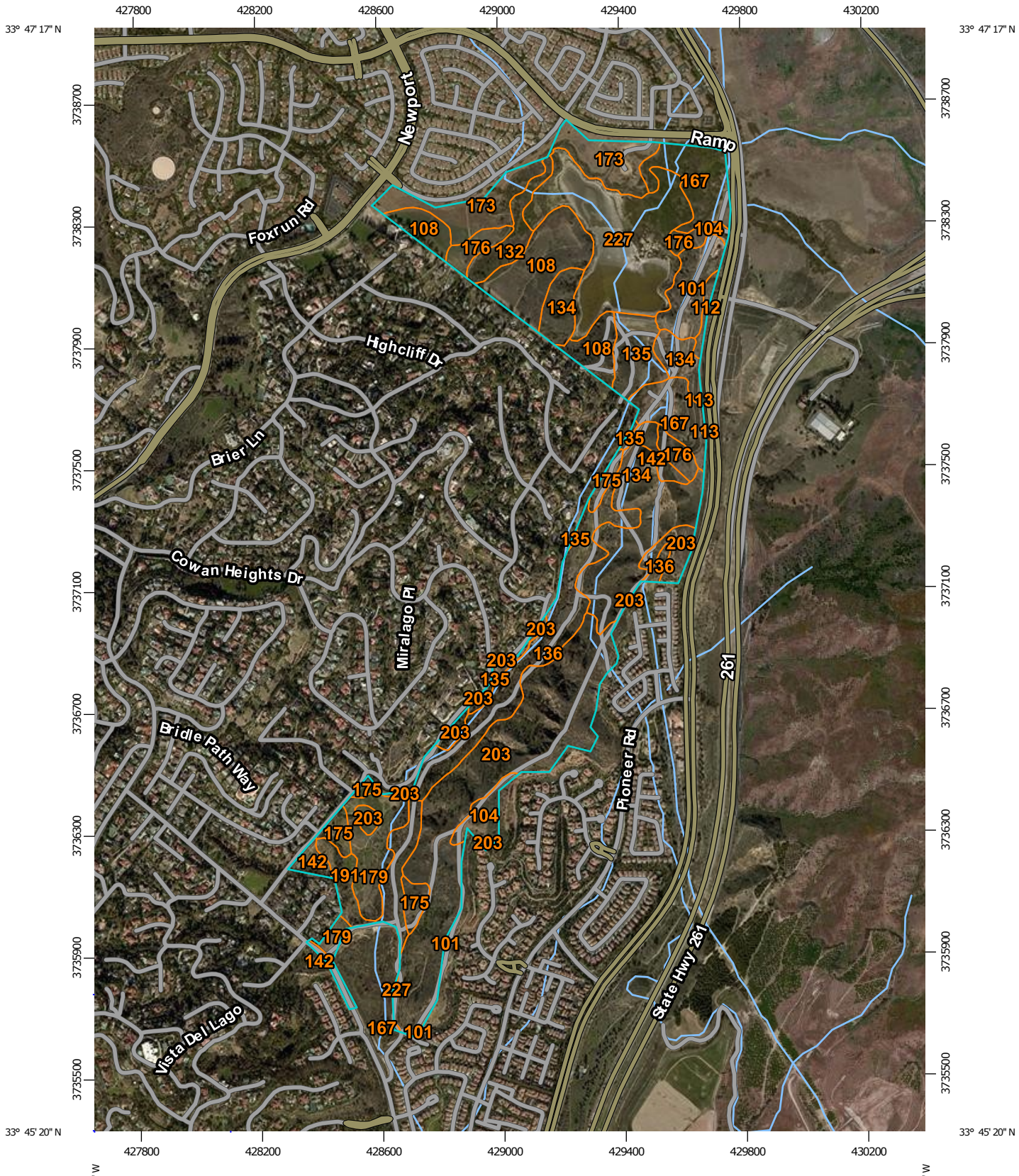
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Orange County and Part of Riverside County, California
Survey Area Data: Version 9, Sep 23, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 3, 2010—Jan 17, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Orange County and Part of Riverside County, California (CA678)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
101	Alo clay, 15 to 30 percent slopes	9.9	3.0%
104	Alo variant clay, 15 to 30 percent slopes	6.1	1.8%
108	Anaheim clay loam, 15 to 30 percent slopes	27.4	8.3%
112	Balcom clay loam, 15 to 30 percent slopes	1.6	0.5%
113	Balcom clay loam, 30 to 50 percent slopes	0.2	0.1%
132	Botella clay loam, 2 to 9 percent slopes, warm MAAT, MLRA 19	6.9	2.1%
134	Calleguas clay loam, 50 to 75 percent slopes, eroded	37.4	11.3%
135	Capistrano sandy loam, 2 to 9 percent slopes	11.6	3.5%
136	Capistrano sandy loam, 9 to 15 percent slopes	25.9	7.8%
142	Cieneba sandy loam, 30 to 75 percent slopes, eroded	5.6	1.7%
167	Mocho loam, 2 to 9 percent slopes, warm MAAT, MLRA 19	22.0	6.6%
173	Myford sandy loam, 2 to 9 percent slopes	22.1	6.7%
175	Myford sandy loam, 9 to 15 percent slopes	7.7	2.3%
176	Myford sandy loam, 15 to 30 percent slopes	7.7	2.3%
179	Myford sandy loam, thick surface, 2 to 9 percent slopes	14.4	4.3%
191	Riverwash	12.2	3.7%
203	Soper cobbly loam, 15 to 50 percent slopes	70.9	21.4%
227	Water	41.1	12.4%
Totals for Area of Interest		**330.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Orange County and Part of Riverside County, California

101—Alo clay, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: hcl8
Elevation: 200 to 3,250 feet
Mean annual precipitation: 9 to 25 inches
Mean annual air temperature: 59 to 63 degrees F
Frost-free period: 200 to 310 days
Farmland classification: Not prime farmland

Map Unit Composition

Alo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Alo

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 15 inches: clay
H1 - 15 to 22 inches: clay
H3 - 22 to 59 inches: weathered bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 22 to 26 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: CLAYEY (1975) (R019XD001CA)

Minor Components

Bonsall, clay

Percent of map unit: 5 percent

Anaheim, clay loam
Percent of map unit: 5 percent

Balcom, clay loam
Percent of map unit: 3 percent

Unnamed
Percent of map unit: 2 percent

104—Alo variant clay, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: hclc
Elevation: 200 to 700 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 59 to 63 degrees F
Frost-free period: 280 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Alo variant and similar soils: 70 percent
Alo variant, calcareous: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Alo Variant

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 25 inches: clay
H2 - 25 to 38 inches: clay
H3 - 38 to 59 inches: weathered bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: CLAYEY (1975) (R019XD001CA)

Description of Alo Variant, Calcareous

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex

Properties and qualities

Depth to restrictive feature: More than 80 inches
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Minor Components

Bosanko, clay

Percent of map unit: 5 percent

Myford, sandy loam

Percent of map unit: 3 percent

Anaheim, clay loam

Percent of map unit: 2 percent

108—Anaheim clay loam, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: hclh
Elevation: 100 to 2,500 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Anaheim and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Anaheim

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Fine grained residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 26 inches: clay loam
H2 - 26 to 59 inches: weathered bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 20 to 36 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: CLAYEY (1975) (R019XD001CA)

Minor Components

Alo, clay

Percent of map unit: 5 percent

Anaheim, clay loam

Percent of map unit: 5 percent

Nacimiento, clay loam

Percent of map unit: 5 percent

Balcom, clay loam

Percent of map unit: 3 percent

Cieneba, sandy loam

Percent of map unit: 2 percent

112—Balcom clay loam, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: hclm

Elevation: 200 to 4,000 feet
Mean annual precipitation: 12 to 35 inches
Mean annual air temperature: 57 to 64 degrees F
Frost-free period: 200 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Balcom and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Balcom

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous residuum weathered from sandstone and shale

Typical profile

A - 0 to 19 inches: clay loam
Bk - 19 to 34 inches: clay loam
Cr - 34 to 44 inches: weathered bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 24 to 36 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 20 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: CLAYEY (1975) (R019XD001CA)

Minor Components

Bosanko, clay

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: CLAYEY (1975) (R019XD001CA)

Cieneba, sandy loam

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: SHALLOW LOAMY (1975) (R019XD060CA)

Calleguas, clay loam

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: SHALLOW CLAYEY (1975) (R019XD071CA)

113—Balcom clay loam, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: hcln
Mean annual air temperature: 61 to 63 degrees F
Farmland classification: Not prime farmland

Map Unit Composition

Balcom and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Balcom

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 30 inches: clay loam
H2 - 30 to 59 inches: weathered bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 24 to 36 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: CLAYEY (1975) (R019XD001CA)

Minor Components

Bosanko, clay

Percent of map unit: 5 percent

Calleguas, clay loam

Percent of map unit: 4 percent

Cieneba, sandy loam

Percent of map unit: 3 percent

Unnamed

Percent of map unit: 3 percent

132—Botella clay loam, 2 to 9 percent slopes, warm MAAT, MLRA 19

Map Unit Setting

National map unit symbol: 2tyz8
Elevation: 80 to 1,450 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 64 to 65 degrees F
Frost-free period: 330 to 360 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Botella and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Botella

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Riser, flat
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Alluvium derived from sedimentary rock

Typical profile

A - 0 to 8 inches: clay loam
2Bt - 8 to 35 inches: silty clay loam
2C - 35 to 66 inches: clay loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: CLAYEY (1975) (R019XD001CA)

Minor Components

Sorrento

Percent of map unit: 6 percent
Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear

Mocho

Percent of map unit: 4 percent
Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear

134—Calleguas clay loam, 50 to 75 percent slopes, eroded

Map Unit Setting

National map unit symbol: hcmb
Elevation: 200 to 2,500 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Calleguas and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Calleguas

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from calcareous shale

Typical profile

H1 - 0 to 15 inches: clay loam
H2 - 15 to 19 inches: weathered bedrock

Properties and qualities

Slope: 50 to 75 percent
Depth to restrictive feature: 15 to 19 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: SHALLOW CLAYEY (1975) (R019XD071CA)

Minor Components

Unnamed

Percent of map unit: 5 percent

Cieneba, sandy loam

Percent of map unit: 5 percent

Balcom, clay loam

Percent of map unit: 5 percent

Anaheim, clay loam

Percent of map unit: 5 percent

Unnamed, steeper sloping soils

Percent of map unit: 5 percent

135—Capistrano sandy loam, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: hcmc
Elevation: 0 to 2,500 feet
Mean annual precipitation: 14 to 25 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 240 to 365 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Capistrano and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Capistrano

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Riser, flat
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 27 inches: sandy loam
H2 - 27 to 65 inches: fine sandy loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: LOAMY (1975) (R019XD029CA)

Minor Components

Capistrano, gravelly

Percent of map unit: 5 percent

Hanford
Percent of map unit: 5 percent

Corralitos, loamy sand
Percent of map unit: 5 percent

Myford, sandy loam
Percent of map unit: 3 percent

Ramona, fine sandy loam
Percent of map unit: 2 percent

136—Capistrano sandy loam, 9 to 15 percent slopes

Map Unit Setting

National map unit symbol: hcmd
Elevation: 0 to 2,500 feet
Mean annual precipitation: 14 to 25 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 240 to 365 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Capistrano and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Capistrano

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Riser, flat
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Alluvium derived from igneous and sedimentary rock

Typical profile

H1 - 0 to 27 inches: sandy loam
H2 - 27 to 65 inches: fine sandy loam

Properties and qualities

Slope: 9 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: LOAMY (1975) (R019XD029CA)

Minor Components

Unnamed
Percent of map unit: 5 percent

San andreas, sandy loam
Percent of map unit: 5 percent

Myford, sandy loam
Percent of map unit: 3 percent

Unnamed
Percent of map unit: 2 percent

142—Cieneba sandy loam, 30 to 75 percent slopes, eroded

Map Unit Setting

National map unit symbol: hcml
Elevation: 500 to 4,000 feet
Mean annual precipitation: 12 to 35 inches
Mean annual air temperature: 57 to 64 degrees F
Frost-free period: 200 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Cieneba and similar soils: 65 percent
Minor components: 35 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cieneba

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave, convex
Across-slope shape: Convex
Parent material: Residuum weathered from granite

Typical profile

H1 - 0 to 7 inches: sandy loam
H2 - 7 to 59 inches: weathered bedrock

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 4 to 20 inches to paralithic bedrock

Natural drainage class: Somewhat excessively drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 1.1 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: SHALLOW LOAMY (1975) (R019XD060CA)

Minor Components

Cieneba, uneroded
Percent of map unit: 10 percent

San andreas, sandy loam
Percent of map unit: 5 percent

Soper, cobbly loam
Percent of map unit: 5 percent

Calleguas, clay loam
Percent of map unit: 5 percent

Vista, sandy loam
Percent of map unit: 5 percent

Rock outcrop
Percent of map unit: 2 percent

Tollhouse
Percent of map unit: 2 percent

Blasingame, loam
Percent of map unit: 1 percent

167—Mocho loam, 2 to 9 percent slopes, warm MAAT, MLRA 19

Map Unit Setting
National map unit symbol: 2tyz1
Elevation: 10 to 2,240 feet
Mean annual precipitation: 14 to 21 inches
Mean annual air temperature: 61 to 65 degrees F
Frost-free period: 200 to 350 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Mocho and similar soils: 85 percent

Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mocho

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 16 inches: loam
H2 - 16 to 60 inches: loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B

Minor Components

Sorrento

Percent of map unit: 4 percent

Anacapa

Percent of map unit: 3 percent

Pico

Percent of map unit: 3 percent

Garretson

Percent of map unit: 2 percent

Mocho, sandy loam

Percent of map unit: 1 percent

Botella, loam

Percent of map unit: 1 percent

Mocho, 0 to 2 percent slopes

Percent of map unit: 1 percent

173—Myford sandy loam, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: hcnl
Elevation: 0 to 2,500 feet
Mean annual precipitation: 10 to 25 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 240 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Myford and similar soils: 70 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Myford

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

A1 - 0 to 1 inches: sandy loam
A2 - 1 to 4 inches: sandy loam
A3 - 4 to 12 inches: sandy loam
Bt1 - 12 to 18 inches: sandy clay
Bt2 - 18 to 28 inches: sandy clay loam
Btk1 - 28 to 35 inches: sandy clay loam
Btk2 - 35 to 41 inches: sandy clay loam
Bt1 - 41 to 49 inches: sandy clay loam
Bt2 - 49 to 61 inches: sandy clay loam
Bt3 - 61 to 71 inches: sandy clay loam
C - 71 to 79 inches: sandy loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: CLAYPAN (1975) (R019XD061CA)

Minor Components

Myford, thick surface

Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: CLAYPAN (1975) (R019XD061CA)

Capistrano, sandy loam

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Riser, flat
Down-slope shape: Concave
Across-slope shape: Convex
Ecological site: LOAMY (1975) (R019XD029CA)

Yorba, gravelly sandy loam

Percent of map unit: 5 percent
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Concave
Across-slope shape: Convex
Ecological site: CLAYPAN (1975) (R019XD061CA)

Myford

Percent of map unit: 5 percent
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: CLAYPAN (1975) (R019XD061CA)

Chesterton, loamy sand

Percent of map unit: 3 percent
Landform: Terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: CLAYPAN (1975) (R019XD061CA)

Water

Percent of map unit: 2 percent
Landform: Depressions

175—Myford sandy loam, 9 to 15 percent slopes

Map Unit Setting

National map unit symbol: hcnn
Elevation: 1,500 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 270 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Myford and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Myford

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 12 inches: sandy loam
H2 - 12 to 18 inches: sandy clay
H3 - 18 to 28 inches: sandy clay loam
H4 - 28 to 71 inches: sandy clay loam
H5 - 71 to 79 inches: sandy loam

Properties and qualities

Slope: 9 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D

Ecological site: CLAYPAN (1975) (R019XD061CA)

Minor Components

Myford, sandy loam, eroded
Percent of map unit: 5 percent

Capistrano, sandy loam
Percent of map unit: 5 percent

Yorba, gravelly sandy loam
Percent of map unit: 3 percent

San andreas, sandy loam
Percent of map unit: 2 percent

176—Myford sandy loam, 15 to 30 percent slopes

Map Unit Setting
National map unit symbol: hcnp
Elevation: 1,500 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 270 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition
Myford and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Myford

Setting
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile
H1 - 0 to 12 inches: sandy loam
H2 - 12 to 18 inches: sandy clay
H3 - 18 to 28 inches: sandy clay loam
H4 - 28 to 71 inches: sandy clay loam
H5 - 71 to 79 inches: sandy loam

Properties and qualities
Slope: 15 to 30 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: CLAYPAN (1975) (R019XD061CA)

Minor Components

Myford, sandy loam, eroded
Percent of map unit: 5 percent

Myford, less sloping or steeper
Percent of map unit: 5 percent

Cieneba, sandy loam
Percent of map unit: 3 percent

Yorba, gravelly sandy loam
Percent of map unit: 2 percent

179—Myford sandy loam, thick surface, 2 to 9 percent slopes

Map Unit Setting
National map unit symbol: hcns
Elevation: 1,500 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 270 to 350 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Myford and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Myford

Setting
Landform: Terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear

Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 22 inches: sandy loam
H2 - 22 to 28 inches: sandy clay
H3 - 28 to 38 inches: sandy clay loam, clay loam
H3 - 28 to 38 inches: sandy clay loam, clay loam, sandy loam
H4 - 38 to 71 inches: sandy loam
H4 - 38 to 71 inches:
H4 - 38 to 71 inches:
H5 - 71 to 79 inches:

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: CLAYPAN (1975) (R019XD061CA)

Minor Components

Myford, sandy loam

Percent of map unit: 10 percent

Myford, steeper or gently sloping

Percent of map unit: 5 percent

Capistrano, sandy loam

Percent of map unit: 3 percent

Chesterson, loamy sand

Percent of map unit: 3 percent

Yorba, gravelly sandy loam

Percent of map unit: 3 percent

Unnamed

Percent of map unit: 1 percent
Landform: Depressions

191—Riverwash

Map Unit Composition

Riverwash: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riverwash

Setting

Landform: Fans
Parent material: Sandy and gravelly alluvium

Typical profile

H1 - 0 to 6 inches: sand
H2 - 6 to 60 inches: stratified coarse sand to sandy loam

Properties and qualities

Slope: 0 to 5 percent
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: Frequent
Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w

203—Soper cobbly loam, 15 to 50 percent slopes

Map Unit Setting

National map unit symbol: hcpk
Elevation: 100 to 2,500 feet
Mean annual precipitation: 12 to 25 inches
Frost-free period: 250 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Soper and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Soper

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope

Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone

Typical profile
H1 - 0 to 9 inches: cobbly loam
H2 - 9 to 30 inches: cobbly clay loam, cobbly sandy clay loam, cobbly loam
H2 - 9 to 30 inches: weathered bedrock
H2 - 9 to 30 inches:
H3 - 30 to 59 inches:

Properties and qualities
Slope: 15 to 50 percent
Depth to restrictive feature: 20 to 36 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.6 inches)

Interpretive groups
Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: LOAMY (1975) (R019XD029CA)

Minor Components

Yorba, cobbly sandy loam
Percent of map unit: 5 percent

Soper, gravelly loam
Percent of map unit: 5 percent

Gabino, gravelly clay loam
Percent of map unit: 3 percent

Cieneba, rock outcrop complex
Percent of map unit: 1 percent

Cieneba, sandy loam
Percent of map unit: 1 percent

227—Water

Map Unit Composition
Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8

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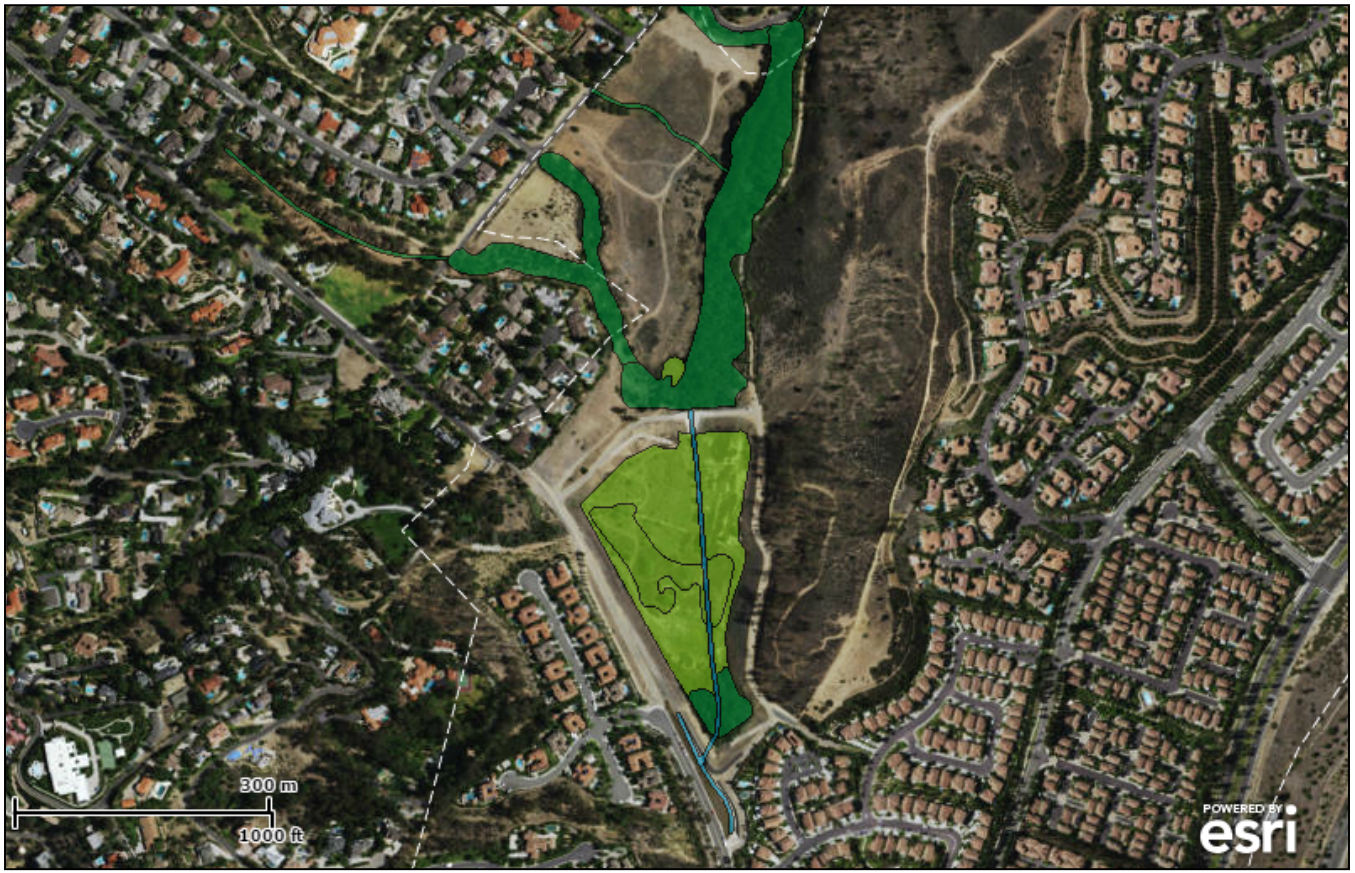
Appendix D National Wetlands Inventory Map

U.S. Fish and Wildlife Service

National Wetlands Inventory

PECA - Lower Reservoir

Mar 15, 2016



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

- Herbaceous
- Forested/Shrub

Riparian Status

- Digital Data

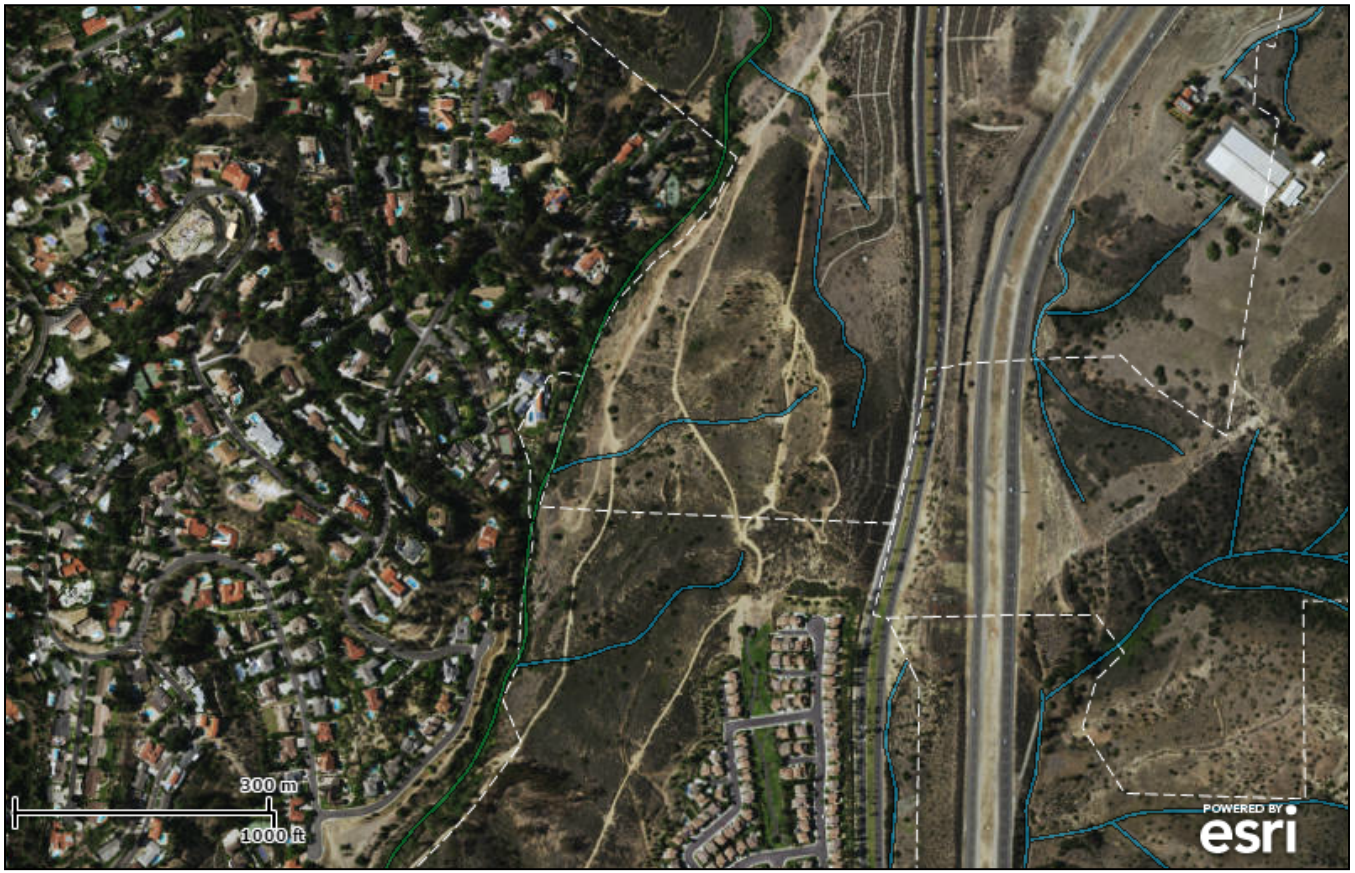
User Remarks:

U.S. Fish and Wildlife Service

National Wetlands Inventory

PECA Central

Mar 15, 2016



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

- Herbaceous
- Forested/Shrub

Riparian Status

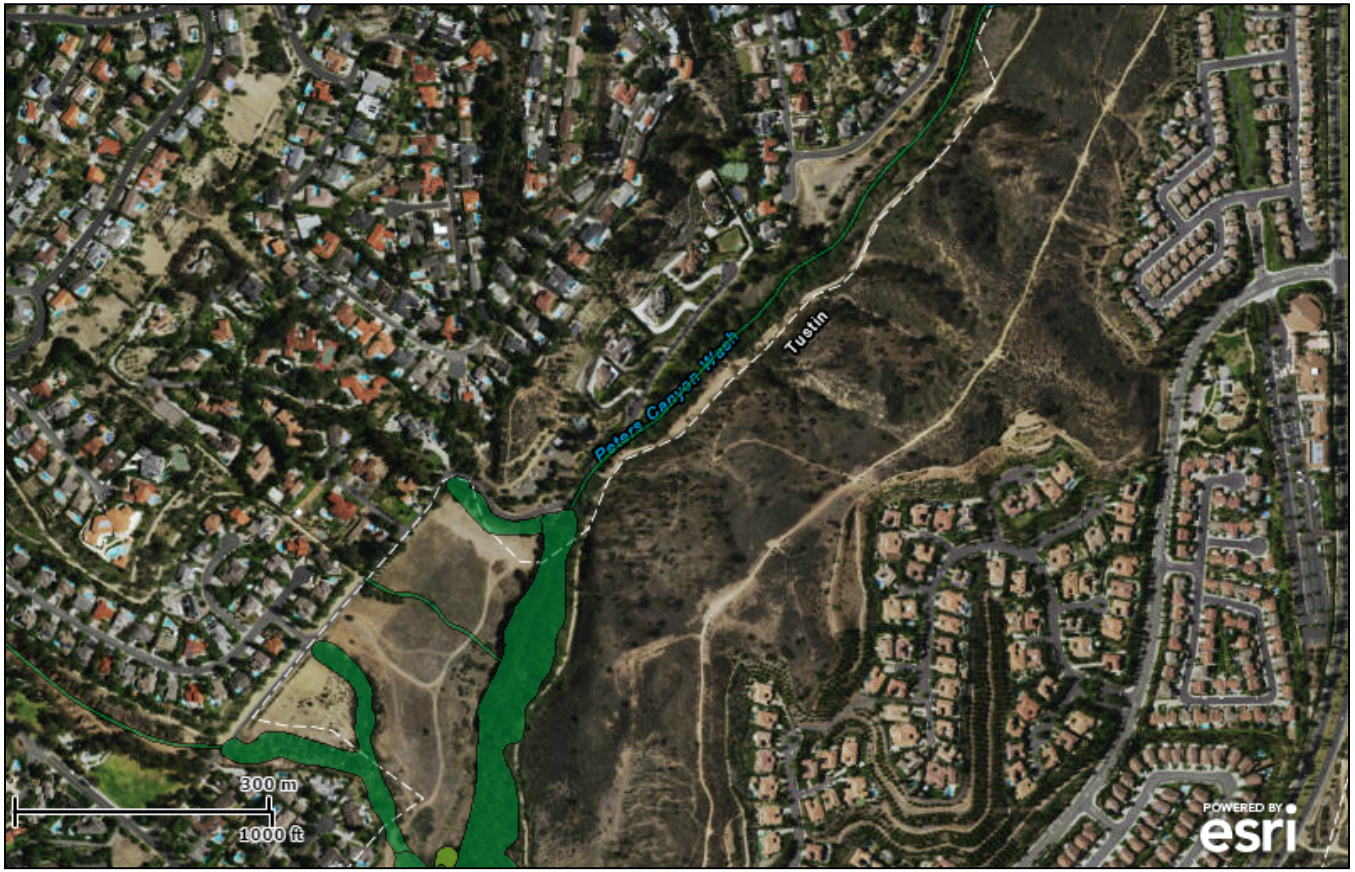
- Digital Data

User Remarks:

U.S. Fish and Wildlife Service
National Wetlands Inventory

PECA - South Central

Mar 15, 2016



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

- Herbaceous
- Forested/Shrub

Riparian Status

- Digital Data

User Remarks:

U.S. Fish and Wildlife Service
National Wetlands Inventory

PECA Upper Reservoir

Mar 15, 2016

Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

- Herbaceous
- Forested/Shrub

Riparian Status

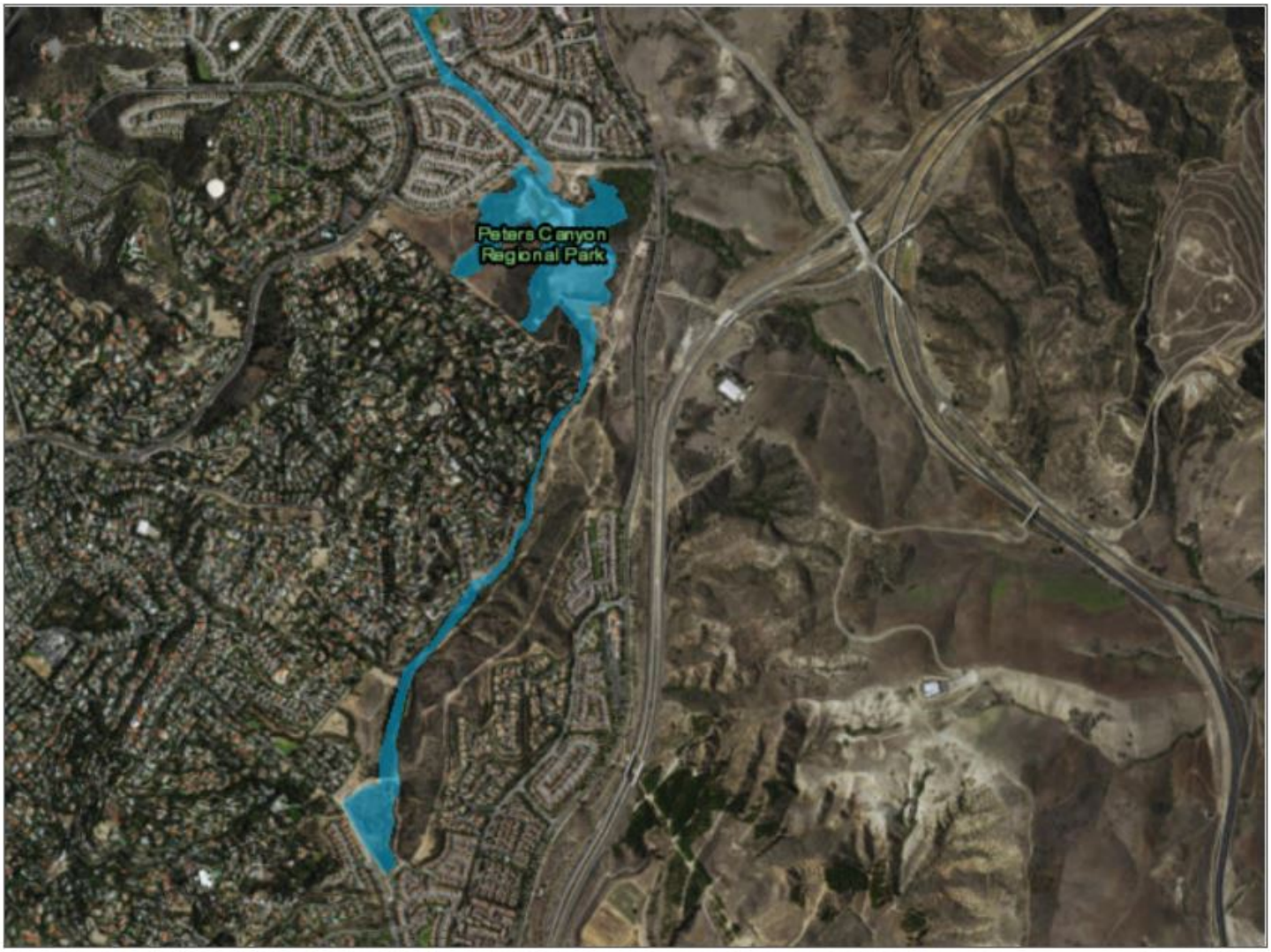
- Digital Data

User Remarks:

Appendix E FEMA 100 Year Flood Zone Map

FEMA 100 Year Flood Zones in the U.S.A-Bay County

This map service represents Flood Insurance Rate Map (FIRM) data important for floodplain management, mitigation, and insurance activities for the National Flood Insurance Program (NFIP).



USDA FSA, DigitalGlobe, Microsoft, CNES/Airbus DS | Federal Emergency Management Agency (FEMA) | Esri, HERE, DeLorme

Michael Baker INTERNATIONAL

We Make a Difference

June 13, 2016

Ms. Jenny Stets-Stephano
OC Parks
13042 Old Myford Road
Irvine, California 92602-2304

Subject: Results of the Focused Cactus Wren Survey for the Peters Canyon Regional Park (PECA) Resource Management Plan, Orange County, California.

Dear Ms. Stets-Stephano:

This Letter Report presents the methods and results of a focused presence/absence survey for cactus wren (*Campylorhynchus brunneicapillus*; CACW) at the 340-acre Peters Canyon Regional Park (PECA; survey area) located in Orange County, California (Figure 1, *Regional Vicinity*; all figures follow the end of this report). The findings and conclusions herein are intended for use by OC Parks as baseline/reference information of presence and/or the potential for CACW to occur within PECA, thereby providing guidance for the Resource Management Plan (RMP; Michael Baker Michael Baker] International 2016) in consideration of future management decisions at the park.

Methodology

On March 29, 30, and 31, 2016, Michael Baker conducted a general biological resources survey of the entire survey area to document existing site conditions and biological resources, and to evaluate habitat with the potential to support various special-status plant and wildlife resources, including areas suitable to support CACW.

On April 13 and May 9 and 25, 2016 (i.e., during the peak breeding season and at least 10 days apart), Michael Baker conducted a focused presence/ absence survey for CACW. For the survey schedule, weather conditions, and personnel, refer to Table 1, below.

Table 1. Survey Schedule, Weather Conditions, and Personnel

Date (2016)	Time	Weather	Personnel*
April 13	0700-1100	59 to 70 degrees Fahrenheit (°F); 0 to 1 miles per hour (mph) winds; 100 percent cloud cover to clear skies	DR, SA
May 9	0630-1130	57 to 63 °F; 0 to 3 mph winds; 30 to 100 percent cloud cover	DR, LN
May 25	0630-1100	56 to 70 °F; 0 to 1 mph winds; clear skies	DR, SA

* DR = Dan Rosie; SA = Stephen Anderson; LN = Linda Nguyen

Specifically, following a modified version of the general protocol described by Mitrovich and Hamilton (2007), the survey was conducted in all areas comprised of coastal sage scrub exhibiting native cacti, particularly those with large patches of coastal cholla (*Cylindropuntia prolifera*) and coastal prickly pear (*Opuntia littoralis*).

All CACW detections were recorded using a handheld Global Positioning System (GPS) and mapped on an appropriate U.S. Geological Survey (USGS) quadrangle map (Figure 2, *CACW Locations at PECA*), including observed territories. Additional information about CACW was noted such as sex, nesting behavior, age, etc.

Results

Two (2) CACW territories primarily along south-facing, cactus-dominated ridges were identified and mapped within the survey area: one south of Gnatcatcher Trail and west of the East Ridge View Trail (CACW1) and the other west of the Upper Peters Canyon Reservoir and south of the southern portion of Cactus Point Trail (CACW2), both pairs nesting in coastal cholla (see Figure 2). It should be noted that CACW was heard incidentally throughout all surveys conducted at PECA by Michael Baker during the spring of 2016, with specific focused survey observations discussed below.

On April 13, two individuals (male and female) were observed foraging heard vocalizing throughout the bowl at CACW1 (see Figure 2), which consists of intact coastal sage scrub containing large patches of coastal cholla and coast prickly pear. An additional male CACW was observed perched on a large patch of coastal cholla along the ridge at CACW2, with an observation and GPS recordation of an apparent active nest within (see Figure 2).

On May 9, the two individuals (male and female) at CACW1 were observed gathering nesting material throughout the bowl and depositing them in the nest, repeatedly, located in a coastal cholla stand near the upper end of the bowl (location recorded with GPS; see Figure 2). At CACW2 (see Figure 2), a pair (male and female) was observed gathering nesting material at the base of two sub-ridges south of the recorded nest, then travelling north to the nest for deposition.

On May 25, the male at CACW1 was observed gathering prey, returning to the nest to apparently either feed fledglings or the female resting on eggs, repeatedly; the female was not observed that day. The male was also observed and heard vocalizing throughout the bowl and over two sub-ridges into cactus-dominated slopes (see Figure 2). The male at CACW2 was observed bringing prey to the nest and observed perched on a blue elderberry (*Sambucus nigra* ssp. *caerulea*) vocalizing heavily; the female was observed foraging near the nest.

Confirmation of fledglings at CACW1 and CACW2 was not obtained so as to not disturb nesting activities as it were.

Please contact me at (949) 472-3407 or at dan.rosie@mbakerintl.com with any questions you may have regarding this letter report.

Sincerely,

Dan Rosie
Biologist
Natural Resources/Regulatory Permitting

Figure 1: Regional Vicinity
Figure 2: CACW Locations at PECA

6/3/2016 JN M:\Mdata\152478\GIS\MXD\Fig 01 Regional Vicinity.mxd

PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN
RESULTS OF THE FOCUSED CACTUS WREN SURVEY

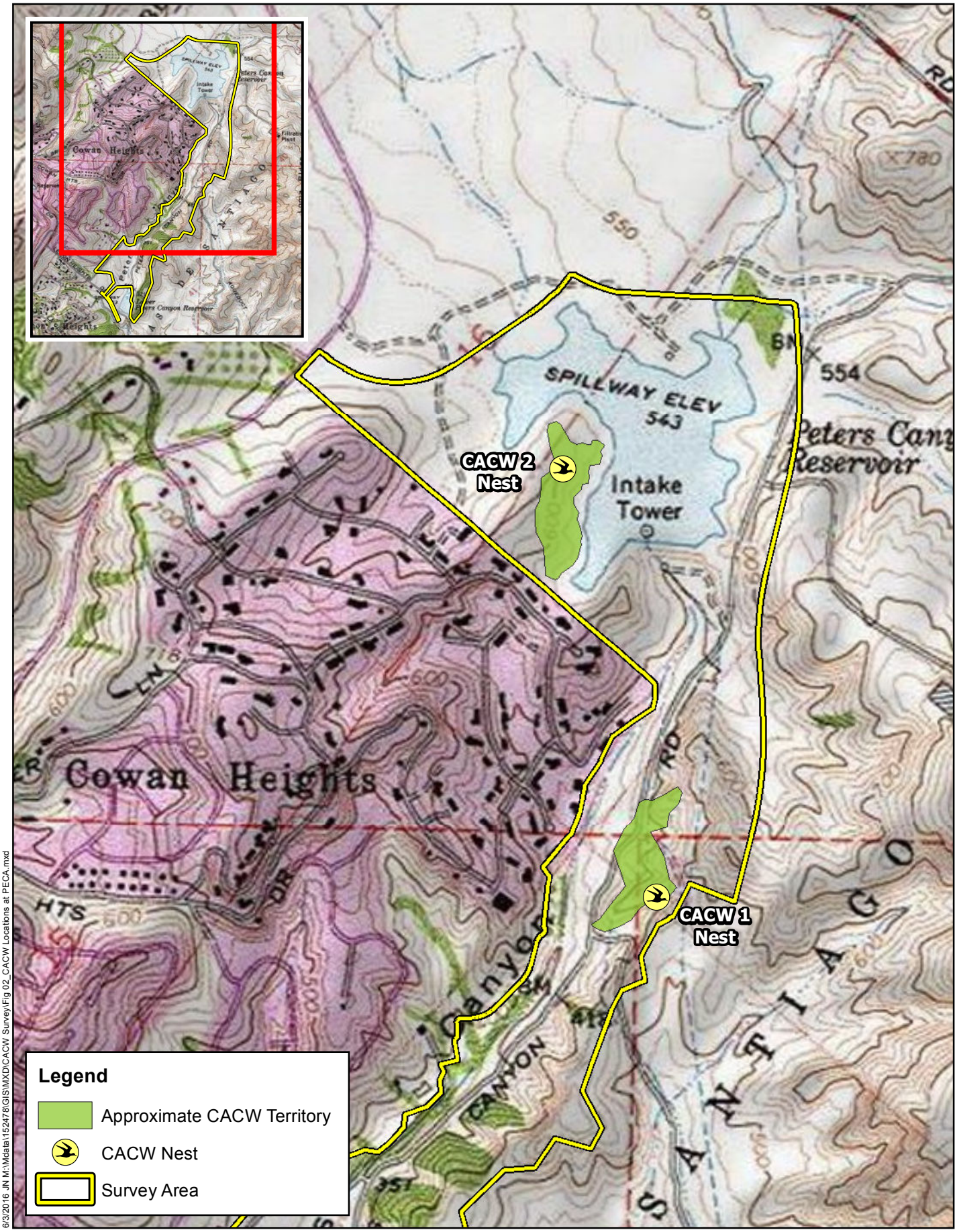
Michael Baker INTERNATIONAL

0 2.5 5 Miles

Source: ArcGIS Online

Regional Vicinity

Figure 1



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PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN
RESULTS OF THE FOCUSED CACTUS WREN SURVEY

CACW Locations at PECA

Michael Baker INTERNATIONAL

0 500 1,000 Feet

Source: Eagle Aerial Imaging - 2014

Figure 2

Michael Baker
INTERNATIONAL

We Make a Difference

June 13, 2016

Ms. Stacey Love
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Mr. Kevin Hupf
California Department of Fish and Wildlife
3883 Ruffin Road
San Diego, California 92123

Ms. Jenny Stets-Stephano
OC Parks
13042 Old Myford Road
Irvine, California 92602-2304

Subject: Results of the Focused Least Bell's Vireo Survey for the Peters Canyon Regional Park (PECA) Resource Management Plan, Orange County, California.

Dear Ms. Stets-Stephano:

This Letter Report presents the methods and results of a focused presence/absence survey for least Bell's vireo (*Vireo bellii pusillus*; LBVI) at the 340-acre Peters Canyon Regional Park (PECA; survey area) located in Orange County, California (Figure 1, *Regional Vicinity*; all figures follow the end of this report). The findings and conclusions herein are intended for use by OC Parks as baseline/reference information of presence and/or the potential for LBVI to occur within PECA, thereby providing guidance for the Resource Management Plan (RMP; Michael Baker Michael Baker] International 2016) in consideration of future management decisions at the park.

Methodology

On March 29, 30, and 31, 2016, Michael Baker conducted a general biological resources survey of the entire survey area to document existing site conditions and biological resources, and to evaluate habitat with the potential to support various special-status plant and wildlife resources, including areas suitable to support LBVI.

The survey was conducted following the U.S. Fish and Wildlife Service (USFWS) *Least Bell's Vireo Survey Guidelines* (2001), modified with a USFWS-approved reduction in total site visits (4.5 total of 8 recommended) based on an adequate understanding of site use by LBVI, no impacts proposed, and the results being limited to baseline information only (per e-mail correspondence with Stacey Love [USFWS] on March 24, 2016).

The survey was conducted in suitable, accessible habitat within 500 feet of the park boundaries including southern cottonwood-willow riparian forest, southern willow scrub, mule fat scrub, disturbed wetland, and tamarisk scrub associated with the Santiago Canyon drainage east of Jamboree Road, Upper Peters Canyon Reservoir (UPCR), Peters Canyon Wash (PCW), and the lower detention basin. The survey area was systematically surveyed by walking slowly and methodically along the margins of suitable habitat, and within habitat where accessible to better

track individuals. All vireo detections were recorded using a handheld Global Positioning System (GPS) and mapped on an appropriate U.S. Geological Survey (USGS) quadrangle map (Figure 2, *LBVI Locations at PECA*). Additional information about LBVI was noted such as sex, nesting behavior, age, etc. Brown-headed cowbirds detected within vireo territories were also recorded and mapped.

On April 12, 2016, Michael Baker began conducting a focused presence/ absence survey (Survey #1 of 5) for LBVI. It was determined at that time that additional survey efforts would be necessary in consideration of the abundance of LBVI detected throughout and surrounding the park; therefore, site visits were conducted to cover half the survey area on one day and the other half another day, ensuring that each area surveyed was visited at least 10 days apart. The survey continued on April 22 (Part [P] 1 of #2), April 25 (P2 of #2), May 3 (P1 of #3), May 13 (P2 of #3 and P1 of #4), May 20 (P2 of #4), and May 24 (P1 of #5) when confirmation to discontinue the survey was received. For the survey schedule, weather conditions, and personnel, refer to Table 1, below.

Table 1. Survey Schedule, Weather Conditions, and Personnel

Date (2016)	Survey #	Time	Weather	Personnel*
April 12	1	0650-1100	56 to 67 degrees Fahrenheit (°F); 0 to 1 miles per hour (mph) winds; clear skies	DR, SA
April 22	P1 of 2	0630-1100	56 to 68 °F; 0 to 3 mph winds; partly cloudy to clear skies	DR, SA
April 25	P2 of 2	0630-1100	56 to 70 °F; 0 to 3 mph winds; partly cloudy to clear skies	DR, SA
May 3	P1 of 3	0630-1100	59 to 69 °F; 0 to 2 mph winds; Light fog to clear skies	DR, LN
May 13	P2 of 3; P1 of 4	0730-1100	61 to 71 °F; 1 to 3 mph winds; overcast to clear skies	DR, SA; LN, RW
May 20	P2 of 4	0630-1100	60 to 68 °F; 0 to 1 mph winds; overcast to clear skies	DR, SA
May 24	P1 of 5	0630-1100	65 to 70 °F; 0 to 1 mph winds; partly cloudy to clear skies	SA, LN

* DR = Dan Rosie; SA = Stephen Anderson; LN = Linda Nguyen; RW = Ryan Winkleman

Results

A total of fourteen (14) potential LBVI territories were identified within and surrounding PECA. The approximate/estimated limits of each territory were mapped. A total of three (3) active nests were encountered incidentally, whereas all other individuals of LBVI were observed and/or heard throughout their respective territories (see Figure 2).

At LBVI-01, two individuals (male and female) were observed consistently foraging throughout the estimated territory. One individual male was observed and/or heard vocalizing repeatedly at LBVI-02, -03, and -04. At LBVI-05, an active nest was discovered after hearing both the male and female vocalizing and observing them foraging; the nest is located in tamarisk (*Tamarix ramosissima*) surrounded by native riparian and disturbed wetland vegetation. At LBVI-06 and -07, two separate male individuals were heard vocalizing and observed foraging repeatedly throughout the riparian scrub and forest, apparently distinct territories; both a male and female were observed in LBVI-06 during one of the visits. An individual male was heard vocalizing consistently throughout LBVI-07, distinct from the individual male heard vocalizing and observed consistently at LBVI-08. The approximate territories for LBVI-09, -10, and -11 are based on repeated observations and vocalizations from apparent males distinguishable from those vocalizing from adjacent territories. At LBVI-12, two individuals (male and female) were heard

vocalizing and observed foraging repeatedly throughout; an active nest was discovered incidentally, located in a poison oak (*Toxicodendron diversilobum*) near the base of a laurel sumac (*Malosma laurina*), all of which is surrounded by riparian scrub and forest vegetation. Two individuals (male and female) were heard vocalizing and observed foraging repeatedly at LBVI-13. At LBVI-13, while the adults were heard from a distance, a nest was observed incidentally. To determine if it was active, a photograph was taken from above without disturbing the nest or associated mule fat (*Baccharis salicifolia*) individual it was in. The photograph revealed two (2) LBVI eggs and 1 brown-headed cowbird (*Molothrus ater*) egg. At LBVI-14, an additional male was heard vocalizing and observed foraging within the strip of riparian scrub on separate occasions; the territory was estimated based on the surrounding other presumed territories. In summary, nearly all of the riparian vegetation within PECA and lower detention basin is being utilized by LBVI.

One individual willow flycatcher (presumably *Empidonax traillii brewsteri*) was heard vocalizing in mule fat southwest of the parking lot, north of UPCR. Three brown-headed cowbird traps are located within the park (see Figure 2): one southwest of PCW at its southern extent, north of the lower detention basin; one at the north end of the reservoir pump station, east of UPCR; and one behind the structures southwest of the parking lot at UPCR. For a complete list of avian species observed at PECA during the LBVI survey and otherwise during general biological resources surveys, jurisdictional delineation, and a focused survey for cactus wren (*Campylorhynchus brunneicapillus*), see Attachment 1 at the end of this report.

Please contact me at (949) 472-3407 or at dan.rosie@mbakerintl.com with any questions you may have regarding this letter report.

Sincerely,

Dan Rosie
Biologist
Natural Resources/Regulatory Permitting

Figure 1: Regional Vicinity
Figure 2: LBVI Locations at PECA
Attachment 1: Avian Species Observed List

6/9/2016 JN M:\Mdata\152478\GIS\MXD\Fig 01 Regional Vicinity.mxd

Michael Baker INTERNATIONAL

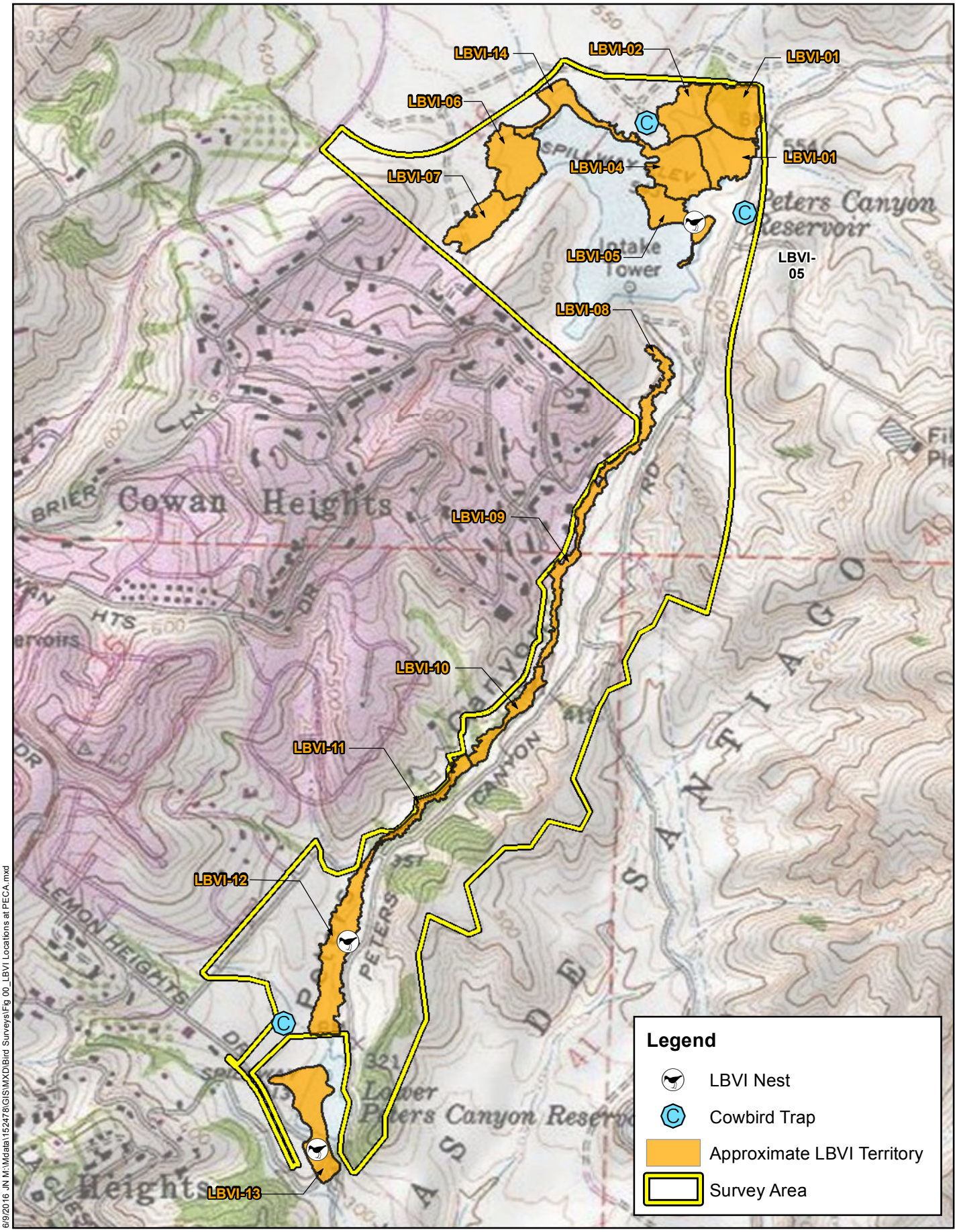
0 2.5 5 Miles

Source: ArcGIS Online

PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN
RESULTS OF THE FOCUSED LEAST BELL'S VIREO SURVEY

Regional Vicinity

Figure 1



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Michael Baker INTERNATIONAL

0 2,250 4,500 Feet

Source: Eagle Aerial Imaging - 2014

PETERS CANYON REGIONAL PARK (PECA) RESOURCE MANAGEMENT PLAN
RESULTS OF THE FOCUSED LEAST BELL'S VIREO SURVEY

LBVI Locations at PECA

Figure 2

Michael Baker
INTERNATIONAL

We Make a Difference

June 27, 2018 JN 166923

OC Parks
Attn: Mr. Tuan Richardson
13042 Old Myford Road
Irvine, CA 92602

SUBJECT: Post-Fire Update to Biological Resources Report for the Peters Canyon Resource Management Plan, City of Orange, County of Orange, California

Dear Mr. Richardson:

On behalf of Orange County Parks (OC Parks), Michael Baker International (Michael Baker) has prepared this letter report to document the results of a biological resources reconnaissance following the Canyon Fire II for the Peters Canyon Resource Management Plan, located within Orange County, California. The fieldwork for this biological resources report was conducted on April 23, 2018.

Project Description and Location

An additional survey addressed areas of Peters Canyon Regional Park (PCRP) that were affected by the Canyon Fire II. In November 2017, the Canyon Fire II burned the northern portion of the park surrounding the Upper Peters Canyon Reservoir and Dam. The fire entered the park at the corner of Jamboree Road and Canyon View Avenue. It then spread in a southwesterly direction, fed by the wind. The burn area extends from Canyon View Avenue in the north, to the housing development and Brentwood Drive in the west, Jamboree Road in the east and approximately 33 percent of the northern portion of the park toward the south. The entirety of this burn area within PCRP was surveyed.

PCRP is located within the Cities of Orange and Tustin and unincorporated portions of Orange County, California (Figure 1, *Regional Vicinity*). Specifically, the park is located within Section 36 of Township 4 South, Range 9 West; Section 31 of Township 4 South, Range 8 West; Section 6 of Township 5 South, Range 8 West; and Section 1 of Township 5 South, Range 9 West, of the U.S. Geological Survey (USGS) *Orange, California* 7.5-minute topographic quadrangle map (Figure 2, *Site Vicinity*).

Methods

On April 23, 2018 Michael Baker biologists and regulatory specialists Ryan Phaneuf and Stephen Anderson conducted an intensive pedestrian survey of the Canyon Fire II burn area within the boundaries of PCRP. Weather consisted clear skies, a temperature of approximately 85 degrees Fahrenheit, and winds approximately 0 to 2 miles per hour. The survey was conducted by traversing the study area on foot (and using binoculars for areas inaccessible) documenting all vegetation communities impacted by the fire using Figure 5, *Vegetation Communities and Land Uses* of the Biological Resources Report and photographing existing site conditions.

Results

The study area consists of the northern end of PCRP near the reservoir, with a small portion south

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Office: 949.472.3505 | Fax: 949.472.8373

of the reservoir within and around Peters Canyon Wash, comprised of Bare Ground, Diegan Coastal Sage Scrub, Disturbed Habitat, Low-Quality Diegan Coastal Sage Scrub, Mule Fat Scrub, Non-Native Grassland, Southern Cottonwood-Willow Riparian Forest, Southern Willow Scrub, Tamarisk Scrub, Urban/Developed, and Valley Freshwater Marsh.

Table 1 below provides the acreages of each vegetation community/land use affected by Canyon Fire II.

Table 1. Vegetation Communities and Land Uses Affected by Canyon Fire II (acres)

Vegetation Community	**Acreage**
Bare Ground	19.90
Diegan Coastal Sage Scrub	55.34
Disturbed Habitat	20.54
Low-Quality Diegan Coastal Sage Scrub	20.85
Mule Fat Scrub	9.40
Non-Native Grassland	8.90
Southern Cottonwood-Willow Riparian Forest	24.02
Southern Willow Scrub	10.16
Tamarisk Scrub	5.16
Urban/Developed	3.67
Valley Freshwater Marsh	4.88
TOTAL	**182.82**

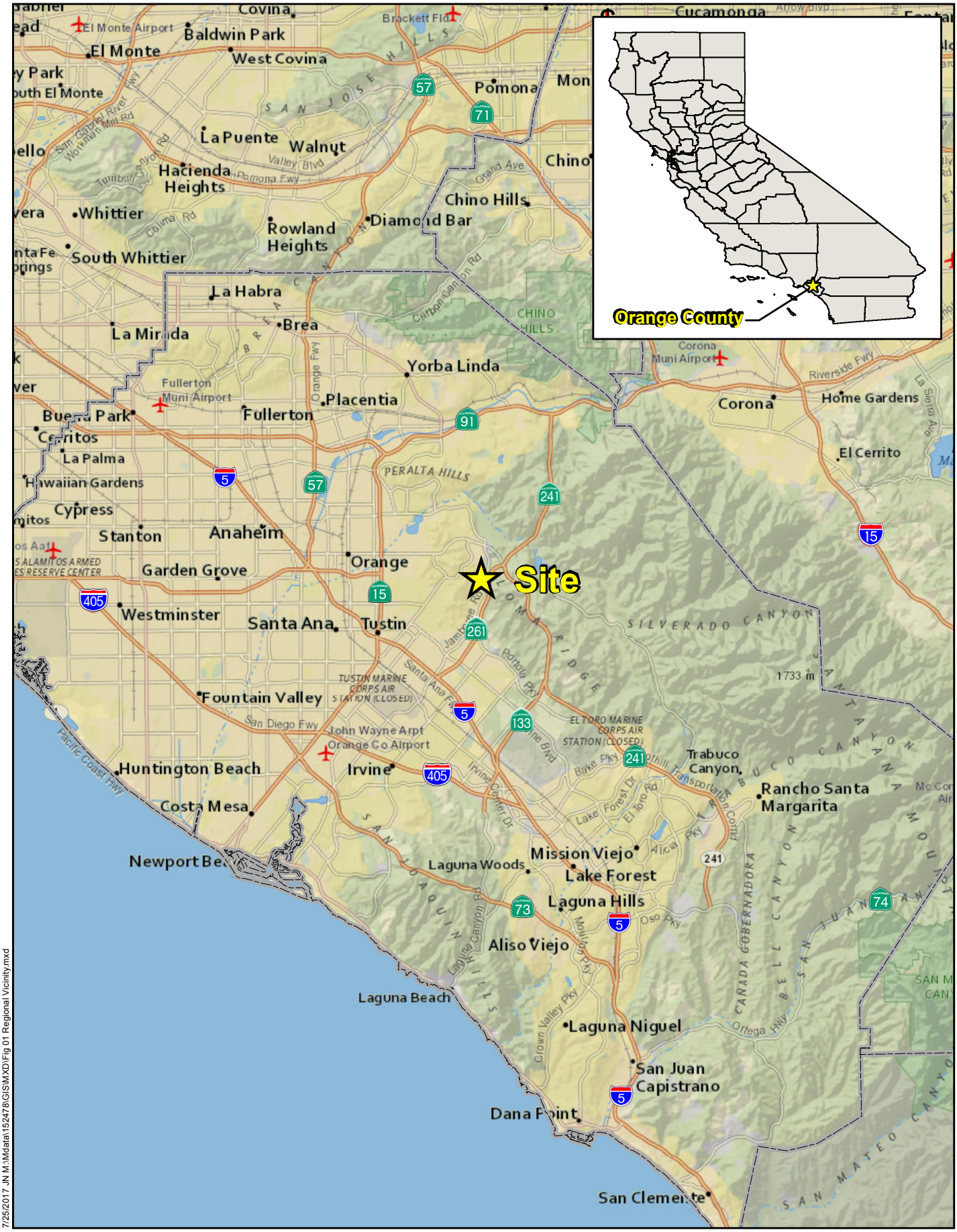
Please contact me at (949) 855-3687 or at RBECK@mbakerintl.com with any questions you may have regarding the results of the biological resources reconnaissance.

Sincerely,

Richard Beck

Richard Beck, PWS, CEP, CPESC
Vice President
Planning and Environmental Sciences

Attachments:
Figure 1: Regional Vicinity
Figure 2: Site Vicinity
Figure 3: Project Site
Figure 4: Vegetation Communities/Land Uses Affected by Canyon Fire II
Appendix A: Site Photographs



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Michael Baker INTERNATIONAL

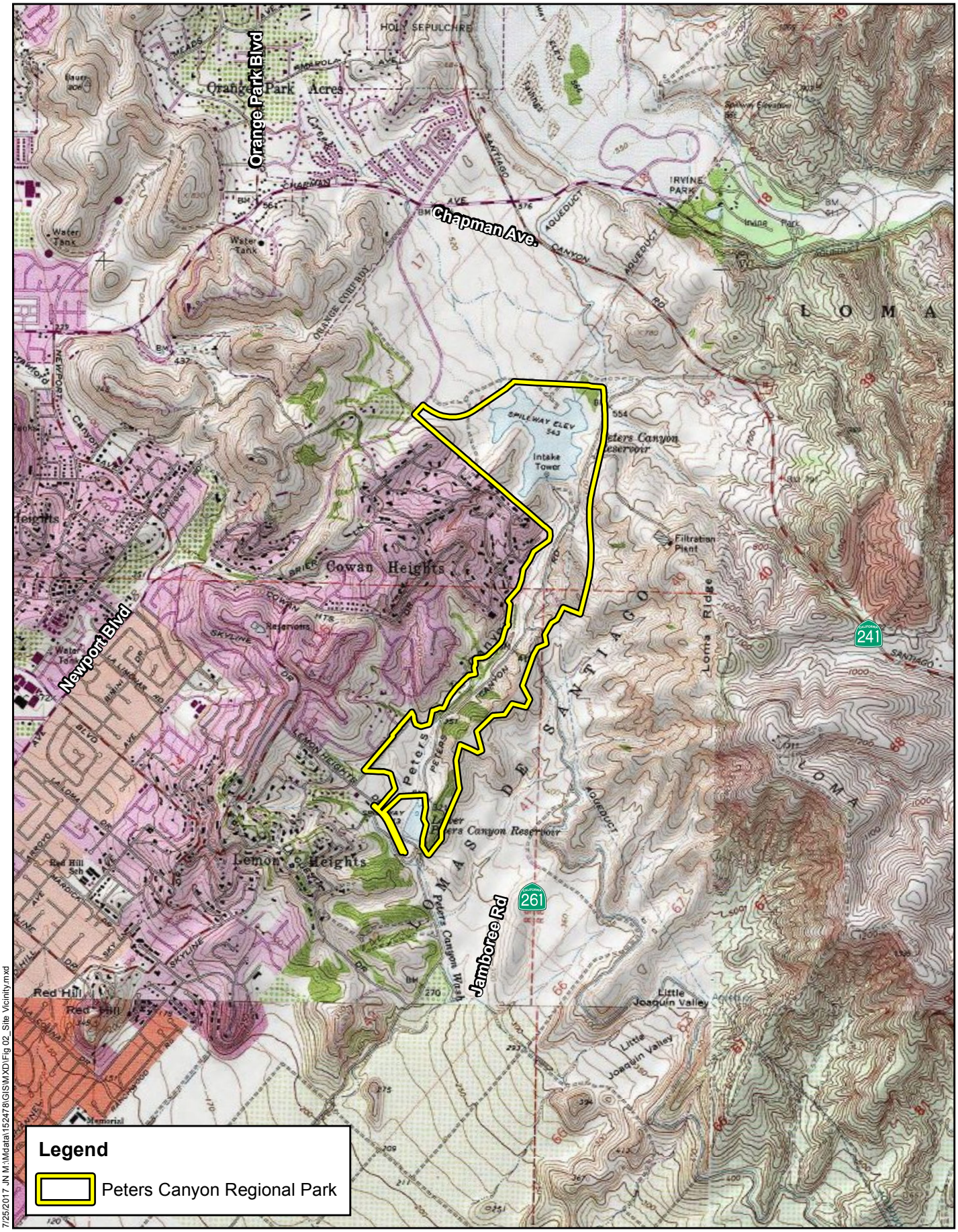
0 2.5 5 Miles

Source: ArcGIS Online

PETERS CANYON REGIONAL PARK RESOURCE MANAGEMENT PLAN
POST FIRE UPDATE

Regional Vicinity

Figure 1



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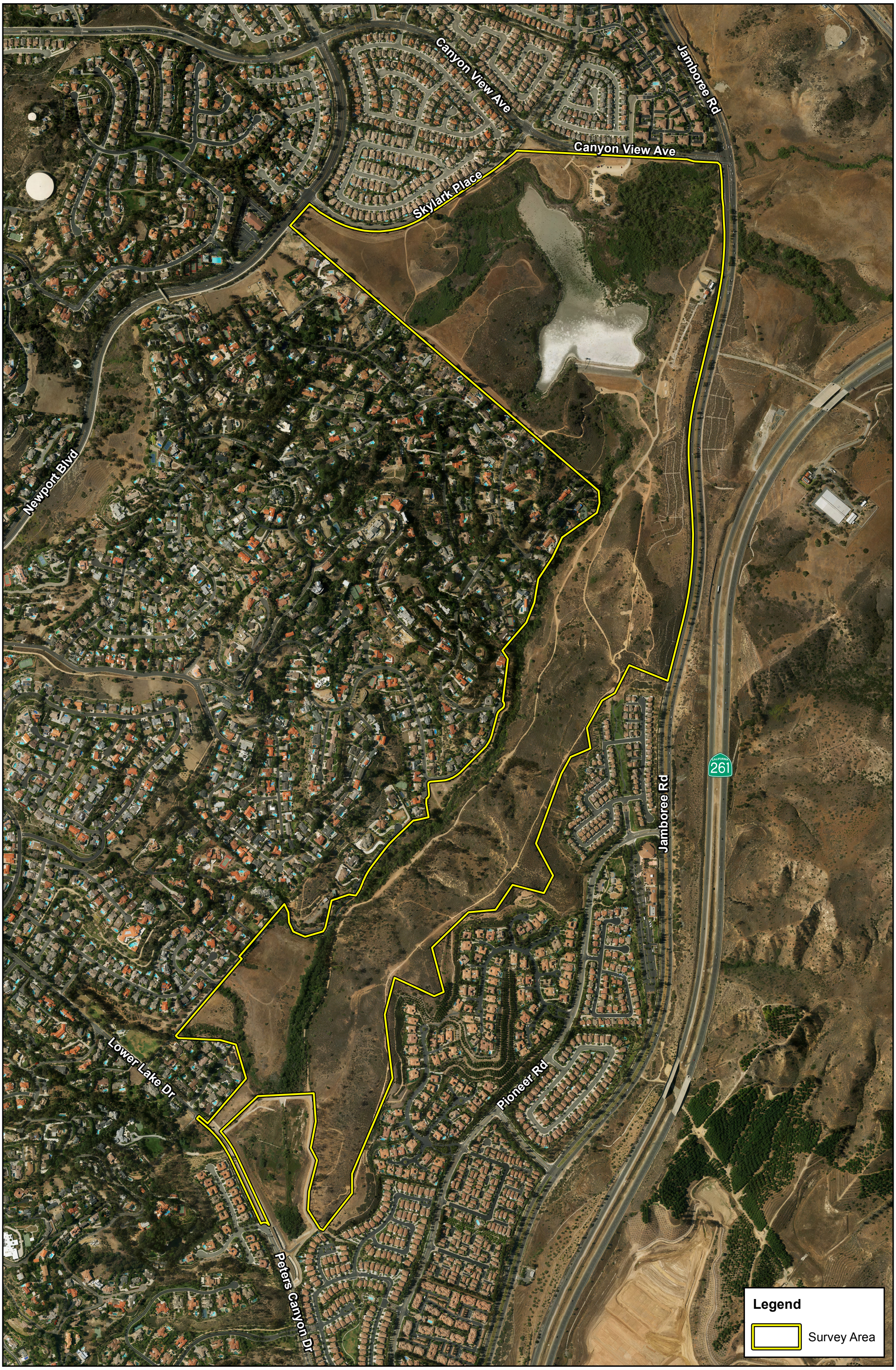
Michael Baker INTERNATIONAL

PETERS CANYON REGIONAL PARK RESOURCE MANAGEMENT PLAN
POST FIRE UPDATE

Site Vicinity

Figure 2



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Michael Baker INTERNATIONAL

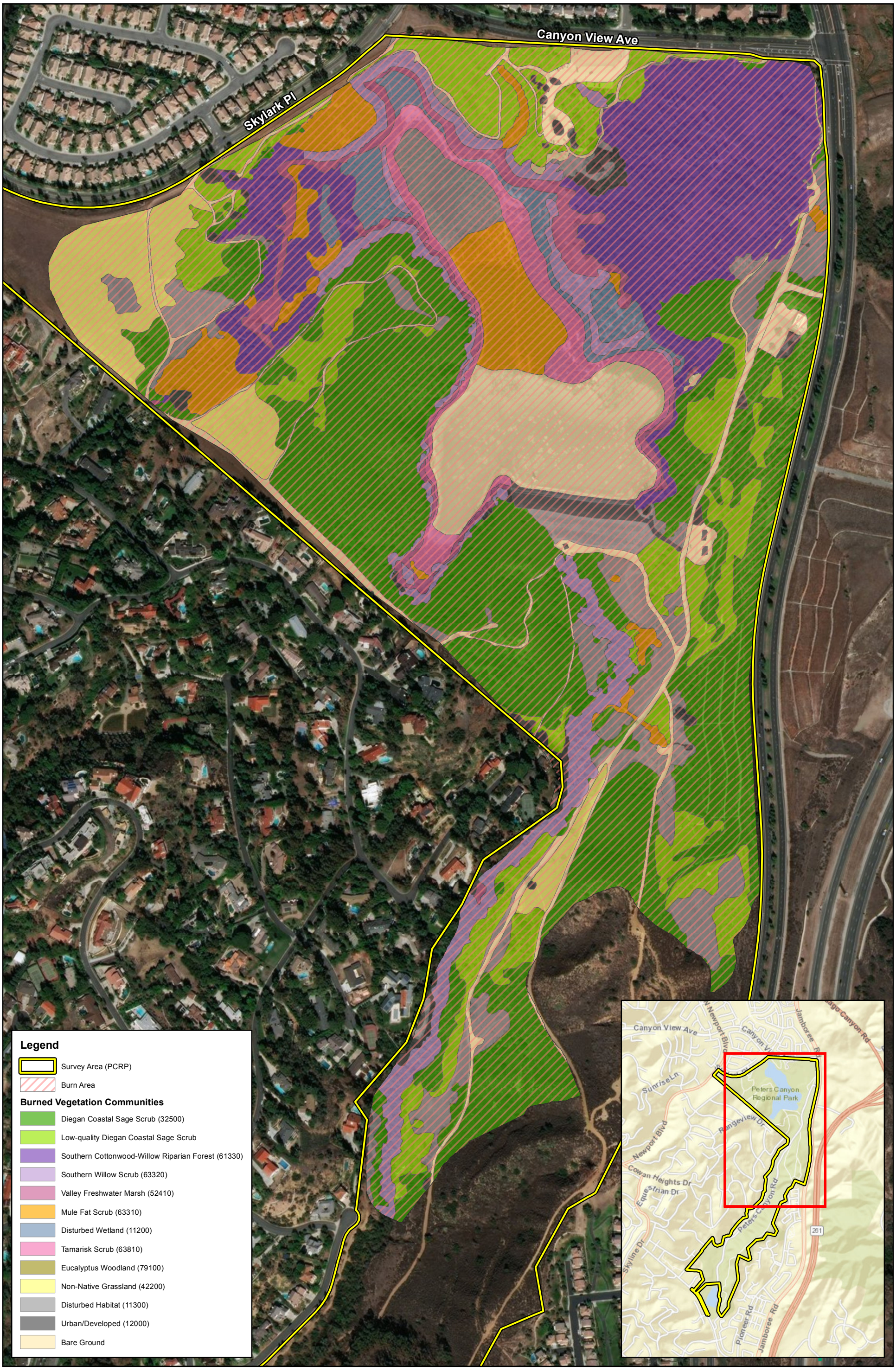
0 400 800 Feet

Source: OC Parks, Eagle Aerial Imaging - 2014

PETERS CANYON REGIONAL PARK RESOURCE MANAGEMENT PLAN
POST FIRE UPDATE

Peters Canyon Regional Park

Figure 3



PETERS CANYON REGIONAL PARK RESOURCE MANAGEMENT PLAN
POST FIRE UPDATE

Michael Baker INTERNATIONAL

0 200 400 Feet

Source: USDA Web Soil Survey, Eagle Aerial - 2015

Burned Vegetation Communities

Figure 4

Appendix A: Site Photographs

Photo 1: Looking south at the burned Southern Willow Scrub at northern end of the park

Photo 2: Coastal Sage Scrub restoration at northern end of park

Photo 3: Eastern end of the reservoir

Photo 4: Burned Coastal Sage Scrub along East Ridge View Trail