

4.1.8 ESA-Listed Plants Study

4.1.8.1 Project Nexus

Continued Project O&M and Project-related recreation activities have potential to affect plants listed as FT or FE under the ESA, or as candidates for listing under the ESA. There are species proposed for listing under the ESA with a potential to occur within the proposed Project boundary.

This *ESA-listed Plants Study* does not address other types of special-status plants (e.g. CESA-listed plants), which are addressed in the *Botanical Resources Study*, a separate study being undertaken by the Licensees as part of this relicensing effort. If a plant is listed under the ESA and also meets another definition of a special-status plant, that plant species is addressed under this *ESA-listed Plants Study*.

4.1.8.2 Existing Information and Need for Additional Information

Existing and relevant information regarding ESA-listed plants known or with the potential to occur within the proposed Project boundary is available from the CNPS online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2015), the CNDDDB (CDFW 2015), and the CalFlora website. Based on this information, as summarized in Section 4.8 of the Licensees' PAD, the Licensees identified six plant species listed as FT or FE and one candidate plant species with a potential to occur within the proposed Project boundary, if suitable habitat occurs (Table 4.1-7). As detailed in Section 4.8 of the PAD, there are no known records of these or other ESA-listed plants within the proposed Project boundary, although most have been documented in some form in the areas covered by USGS 7.5-minute topographic quadrangle maps in which the proposed Project boundary is located as well as adjacent quadrangle maps.

Additional information, which will be provided by this *ESA-listed Plants Study*, is needed to identify whether ESA-listed plant species or candidate plant species occur in the proposed Project boundary and to determine if those species could be affected by the Project O&M and/or Project-related recreation activities.

Table 4.1-7. ESA-listed and Candidate Plant Species Potentially Occurring Within the South SWP Hydropower Proposed Project Boundary

Common Name Scientific Name	Status	Habitat	Flowering Period	Known Occurrences in Project Vicinity Quadrangle Maps
Slender-horned spineflower (<i>Dodecahema leptoceras</i>)	FE, SE	Floodplain terraces and sandy benches which flood infrequently; associated with alluvial fan scrub between about 650 to 2,470 feet elevation.	Apr - Jun	CNDDDB occurrences in Mint Canyon
San Fernando Valley spineflower (<i>Chorizanthe parryi</i> var. <i>fernandina</i>)	FC, SE, FSS	Mostly in openings within coastal sage scrub (500 - 4,000 feet elevation).	Apr - Jul	CNDDDB occurrences in Newhall, Val Verde
Marsh sandwort (<i>Arenaria paludicola</i>)	FE, SE	Historically in scattered sites in swamps and freshwater marshes (sea level to 1,480 feet).	May - Aug	None
Nevin's barberry (<i>Berberis nevinii</i>)	FE, SE	Chaparral, cismontane woodland, coastal and riparian scrub in sandy or gravelly soils between about 1,400 to 1,700 feet elevation (rarely to 2,000 feet). Also occurs from transplants.	Feb - Jun	CNDDDB occurrences in Newhall, Warm Springs Mountain
Gambel's watercress (<i>Nasturtium [Rorippa] gambelii</i>)	FE, ST	Found historically at scattered sites in freshwater marshes and near streams in southern California (from near sea level to 1,100 feet elevation).	Apr - Oct	None
Spreading navarretia (<i>Navarretia fossalis</i>)	FT	Vernal pools and poorly drained, seasonally flooded, alkali playas (100 to 2,200 feet elevation).	Apr - Jun	CNDDDB occurrences in Mint Canyon
California orcutt grass (<i>Orcuttia californica</i>)	FE, SE	Deep vernal pools with clay soils in Ventura, Los Angeles, Riverside, and San Diego counties (50-2,150 feet elevation).	Mar - Aug	CNDDDB occurrences in Mint Canyon

Key:

FE = federal endangered

FT = federal threatened

FC = federal candidate

FSS = listed by USFS as Sensitive

SE = California State endangered

ST = California State threatened

4.1.8.3 Study Goals and Objectives

The goals of the *ESA-listed Plants Study* are to: (1) perform surveys to identify locations of ESA-listed or candidate plant species in the proposed Project boundary; and (2) collect ancillary data related to these occurrences, including geographic extent of each occurrence and indications of potential threats.

The objective of this *ESA-listed Plants Study* is to gather sufficient data necessary to fill recognized gaps in existing information for ESA-listed plant species.

4.1.8.4 Study Methods

Study Area

The study area for the *ESA-listed Plants Study* consists of certain habitat types within the proposed Project boundary that have potential to contain ESA-listed or candidate plant species, excluding lands overlying the Angeles Tunnel on which the Licensees do not perform any Project O&M (Figure 4.1-13). This survey will include staging areas; construction areas; upstream maintenance areas above reservoirs; fuel modification requirement areas; areas cleared for access to transmission line poles and access routes to these areas; Quail Canal, Quail Lake, and associated maintenance roads/areas and recreational features; and Gorman Bypass Channel and associated maintenance roads/access. The study area will also include a 100-foot buffer from all Project features where disturbance is expected to occur. The study area will extend beyond the proposed Project boundary to accommodate this buffer, where necessary.

General Concepts and Procedures

- Personal safety is the most important consideration of each fieldwork team. Fieldwork will only occur in safely accessible areas and under conditions deemed safe by the field crews. Locations within the study area that cannot be accessed in a safe manner (e.g., locations containing dense vegetation or unsafe slopes) and areas inundated when the surveys are performed, will not be surveyed; these areas will be identified in the data summary and an explanation for survey exclusion will be provided.
- The *ESA-listed Plants Study* will begin after FERC issues its Study Plan Determination.
- The *ESA-listed Plants Study* does not include the development of requirements for the new license, which will be addressed outside the study.
- This *ESA-listed Plants Study* specifically focuses on plants listed as FT or FE, or candidates for listing under the ESA within the proposed Project boundary, but the study area for the *ESA-listed Plants Study* is specific to locations that may contain those resources.
- If required for the performance of the *ESA-listed Plants Study*, the Licensees will make a good faith effort to obtain permission to access private property well in advance of initiating the study. The Licensees will only enter private property if permission has been provided by the landowner.
- The Licensees will acquire all necessary agency permits and approvals prior to beginning fieldwork for the *ESA-listed Plants Study*.
- Field crews may make variances to the *ESA-listed Plants Study* in the field to accommodate actual field conditions and unforeseen problems. Any variances

from the *ESA-listed Plants Study* will be noted in the data resulting from the *ESA-listed Plants Study*.

- To prevent the introduction and transmittal of amphibian chytrid fungus and invasive aquatic species (e.g., quagga mussels, zebra mussel, and Asian clams), field crews will be trained on, provided with, and use materials (e.g., Quat) for decontaminating their boots, waders, and other equipment when leaving or traveling between water-based study sites. Field crews will follow DWR's Quagga and Zebra Mussel Rapid Response Plan and CDFW's Aquatic Invasive Species Decontamination Protocol which can be found at the following link: (<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=43333>). All boats used during the study will follow cleaning protocols, including inspections before and after use. All decontamination requirements in place at Project reservoirs including those of DWR's *Quagga and Zebra Mussel Rapid Response Plan* for the SWP will be strictly followed (DWR 2010).

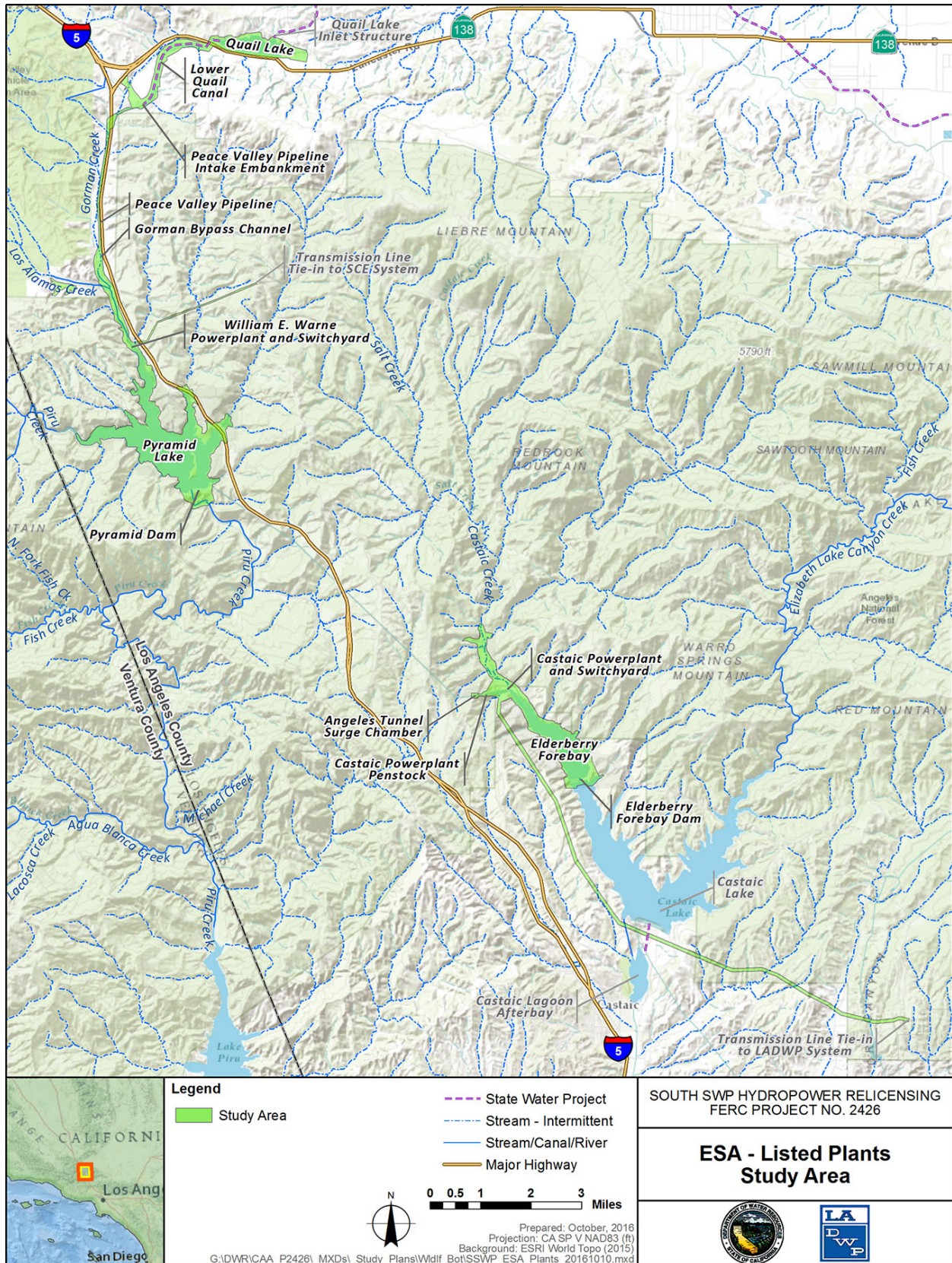


Figure 4.1-13. ESA-listed Plants Study Area

Methods

The *ESA-listed Plants Study* will consist of three steps: (1) gather data and prepare for field effort; (2) conduct field surveys; and (3) prepare data. These steps are described below.

Step 1 – Gather Data and Prepare for Field Effort. The Licensees will prepare field maps for use by field survey teams. The maps will depict aerial imagery, Project features, and the area boundary. Field planning will include preliminary identification of habitats that could support ESA-listed and candidate plant species that may occur in the area and a review of existing herbarium specimen collection dates and floristic data regarding the seasonal life stages of the vegetation being surveyed to develop an appropriate survey schedule.

Step 2 – Conduct Field Surveys. A qualified team of field staff will conduct ESA-listed plant surveys that will generally follow the methodology described in the botanical survey section of CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* and be consistent with USFWS (2000) guidelines for surveys. Field staff will visit reference sites, if available, for ESA-listed plants most likely to occur in the proposed Project area (i.e. those known from CNDDDB reports in the Project or surrounding quadrangles or with other known occurrences nearby). The protocol uses systematic field techniques to ensure thorough coverage of each plant community that could support ESA-listed and candidate plant species. Documentation of surveys on NFS lands will include completion of Plant Survey Field Forms (USFS 2015), as specified in the USFS Threatened, Endangered, and Sensitive Plants Element Occurrence Protocol and Field Guide (USFS 2014) and Threatened, Endangered and Sensitive Plants Element Occurrence Protocol and Field Guide (USFS 2015).

Field staff will conduct surveys between June 2017 and May 2018, encompassing the period within which the potential ESA-listed and candidate plant species flower, with at least two survey visits of suitable habitats to maximize the likelihood of detection of all ESA-listed and candidate plant species. Surveyors will include botanists or other scientist and biologists qualified to identify ESA-listed and candidate plant species likely to occur in the area. Taxonomy and nomenclature will be based on *The Jepson Manual* (Baldwin et al., 2012). If an ESA-listed or candidate plant species is identified, the survey team will prepare a California Native Species Field Survey Form and record the following data associated with the occurrence to the edge of the occurrence, or to the edge of the proposed Project boundary, whichever is less, though surveyors will estimate the size of the occurrence outside of the study boundary to the extent possible):

- Digital photographs to document the occurrence, phenology, and reproductive state, associated habitat, and indications of potential threats

- Location and approximate extent of the ESA-listed or candidate plant species population delineated using a handheld GPS and the estimated number of plants in the population
- Habitat description, including dominant and subdominant vegetation in the area
- Activities or evidence of human activities observed in the area that have a potential to adversely affect the population (e.g., recreational trails and uses)

The Licensees will notify USFWS and CDFW within three working days if ESA-listed or candidate plant species are detected.

Step 3 – Prepare Data. Following the surveys, the Licensees will develop GIS maps depicting ESA-listed and candidate plant species occurrences, Project facilities, features, specific Project-related activities (e.g., user-created dispersed hiking or day-use), and other related information collected during the *ESA-listed Plants Study*. The data will be included in the documents discussed below.

Quality Assurance and Quality Control

Field data will be collected in a manner that promotes high quality results and will be subject to appropriate QA/QC procedures, including spot-checks of transcription for accuracy and completeness and comparison of GIS maps with field notes to verify locations of sensitive habitats and species.

Analysis

Once the locations of ESA-listed and candidate plant species occurrences in the study area for the *ESA-listed Plants Study* are determined, the Licensees will describe known Project-related potential threats to these species, including NNIP, Project O&M activities, and Project-related recreation activities.

Reporting

ESA-listed Plants Study methods and results will be prepared and included, to the extent completed and ready for inclusion, in the Licensees' ISR, USR, DLA, and FLA. If any ESA-listed or candidate plants are found, a report will be developed and considered Privileged, and will be provided only to FERC, USFWS, and CDFW. If any of these occurrences are found on NFS lands, this Privileged report will also be provided to the USFS and reported using the USFS TES Plant Element Occurrence Field Guide (USFS 2008, as may be updated).

4.1.8.5 Consistency of Methodology with Generally Accepted Scientific Practices

This *ESA-listed Plants Study* is consistent with the goals, objectives, and methods outlined for most recent FERC hydropower relicensing efforts in California, including the Don Pedro Project (FERC No. 2299), the Yuba River Development Project (FERC No.

2246), and the Merced River Hydroelectric Project (FERC No. 2174), and will use standard botanical survey methods as defined by CDFW, USFWS, and USFS.

4.1.8.6 Schedule

This *ESA-listed Plants Study* will begin after FERC issues its Study Plan Determination. The Licensees anticipate the schedule below will be followed to complete the Study.

Fieldwork Preparation	May 2017
Fieldwork	June 2017 – May 2018
Data QA/QC	July 2017 – September 2018
Data Analysis and Reporting	October 2018 – December 2018

4.1.8.7 Level of Effort and Cost

Based on the work effort described above, the Licensees estimate the current cost to complete this study will range between \$54,000 and \$72,000.

4.1.8.8 References

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