

**ENDANGERED SPECIES ACT-LISTED WILDLIFE --
VALLEY ELDERBERRY LONGHORN BEETLE
STUDY REPORT
DON PEDRO PROJECT
FERC NO. 2299**



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

Prepared by:
HDR Engineering, Inc.

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Endangered Species Act-Listed Wildlife – Valley Elderberry Longhorn Beetle Study Report

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List of Acronyms

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
CMAF	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
SJRG	San Joaquin River Group Authority
SJTA	San Joaquin River Tributaries Authority
SPD	Study Plan Determination
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 (mi²). 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.

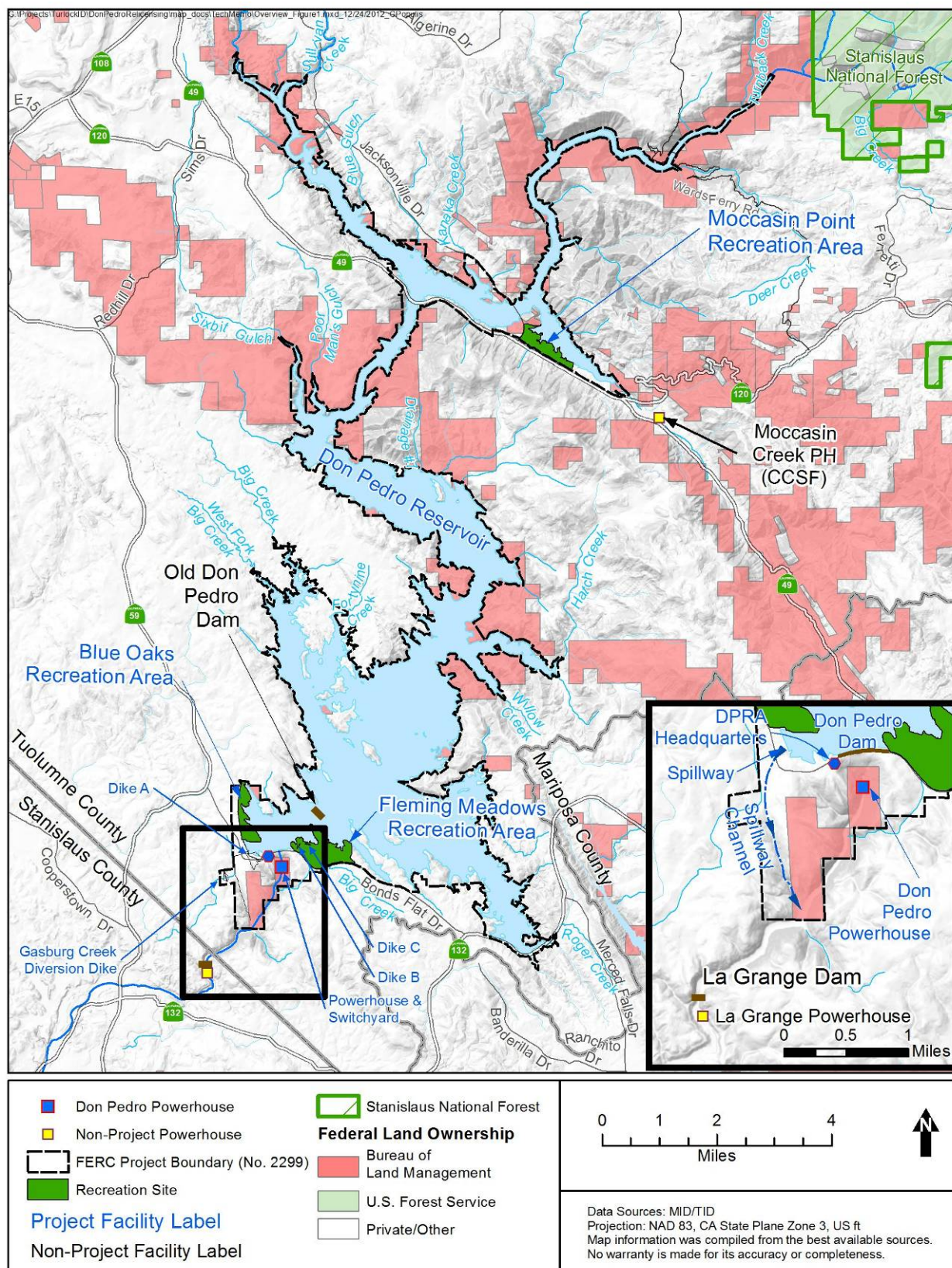


Figure 1.1-1. Don Pedro Project location.

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 Endangered Species Act-Listed Wildlife – Valley Elderberry Longhorn Beetle Study (TR-05) 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. During the January 31, 2013 Initial Study Report Meeting, the U.S. Department of the Interior, Fish and Wildlife Service (USFWS) requested that the Districts provide electronic copies of all photos of potential bore-holes located on elderberry shrubs produced during the relicensing proceedings. On March 7, 2013, the Districts provided the requested photos to the USFWS.

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 may have an adverse effect on valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*, VELB). These effects may be direct (i.e., result of ground disturbing activities such as mechanical or chemical clearing of vegetation or trampling of plants), indirect (i.e., 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 loss of habitat due to the introduction of invasive plants from a non-Project vector). VELB is listed as threatened under the federal Endangered Species Act (ESA).

Special-status plants, noxious weeds, and plants listed under the ESA and/or the California Endangered Species Act (CESA) were studied by the Districts in conjunction with VELB and the results of those studies are provided in Study Report TR-01, Special Status Species Plants; Study Report TR-04, Noxious Weeds; and Study Report TR-02, ESA- and CESA-listed Plants.

2.0 STUDY GOALS AND OBJECTIVES

The goal of the study was to determine the presence and distribution of VELB and potential VELB habitat within the Project study area.

The objectives of the study were to identify and map the locations of appropriate VELB habitat; classify habitat where shrubs are found as riparian or non-riparian and whether shrubs are isolated or clumped; and to document the presence or absence of VELB and VELB indicators at the time of survey.

3.0 STUDY AREA

As specified in the FERC-approved study plan, the study area included 10 drainages within the Project Boundary:¹

- Sixbit Gulch
- Poor Man's Gulch
- Moccasin Creek
- Deer Creek
- Three Springs
- Hatch Creek
- Big Creek
- Kanaka Creek
- Drainages #7 & #8

In addition, the study included those lands within the Project Boundary that are subject to Project-related O&M or recreation activities, including high-use dispersed recreation areas. Specifically, the study area included:

- 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 Red Hills Area of Critical Environmental Concern;
- 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 includes up to 100 feet surrounding each of these Project features.

¹ This area coincides with the study area for the Districts' Wetland Habitats Study (TR-3) (TID/MID 2013).

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 the 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 Rd. 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.

² A small percentage (5 percent) of the study area was inaccessible due to unsafe terrain (approximately 200 acres).

4.0 METHODOLOGY

The study was conducted in six steps: 1) gather data and information to prepare for the field effort, including known VELB occurrences in the Project study area; 2) conduct surveys for elderberry plants (*Sambucus* spp.); 3) evaluate elderberry occurrences for evidence of VELB; 4) compile and provide quality assurance/quality control (QA/QC) of data, 5) consult with the Districts' operations staff and recreation personnel to identify Project O&M, or other Project-related activities that typically occur in the area of elderberry plants and have the potential to affect occurrences, and 6) prepare the report of the study.

4.1 Gather Data and Prepare for Field Effort

A literature review was conducted prior to field surveys to: 1) identify all possible VELB or VELB habitat in the study area; and, 2) identify locations where VELB or VELB habitat was previously observed, and 3) gather life history information for VELB.

Districts searched for recorded occurrences of VELB using queries of the California Natural Diversity Database (CNDDDB) RareFind 4 (CDFG 2012).

The Districts located a total of four CNDDDB reports spanning from 2000 to 2007. These reports pertained to two occurrences in each of two U.S. Geological Survey 7.5-minute quadrangles: Sonora and Standard. Of these, two reported VELB sightings and two reported VELB exit holes (CDFG 2012).

Life history information for VELB is provided below.

4.1.1 Valley Elderberry Longhorn Beetle (FT)

On August 8, 1980, the USFWS listed VELB as threatened (Federal Register 45:52803). Critical Habitat has been designated for the species, including the American River Parkway and Sacramento Zones. The Don Pedro Project is outside of the Critical Habitat zones, but falls within the potential range of the beetle. The USFWS issued a VELB Recovery Plan on August 28, 1984 (USFWS 2009). On February 14, 2007, the USFWS completed a 5-year review, which resulted in USFWS's recommendation that the species be de-listed. In October of 2012, the USFWS began the process of reviewing the delisting proposal (USFWS 2012). VELB is not listed as threatened or endangered under the CESA, nor is it listed as a sensitive species by the United States, Bureau of Land Management (BLM).

Historically, VELB ranged throughout the California Central Valley, extending up river canyons in the Sierra Nevada foothills to an elevation of about 3,000 ft. The beetle is completely dependent upon its host plant, elderberry, for all of its life stages (i.e., eggs, larvae, and adults). Elderberry is a common component of riparian forests and adjacent uplands. An exit hole created by the larva just prior to pupation is often the only evidence of the beetle's presence. The life cycle takes 1 or 2 years to complete, with most of that time spent as larva living within the stems of the plant. Eggs are laid on elderberry leaves or bark and hatch within 2 days; the emerged larvae live within the stems of the plants, feeding on the pith for 1 to 2 years. Adults

emerge from the stems through holes made by larva prior to pupation. Adults generally emerge from late March through June and are short-lived (USFWS 2009).

The USFWS considers VELB, though wide-ranging, to be in long-term decline due to human activities that have resulted in widespread alteration and fragmentation of riparian habitats and, to a lesser extent, upland habitats which support the beetle. The primary threats to survival of the beetle include:

- Loss and alteration of habitat by agricultural conversion
- Over-grazing
- Levee construction, stream and river channelization, removal of riparian vegetation, and rip-rapping of shoreline
- Non-native animals such as the Argentine ant, which may eat the early phases of the beetle
- Recreational, industrial, and urban development (USFWS 2009).

Indiscriminant insecticide and herbicide use in agricultural areas and along road right-of-ways may be factors limiting the beetle's distribution. The age and quality of individual elderberry shrubs/trees and stands may also be a factor in its limited distribution because elderberry leaves and flowers are its only food source (USFWS 2009).

USFWS issued Conservation Guidelines in 1999 for the VELB (USFWS 1999). Under these Guidelines, elderberry plants with stems that meet the 1.0-inch-diameter threshold on or adjacent to a project site must be thoroughly searched for beetle exit holes to evaluate potential impacts to VELB habitat. Elderberry plants lacking stems 1.0 inch or greater in diameter at ground level are considered unsuitable for use by the beetle and are not protected under the Guidelines. Under the Guidelines, surveys are valid for a period of two years.

Delisting is being considered at this point because of evidence that VELB may be widespread and under less threat than when initially placed on the ESA. There are over 200 occurrences recorded for VELB, where there were only ten known at the time of listing. Additionally, the destruction of riparian areas has slowed and recovery efforts have led to the restoration and replanting of riparian areas, including with elderberry (USFWS 2012).

4.2 VELB Surveys

The Districts performed botanical surveys between March 5 and June 29, 2012. VELB surveys were done in conjunction with other botanical relicensing studies, including Special-status Plants Study (TR-01); Noxious Weeds Study (TR-04); and ESA- and CESA-listed Plants Study (TR-02). Results of those studies are provided in Study Report TR-01, Special-status Plants; Study Report TR-04, Noxious Weeds; and Study Report TR-02, ESA- and CESA-listed Plants (TID/MID 2013).

Surveys were floristic in nature and generally followed the California Department of Fish and Game's (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 2012) and *Trees and Shrubs of California* (Stuart and Sawyer 2001). As detailed in the FERC-approved study, surveys were conducted using systematic techniques to cover all habitats and identify potential impacts. Surveys were conducted by random meander, meaning the entire area was surveyed without touching every square foot of land; surveyors generally walked in a zigzag through the Project study area, with greater attention and more time spent in areas likely to support elderberry plants (i.e. riparian habitat or uplands adjacent to riparian habitat). This technique is a typical method for surveying vegetation.

The Districts documented all occurrences of elderberry within the study area with global positioning system (GPS), using a Trimble GeoXT, field data forms, and geo-referenced photographs. Number of shrubs, number of stems, and stem diameters at ground level classified shrubs into one of three categories: 1) class I: greater than or equal to 1 inch but less than or equal to 3 inches, 2) class II: greater than 3 inches but less than 5 inches, and 3) class III: greater than 5 inches (USFWS 1999). Surveyors described the surrounding habitat as either riparian or non-riparian, as well as described if the plants were isolated or part of a larger grouping.

Surveyors performed VELB surveys on all elderberry plants found within the study area that contained one or more stems measuring 1 inch or greater at ground height. Each stem was searched for beetle exit holes (external evidence of beetle presence). When found, the exit holes were characterized as recent (stem or plant material shavings may be present) or not. In accordance with the study plan, the USFWS was notified by email within two weeks for each occurrence of elderberry with potential VELB boreholes.

The Districts subjected all data 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 Systems (GIS) maps with field notes and field maps to verify locations. All data was entered into a database by one scientist and crosschecked by a second scientist to ensure data was properly recorded. GIS maps depicting elderberry plant occurrences, Project facilities, and features were generated to verify all plant occurrence locations matched the information on the data sheets. Data corrections were noted in the project file.

After all the observed locations of elderberry plants were verified and mapped, Project operations staff were consulted to identify Project O&M and Project-related activities that typically take place in the area of and have the potential to adversely affect VELB and elderberry plant occurrences.

5.0 RESULTS

A total of 73 occurrences of elderberry plants were located; 31 occurrences were found on public lands administered by the BLM. Locations are mapped in Attachment A, Elderberry Locations: Figures 1 to 25. Potential VELB indicators (i.e., boreholes) were observed at occurrences 4, 6, 9, 10, 17, 18, 26, 31, 32, 38, 46, 47, 301 and 304.³ Attachment B contains representative photos of some of the occurrences. Attachment C, Elderberry Table, lists field collected data for all elderberry shrub occurrences including occurrence number, presence of riparian habitat, number of shrubs, stem count and stem class, general site location, disturbances and activities in the area, and VELB indicators observed.

5.1 VELB Indicators

Potential VELB indicators were observed at 14 of the 73 occurrences, as summarized in Table 5.1-1. The remaining 59 elderberry occurrences were absent of potential VELB boreholes. Occurrences 10, 31, 32, and 46 were located on public land administered by BLM. Occurrences 4, 6, 9 and 10 were all located in the Moccasin Point Recreation Area. Two of these occurrences, 9 and 10, were located in riparian areas. Occurrences 17 and 18 both were located in non-riparian areas below Don Pedro Dam. Occurrences 31, 32 and 38 were located in non-riparian areas along or near the Jacksonville Road. Also in non-riparian areas were occurrence 26 on Hatch Creek, 46 near the Jacksonville-Harney Road and 47 near the Moccasin transmission line. Two occurrences, 301 and 304, were located in non-riparian areas on the Rogers Creek Arm of Don Pedro Reservoir.

Table 5.1-1. Elderberry plants with observed boreholes.

Occurrence	Riparian Yes No	Stem Count ¹	Class	Number of Exit Holes	Recent Yes No	Land Ownership	Site Location
4	No	15	II	15	No	MID/TID	Moccasin Point Recreation Area
6	No	13	II	7	No	MID/TID	Moccasin Point Recreation Area
9	Yes	10	III	43	Yes	MID/TID	Moccasin Point Recreation Area
10	Yes	1	I	2	No	BLM	Moccasin Point Recreation Area
17	No	1	III	8	No	MID/TID	Below dam
18	No	1	III	5	No	MID/TID	Beside sewage pond across from Blue Oaks Recreation Area
26	No	1	III	10	No	MID/TID	Hatch Creek
31	No	1	II	6	No	BLM	Jacksonville Road
32	No	1	II	3	No	BLM	Jacksonville Road
38	No	1	II	2	No	MID/TID	Jacksonville Road
46	No	1	III	2	No	BLM	Jacksonville-Harney Road

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.

Occurrence	Riparian Yes No	Stem Count ¹	Class	Number of Exit Holes	Recent Yes No	Land Ownership	Site Location
47	No	Unknown, as not safe to access all of plant	I, II, III	19	No	MID/TID	Moccasin transmission line
301	No	18	I, II, III	8	No	MID/TID	Rogers Creek Arm
304	No	7	III	9	No	MID/TID	Rogers Creek Arm

¹ Stems one inch or greater at the base.

5.2 Project Operation and Maintenance and Recreation Activities

Consistent with the FERC-approved study plan, the Districts consulted with Project operations and recreation staff to identify specific Project O&M activities and recreation that typically occur in the area of, and have the potential to affect, elderberry plant occurrences. In addition, observations of plant disturbance were recorded in the field.

The most common observed potential stressors to surveyed elderberry plants included proximity to roads and trails (1-4, 17, 32, 33, 36, 42, 45-7, 301-4, 603-4 and 900), cattle grazing (19, 20, 24-26, 49, 301-6, 308-9, 603-4, 612 and 678) and noxious weeds (5, 6, 8-13, 39, 44-5, 603-4, 612, 901). Additionally, two elderberry occurrences (14 and 18) were located directly next to sewage treatment plants and may be subject to disturbance by Project O&M. Direct signs of disturbance to elderberry occurrences included trash within the branches and next to occurrences 301 and 302, fencing through plant branches at occurrences 6 and 18, trampling in the root areas of occurrences 18, 44 and 300, and noxious weeds directly under occurrences 39, 44-5, 603-4, 612 and 901. Less common potential stressors included reservoir operations (47 and 307), a fuel break located in the immediate vicinity (13), dumping of refuse (18, 42, 46, 301 and 302), proximity of transmission lines (18 and 309), and the proximity of housing (611).

Information gathered from consultation with Districts' staff and from field observations is summarized in Table 5.2-1.

Table 5.2-1. Project O&M, recreation, and non-Project related activities in areas with elderberry plant occurrences.

Occurrence Number	Location Description/Site Feature and Land Ownership	Activities with Potential to Affect Elderberry Plants		
		O&M Activities	Recreation Use	Other
1-6, 8-14, 44, 45, 50	Moccasin Point Recreation Area	Campsites, structures and roadsides (up to 6-10 ft adjacent to roads and turnouts) are sprayed with herbicides (generally Roundup, GoalTender and Milestone) after first soaking rain in the fall.	Recreation is heaviest during high water years in the summer months. Campsites are full usually only on holidays and weekends. Walk-in use area is used heavily year-round to access the reservoir.	San Francisco Public Utilities Commission (SFPUC) facility and housing in area of occurrence 4, which is maintained by SFPUC.
		Campgrounds and associated roads are thinned for brush by mechanical means.		
		Prescribed burns of vegetation directly in and around developed camping areas is a seldom used vegetation management tool.		
28, 32-36	Kanaka Point	Mow edge of road to 6-10 ft off the side to limit fire hazard.	Popular, free area for day-use, particularly fishing. People hike in both directions from parking area to access the reservoir.	Road infrequently maintained by county.
15-17, 19, 20, 24, 25, 601, 602	Powerhouse/Dam access	Structures and roadsides (up to 10 ft adjacent to roads and turnouts) are sprayed with herbicides (generally Roundup, GoalTender and Milestone) after first soaking rain in the fall.	None	Grazing.
		Mow down the roadsides (up to 2 feet off road) annually.		
		Use dirt roads to the dams a few times a year, and paved roads daily.		
26	Hatch Creek Arm	None	Sporadic day use recreation from road by fisherman.	ATV use. Grazing.
27, 29-30, 37-39	Jacksonville Road and surroundings	None	Sporadic day use recreation from Kanaka Point parking.	Road maintained by county.
40-41	Shawmut Road	None	This area is open to free day use. No camping. Fairly heavy use, particularly during summer months.	Road maintained by county.

Occurrence Number	Location Description/Site Feature and Land Ownership	Activities with Potential to Affect Elderberry Plants		
		O&M Activities	Recreation Use	Other
42, 46	Harney Road	None	Recreationists can drive down to the pull off above locked gate and walk down to reservoir.	Dumping off the side of the road and in the pull out area.
				Road maintained by county.
43, 605-609	Railroad Canyon, BLM	None	None	Wild horses in area.
48, 49	Drainage #7 and #8	None	None	Grazing.
47	Moccasin Transmission line	Occurrence is near reservoir maximum inundation line.	Boat-in day use.	Grazing.
51, 900, 901, 903		None		Road maintained by SFPUC.
				Grazing.
				Road maintained by SFPUC.
300	Blue Oaks Recreation Area	Prescribed burns of vegetation directly in and around developed camping areas is a seldom used vegetation management tool.	Recreation is heaviest during high water years in the summer months. Campsites are full usually only on holidays and weekends.	Past history of grazing; fencing recently repaired.
		Campsites, structures and roadsides (up to 6-10 ft adjacent to roads and turnouts) are sprayed with herbicides (generally Roundup, GoalTender and Milestone) after first soaking rain in the fall.		
		Campgrounds and associated roads are thinned for brush by mechanical means.		
301-309	Rogers Creek Arm	Occurrence 307 is near reservoir maximum inundation line.	Heavy day use in the area of pullouts along the road. Trail blazed down by occurrence 301.	Grazing.
				Illegal dumping from road.
				County-maintained road with heavy car use.
603-604	Don Pedro Bar	None	Sporadic use by recreationists boating into the area.	Grazing.
				Trails in area of both occurrences.

Occurrence Number	Location Description/Site Feature and Land Ownership	Activities with Potential to Affect Elderberry Plants		
		O&M Activities	Recreation Use	Other
611	Ramos Point	None	Sporadic use by recreationists boating into the area.	Grazing. Recreation and vegetation maintenance by housing owners above.
612	49er Bay	None	Sporadic use by recreationists boating into the area.	Grazing.
678	Willow Creek	None	None	Grazing.
18	Sewage Pond across from Blue Oaks Recreation Area	Spray around the sides with herbicides (generally Roundup, GoalTender and Milestone) after first soaking rain in the fall.	None	None

6.0 DISCUSSION AND FINDINGS

VELB surveys were conducted over approximately 3,870 ac from March 5, 2012 through June 29, 2012. Surveys were performed by several teams of botanists, working simultaneously throughout the study area. A total of 73 elderberry occurrences were observed and mapped. Of the 73, 14 had potential VELB boreholes, and one occurrence (occurrence 9) showed signs of those exit holes being recent. No VELB were observed.

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

- 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 Project facilities, and ongoing reservoir debris removal and disposal near Deer Creek and Harney Lane. Recreation activities occur along the majority 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 O&M activities may have the potential to affect certain elderberry plant occurrences, based on the occurrences' proximity to Project features. Elderberry occurrences near roads, campsites, or parking areas in recreation facilities could be affected by road maintenance, vegetation management, and herbicide treatment, although no effects of these activities were noted in the field. At Moccasin Point Recreation Area, occurrences 1-4, 13 and 45 are located in areas where there is the potential for disturbance (roads and/or campsites) through recreation and management activities. Occurrence 300 at Blue Oaks Recreation Area is also located in an area with disturbances (roads and/or campsites) through recreation and management activities. Occurrences 47 and 307 are located near the maximum inundation line of Don Pedro reservoir; these plants are not adversely affected by current operations, but could be affected by substantial changes in the duration or timing of inundation. Occurrences 14 and 18 are located near a sewage pond and potentially subject to disturbance by vegetation management; occurrence 18 is also on lands permitted for grazing by the Districts. Additionally, occurrences 19, 20, 24, and 25 are within lands permitted for grazing by the Districts. These did not have any evidence of VELB boreholes.

Occurrences 28 and 32-36 at Kanaka Point, 42 at Harney Road, 26 at Hatch Creek, 40-1 on Shawmut Road and 301-306 and 308 at Rogers Creek Arm are potentially subject to disturbances

caused by day-use recreation, particularly during the summer months. Similarly, occurrence 45 is located in the middle of a campground at Moccasin Point Recreation Area.

Finally, noxious weeds may represent a stressor to elderberry occurrences. Occurrences 5, 6, 8-13, 39, 44-5, 603-4, 612, and 901 were all observed to be in close proximity to noxious weeds. Noxious weed surveys conducted by the Districts (Study TR-04) found noxious weed occurrences are common throughout the Project, frequently in association with roads.

The remaining occurrences were located on reservoir shorelines or steep hillsides and generally have limited potential to be affected by Project activities, as only sporadic recreation and little to no Project O&M occur in the associated areas.

7.0 STUDY VARIANCES AND MODIFICATIONS

The study was conducted consistent with the FERC-approved ESA-listed Wildlife - VELB Study Plan (Study TR-05); no variances occurred.

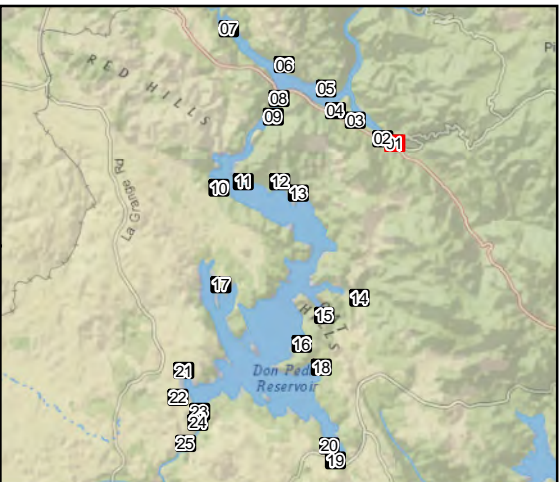
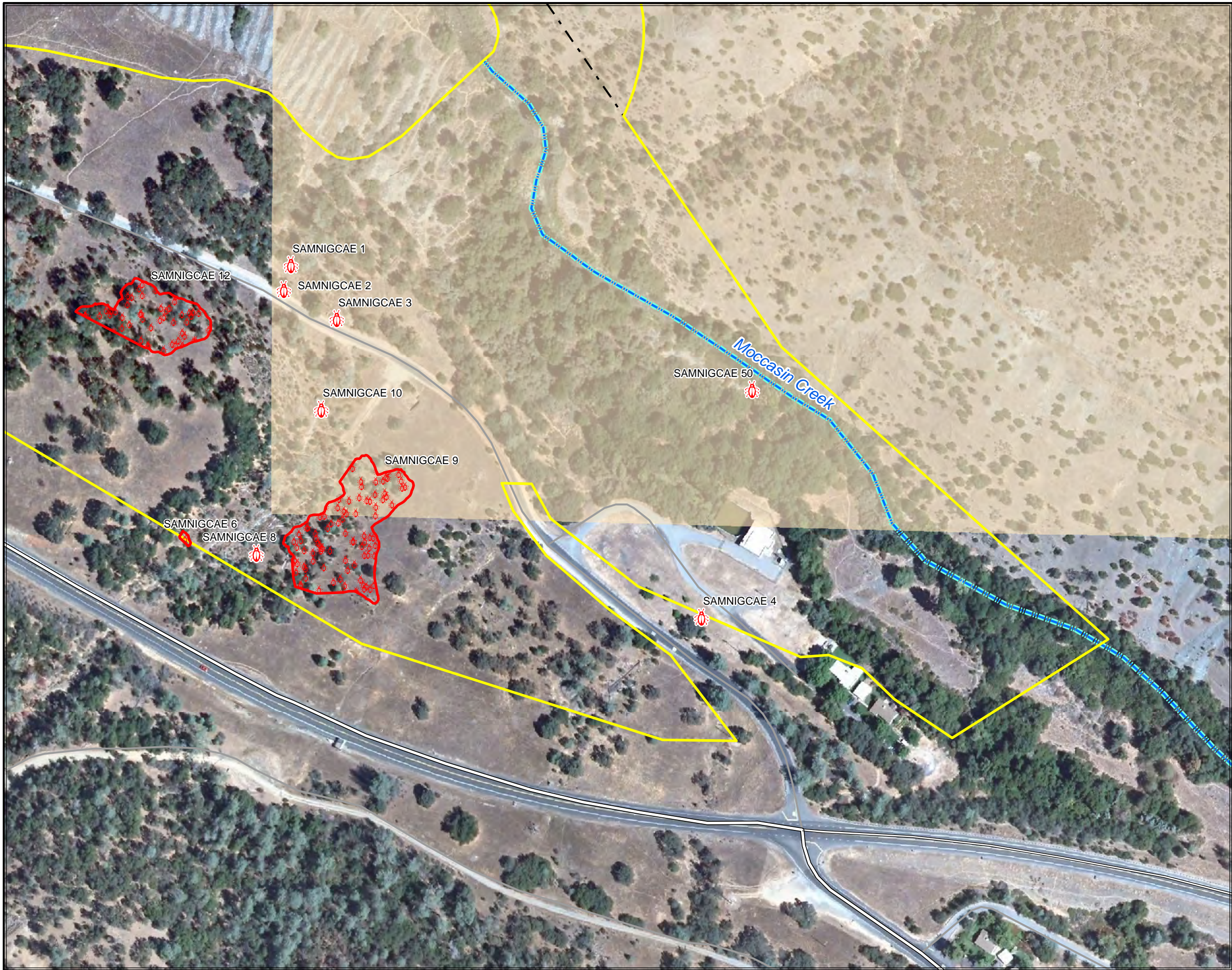
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STUDY REPORT TR-05
ENDANGERED SPECIES ACT-LISTED WILDLIFE –
VALLEY ELDERBERRY LONGHORN BEETLE

ATTACHMENT A

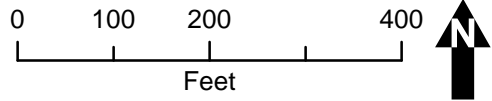
ELDERBERRY LOCATIONS: FIGURES 1 to 25



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- Blue Elderberry
Sambucus nigra ssp. *caerulea*
[*S. mexicana*]
- Wetland Drainage Study Areas ¹
- Botanical Study Area
- FERC Project Boundary (No. 2299)
- Dam
- Highway
- Major Road
- Minor Road
- Spillway
- BLM Area of Critical Environmental Concern
'Red Hills'
- Land Ownership**
 - Bureau of Land Management
 - State of California

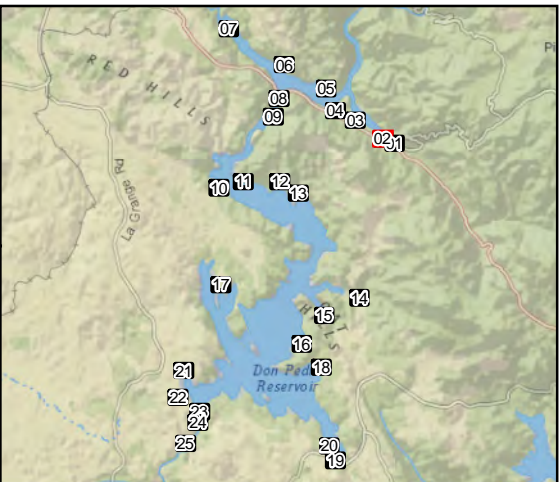
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








Valley Elderberry Longhorn Beetle Study

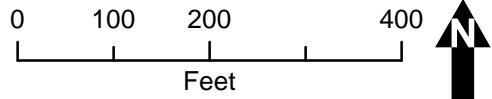
Don Pedro Project (FERC No.2299)

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 Bathymetry, Recreation & Project Facilities - MID/TID. Data is CA SPCS, zone III, ft.



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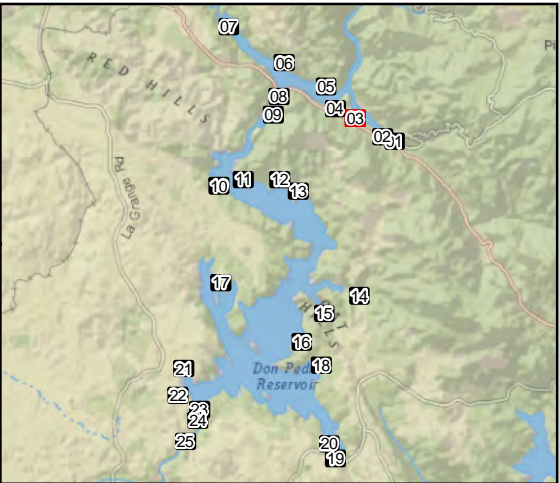
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








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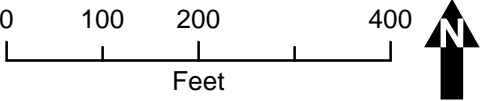
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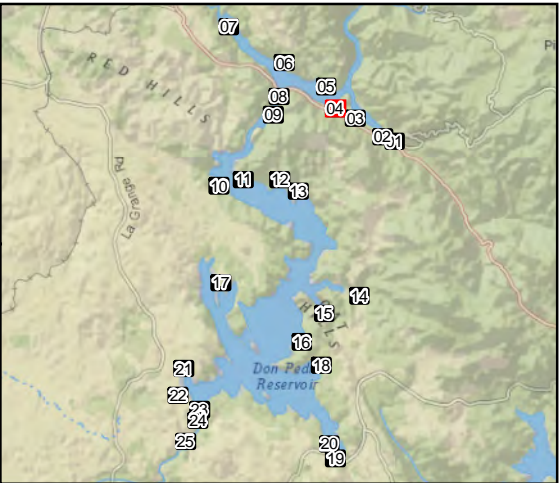
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






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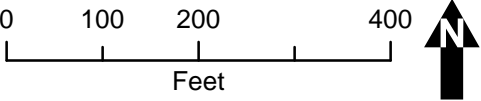
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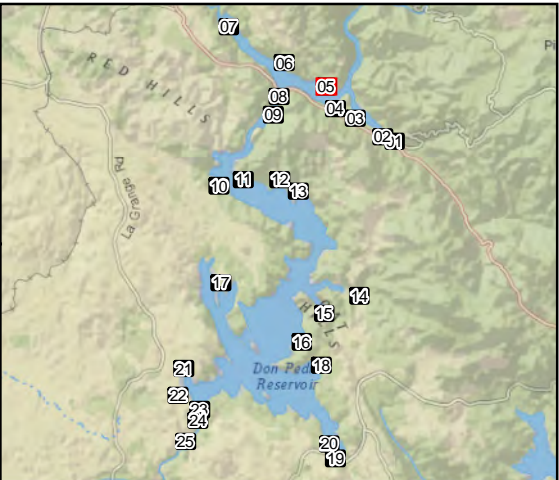
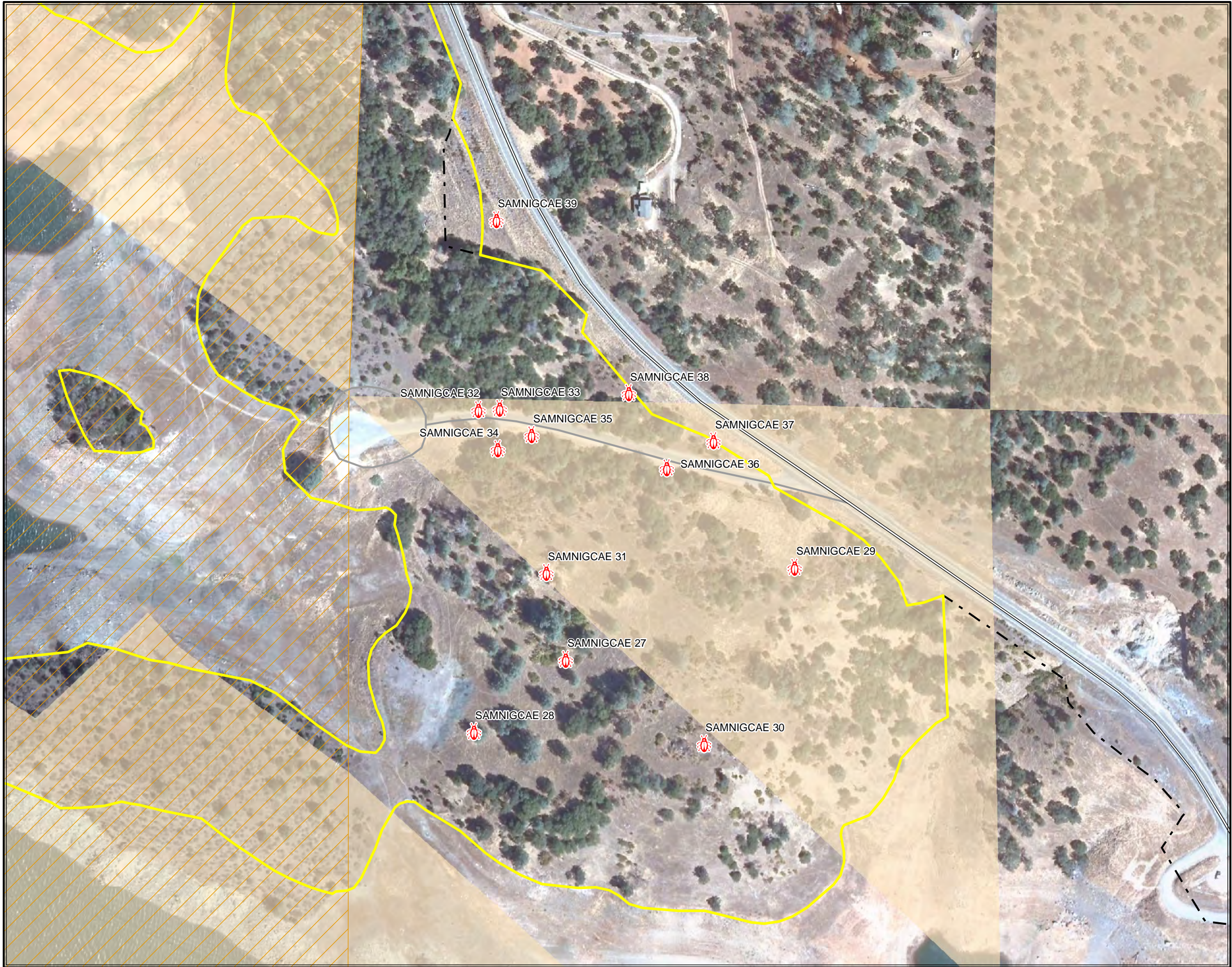
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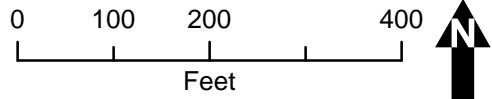
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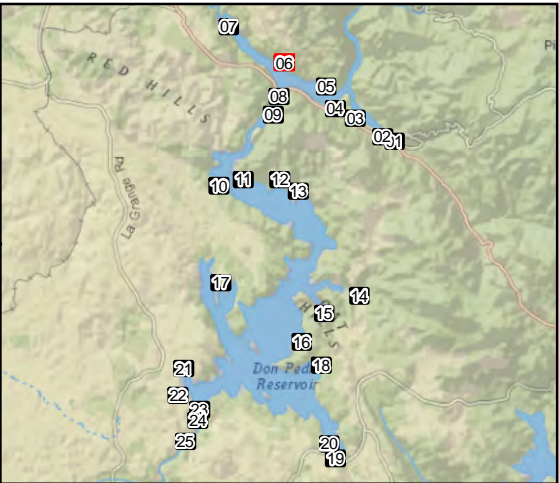
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








Valley Elderberry Longhorn Beetle Study
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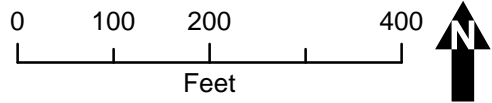
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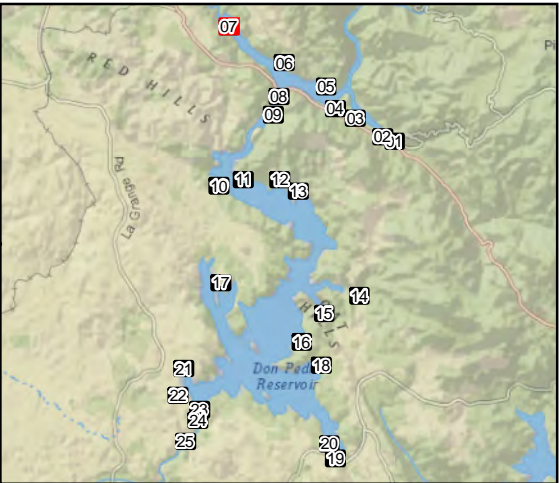
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Blue Elderberry
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Wetland Drainage Study Areas ¹




Botanical Study Area




FERC Project Boundary (No. 2299)




Dam




Highway




Major Road



Minor Road




Spillway




BLM Area of Critical
Environmental Concern
'Red Hills'

Land Ownership

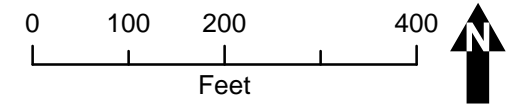


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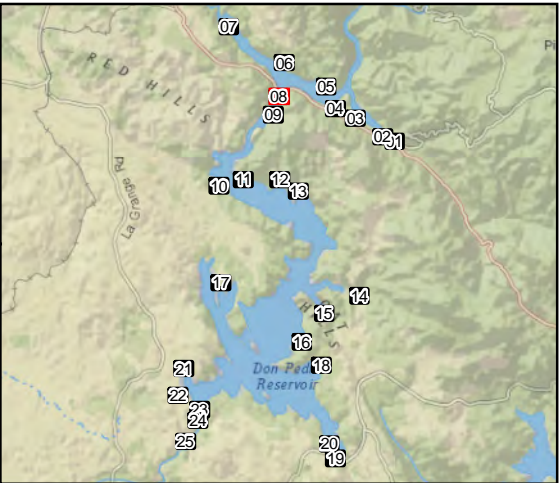
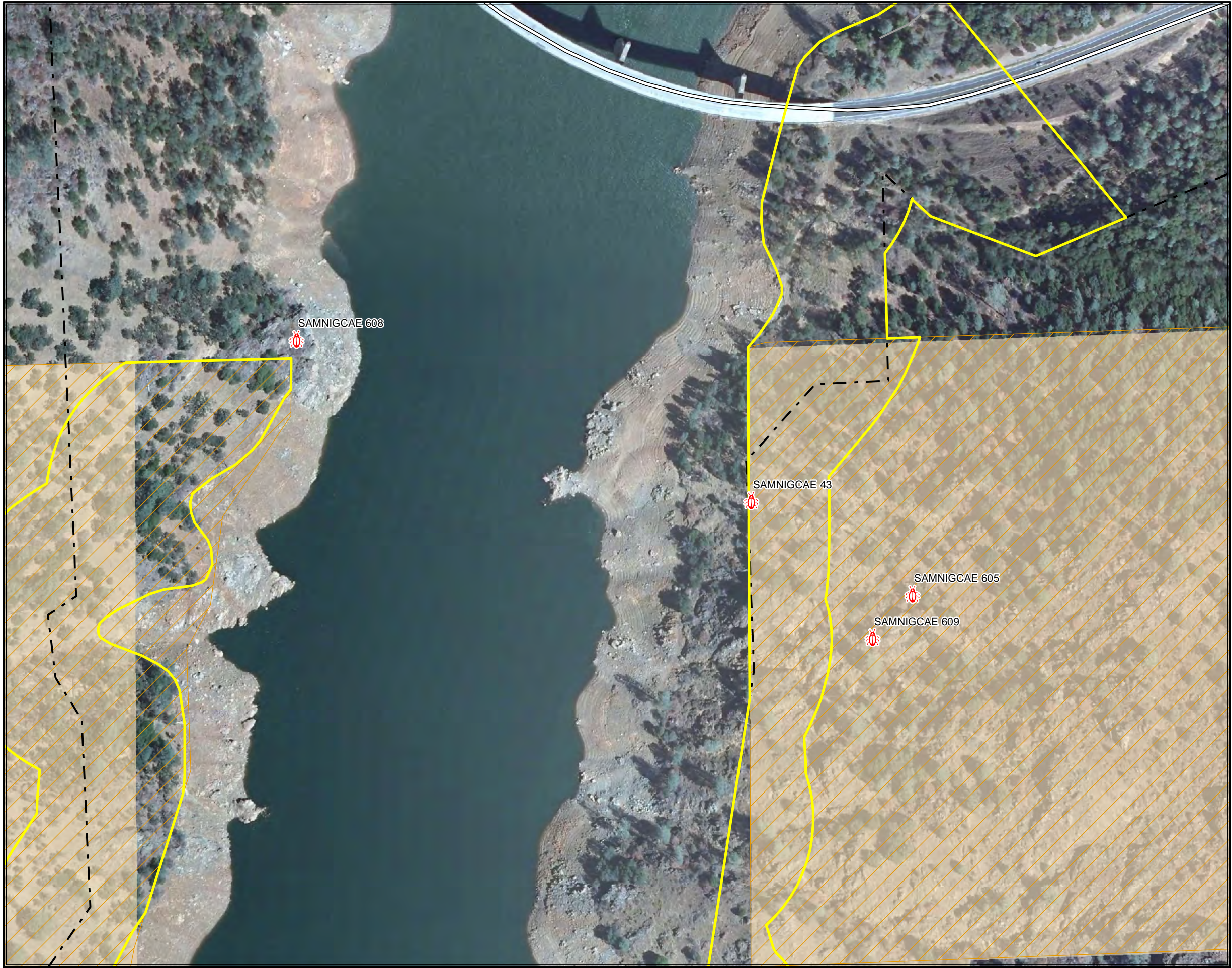
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








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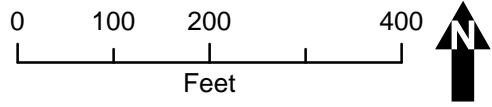
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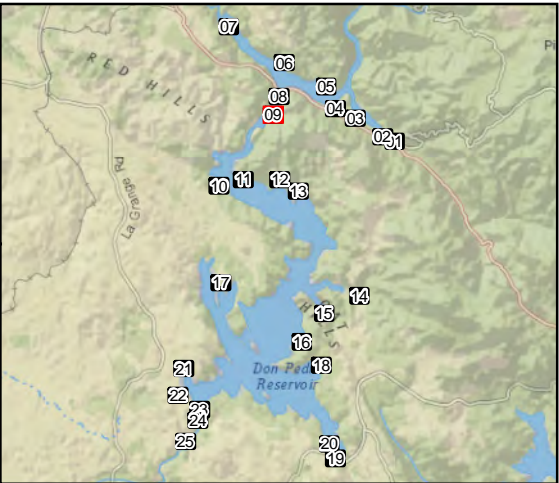
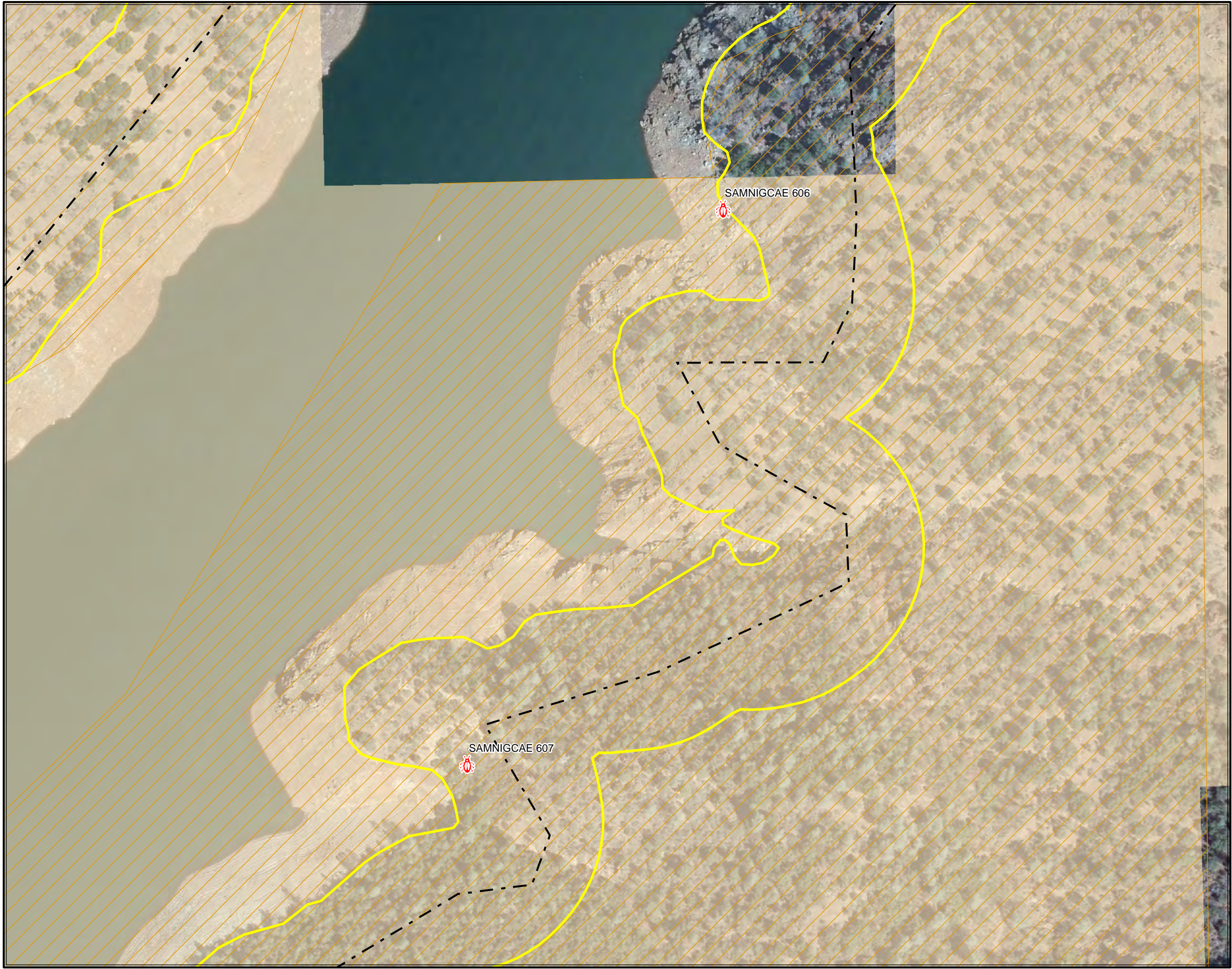
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Blue Elderberry
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Wetland Drainage Study Areas ¹



Botanical Study Area



FERC Project Boundary (No. 2299)



Dam



Highway



Major Road



Minor Road



Spillway



BLM Area of Critical
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Bureau of Land Management



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0

100

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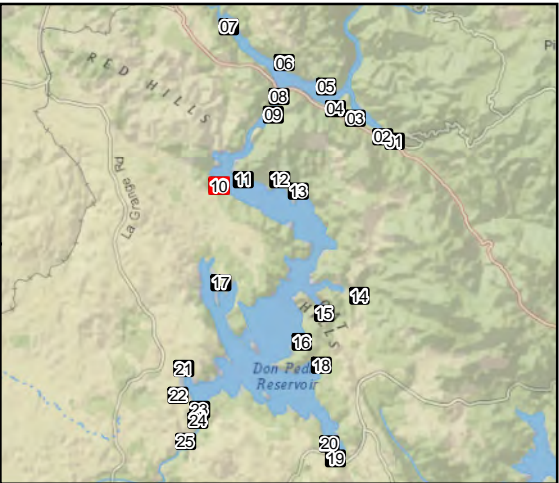
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



Valley Elderberry Longhorn Beetle Study

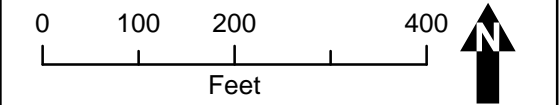
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-  Blue Elderberry
Sambucus nigra ssp. *caerulea*
[*S. mexicana*]
-  Wetland Drainage Study Areas ¹
-  Botanical Study Area
-  FERC Project Boundary (No. 2299)
-  Dam
-  Highway
-  Major Road
-  Minor Road
-  Spillway
-  BLM Area of Critical Environmental Concern 'Red Hills'
- Land Ownership**
 -  Bureau of Land Management
 -  State of California

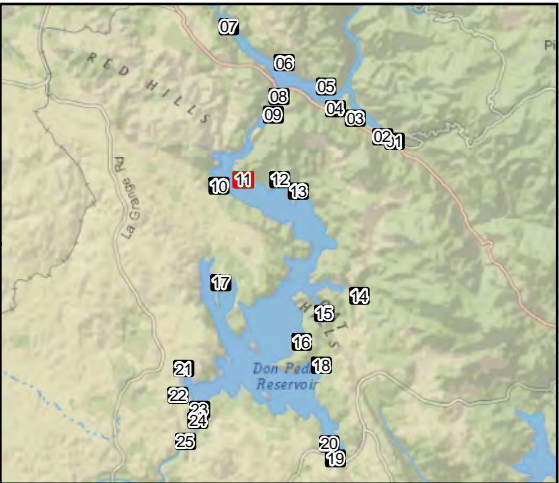
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






Valley Elderberry Longhorn Beetle Study

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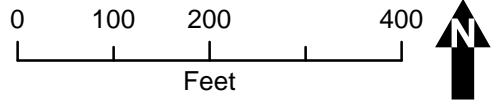
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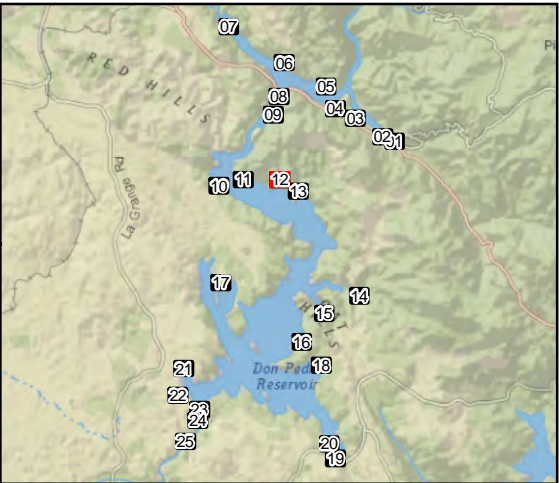
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Valley Elderberry Longhorn Beetle Study

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Blue Elderberry
Sambucus nigra ssp. *caerulea*
[*S. mexicana*]



Wetland Drainage Study Areas ¹



Botanical Study Area



FERC Project Boundary (No. 2299)



Dam



Highway



Major Road



Minor Road



Spillway



BLM Area of Critical
Environmental Concern
'Red Hills'

Land Ownership

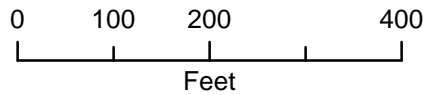


Bureau of Land Management



State of California

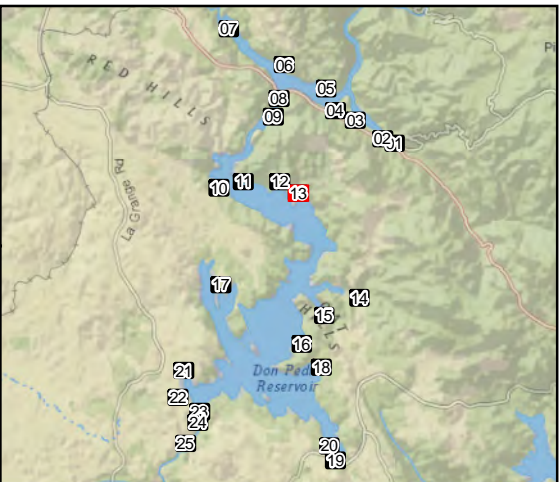
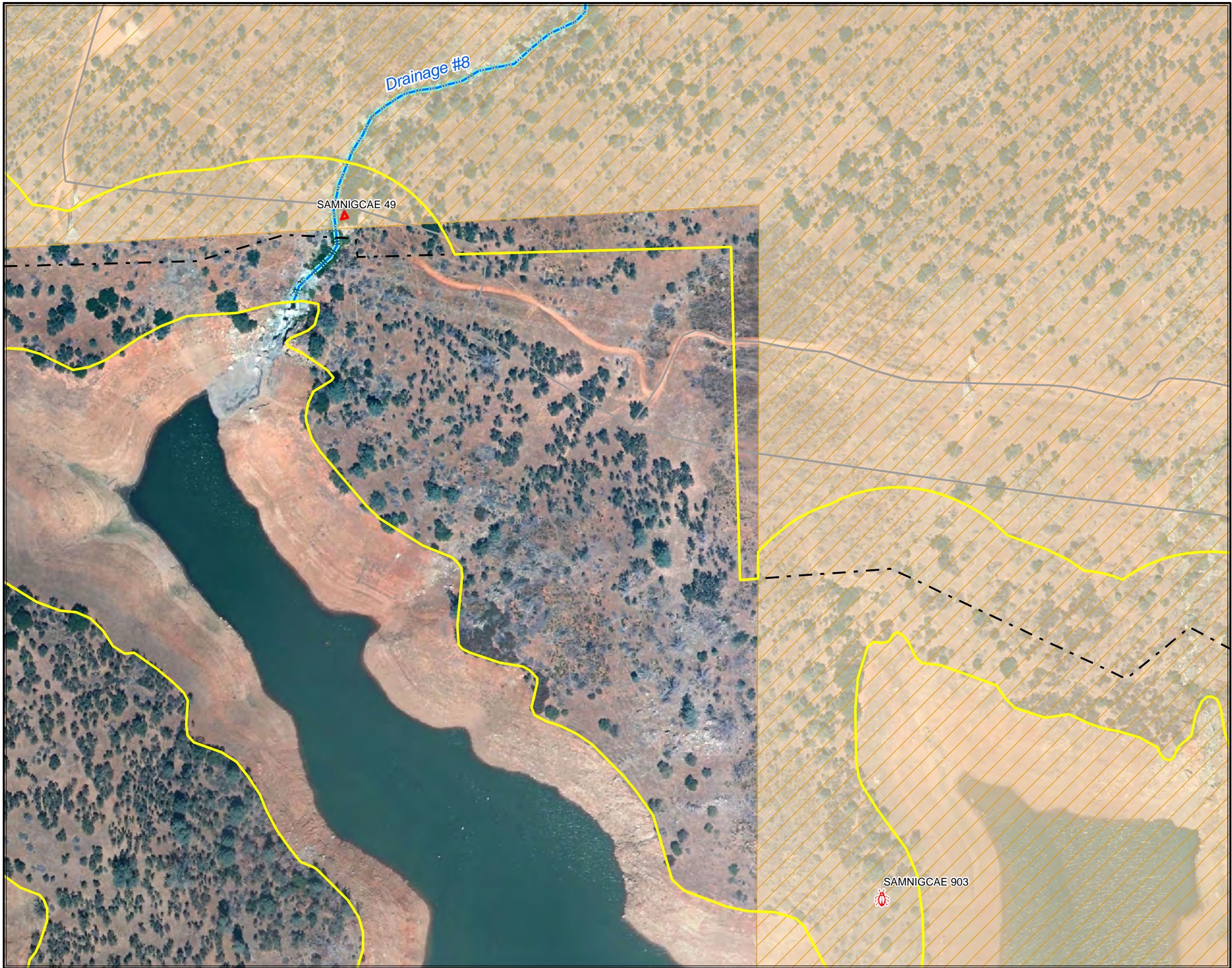
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Valley Elderberry Longhorn Beetle Study

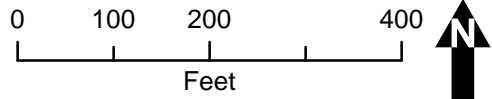
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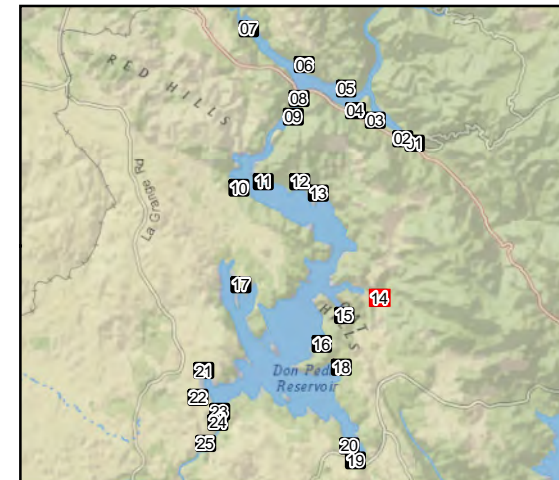
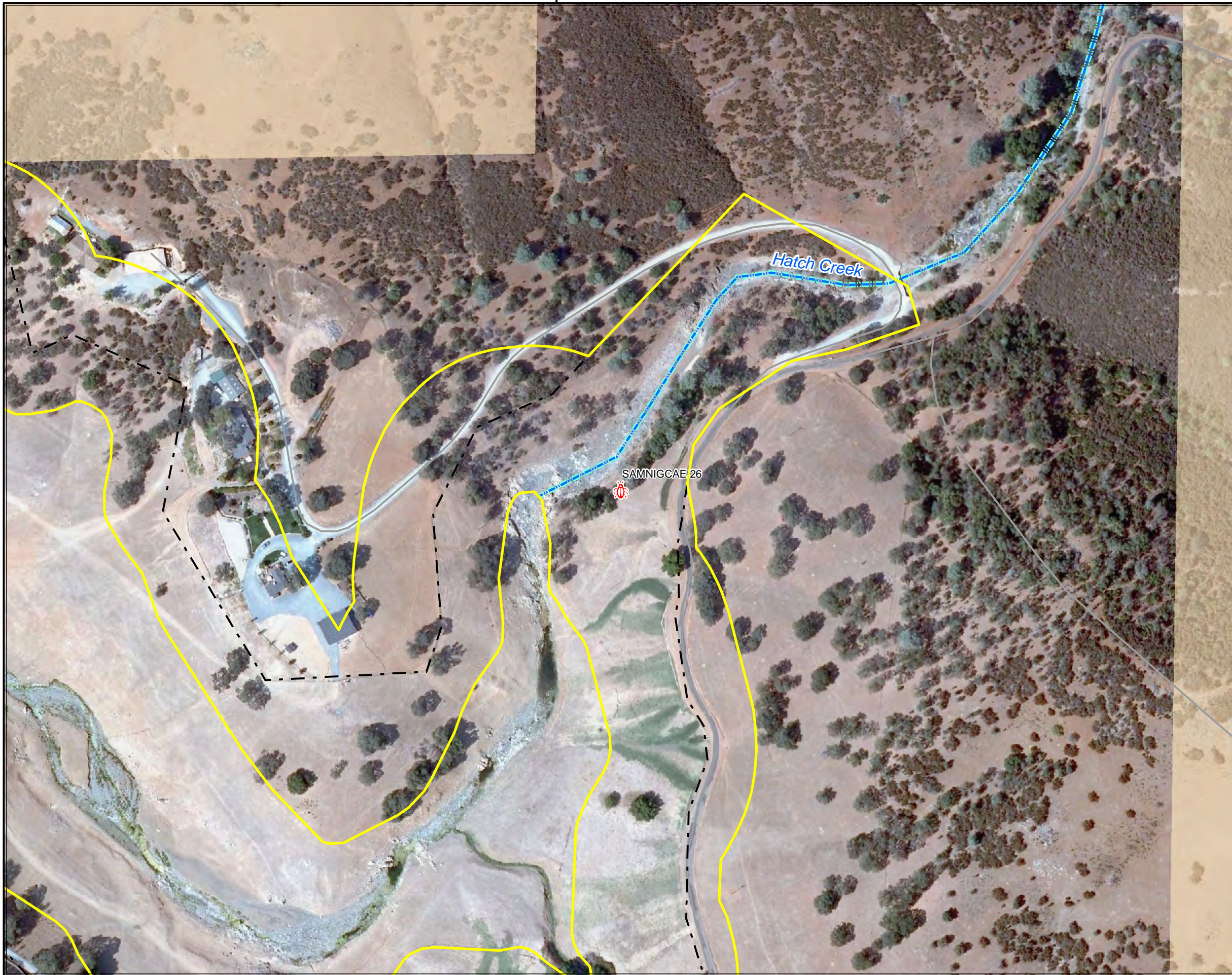
Valley Elderberry Longhorn Beetle Study

Don Pedro Project (FERC No.2299)













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120°20'W

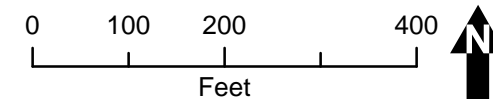
120°20'W



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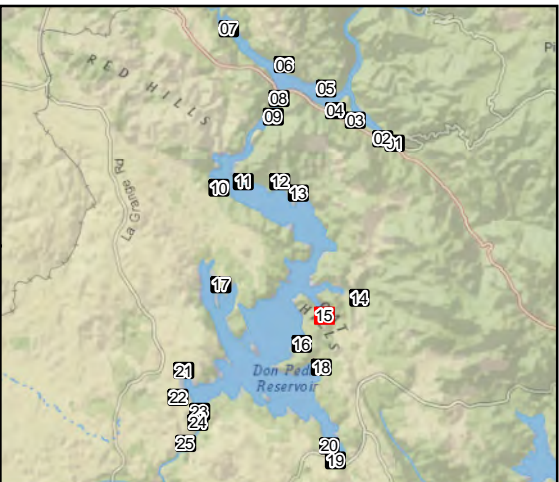
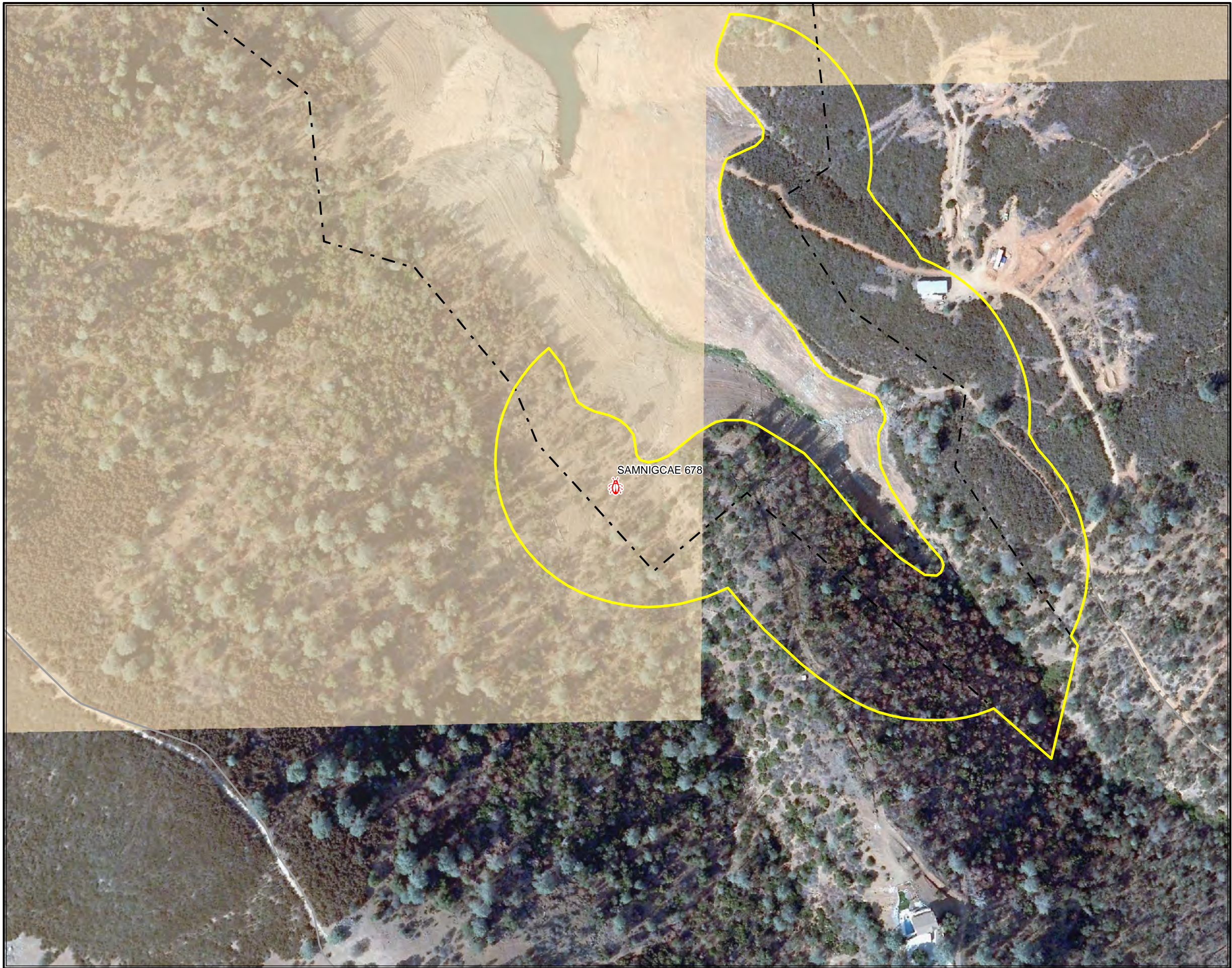














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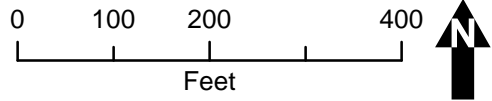
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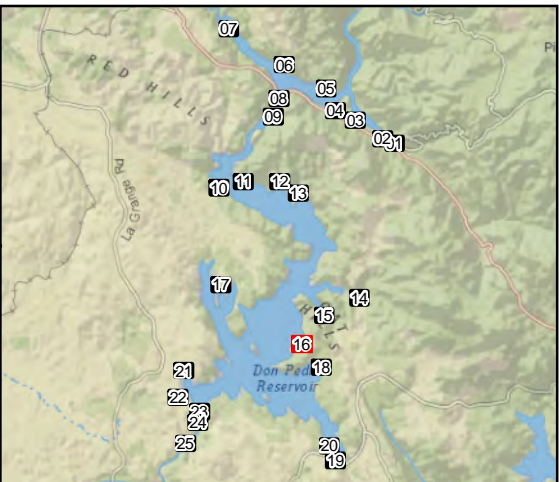
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








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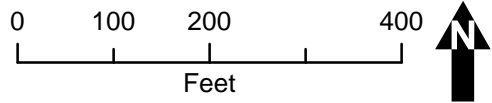
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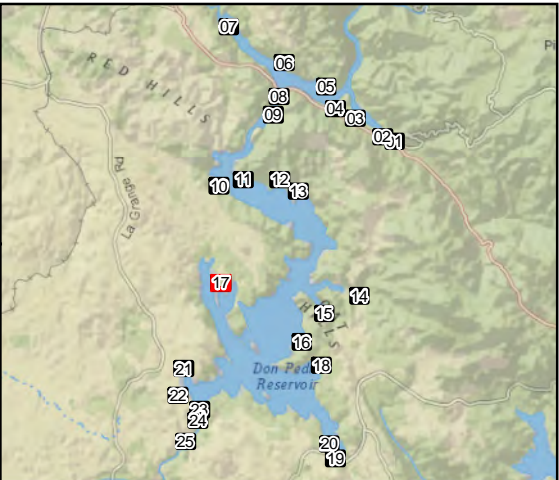
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








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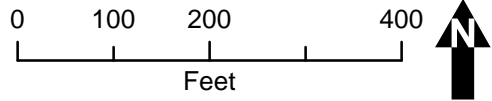
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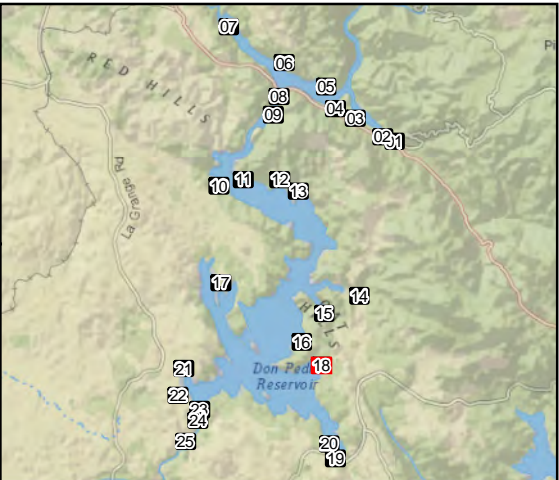
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








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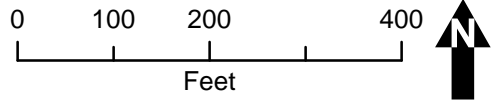
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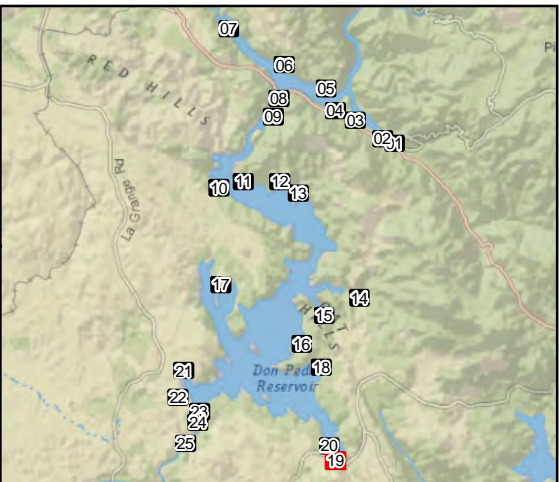
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








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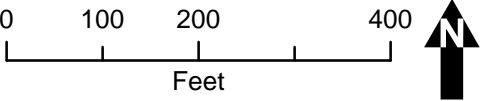
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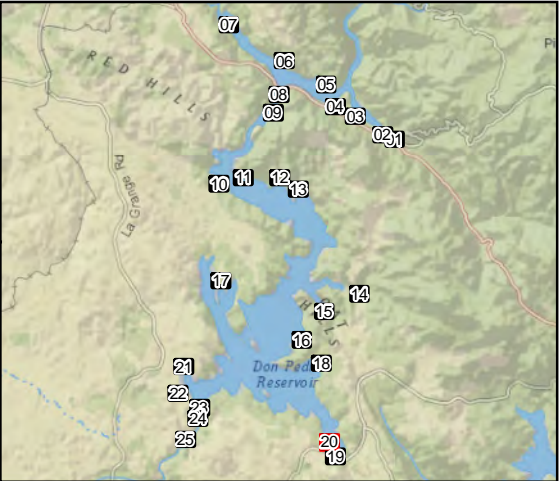
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

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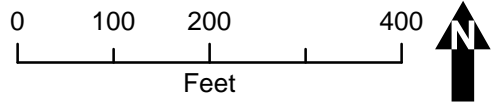
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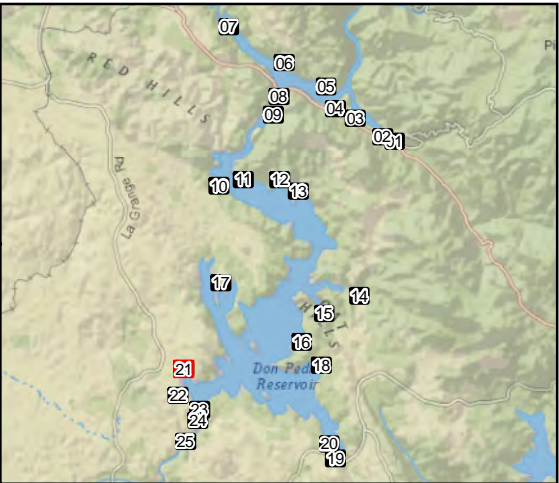
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Wetland Drainage Study Areas ¹




Botanical Study Area




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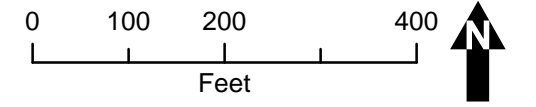


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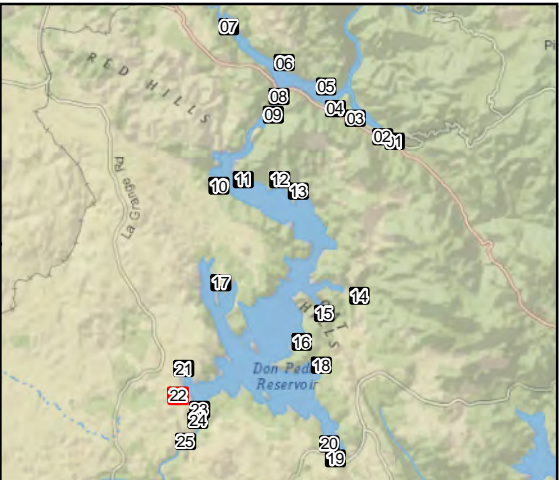
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








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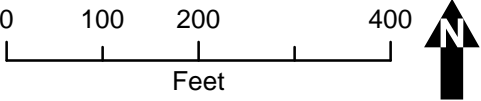
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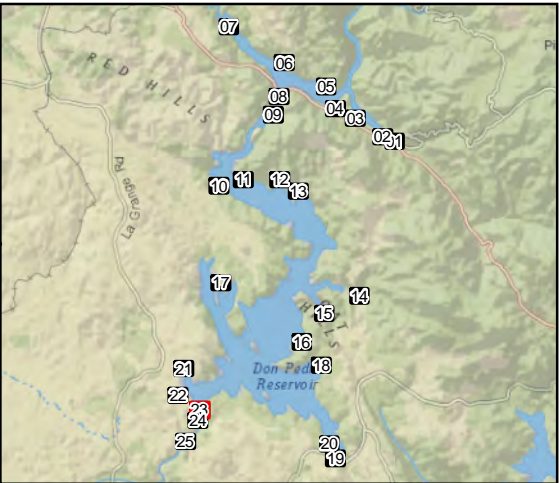
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






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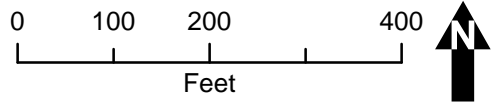
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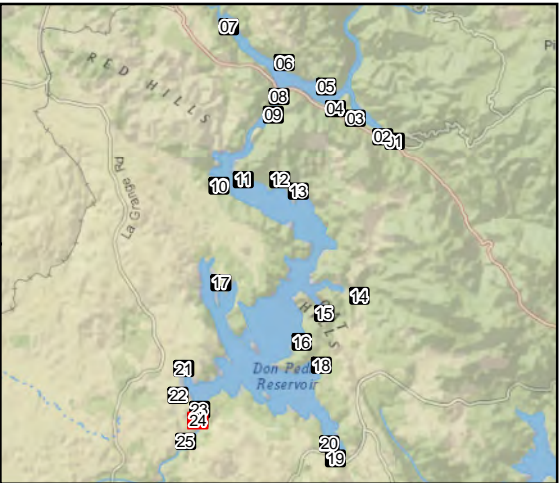
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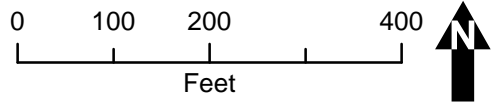
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-  Blue Elderberry
Sambucus nigra ssp. *caerulea*
[*S. mexicana*]
-  Wetland Drainage Study Areas ¹
-  Botanical Study Area
-  FERC Project Boundary (No. 2299)
-  Dam
-  Highway
-  Major Road
-  Minor Road
-  Spillway
-  BLM Area of Critical Environmental Concern 'Red Hills'
- Land Ownership**
 -  Bureau of Land Management
 -  State of California

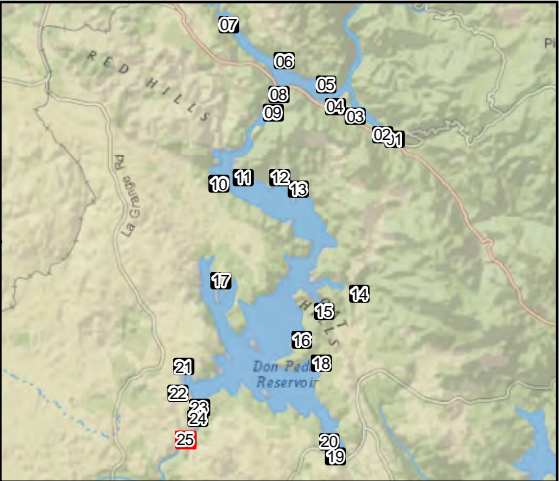
(1) VELB study area is a combination of the botanical study areas, a 1/4 mile buffer of the study areas, and the drainages that make up the wetland study.




Valley Elderberry Longhorn Beetle Study


Don Pedro Project (FERC No.2299)

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Blue Elderberry
Sambucus nigra ssp. *caerulea*
[*S. mexicana*]




Wetland Drainage Study Areas ¹




Botanical Study Area




FERC Project Boundary (No. 2299)




Dam




Highway




Major Road



Minor Road




Spillway




BLM Area of Critical
Environmental Concern
'Red Hills'

Land Ownership

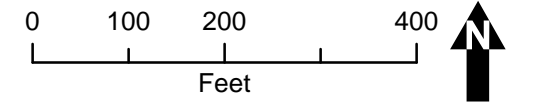


Bureau of Land Management



State of California

(1) VELB study area is a combination of the botanical study areas, a 1/4 mile buffer of the study areas, and the drainages that make up the wetland study.



Valley Elderberry Longhorn Beetle Study

Don Pedro Project (FERC No.2299)

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**STUDY REPORT TR-05
ENDANGERED SPECIES ACT-LISTED WILDLIFE-
VALLEY ELDERBERRY LONGHORN BEETLE**

ATTACHMENT B

REPRESENTATIVE ELDERBERRY PHOTOS

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Figure 1. Habitat for Elderberry occurrence 004 on TID/MID land in Moccasin Point Recreation area.



Figure 2. Boreholes for Elderberry occurrence 004 on TID/MID land in Moccasin Point Recreation area.



Figure 5. Habitat for Elderberry occurrence 009 on BLM and TID/MID land on Moccasin Point Recreation area.



Figure 6. Borehole for Elderberry occurrence 009 on BLM and TID/MID land in Moccasin Point Recreation area.



Figure 7. Habitat for Elderberry occurrence 010 on BLM land in Moccasin Point Recreation area.



Figure 8. Boreholes for Elderberry occurrence 010 on BLM land in Moccasin Point Recreation area.



Figure 9. Elderberry occurrence 013 on TID/MID land in Moccasin Point Recreation area.



Figure 10. Elderberry occurrence 015 on BLM land next to La Grange Reservoir.



Figure 11. Elderberry occurrence 016 on BLM land next to La Grange Reservoir.



Figure 12. Habitat for Elderberry occurrence 017 on TID/MID land in the Powerhouse/Dam private access area.



Figure 13. Boreholes for Elderberry occurrence 017 on TID/MID land in Powerhouse/Dam private access area.



Figure 14. Habitat for elderberry occurrence 018 on TID/MID land next to sewage pond.



Figure 15. Boreholes for Elderberry occurrence 018 on TID/MID land next to sewage pond.



Figure 16. Elderberry occurrence 019 on TID/MID land in Powerhouse/Dam private access area.



Figure 17. Elderberry occurrence 020 on TID/MID land in Powerhouse/Dam private access area.



Figure 18. Boreholes for Elderberry occurrence 026 on TID/MID land in Hatch Creek Arm.



Figure 19. Habitat for elderberry occurrence 026 on TID/MID land in Hatch Creek Arm.



Figure 20. Habitat for Elderberry occurrence 031 on BLM land near Jacksonville Road.



Figure 21. Boreholes for Elderberry occurrence 031 on BLM land near Jacksonville Road.



Figure 22. Habitat for Elderberry occurrence 032 on BLM land near Jacksonville Road.



Figure 23. Boreholes for Elderberry occurrence 032 on BLM land near Jacksonville Road.



Figure 24. Elderberry occurrence 037 on BLM land near Jacksonville Road and Kanaka Point.



Figure 25. Boreholes for Elderberry occurrence 038 on TID/MID land near Jacksonville Road.



Figure 26. Elderberry occurrence 045 on TID/MID land within the campgrounds in Moccasin Point Recreation Area.



Figure 27. Habitat for Elderberry occurrence 046 on BLM land near Jacksonville-Harney Road.



Figure 28. Boreholes on Elderberry occurrence 046 on BLM land near Jacksonville-Harney Road.



Figure 29. Habitat for Elderberry occurrence 047 on TID/MID land on the shoreline.



Figure 30. Boreholes on Elderberry occurrence 047 on TID/MID land on the shoreline.



Figure 31. Habitat for Elderberry occurrence 300 on BLM land in Blue Oaks Recreation area.



Figure 32. Habitat for Elderberry occurrence 301 on TID/MID land on Roger's Creek Arm.



Figure 33. Boreholes on Elderberry occurrence 301 on TID/MID land on Roger's Creek Arm.



Figure 34. Elderberry occurrence 302 on TID/MID land on Roger's Creek Arm.



Figure 35. Habitat for Elderberry occurrence 304 on TID/MID land near Roger's Creek Arm.



Figure 36. Boreholes on Elderberry occurrence 304 on TID/MID land near Roger's Creek Arm.



Figure 37. Habitat for Elderberry occurrence 309 on TID/MID land near Roger's Creek Arm.

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VALLEY ELDERBERRY LONGORN BEETLE

ATTACHMENT C

COMPLETE ELDERBERRY TABLE

Table 1. Elderberry plant locations within the study area on the Don Pedro Project.

Map location ¹	Occurrence Number	Riparian Yes No	Number of Shrubs	Stem Count ² and Class ³	Land Ownership	Site Location	Activities and Nearby Disturbances	# of Exit Holes Recent/ Not Recent
1, 2	001	No	1	3, I	BLM	Moccasin Point Recreation Area	Approximately 20 feet below MPRA access road.	NA
1, 2	002	No	1	9, I	BLM	Moccasin Point Recreation Area	Approximately 5 feet below MPRA access road.	NA
1	003	No	1	6, I	BLM	Moccasin Point Recreation Area	10 feet below access road.	NA
1	004	No	2	15, II	TID/MID	Moccasin Point Recreation Area	Approximately 10 feet below access road.	15, Not recent
2	005	No	1	21, II	TID/MID	Moccasin Point Recreation Area	Minor recreation potential and noxious weed presence.	NA
1, 2	006	No	2	13, II	TID/MID	Moccasin Point Recreation Area	Minor recreation potential and noxious weed presence.	7, Not recent
1, 2	008	No	1	5, I	TID/MID	Moccasin Point Recreation Area	Minor recreation potential and noxious weed presence.	NA
1, 2	009	Yes	13	>10, III	BLM	Moccasin Point Recreation Area	Minor recreation potential and noxious weed presence.	43, Recent
1	010	Yes	1	1, I	BLM	Moccasin Point Recreation Area	Minor recreation potential and noxious weed presence. Poison oak surrounding plant.	2, Not recent
2	011	Yes	1	1, I	TID/MID	Moccasin Point Recreation Area	Minor recreation potential and noxious weed presence.	NA
1, 2	012	Yes	6	6-8, II	TID/MID	Moccasin Point Recreation Area	Minor recreation potential and noxious weed presence.	NA
2	013	No	1	2, I	TID/MID	Moccasin Point Recreation Area	Minor recreation potential and noxious weed presence.	NA
4	014	No	1	1, III	BLM	Moccasin Point Recreation Area	Approximately 50 feet uphill from sewage	NA

Map location ¹	Occurrence Number	Riparian Yes No	Number of Shrubs	Stem Count ² and Class ³	Land Ownership	Site Location	Activities and Nearby Disturbances	# of Exit Holes Recent/ Not Recent
							treatment plant.	
25	015	Yes	1	1, I	BLM	Power house/ Dam access	None.	NA
25	016	Yes	2	1, I 1, II	BLM	Power house/ Dam access	None.	NA
24	017	No	1	1, III	TID/MID	Power house/ Dam access	Paved road within 50 feet.	8, Not recent
22	018	No	1	1, III	TID/MID	Power house/ Dam access	Adjacent to sewage treatment ponds.	5, Not recent
25	019	No	1	4, I	TID/MID	Power house/ Dam access	Cattle grazing.	NA
25	020	No	4	13, I and III	TID/MID	Power house/ Dam access	Cattle grazing.	NA
25	024	No	1	1, I	TID/MID	Power house/ Dam access	Cattle grazing.	NA
25	025	No	1	1, III	TID/MID	Power house/ Dam access	Cattle grazing. Shrub is 14 feet tall; visibility in upper canopy limited.	NA
14	026	Yes	1	1, III	TID/MID	Hatch Creek	Cattle grazing.	10, Not recent
5	027	No	1	1, III	TID/MID	Jacksonville Rd.	None.	NA
5	028	No	1	1, I 1, II 1, III	TID/MID	Jacksonville Rd.	None.	NA
5	029	No	1	1, I 3, II 3, III	BLM	Jacksonville Rd.	None.	NA
5	030	No	1	1, II	TID/MID	Jacksonville Rd.	None.	NA
5	031	No	1	1, II	BLM	Jacksonville Rd.	None.	6, Not recent
5	032	No	1	1, II	BLM	Jacksonville Rd.	On Kanaka Rd. edge.	3, Not recent
5	033	No	Unknown	Unknown	BLM	Jacksonville Rd./ Kanaka Rd.	On Kanaka Rd. edge. Shrub base and branches obscured by poison oak.	NA
5	034	No	1 or 2	2, II	BLM	Jacksonville Rd./ Kanaka Rd.	Limited access due to poison oak.	NA
5	035	No	1	1, II	BLM	Jacksonville Rd./ Kanaka Rd.	Limited access due to poison oak.	NA

Map location ¹	Occurrence Number	Riparian Yes No	Number of Shrubs	Stem Count ² and Class ³	Land Ownership	Site Location	Activities and Nearby Disturbances	# of Exit Holes Recent/ Not Recent
5	036	No	1	Unknown	BLM	Jacksonville Rd./ Kanaka Rd.	Limited access due to poison oak.	NA
5	037	No	2	Unknown	BLM	Jacksonville Rd./ Kanaka Rd.	Limited access due to poison oak.	NA
5	038	No	1	1, II	TID/MID	Jacksonville Rd.	Between Kanaka and Jacksonville Rd. Limited access due to poison oak.	2, Not recent
5	039	No	1	4, II	TID/MID	Jacksonville Rd.	On hillside below Jacksonville Rd.	NA
7	040	No	1	1, II	TID/MID	Shawmut Rd.	Limited access due to poison oak.	NA
7	041	No	1	1, III	TID/MID	Shawmut Rd.	Proximate to Shawmut Rd.	NA
6	042	Not recorded	1	1, III	BLM	Harney Rd. section	Refuse dumping.	NA
8	043	No	1	2, I 2, II	S of C	Railroad Canyon	Recreational boating.	NA
2	044	No	Not recorded	9, I 1, II	S of C	Moccasin Point Recreation Area	Minor recreational use and noxious weed presence.	NA
3	045	Not recorded	1	1, I 1, II	S of C	Moccasin Point Recreation Area	In campground at road edge, adjacent to campsite.	NA
6	046	No	1	1, III	BLM	Jacksonville-Harney Rd.	End of Harney Rd.	2, Not recent
10	047	No	1	Unknown, I, II, III	TID/MID	Moccasin T-line	Line road access/maintenance.	19, Not recent
12	048	Yes	3-4	Unknown	TID/MID	Moccasin T-line	Inaccessible for assessment.	NA
13	049	Yes	2	10-12, I 2, III	S of C	Moccasin T-line	Cattle grazing.	NA
1	050	Yes	1	Unknown	BLM	Moccasin Creek	Recreational boating and other recreational use. Non-native shrubs are locally dominant.	NA
11	051	No	1	4, II	S of C	Moccasin	Limited access due to	NA

Map location ¹	Occurrence Number	Riparian Yes No	Number of Shrubs	Stem Count ² and Class ³	Land Ownership	Site Location	Activities and Nearby Disturbances	# of Exit Holes Recent/ Not Recent
				1, III		Transmission Line	poison oak.	
21	300	No	2	6, I	BLM	Blue Oaks Recreation Area	Bicycle/hiking trail; cut bank located immediately down slope.	NA, sapsucker holes
				1, II				
19	301	No	4	10, I	TID/MID	Rogers Creek Arm	Highway, road fill, recreation, refuse dumping, cattle grazing.	8, Not recent
				3, II				
				5, III				
19	302	No	1	4, I	TID/MID	Rogers Creek Arm	Highway, road fill, recreation.	NA
19	303	No	2	10, I, II, III	TID/MID	Rogers Creek Arm	Highway, road fill, recreation.	NA
19	304	No	1	1, III	TID/MID	Rogers Creek Arm	Highway, road fill, recreation.	9, Not recent
19	305	No	1	2, III	TID/MID	Rogers Creek Arm	Adjacent to highway.	NA
19	306	No	1	1, III	TID/MID	Rogers Creek Arm	Adjacent to highway.	NA
20	307	No	1	1, I	TID/MID	Rogers Creek Arm	Adjacent to Project reservoir.	NA
19	308	No	1	2, I	TID/MID	Rogers Creek Arm	None.	NA
				1, III				
19	309	No	2	3, I	TID/MID	Rogers Creek Arm	None.	NA
				2, II				
23	601	No	1	40, I	BLM	Power house/ dam access	Little used road 25 feet above.	NA
				15, II				
				1, III				
23	602	No	1	1, II	BLM	Power house/ dam access	Little used road 50 feet below.	NA
				2, III				
16	603	No	1	2, I	TID/MID	Don Pedro Bar	Cattle grazing, recreation trail.	NA
				2, II				
16	604	No	1		TID/MID	Don Pedro Bar	Cattle grazing, recreation trail.	NA
8	605	No	1	>3, III	S of C	Near Highway 49	Inaccessible for direct assessment.	NA
9	606	No	2	9, III	S of C	Near highway 49	Inaccessible for direct assessment.	NA
9	607	No	1	NA	S of C	Near highway 49	Inaccessible for direct	NA

Map location ¹	Occurrence Number	Riparian Yes No	Number of Shrubs	Stem Count ² and Class ³	Land Ownership	Site Location	Activities and Nearby Disturbances	# of Exit Holes Recent/ Not Recent
							assessment.	
8	608	No	3	21, I, II	TID/MID	Railroad Canyon	Inaccessible for direct assessment. Recreational use in the area.	NA
8	609	No	5-6	NA, III	S of C	Near high way 49	Inaccessible for direct assessment.	NA
18	611	No	1	NA	TID/MID	Ramos Point	Inaccessible – private property. House immediately above.	NA
17	612	No	1	1, III	TID/MID	49er Bay	Light cattle grazing.	NA
15	678	Yes	1	1, III	BLM	Willow Creek Arm	Cattle grazing	NA
10	900	No	1	1, III	TID/MID	Moccasin Point	Road above, large pine down under part of plant.	NA
10	901	No	1	1, III	TID/MID	Moccasin Point	Near transmission line.	NA
13	903	No	2	10, III	State of California	Don Pedro	None.	NA

¹ Locations as represented on Figures 1-25 of Attachment A.

² Stems greater than one inch at base.

³ Class I: ≥ 1 inch but ≤ 3 inches; Class II: > 3 inches but < 5 inches; and Class III: > 5 inches.

⁴ Elderberry plant inaccessible due to safety concerns.