

## 1.0 ESA-LISTED PLANT SPECIES STUDY APPROACH

*This preliminary draft study approach is provided to inform of the general methods DWR followed during the study phase under FERC's Traditional Licensing Process.*

### 1.1 PROJECT NEXUS

Continued Project operation and maintenance (O&M) and Project-related recreation activities have potential to affect plants that are candidate species proposed for listing or that have already been listed as federal threatened (FT) or federal endangered (FE) under the Endangered Species Act (ESA).

This ESA-listed Plants Study does not address other special-status<sup>1</sup> or California Endangered Species Act (CESA)-listed plants, which are addressed in the California Department of Water Resources' (DWR) *Botanical Resources Study Approach*, a separate study being undertaken by DWR as part of this relicensing effort. If a plant is listed under the ESA, but also meets the definition of a special-status plant, that plant species is addressed under this *ESA-listed Plants Study Approach*.

#### 1.1.1 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 California Native Plant Society (CNPS) online *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2015), the California Natural Diversity Database (CDFW 2015), the United States Department of the Interior, Fish and Wildlife Service's (USFWS) Information for Planning and Conservation Report (IPaC) (USFWS 2016), and the CalFlora website. Based on this information, as summarized in Section 4.8 of the DWR's Pre-Application Document (PAD), DWR identified four plant species listed as FT or FE with a potential to occur within the proposed Project boundary (Table 1.1-1). There are no proposed or candidate plant species with a reasonable potential to be affected by the Project. As detailed in Section 4.8 of the PAD, there are no known records of these four plant species or other ESA-listed plant species within the proposed Project boundary. However, all ESA-listed plants with potential to occur in the proposed Project boundary and in the adjacent areas covered by United States Geological Survey 7.5-minute topographic quadrangle maps were documented in the PAD.

Additional information, which will be provided by this *ESA-listed Plants Study Approach*, 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.

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<sup>1</sup> Listed by the USFS as Sensitive; listed by USFWS as a Species of Concern; listed by CDFW as a Species of Special Concern; or considered fully protected under California law.

**Table 1.1-1. ESA-listed Plant Species Potentially Occurring within the Devil Canyon Project 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	San Bernardino North and Devore
Nevin's barberry <i>Berberis nevinii</i>	FE, SE	Chaparral, cismontane woodland, coastal and scrub in scattered occurrences between about 1,400 to 1,700 feet elevation (rarely to 2,000 feet). Also occurs from transplants.	Feb - Jun	Harrison Mountain (extirpated transplants)
Santa Ana River woolly-star <i>Eriastrum densiflorum</i> ssp. <i>sanctorum</i>	FE, SE	Infrequently flooded, open, sandy, high-alluvial terraces in the Santa Ana River drainage and on Lytle Creek in San Bernardino County (500 to 2,000 feet elevation).	Apr - Sep	Devore
Thread-leaved brodiaea <i>Brodiaea filifolia</i>	FT, SE	Moderately wet to occasionally moist conditions in grassland, on floodplains, or associated with vernal pools (200 to 1,000 feet elevation).	Mar - Jun	San Bernardino North

Key:

FE = federal endangered

FT = federal threatened

SE = California State endangered

### 1.1.2 Study Goals and Objectives

The goals of this study approach are to: (1) perform surveys to identify locations of ESA-listed, candidate or proposed for ESA-listing plant species within 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 study approach is to gather sufficient data necessary to fill recognized gaps in existing information for ESA-listed plant species.

### 1.1.3 Study Methods

#### 1.1.3.1 **Study Area**

The Study Area consists of certain habitat types within the proposed Project boundary that have potential to support ESA-listed plant species, excluding lands overlying the San Bernardino Tunnel on which DWR does not perform any Project O&M (Figure 1.1-1).

#### 1.1.3.2 **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 Approach* does not include the development of requirements for the new license, which will be addressed outside the Study.
- This *ESA-listed Plants Study Approach* 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 Approach* is specific to locations that may contain those resources.
- If required for the performance of the *ESA-listed Plants Study Approach*, DWR will make a good faith effort to obtain permission to access private property well in advance of initiating the Study. DWR will only enter private property if permission has been provided by the landowner.
- DWR will acquire all necessary agency permits and approvals prior to beginning fieldwork for the *ESA-listed Plants Study Approach*.
- Field crews may make variances to the *ESA-listed Plants Study Approach* in the field to accommodate actual field conditions and unforeseen problems. Any variances from the *ESA-listed Plants Study Approach* will be noted in the data resulting from the *ESA-listed Plants Study Approach*.
- 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 California Department of Fish and Wildlife's (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 State Water Project will be strictly followed (DWR 2010).

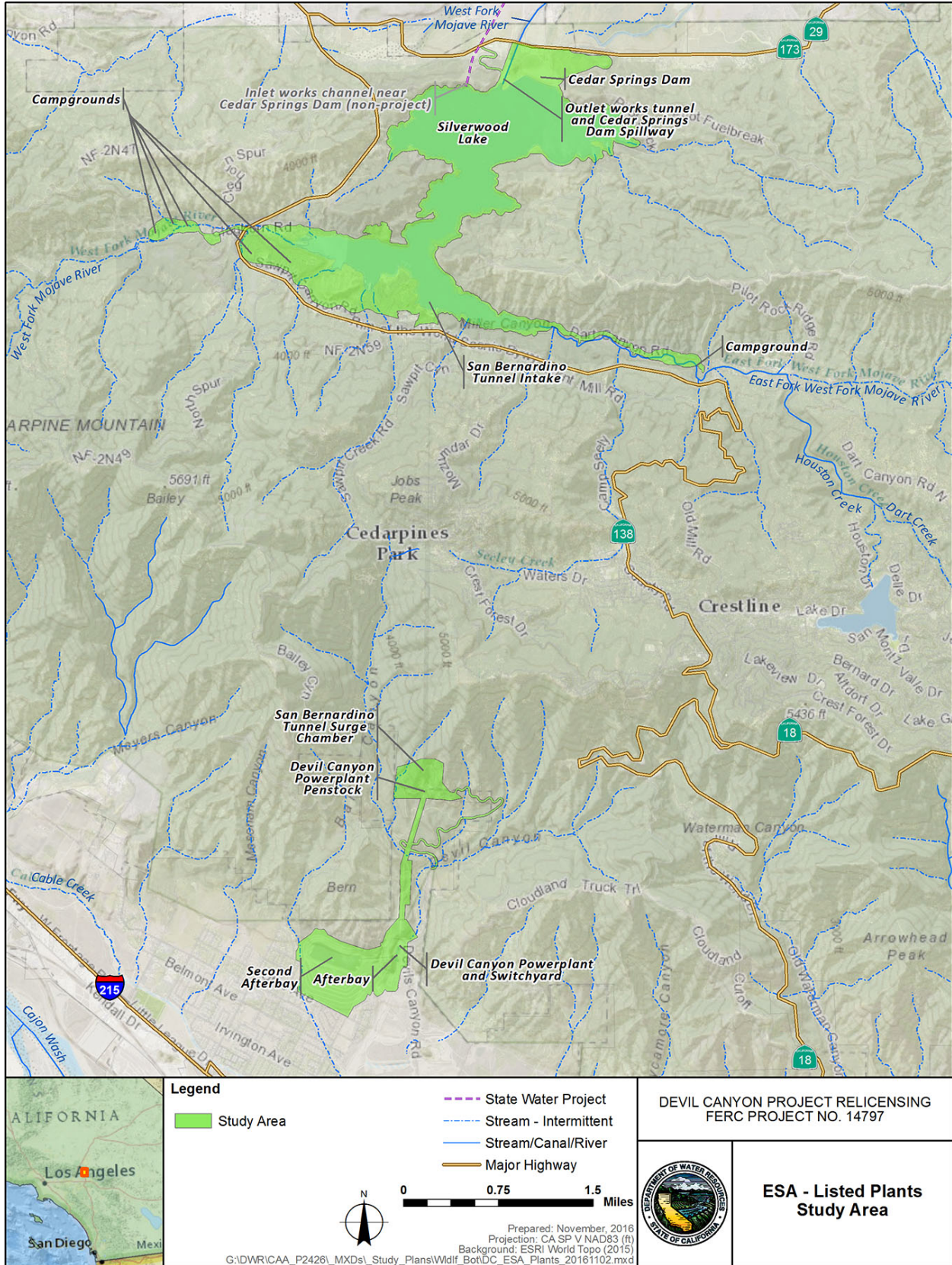


Figure 1.1-1. ESA-Listed Plant Species Study Area

### 1.1.3.3 Methods

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

Step 1 – Gather Data and Prepare for Field Effort. DWR will prepare field maps for use by survey teams. The maps will depict aerial imagery, Project features, and the study area boundary. Field planning will include preliminary identification of habitats that could support ESA-listed and candidate plant species that may occur within the proposed Project boundary, 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 team of qualified field staff will conduct ESA-listed plant surveys that will follow the methodology described in the botanical survey section of the California Department of Fish and Wildlife's (CDFW) *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* and be consistent with USFWS' (2000) guidelines for surveys. The protocol uses systematic field techniques to ensure thorough coverage of each plant community that could support ESA-listed and candidate plant species. Additional efforts will focus on habitats with a higher probability of supporting ESA-listed and candidate plants. Documentation of surveys on National Forest Service (NFS) lands will include completion of 2015 Plant Survey Field Forms (USFS 2015). DWR anticipates the surveys will be performed between June 2017 and April 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, scientists, 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:

- 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 plant species population delineated using a handheld global positioning system unit, and the estimated number of plants in the population
- Habitat description, including dominant and subdominant vegetation in the area
- Activities observed in the area that have a potential to adversely affect the population (e.g., recreational trails and uses)

DWR will notify the USFWS and CDFW within three working days if ESA-listed or candidate plant species are detected. If the detection is on NFS lands, it will be reported to the San Bernardino National Forest (SBNF).

Step 3 – Prepare Data. Following the surveys, DWR will develop Geographic Information System (GIS) maps depicting ESA-listed or candidate plant species occurrences, Project facilities, features, and specific Project-related activities (e.g., dispersed hiking or day-use) and other related information collected during the Study.

#### **1.1.3.4 Quality Assurance and Quality Control**

Field data will be collected in a manner that promotes high quality results, and will be subject to appropriate quality assurance/quality control (QA/QC) procedures, including spot-checks of transcription and comparison of GIS maps with field notes to verify locations of ESA-listed plant species occurrences.

#### **1.1.3.5 Analysis**

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

#### **1.1.3.6 Reporting**

*ESA-listed Plants Study Approach* methods and results will be prepared and included, to the extent completed, in the Draft Application for a New License, and Final Application for a New License. If any ESA-listed or candidate plants are found, a report will be developed and considered Privileged, and will be provided only to Federal Energy Regulatory Commission (FERC), USFWS, and CDFW. If any of these occurrences are found on NFS lands, this Privileged report will also be provided to the United States Department of Agriculture, Forest Service (USFS) and reported using the USFS TES Plant Element Occurrence Field Guide (USFS 2008, as may be updated).

#### **1.1.4 Consistency of Methodology with Generally Accepted Scientific Practices**

This *ESA-listed Plants Study Approach* is consistent with the goals, objectives, and methods outlined for most recent FERC hydroelectric relicensing efforts in California, including the Don Pedro Project (FERC No. 2299), Yuba River Development Project (FERC No. 2246) and Merced River Hydroelectric Project (FERC No. 2174), and uses standard botanical survey methods as defined by CDFW, USFWS, and USFS.

### 1.1.5 Schedule

This *ESA-listed Plants Study Approach* may begin as early as January 2017. DWR anticipates the schedule below will be followed to complete the Study.

Fieldwork Preparation	March 2017 – April 2017
Fieldwork	April 2017 – July 2017
Data QA/QC	August 2017 – September 2017
Data Analysis and Reporting	October 2017 – December 2017

### 1.1.6 Level of Effort and Cost

Based on the work effort described above, DWR estimates the current cost to complete this Study will range between \$42,000 and \$55,000.

### 1.1.7 References

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. *The Jepson manual: vascular plants of California*, second edition. University of California Press, Berkeley.

California Department of Fish and Game. 2009. Protocols for surveying and evaluating impacts to special status native plant populations and natural communities. November 24, 2009. Available online at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959>

California Department of Fish and Wildlife (CDFW). 2015. California Natural Diversity Database. RareFind Version 5. Available online: [nrmsecure.dfg.ca.gov/cnddb/view/query.aspx](http://nrmsecure.dfg.ca.gov/cnddb/view/query.aspx). Accessed July 31, 2015. Last updated July 7, 2015. California Department of Fish and Wildlife, Biogeographic Data Branch. Sacramento, CA.

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U.S. Forest Service. 2008. USFS' Threatened, Endangered and Sensitive Plants Element Occurrence Field Guide.

U.S. Fish and Wildlife Service. 2000. Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants. January 2000. Available on-line at: [http://www.fws.gov/ventura/speciesinfo/protocols\\_guidelines/](http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/).