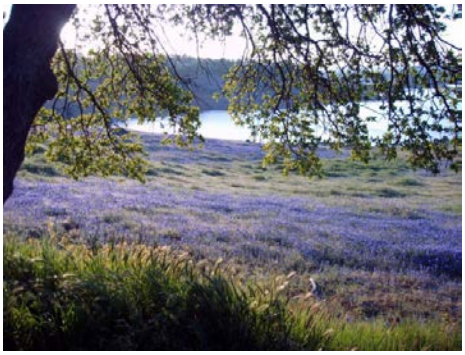
ENDANGERED SPECIES ACT & CALIFORNIA ENDANGERED SPECIES ACT-LISTED PLANTS STUDY REPORT DON PEDRO PROJECT FERC NO. 2299





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MID
Modesto Irrigation District

Prepared for:
Turlock Irrigation District – Turlock, California
Modesto Irrigation District – Modesto, California

Prepared by:
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December 2013

Endangered Species Act &
California Endangered Species Act-Listed Plants
Study Report

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ac .....acres

ACEC.....Area of Critical Environmental Concern

AF .....acre-feet

ACOE.....U.S. Army Corps of Engineers

ADA.....Americans with Disabilities Act

ALJ.....Administrative Law Judge

APE.....Area of Potential Effect

ARMR.....Archaeological Resource Management Report

BA.....Biological Assessment

BDCP .....Bay-Delta Conservation Plan

BLM.....U.S. Department of the Interior, Bureau of Land Management

BLM-S .....Bureau of Land Management – Sensitive Species

BMI.....Benthic macroinvertebrates

BMP .....Best Management Practices

BO.....Biological Opinion

CalEPPC .....California Exotic Pest Plant Council

CalSPA.....California Sports Fisherman Association

CAS.....California Academy of Sciences

CCC.....Criterion Continuous Concentrations

CCIC .....Central California Information Center

CCSF.....City and County of San Francisco

CCVHJV.....California Central Valley Habitat Joint Venture

CD.....Compact Disc

CDBW.....California Department of Boating and Waterways

CDEC.....California Data Exchange Center

CDFA.....California Department of Food and Agriculture

CDFG.....California Department of Fish and Game (as of January 2013, Department of Fish and Wildlife)

CDMG.....California Division of Mines and Geology

CDOF.....California Department of Finance

CDPH.....California Department of Public Health

CDPR .....California Department of Parks and Recreation
CDSOD .....California Division of Safety of Dams
CDWR.....California Department of Water Resources
CE .....California Endangered Species
CEII.....Critical Energy Infrastructure Information
CEQA.....California Environmental Quality Act
CESA .....California Endangered Species Act
CFR.....Code of Federal Regulations
cfs.....cubic feet per second
CGS.....California Geological Survey
CMAP .....California Monitoring and Assessment Program
CMC.....Criterion Maximum Concentrations
CNDDB.....California Natural Diversity Database
CNPS.....California Native Plant Society
CORP .....California Outdoor Recreation Plan
CPUE .....Catch Per Unit Effort
CRAM.....California Rapid Assessment Method
CRLF.....California Red-Legged Frog
CRRF .....California Rivers Restoration Fund
CSAS.....Central Sierra Audubon Society
CSBP.....California Stream Bioassessment Procedure
CT .....California Threatened Species
CTR.....California Toxics Rule
CTS .....California Tiger Salamander
CVRWQCB .....Central Valley Regional Water Quality Control Board
CWA .....Clean Water Act
CWHR.....California Wildlife Habitat Relationship
Districts.....Turlock Irrigation District and Modesto Irrigation District
DLA .....Draft License Application
DPRA.....Don Pedro Recreation Agency
DPS .....Distinct Population Segment
EA .....Environmental Assessment
EC .....Electrical Conductivity

EFH .....Essential Fish Habitat
EIR .....Environmental Impact Report
EIS.....Environmental Impact Statement
EPA .....U.S. Environmental Protection Agency
ESA .....Federal Endangered Species Act
ESRCD.....East Stanislaus Resource Conservation District
ESU .....Evolutionary Significant Unit
EWUA.....Effective Weighted Useable Area
FERC.....Federal Energy Regulatory Commission
FFS .....Foothills Fault System
FL .....Fork length
FMU .....Fire Management Unit
FOT .....Friends of the Tuolumne
FPC .....Federal Power Commission
ft/mi.....feet per mile
FWCA .....Fish and Wildlife Coordination Act
FYLF.....Foothill Yellow-Legged Frog
g.....grams
GIS .....Geographic Information System
GLO .....General Land Office
GPS .....Global Positioning System
HCP.....Habitat Conservation Plan
HHWP.....Hetch Hetchy Water and Power
HORB .....Head of Old River Barrier
HPMP.....Historic Properties Management Plan
ILP.....Integrated Licensing Process
ISR .....Initial Study Report
ITA.....Indian Trust Assets
kV.....kilovolt
m .....meters
M&I.....Municipal and Industrial
MCL.....Maximum Contaminant Level
mg/kg .....milligrams/kilogram

mg/L .....milligrams per liter
mgd .....million gallons per day
mi .....miles
mi^2 .....square miles
MID.....Modesto Irrigation District
MOU .....Memorandum of Understanding
MSCS.....Multi-Species Conservation Strategy
msl.....mean sea level
MVA .....Megavolt Ampere
MW .....megawatt
MWh .....megawatt hour
mya.....million years ago
NAE .....National Academy of Engineering
NAHC .....Native American Heritage Commission
NAS.....National Academy of Sciences
NAVD 88 .....North American Vertical Datum of 1988
NAWQA .....National Water Quality Assessment
NCCP .....Natural Community Conservation Plan
NEPA .....National Environmental Policy Act
ng/g .....nanograms per gram
NGOs .....Non-Governmental Organizations
NHI .....Natural Heritage Institute
NHPA.....National Historic Preservation Act
NISC .....National Invasive Species Council
NMFS.....National Marine Fisheries Service
NOAA .....National Oceanic and Atmospheric Administration
NOI .....Notice of Intent
NPS .....U.S. Department of the Interior, National Park Service
NRCS .....National Resource Conservation Service
NRHP.....National Register of Historic Places
NRI.....Nationwide Rivers Inventory
NTU .....Nephelometric Turbidity Unit
NWI.....National Wetland Inventory

NWIS .....National Water Information System
NWR .....National Wildlife Refuge
NGVD 29.....National Geodetic Vertical Datum of 1929
O&M .....operation and maintenance
OEHHA.....Office of Environmental Health Hazard Assessment
ORV .....Outstanding Remarkable Value
PAD.....Pre-Application Document
PDO.....Pacific Decadal Oscillation
PEIR.....Program Environmental Impact Report
PGA.....Peak Ground Acceleration
PHG.....Public Health Goal
PM&E .....Protection, Mitigation and Enhancement
PMF.....Probable Maximum Flood
POAOR.....Public Opinions and Attitudes in Outdoor Recreation
ppb.....parts per billion
ppm .....parts per million
PSP.....Proposed Study Plan
QA.....Quality Assurance
QC.....Quality Control
RA.....Recreation Area
RBP.....Rapid Bioassessment Protocol
Reclamation .....U.S. Department of the Interior, Bureau of Reclamation
RM .....River Mile
RMP .....Resource Management Plan
RP.....Relicensing Participant
RSP .....Revised Study Plan
RST .....Rotary Screw Trap
RWF.....Resource-Specific Work Groups
RWG .....Resource Work Group
RWQCB.....Regional Water Quality Control Board
SC.....State candidate for listing under CESA
SCD.....State candidate for delisting under CESA
SCE .....State candidate for listing as endangered under CESA

SCT .....State candidate for listing as threatened under CESA

SD1 .....Scoping Document 1

SD2 .....Scoping Document 2

SE.....State Endangered Species under the CESA

SFP.....State Fully Protected Species under CESA

SFPUC .....San Francisco Public Utilities Commission

SHPO .....State Historic Preservation Office

SJRA .....San Joaquin River Agreement

SJRGA .....San Joaquin River Group Authority

SJTA…… ..San Joaquin River Tributaries Authority

SPD .....Study Plan Determination

SR.....California Rare Species

SRA.....State Recreation Area

SRMA .....Special Recreation Management Area or Sierra Resource Management Area (as per use)

SRMP.....Sierra Resource Management Plan

SRP .....Special Run Pools

SSC .....State species of special concern

ST.....California Threatened Species under the CESA

STORET .....Storage and Retrieval

SWAMP.....Surface Water Ambient Monitoring Program

SWE .....Snow-Water Equivalent

SWRCB.....State Water Resources Control Board

TAC.....Technical Advisory Committee

TAF .....thousand acre-feet

TCP .....Traditional Cultural Properties

TDS .....Total Dissolved Solids

TID.....Turlock Irrigation District

TMDL .....Total Maximum Daily Load

TOC.....Total Organic Carbon

TRT .....Tuolumne River Trust

TRTAC .....Tuolumne River Technical Advisory Committee

UC .....University of California

USDA.....U.S. Department of Agriculture
USDOC.....U.S. Department of Commerce
USDOI .....U.S. Department of the Interior
USFS .....U.S. Department of Agriculture, Forest Service
USFWS .....U.S. Department of the Interior, Fish and Wildlife Service
USGS .....U.S. Department of the Interior, Geological Survey
USR.....Updated Study Report
UTM.....Universal Transverse Mercator
VAMP .....Vernalis Adaptive Management Plan
VELB .....Valley Elderberry Longhorn Beetle
VRM .....Visual Resource Management
WPT .....Western Pond Turtle
WSA.....Wilderness Study Area
WSIP .....Water System Improvement Program
WWTP .....Wastewater Treatment Plant
WY.....water year
µS/cm .....microSeimens per centimeter

1.0 INTRODUCTION

1.1 Background

Turlock Irrigation District (TID) and Modesto Irrigation District (MID) (collectively, the Districts) are the co-licensees of the 168-megawatt (MW) Don Pedro Project (Project) located on the Tuolumne River in western Tuolumne County in the Central Valley region of California. The Don Pedro Dam is located at river mile (RM) 54.8 and the Don Pedro Reservoir has a normal maximum water surface elevation of 830 ft above mean sea level (msl; NGVD 29). At elevation 830 ft, the reservoir stores over 2,000,000 acre-feet (AF) of water and has a surface area slightly less than 13,000 acres (ac). The watershed above Don Pedro Dam is approximately 1,533 square miles (mi^2). The Project is designated by the Federal Energy Regulatory Commission (FERC) as project no. 2299.

Both TID and MID are local public agencies authorized under the laws of the State of California to provide water supply for irrigation and municipal and industrial (M&I) uses and to provide retail electric service. The Project serves many purposes including providing water storage for the beneficial use of irrigation of over 200,000 ac of prime Central Valley farmland and for the use of M&I customers in the City of Modesto (population 210,000). Consistent with the requirements of the Raker Act passed by Congress in 1913 and agreements between the Districts and City and County of San Francisco (CCSF), the Project reservoir also includes a "water bank" of up to 570,000 AF of storage. CCSF may use the water bank to more efficiently manage the water supply from its Hetch Hetchy water system while meeting the senior water rights of the Districts. The "water bank" within Don Pedro Reservoir provides significant benefits for CCSF's 2.6 million customers in the San Francisco Bay Area.

The Project also provides storage for flood management purposes in the Tuolumne and San Joaquin rivers in coordination with the U.S. Army Corps of Engineers (ACOE). Other important uses supported by the Project are recreation, protection of the anadromous fisheries in the lower Tuolumne River, and hydropower generation.

The Project Boundary extends from RM 53.2, which is one mile below the Don Pedro powerhouse, upstream to RM 80.8 at an elevation corresponding to the 845 ft contour (31 FPC 510 [1964]). The Project Boundary encompasses approximately 18,370 ac with 78 percent of the lands owned jointly by the Districts and the remaining 22 percent (approximately 4,000 ac) owned by the United States and managed as a part of the U.S. Bureau of Land Management (BLM) Sierra Resource Management Area.

The primary Project facilities include the 580-foot-high Don Pedro Dam and Reservoir completed in 1971; a four-unit powerhouse situated at the base of the dam; related facilities including the Project spillway, outlet works, and switchyard; four dikes (Gasburg Creek Dike and Dikes A, B, and C); and three developed recreational facilities (Fleming Meadows, Blue Oaks, and Moccasin Point Recreation Areas). The location of the Project and its primary facilities is shown in Figure 1.1-1.

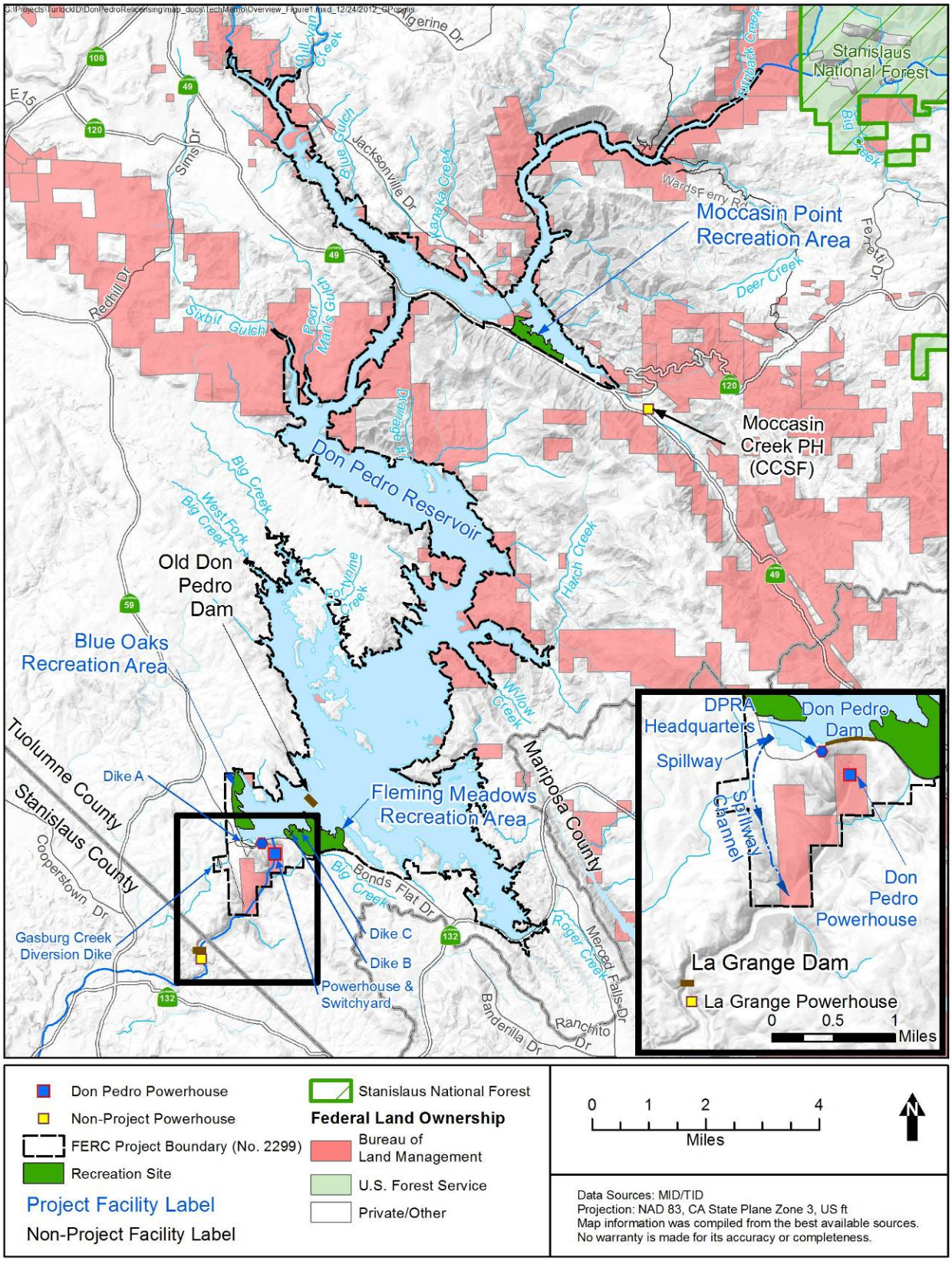

Figure 1.1-1. Don Pedro Project location.

1.2 Relicensing Process

The current FERC license for the Project expires on April 30, 2016, and the Districts will apply for a new license no later than April 30, 2014. The Districts began the relicensing process by filing a Notice of Intent and Pre-Application Document (PAD) with FERC on February 10, 2011, following the regulations governing the Integrated Licensing Process (ILP). The Districts' PAD included descriptions of the Project facilities, operations, license requirements, and Project lands as well as a summary of the extensive existing information available on Project area resources. The PAD also included ten draft study plans describing a subset of the Districts' proposed relicensing studies. The Districts then convened a series of Resource Work Group meetings, engaging agencies and other relicensing participants in a collaborative study plan development process culminating in the Districts' Proposed Study Plan (PSP) and Revised Study Plan (RSP) filings to FERC on July 25, 2011 and November 22, 2011, respectively.

On December 22, 2011, FERC issued its Study Plan Determination (SPD) for the Project, approving, or approving with modifications, 34 studies proposed in the RSP that addressed Cultural and Historical Resources, Recreational Resources, Terrestrial Resources, and Water and Aquatic Resources. In addition, as required by the SPD, the Districts filed three new study plans (W&AR-18, W&AR-19, and W&AR-20) on February 28, 2012 and one modified study plan (W&AR-12) on April 6, 2012. Prior to filing these plans with FERC, the Districts consulted with relicensing participants on drafts of the plans. FERC approved or approved with modifications these four studies on July 25, 2012.

Following the SPD, a total of seven studies (and associated study elements) that were either not adopted in the SPD, or were adopted with modifications, formed the basis of Study Dispute proceedings. In accordance with the ILP, FERC convened a Dispute Resolution Panel on April 17, 2012 and the Panel issued its findings on May 4, 2012. On May 24, 2012, the Director of FERC issued his Formal Study Dispute Determination, with additional clarifications related to the Formal Study Dispute Determination issued on August 17, 2012.

This study report describes the objectives, methods, and results of the ESA- and CESA-Listed Plant Study (TR-02) as implemented by the Districts in accordance with FERC's SPD and subsequent study modifications and clarifications. On January 17, 2013, the Districts filed the Initial Study Report for the Don Pedro Project. On October 18, 2013, in response to a request made by the BLM in a letter to FERC dated March 11, 2013, the Districts provided the BLM with raw data on ESA- and CESA-listed plants collected during this study.

Documents relating to the Project relicensing are publicly available on the Districts' relicensing website at www.donpedro-relicensing.com.

1.3 Study Plan

The Districts' continued operation and maintenance (O&M) of the Don Pedro Project and/or Project-related recreation activities may have the potential to affect plants listed under the Endangered Species Act (ESA) as endangered (FE) or threatened (FT) and/or plants listed under the California Endangered Species Act (CESA) as endangered (SE) or threatened (ST). These effects may be direct (e.g., result of ground-disturbing activities such as mechanical or chemical

clearing of vegetation or trampling of plants), indirect (e.g., due to activities such as soil compaction which limits plant growth) or cumulative (i.e., caused by a Project activity in association with a non-Project activity, such as the introduction of invasive plants from a non-Project vector). This study evaluates the potential for Project-related activities to impact ESA- or CESA-listed plants.

Other special-status plant species were studied in conjunction with field survey efforts for ESA- and CESA-listed species; the results of that study are provided in Study Report TR-01, Special Status Plants. For the purpose of that study, special-status plants were considered those plants that are: special-status plants were defined as plant species that are: 1) found on public land administered by the United States Department of Interior, Bureau of Land Management (BLM) and formally listed by the BLM as Sensitive (BLM-S); 2) listed under the federal ESA as Proposed or a Candidate for listing as endangered or threatened or proposed for delisting; 3) listed under the CESA as proposed for listing; 4) found on the California Department of Fish and Game's (CDFG) list of California Rare (SR) species listed under the Native Species Plant Protection Act of 1977 and 5) found on the California Native Plant Society (CNPS) Inventory of Rare Plants and formally listed as a CNPS 1, 2, or 3 plants (CNPS 1, CNPS 2, CNPS 3).

2.0 STUDY GOALS AND OBJECTIVES

The goal of this study was to identify whether continued Project O&M or recreational use of Project facilities have the potential to adversely affect ESA- or CESA-listed plant species. The objective of the study was to record presence and distribution of plants listed as threatened or endangered under the ESA- and CESA within the study area (described in Section 3.0), following methods described in the study plan.

3.0 STUDY AREA

The study area consisted of lands within the Project Boundary that are subject to Project-related O&M or recreation activities, including high-use dispersed recreation areas. The study area is shown in Figure 3.0-1 and included the following specific areas:

- The Blue Oaks, Fleming Meadows, and Moccasin Point Recreation areas and related facilities, including the 3.5-mile Don Pedro Shoreline Trail;
- High-use dispersed recreation areas, as identified by Districts' staff;
- Lands within the Project Boundary designated as part of the BLM's Red Hills Area of Critical Environmental Concern (ACEC);
- Don Pedro Dam, Powerhouse, and Switchyard, including related maintenance and storage facilities and the powerhouse access road;
- The Don Pedro Spillway channel and related access roads;
- The Gasburg Creek diversion dike and related access roads;
- Employee housing near Don Pedro Dam;
- Don Pedro Recreation Agency headquarters and visitor center;
- Dikes A, B, and C in the vicinity of Don Pedro Dam; and
- The Ward's Ferry take-out.

The study area also included the following habitats adjacent to the lands specified above:

- Out to 300 feet (ft) or the Project Boundary, whichever is greater, within the high-use dispersed recreation areas and facilities;
- Out to 300 ft from the high water mark of the Project reservoir, or the Project Boundary, whichever is greater, within BLM lands in the Red Hills ACEC; and
- For ESA- or CESA plant occurrences found within the study area, the study area was expanded to the full extent of the occurrence, or to one quarter mile outside the Project Boundary, whichever was less.[1]

Per the study plan, areas with unsafe terrain, as identified in the field, were not surveyed.[2] These included dangerously steep slopes, areas of thick poison oak (*Toxicodendron diversiloba*) and other areas that were unsafe for field crews to enter. This included some of the steep slopes of below Don Pedro Dam; a steep slope, composed of thick chaparral, at Moccasin Point Recreation Area; a piece of the Willow Creek arm, due to impenetrable chamise, steep slopes and poison oak; the very tip of the Shawmut Road area, due to steep slopes; the steepest sections of the Ward's Ferry area; steep slopes in the upper area of Woods Creek Arm and a section of steep slopes on the edge of the Ramos Creek area.

[1] For the purpose of this study, this area is referred to as the possible study extent.
[2] A small percentage (5 percent) of the study area was inaccessible due to unsafe terrain (approximately 200 acres).

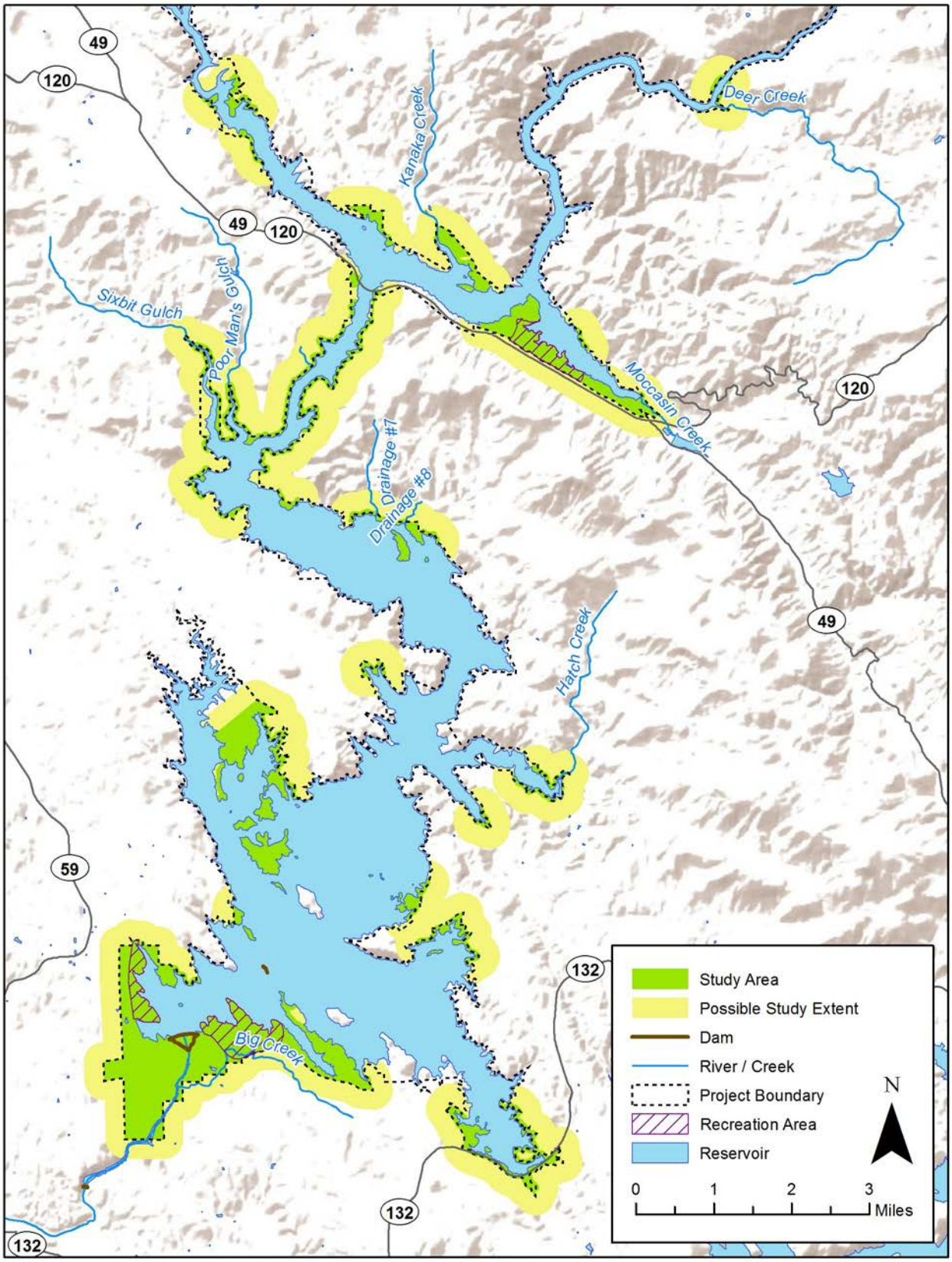

Figure 3.0-1. ESA- and CESA-listed plants study area.

The Districts requested access to private lands within the possible study extent (i.e. within ¼ mile of the Project Boundary) in a letter sent to 303 landowners on February 12, 2012. Of these, 83 granted and 220 denied access to their land or did not respond; private lands for which access was denied, or for which no response was received, were not surveyed.

4.0 METHODOLOGY

The study was conducted in five steps:1) gather data and information to prepare for the field effort, including known plant occurrences; 2) conduct the botanical surveys for the study area to locate ESA and CESA plant occurrences; 3) compile and quality assure/quality control (QA/QC) data, 4) consult with the Districts' operations staff and recreation personnel to identify Project O&M and recreation, or other Project-related activities, that typically occur in the area of located ESA- and CESA-listed plant occurrences and have the potential to affect these occurrences, and 5) prepare a report on the study.

4.1 Gather Data and Prepare for Field Effort

A pre-study literature review was conducted prior to fieldwork to: 1) identify all possible ESA- and CESA-listed plants in the Project study area; 2) identify locations where ESA- and CESA-listed plants were previously observed; and 3) gather life history information for all potential ESA- and CESA-listed species.

To identify ESA-listed plants with the potential to occur in the study area, the study team: 1) generated an official list of ESA-listed species via the online request service available at the United States Department of Interior (USDOI), Fish and Wildlife Service (USFWS) website (USFWS 2012a); 2) reviewed the CNPS database (CNPS 2012) within the nine United States Geological Survey (USGS) quadrangle (quad) maps that overlap the Project Boundary; and 3) searched for recorded occurrences of ESA- and CESA-listed plants by querying the California Natural Diversity Database (CNDDB) RareFind 4 (CDFG 2012).

Based on a pre-survey literature review, there were CNDDB records for 10 ESA-listed plant occurrences located within a one-mile buffer of the Project Boundary. There were five occurrences each of Layne's ragwort (*Packera layneae*) and California vervain (*Verbena californica*) (CDFG 2012). An additional eight species listed as FT, FE, SE, or ST have a reasonable potential to be occur within the FERC Project Boundary: Chinese Camp brodiaea (*Brodiaea pallida*), succulent owls-clover (*Castilleja campestris* ssp. *succulenta*), Hoover's spurge (*Chamaesyce hooveri*), Delta button-celery (*Eryngium racemosum*), Colusa grass (*Neostapfia colusana*), hairy Orcutt grass (*Orcuttia pilosa*), Hartweg's golden sunburst (*Pseudobahia bahiifolia*), and Greene's tuctoria (*Tuctoria greenei*) (CNPS 2012).

Table 4.1-1 provides characteristics and information on recorded occurrences for target ESA- and CESA-listed target species identified during the pre-survey literature review.

Table 4.1-1. Target list of ESA- and CESA- listed plant species for the Don Pedro Project.

Common Name/ Scientific Name	Status[1]	Flowering Period	Elevation Range (feet)	Habitat Requirements	Occurrence in Area Surrounding the Project[2,3]
Chinese Camp brodiaea *Brodiaea pallida*	CNPS 1B, FT, SE	May-Jun	1,000-1,250	Ultramafic, valley and foothill grassland, cismontane woodland, vernal streambeds, often serpentine	**Chinese Camp, Sonora**, New Melones Dam
Succulent owl's clover *Castilleja campestris* ssp. *succulenta*	CNPS 1B, FT, SE	Apr-May	150-2,500	Vernal pools	Cooperstown, Snelling, Merced Falls
Hoover's spurge *Chamaesyce hooveri*	CNPS 1B, FT	Jul-Sep (Oct)	75-900	Vernal pools	Cooperstown, Turlock Lake
Delta button-celery *Eryngium racemosum*	CNPS 1B, SE	Jun-Oct	0-350	Riparian scrub	Turlock Lake
Colusa grass *Neostapfia colusana*	CNPS 1B, FT, SE	May-Aug	0-700	Vernal pools	Cooperstown, Turlock Lake
Hairy Orcutt grass *Orcuttia pilosa*	CNPS 1B, FE, SE	May-Sep	100-700	Vernal pools	Cooperstown, Turlock Lake
Layne's ragwort *Packera layneae*	CNPS 1B, FT, SR	Apr-Aug	0-3,300	Chaparral, cismontane woodland, serpentine or gabbroic, rocky	**Chinese Camp, Moccasin**
Hartweg's golden sunburst *Pseudobahia bahiifolia*	CNPS 1B, FE, SE	Mar-Apr	0-500	Cismontane woodland, valley and foothill grassland	**La Grange**, Cooperstown, Snelling, Merced Falls, Tuolumne
Greene's tuctoria *Tuctoria greenei*	CNPS 1B, FE, SR	May-Jul (Sep)	0-3,600	Vernal pools	Cooperstown
California vervain *Verbena californica*	CNPS 1B, FT, ST	May-Sep	800-1,400	Cismontane woodland, valley and foothill grassland, usually serpentine seeps and creeks	**Sonora, Chinese Camp**, Keystone

[1] Special-status:
FE: Federal Endangered Species
FT: Federal Threatened Species
SE: California Endangered Species
SR: California Rare Species
ST: California Threatened Species
CNPS: California Native Plant Society listed species
1B: Species considered rare or endangered in California and elsewhere

[2] Occurrence in area surrounding Project results based on a CNPS nine quadrangle search.

[3] Quads that are fully or partially included within the existing Project Boundary are indicated by bold font; quads surrounding, but not included within the Project Boundary are listed in regular font.

Life history information for each of the 10 ESA- and CESA-listed plant species identified during the pre-survey literature review is provided below.

4.1.1 Chinese Camp brodiaea (FT, SE)

On September 14, 1998, USFWS listed Chinese Camp brodiaea as threatened under the federal ESA (Federal Register 63:49002). No critical habitat has been designated for this species, and no recovery plan has been developed (USFWS 1998). In December 2007, USFWS completed a 5-year review of this species and recommended no change in designation (USFWS 2012b). Chinese Camp brodiaea is listed as endangered under CESA, but is not listed as a sensitive species by the BLM.

Chinese Camp brodiaea grows in vernal swales (Baldwin 2012), within open areas along seeps and intermittent springs in volcanic and serpentine soils in the California Sierra foothill woodlands between 984-1,312 feet in elevation (eflora 2008). This species is known from only two occurrences near Chinese Camp in Calaveras and Tuolumne counties (CNPS 2012). Both of these occurrences are on private land, which is threatened by cattle-grazing and development. Chinese Camp brodiaea reportedly hybridizes with *B. elegans* (efloras 2008). It can be differentiated from the other brodiaeas by flower shape, color and length, as well as width, shape and position of male flower parts (Baldwin 2012).

This plant has been found within the Chinese Camp and Sonora quads, as well as the surrounding New Melones dam quad (CNPS 2012).

4.1.2 Succulent owl's clover (FT, SE)

On March 26, 1998, the USFWS listed succulent owl's clover as threatened under the federal ESA (Federal Register 62:14339). Critical habitat was originally designated in Federal Register 68:46683; August 6, 2003 for this species and then revised in Federal Register 70:46923; August 11, 2005, before being published in Federal Register 71:7117; February 10, 2006 (USFWS 2006). Critical habitat units 15E and 15H for succulent owl's clover occur within three miles of the Don Pedro dam, but no critical habitat is designated within the Project Boundary. USFWS initiated a 5-year review for this species in March 2008 (USFWS 2012b). USFWS issued a Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon, which included succulent owl's clover, among other species (USFWS 2005). Succulent owl's clover is listed as endangered under CESA, but is not listed as a sensitive species by the BLM.

Succulent owl's clover occurs in vernal pools and moist areas (USFWS 2012b) within annual valley and foothill grassland communities (CDFG 2012). The plant has been found in both small and large pools between 80-2,300 feet in elevation. Characteristics used for identification are upper stem leaves which are long, fleshy and easily broken (USFWS 2012b). Succulent owl's clover populations are threatened by urbanization, agriculture (Baldwin 2012) flood control and cattle grazing (CNPS 2012).

The results of the CNDDB (CDFG 2012) search and CNPS (2012) search both indicate that this species occurs within the surrounding Merced Falls, Cooperstown and Snelling quads.

4.1.3 Hoover's spurge (FT)

On March 26, 1997, USFWS listed Hoover's spurge as threatened under the federal ESA (Federal Register 62:14338). Critical habitat was originally designated in Federal Register 68:46683; August 6, 2003 for this species and then revised in Federal Register 70:46923; August 11, 2005, before being published in Federal Register 71:7117; February 10, 2006. Critical habitat units 15E and 15H for Hoover's spurge occur within three miles of the Don Pedro dam, but no critical habitat is designated within the Project Boundary (USFWS 2012b). USFWS issued a Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon, which included Hoover's spurge, amongst other species (USFWS 2005). Hoover's spurge is not listed under CESA or listed as a sensitive species by the BLM.

Hoover's spurge is restricted to vernal pools within valley and foothill annual grassland (CDFG 2012) between 82-820 feet in elevation (CNPS 2012). The vernal pools supporting Hoover's spurge typically occur on alluvial fans or terraces of ancient rivers or streams, with a few on the rim of the Central Valley basin where reduced competition with other plants occur (USFWS 2012b). Hoover's spurge is threatened by habitat loss (Baldwin 2012), non-native plant encroachment and cattle grazing (CDFG 2012).

The results of the CNPS (2012) search of Project Vicinity quads indicated that this species occurs within the Cooperstown and Turlock Lake quads. However, Hoover's spurge is not known to occur within the study area.

4.1.4 Delta button-celery (SE)

Eryngium racemosum is known from 28 occurrences, seven of which are historical or potentially extirpated. Historically, this species occurred in Calaveras, Merced, Stanislaus and San Joaquin counties. Habitat for the species includes clay and silty soils in seasonally flooded plains and swales. Flood-prevention projects, grazing, dredging, prolonged inundation and channel maintenance are all threats to the species (CDFG 2012).

The results of the CNPS search of Project Boundary quads indicated that this species occurs within the neighboring Turlock Lake USGS quadrangle (CNPS 2012).

4.1.5 Colusa grass (FT, SE)

On March 26, 1997, the USFWS listed Colusa grass as threatened under the federal ESA (Federal Register 58:14338). Critical habitat was originally designated in Federal Register 68:46683; August 6, 2003 for this species and then revised in Federal Register 70:46923; August 11, 2005, before being published in Federal Register 71:7117; February 10, 2006 (USFWS 2006). Critical habitat units 15E and 15H occur within three miles of the Don Pedro dam, but no critical habitat is designated within the Project Boundary. A 5-year review completed by the USFWS in June 2008 recommended no change in the designation of the species (USFWS 2012b). USFWS issued a Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon, which included Colusa grass, amongst many other species (USFWS 2005). Colusa grass is listed as endangered under CESA, but is not formally listed as a sensitive species by the BLM.

Colusa grass is restricted to vernal pools within valley annual grasslands (CDFG 2012) between 16-656 feet in elevation (CNPS 2012). This grass is unique in that is produces two different types of leaves during its lifecycle. Juvenile leaves form under water and after the pool dries; it produces its terrestrial leaf form that is broader than typical grass leaves (USFWS 2012b). Colusa grass is threatened by habitat loss from agriculture, urbanization, non-native plant encroachment and overgrazing (CNPS 2012).

The results of the CNPS (2012) search of Project Vicinity quads indicated that this species occurs within the adjoining Cooperstown and Turlock Lake quads. However, Colusa grass has not been reported within the study area.

4.1.6 Hairy Orcutt grass (FE, SE)

On March 26, 1997, the USFWS listed hairy Orcutt grass as threatened under the federal ESA (Federal Register 58:14338). Critical habitat was originally designated in Federal Register 68:46683; August 6, 2003 for this species and then revised in Federal Register 70:46923; August 11, 2005, before being published in Federal Register 71:7117; February 10, 2006 (USFWS 2006). Critical habitat unit 15H for hairy Orcutt grass occurs within three miles of the Don Pedro dam, but no critical habitat is designated within the Project Boundary. USFWS completed a 5-year review of this species in June 2009 and recommended no change in designation (USFWS 2012b). USFWS issued a Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon, which included hairy Orcutt grass, amongst many other species (USFWS 2005). Hairy Orcutt grass is listed as endangered under CESA, but is not formally listed as a sensitive species by the BLM (USFWS 2012b).

Hairy Orcutt grass is restricted to vernal pools within valley annual grasslands and freshwater and riparian wetlands (Calflora 2012) between 150-660 feet in elevation (CNPS 2012). The vernal pools supporting the grass typically occur on alluvial fans. Hairy Orcutt population size is determined by yearly rain accumulation (USFWS 2012b). With the conversions of vernal pools for irrigated agriculture, competition with nonnative weeds, overgrazing (CNPS 2012), highway expansions and urbanization the species has the potential to be extirpated. (DFG 2005).

The results of the CNPS (2012) search of Project Vicinity quads indicated that this species occurs within the adjoining Cooperstown and Turlock Lake quads. However, hairy Orcutt grass has not been reported from the study area.

4.1.7 Layne's ragwort (FT)

On October 18, 1996, USFWS listed Layne's ragwort as threatened under the federal ESA (Federal Register 63:49002). No Critical Habitat has been designated for this species. A 5-year review was initiated by USFWS for this species in March 2009 (USFWS 2012b). The USFWS issued a Recovery Plan for Gabbro Soil Plants of the Central Sierra Nevada, which included Layne's ragwort, amongst other species (USFWS 2002). Layne's ragwort is not listed under CESA or formally listed as a sensitive species by the BLM, but is on the California Department of Fish and Game's (CDFG) list of California Rare (SR) species, under the Native Species Plant Protection Act of 1977.

Layne's ragwort is a perennial herb that grows within dry pine or oak woodlands (USFWS 2012b) in open, disturbed rocky areas on gabbro and serpentine soils (Baldwin 2012) between 660-3,280 feet in elevation (CNPS 2012). The species occasionally can be found along streams as well (CDFG 2012). Rapid urbanization is a primary threat to Layne's ragwort. Additionally, clearing, grazing, road construction and fire suppression are also threats to the species (CNPS 2012).

This plant has been found within the Chinese Camp and Moccasin quads (CNPS 2012).

4.1.8 Hartweg's golden sunburst (FE, SE)

On February 6, 1997, the USFWS listed Hartweg's golden sunburst as endangered under the federal ESA (Federal Register 62:5542) (USFWS 1997). No Critical Habitat has been designated for this species. No Recovery Plan for Hartweg's golden sunburst has been developed. A 5-year review for the species was completed by USFWS in December 2007; no change in designation was recommended (USFWS 2012b). Hartweg's golden sunburst is listed as endangered under CESA, but is not listed as a sensitive species by the BLM (USFWS 2012b).

Hartweg's golden sunburst only occurs in the Central Valley of California (USFWS 2012b) within valley and foothill grasslands between 50-495 feet in elevation (CNPS 2012). The plant primarily grows on the north or northeast face of Mima mounds that are roughly 1-6 feet high and 10-100 feet in diameter. These mounds are often found adjacent to vernal pools and are interspersed with basins that pond water in the rainy season (USFWS 2012b). Many of the occurrences of Hartweg's golden sunburst are very small and because of this, the species is highly threatened. Urban development, agriculture and overgrazing have caused its decline (CNPS 2012).

Hartweg's golden sunburst has not been observed in the study area, but occurred in Project quad La Grange, as well as the adjoining Cooperstown, Snelling, Merced Falls and Tuolumne quads (CNPS 2012).

4.1.9 Greene's tuctoria (FE)

On March 26, 1997, the USFWS listed Greene's tuctoria as endangered under the federal ESA (Federal Register 58:14338). Critical Habitat was originally designated in Federal Register 68:46683; August 6, 2003 for this species and then revised in Federal Register 70:46923; August 11, 2005, before being published in Federal Register 71:7117; February 10, 2006 (USFWS 2006). Critical Habitat unit 15E for Greene's tuctoria occurs within three miles of the Don Pedro Dam, but no critical habitat is designated within the Project Boundary. A 5-year review for this species was completed in December 2007; no change to the species' classification was recommended (USFWS 2012b). USFWS issued a Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon, which included Greene's tuctoria, among many other species (USFWS 2005). Greene's tuctoria is not listed under CESA or listed as a sensitive species by the BLM, but it is on CDFG's list of SR species under the Native Species Plant Protection Act of 1977.

Greene's tuctoria is restricted to vernal pools within valley grasslands and freshwater and riparian wetlands of California (Calflora 2012) between 98-3,510 feet in elevation (CNPS 2012). As with most vernal pool species, population size is determined by yearly rainfall (USFWS 2012b). Threats to Greene's tuctoria include the conversion of vernal pools for agriculture and urbanization, competition with nonnative grasses, and overgrazing (CDFG 2005).

The results of the CNPS (2012) search indicated that this species occurs within the adjoining Cooperstown quad. However, Greene's tuctoria has not been reported within the study area.

4.1.10 California vervain (FT, ST)

On September 14, 1998, the USFWS listed California vervain as threatened under the federal ESA (Federal Register 63:49002). No critical habitat has been designated for this species. USFWS is currently developing a Recovery Plan for California vervain. In December 2007, a 5-year review of the species by USFWS recommended no change in designation (USFWS 2012b). California vervain is also listed as threatened under CESA, but is not formally listed as a sensitive species by the BLM (USFWS 2012b).

California vervain is a perennial herb that is only found along small or intermittent perennial streams (CDFG 2005) usually within serpentinite, cismontane woodlands within valley and foothill grasslands between 853-1312 feet in elevation. Occasionally it will be found in non-wetland areas (Calflora 2012). This species is only known to grow in the Red Hills of California (CNPS 2012). Threats to California vervain include recreational activities such as gold mining, mountain biking and hiking. Additionally, hydrological fluctuations also affect the species (USFWS 2012b).

This plant has been found within the Chinese Camp and Sonora quads, as well as the surrounding Keystone quad (CNPS 2012).

4.2 Botanical Surveys

Botanical surveys were performed on approximately 3,870 ac between March 5 and June 29, 2012. ESA-listed plant surveys were conducted in conjunction with other relicensing studies including Special-status Plants (Study TR-01); Noxious Weeds (Study TR-04); and ESA-listed Wildlife – Valley Elderberry Longhorn Beetle (Study TR-05). (Results of these surveys are reported separately.) Surveys were carried out by qualified botanists on foot and by boat and survey times coincided with blooming periods. Resurveys were conducted at areas and features where potential ESA- and CESA-listed plant species or plant communities were not at the correct phenology for proper identification during the earlier bloom period, particularly in areas containing late blooming species.

Surveys were floristic in nature and generally followed CDFG's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFG 2009). Plants were identified using the *Jepson Manual of Higher Plants of California* (Baldwin ed. 2012), *A field guide to Pacific States wildflowers: Field marks of species found in Washington, Oregon, California, and adjacent areas : a visual approach arranged by color,*

form, and detail (Niehaus and Ripper 1976), *Trees and shrubs of California* (Stuart and Sawyer, 2001), *Wildflowers of the Sierra Nevada and the Central Valley* (Blackwell 1999), *Field Guide to the Sedges of the Pacific Northwest* (Wilson et. al 2008) and *Selected Plants of Northern California and Adjacent Nevada* (Oswald 2002). As detailed in the FERC-approved study plan, surveys were conducted using a random meander technique with additional focus in high quality habitat or areas with a higher probability of supporting ESA- and CESA-listed plants.

At each ESA- or CESA-listed plant occurrence, the following information was recorded: digital photograph, estimated area covered by the population, estimated number of individuals, boundary or location of the approximate center of the population, dominant and subdominant vegetation in the area, estimated distance to nearest Project facility, feature, or Project-related activity, activities observed in the vicinity of the population that have a potential to adversely affect the population, and estimated phenology and descriptions of reproductive state.

All data were subjected to QA/QC procedures including, but not limited to: daily QA/QC of field data sheets, spot-checks of transcription during data compilation, and comparison of Geographic Information System (GIS) maps with field notes and field maps to verify locations. Data were entered into a database and crosschecked by a second scientist to ensure data were properly recorded. GIS maps, depicting the occurrences, Project facilities and features, were generated to display field collected GPS information and used as a second method to verify that all special-status plant occurrence locations matched the information on the data sheets. Any data corrections were noted in the Project file.

4.3 Operations and Recreation Staff Consultation

After all observed special-status plant occurrences were verified and mapped, Project operations staff was consulted to identify Project O&M, recreation and other Project-related activities that typically occur in the area of the ESA-listed plant occurrences that have the potential to adversely affect the occurrences. The consultation was done, in part, to meet the requirements of the study plan, and the results of these discussions are included in Section 6.0.

5.0 RESULTS

Two ESA-listed plant species were located within the study area during 2012 botanical surveys: Layne's ragwort and California vervain. There were 25 occurrences of Layne's ragwort and 2 occurrences of California vervain, all of which were found on BLM lands within the Red Hills ACEC (Attachment A).

5.1 Layne's ragwort

There were 25 occurrences of Layne's ragwort located within the study area during the 2012 surveys. Occurrences ranged from 5 to 250 plants, on a total estimated area of 2.9 ac. The majority of Layne's ragwort was located in gray pine (*Pinus sabiniana*) woodlands with wedgeleaf ceanothus (*Ceanothus cuneatus*), toyon (*Heteromeles arbutifolia*), chamise (*Adenostoma fasciculatum*) and common manazanita (*Arctostaphylos manzanita*) as common subdominants. Four of the occurrences (610, 654, 656, and 659)[3] were located in chaparral dominated by wedgeleaf ceanothus, hollyleaf redberry (*Rhamnus ilicifolia*) and toyon. Special-status plants commonly co-occurred with Layne's ragwort, including Red Hills onion (*Allium tuolumnense*), Red Hills soaproot (*Chlorogalum grandiflorum*), tripod buckwheat (*Erigonum tripodum*), serpentine bluecup (*Githopsis pulchella* ssp. *serpenticola*), Congdon's lomatium (*Lomatium congdonii*) and shaggyhair lupine (*Lupinus spectabilis*).[4] All of the Layne's ragwort occurrences were located on the Red Hill ACEC on BLM lands.

Three Layne's ragwort occurrences (91, 677 and 679) were located on Kanaka Point, near a recreation day use area off of Jacksonville Road. There are multiple footpaths throughout the area, including one that runs within a few feet of occurrences 91 and 677. All three of these occurrences are potentially subject to trampling by recreators in the area. Additionally, distaff thistle (*Carthamus creticus*, occurrence 109) occurs within the general vicinity of all three Layne's ragwort occurrences (within 250 ft of occurrence 677). Distaff thistle is a noxious weed which spreads quickly and can form dense stands and crowd out native plants (DiTomosa and Healy 2007).

Layne's ragwort occurrences near Poor Man's Gulch face a number of potential stressors, including grazing, recreation and noxious weeds. There was evidence of cattle grazing throughout the area, including in and around occurrences 610 and 621. Small portions of three occurrences (624, 631 and 632) extend below the reservoir maximum inundation line. These plants are not adversely affected by current operations, but could be impacted by substantial changes in the duration or timing of inundation. An equestrian trail runs near occurrence 621 and continues down the gulch, and recreators on horseback could disturb additional occurrences within Poor Man's Gulch. Lastly, two noxious weeds are found in the area: barbed goatgrass (*Aegilops triuncialis*) and Bermudagrass (*Cynodon dactylon*). Barbed goatgrass is a noxious weed that well-distributed in parts of California, including Tuolumne County, and has become dominant in some areas (Cal-IPC 2006). A large occurrence of barbed goatgrass (963) enters the study area from upstream of the Project and continues near Layne's ragwort occurrence 621 and

[3] Occurrence numbers were not recorded in consecutive order in the field, as occurrences were encountered and documented by different teams on different days. Each field team was issued a unique set of numbers to use.

[4] All occurrences of special-status plants are discussed in Study Report TR-01, Special-Status Plants.

further down the gulch. Over time, this barbed goatgrass occurrence may expand into the gulch and the Layne's ragwort occurrences in the area.

The Layne's ragwort occurrences in Sixbit Gulch faced similar potential stressors as those observed in Poor Man's Gulch. Three occurrences (636, 638 and 641) had signs of grazing nearby, and there were signs of cattle throughout the reach, though not in large numbers. A small part of one occurrence (654) is below the reservoir maximum inundation line. These plants are not adversely affected by current operations, but could be impacted by substantial changes in the duration or timing of inundation. Finally, barbed goatgrass is in the immediate vicinity of Layne's ragwort (636) and spreading further into the gulch, potentially affecting other occurrences of Layne's ragwort.

The pre-survey literature review showed a CNDDB occurrence of Layne's ragwort (CNDDB occurrence number 24 on map index 13566) within the study area on Railroad Canyon. This area was surveyed in its entireity on three separate occasions during the field season, but this reported occurrence was not relocated. This occurrence was last reported extant in 1984 by Biosystems Analysis, Inc (CDFG 2012).

5.2 California vervain

There were two occurrences of California vervain within the Project study area: one in Poor Man's Gulch and one in Six Bit Gulch. Both occurred on BLM lands within the Red Hills ACEC. Occurrence 700, in Poor Man's Gulch, contained over 200 individuals in an area around 0.2 ac. Occurrence 702, on Six Bit Gulch, consisted of only two individuals in a 4 ft square patch. Both were located within riparian zones containing arroyo willow (*Salix lasiolepis*), sedges (*Carex praegracilis, Carex serratodens*), white broadiaea (*Triteleia hycinthina*) and baltic rush (*Juncus balticus*).

Observed potential stressors around the California vervain included cattle grazing and recreation near occurrence 700. In addition, barbed goatgrass was observed near both occurrences.

6.0 DISCUSSION AND FINDINGS

Two ESA-listed plants were located during study efforts, Layne's ragwort and California vervain. There were 25 occurrences of Layne's ragwort, containing approximately 1,200 individuals, on 2.9 ac of land. There were 2 occurrences of California vervain, containing over 200 individuals on under 0.2 ac of land. All occurrences were found on BLM lands within the Red Hills ACEC (in Sixbit Gulch and Poor Man's Gulch).

FERC's Scoping Document 2 identified the following issues potentially affecting species listed under the ESA and CESA:

- Effects of project operation, including water level fluctuations, ground-disturbing activities, and maintenance on plants and wildlife species listed as threatened or endangered under the ESA.
- Effects of maintenance and use of project recreation facilities by recreationists on species listed as threatened or endangered under the ESA.
- Effects of project operation and maintenance on designated critical habitat under the ESA.

Don Pedro Project O&M includes normal operations within the currently licensed elevation range (up to 830 feet), as well as operation of three formal recreation areas (Moccasin Point, Blue Oaks, and Fleming Meadows), vegetation management within these recreation areas and surrounding Project facilities, and ongoing reservoir debris removal. Recreation activities occur along portions of the shoreline and include dispersed camping, fishing and hiking. Additionally, the Districts have granted four grazing permits on a limited area within the Project Boundary, on a total of 559 acres.

Project operations and recreation may have the potential to affect the two ESA-listed species located within the study area. Small portions of several Layne's ragwort occurrences were located below the reservoir maximum inundation line, representing the outside boundary of these occurrences. These plants are not adversely affected by current operations, but could be impacted by substantial changes in the duration or timing of inundation. No other Project O&M activities, including ground-disturbing activities and vegetation management, occur in the vicinity of any of the ESA-listed plant occurrences.

Recreation activities, particularly equestrian trail riding, take place in the vicinity of several occurrences of Layne's ragwort and California vervain in Poor Man's Gulch. A clear trail runs close by Layne's ragwort occurrence 631. Equestrians ride into the study area from upstream of the Project. Very few recreationists appear to access the study area in the gulches from off the reservoir. On Kanaka Point, recreationists access the study area via a free day-use parking lot, and there is evidence of a walking trail in the vicinity of all Layne's ragwort surveyed in the area.

Grazing and noxious weeds are the other observed potential stressors for the ESA-listed plant occurrences located in the study area. There was evidence of cattle in both Sixbit and Poor Man's gulches, and three noxious weed species present in the vicinity of ESA-listed plant

occurrences: distaff thistle, barbed goatgrass and Bermudagrass. These lands are not associated with any of the Districts' four grazing permits.

The potential for other ESA- or CESA-listed species to occur in the Project vicinity is low. Based on life history information gathered through the literature search and on-the-ground observations made during floristic surveys, seven of the 10 target species require conditions that are rare or not present in the Project study area:

- No vernal pools, which are the habitat for Hoover's spurge, succulent owl's clover, Colusa grass, Greene's tuctoria, and hairy Orcutt grass, were located during floristic surveys.
- No Mima mounds, which Hartweg's golden sunburst has been found to grow on almost exclusively, were located in the Project study area.
- Delta button-celery grows in clay or silty soils in seasonally flooded plains and swales, habitat which was also not located in the Project study area.

Although there may be a small amount of appropriate habitat (seeps and springs in serpentine soils) for Chinese Camp brodiaea in the Project Boundary, the lack of this species is unremarkable, as it has only been documented in two places near the town of Chinese Camp.

7.0 STUDY VARIANCES AND MODIFICATIONS

The study was conducted consistent with the FERC-approved ESA-listed and CESA-listed Plants Study Plan (TR-02). No variances occurred.

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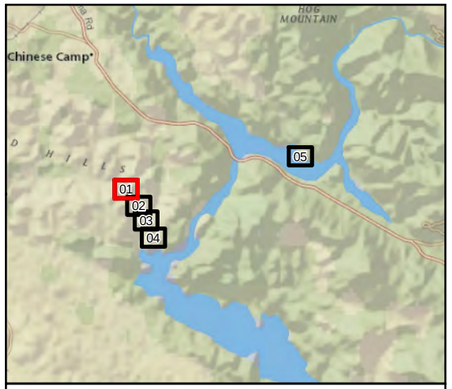
STUDY REPORT TR-02
ESA- AND CESA- LISTED PLANTS

ATTACHMENT A

ENDANGERED SPECIES ACT AND CALIFORNIA ENDANGERED SPECIES ACT-LISTED PLANT OCCURRENCE FIGURES



- Layne's Ragwort *Packera layneae* (PACLAY)
- California Vervain *Verbena californica* (VERCAL)
- Botanical Study Area
- BLM Area of Critical Environmental Concern 'Red Hills'
- FERC Project Boundary (No. 2299)
- Highway
- Major Road
- Minor Road
- Water Body

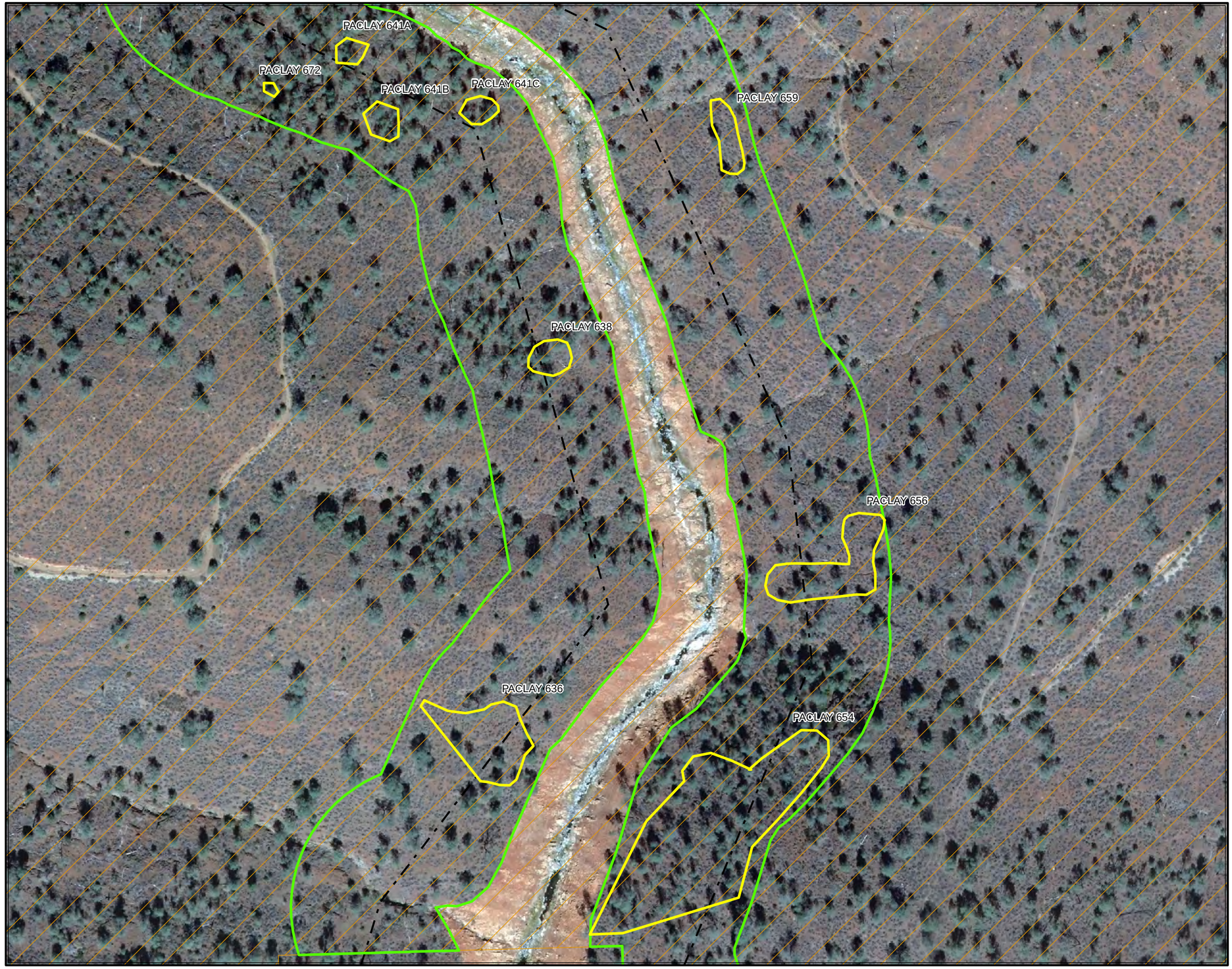
0 100 200 400 Feet

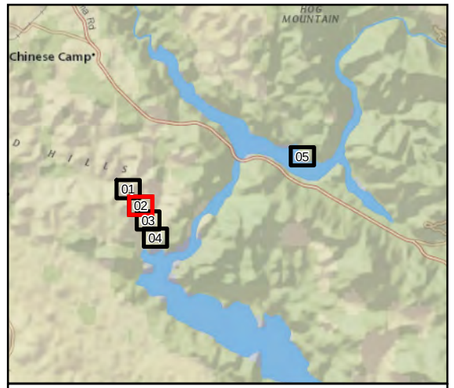
N

ESA and CESA Listed Plants

Don Pedro Project (FERC No.2299)

Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Data Sources: Hydrography - USGS NHD; Roads - ESRI 9.3 Data (Teleatlas); Ownership, PLSS - CA BLM; FERC Boundary, Reservoir Bathy, Recreation & Project Facilities - MID/TID.
Data is CA SPCS, zone III, ft. Contour interval is 50 ft (NAVD 88).





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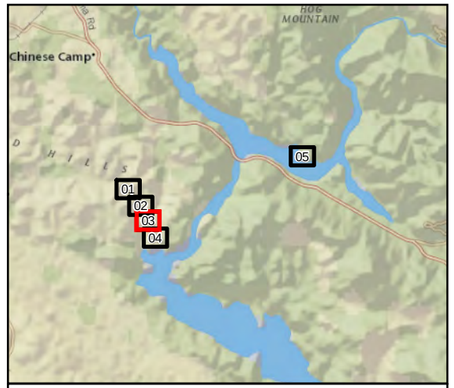

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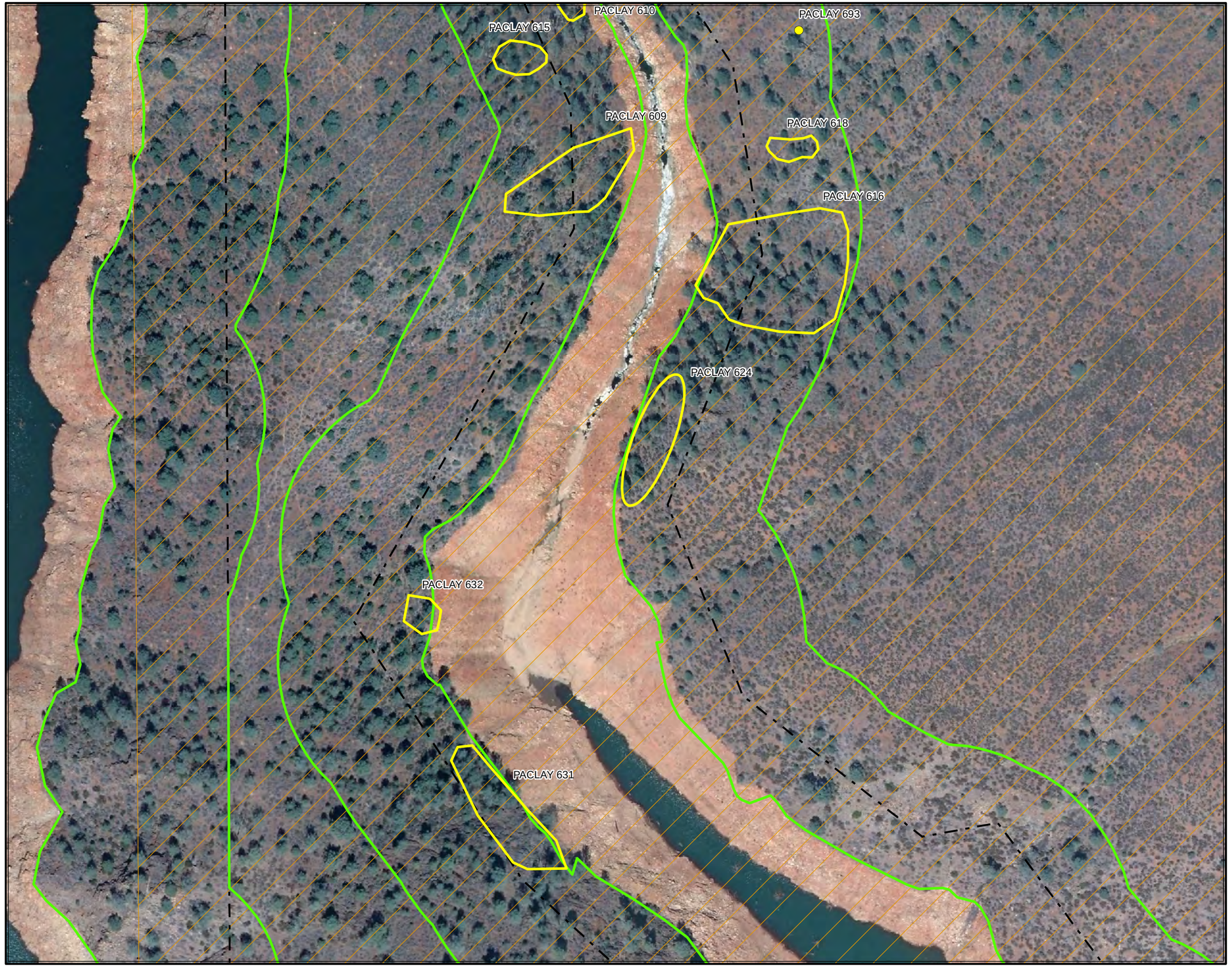
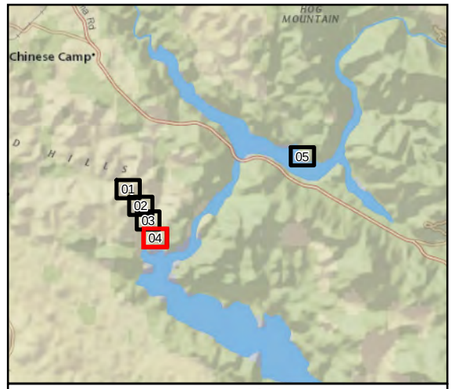




- Layne's Ragwort *Packera layneae* (PACLAY)
- California Vervain *Verbena californica* (VERCAL)
- Botanical Study Area
- BLM Area of Critical Environmental Concern 'Red Hills'
- FERC Project Boundary (No. 2299)
- Highway
- Major Road
- Minor Road
- Water Body

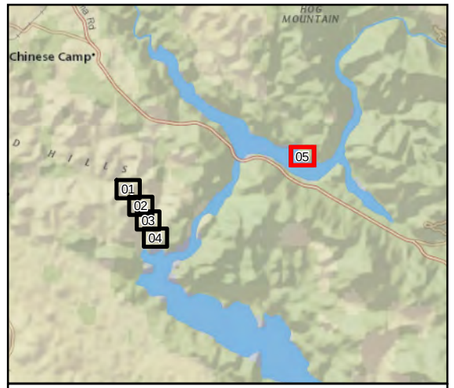
0 100 200 400 Feet

N

ESA and CESA Listed Plants

Don Pedro Project (FERC No.2299)

Map information was compiled from the best available sources.
No Warranty is made for its accuracy or completeness.
Data Sources: Hydrography - USGS NHD; Roads - ESRI 9.3 Data (Teleatlas); Ownership, PLSS - CA BLM; FERC Boundary, Reservoir Bathy, Recreation & Project Facilities - MID/TID.
Data is CA SPCS, zone III, ft. Contour interval is 50 ft (NAVD 88).



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ESA- AND CESA- LISTED PLANTS

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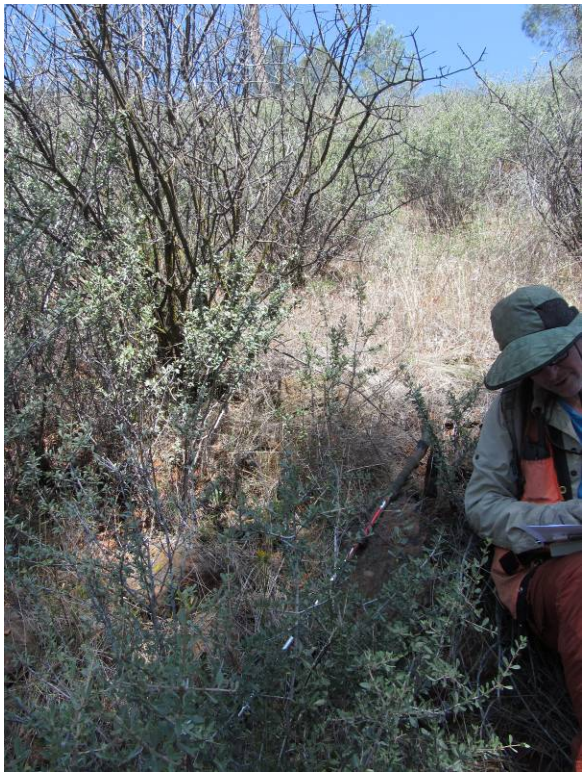

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