DEVIL CANYON PROJECT RELICENSING
FERC PROJECT NUMBER 14797

INTEGRATED VEGETATION MANAGEMENT PLAN

November 2019

State of California
California Natural Resources Agency
DEPARTMENT OF WATER RESOURCES
Hydropower License Planning and Compliance Office

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COMMONLY USED TERMS, ACRONYMS & ABBREVIATIONS

BMP	Best Management Practices
Cal-IPC	California Invasive Plant Council
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CNPS	California Native Plant Society
DPR	California Department of Parks and Recreation
DWR	California Department of Water Resources
ESA	Endangered Species Act of 1973, as amended
FERC	Federal Energy Regulatory Commission
GIS	Geographic Information System
GPS	Global Positioning System
IVMP	Integrated Vegetation Management Plan
NEPA	National Environmental Policy Act
NFS	National Forest System
NNIP	non-native invasive plant
O&M	operations and maintenance
Project	Devil Canyon Project Relicensing, FERC Project Number 14797
SBNF	San Bernardino National Forest
SWP	State Water Project
U.S.	United States
USFS	U.S. Department of Agriculture, Forest Service
USFWS	U.S. Fish and Wildlife Service

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1.0 INTRODUCTION

1.1 OVERVIEW

This is an Integrated Vegetation Management Plan (IVMP) for the management of terrestrial vegetation within the Federal Energy Regulatory Commission (FERC) Project boundary[1] of the California Department of Water Resources' (DWR) Devil Canyon Project Relicensing, FERC Project Number 14797 (Project), which includes hydroelectric facilities, access roads, staging areas, Project recreation areas, rights-of-way, and other appurtenant facilities as described in Exhibit A of the license application. This plan has been prepared in coordination with the San Bernardino National Forest (SBNF), the California Department of Parks and Recreation (DPR), and the California Department of Fish and Wildlife (CDFW). The IVMP addresses management of vegetation within the Project boundary, and there are specific requirements that are referenced in the plan for those parts of the Project on National Forest System (NFS) lands as well as on State lands which DPR manages as part of the Silverwood Lake State Recreation Area (SRA). Any specific SBNF and DPR requirements apply only to the lands under the management of each respective agency. This plan is not intended to replace or change those agencies' applicable requirements with regard to land and resource management, but rather, assumes that implementation of the IVMP on those lands are consistent with applicable SBNF and DPR requirements.

1.2 PROJECT LOCATION AND DESCRIPTION

The Project is part of a larger water storage and delivery system, the State Water Project (SWP), which is the largest state-owned and operated water supply project of its kind in the United States. The SWP provides southern California with many benefits, including an affordable water supply, reliable regional clean energy, opportunities to integrate green energy, accessible public recreation opportunities, and environmental benefits. The Project is a power recovery project that operates on the southern end of the East Branch of the SWP in the County of San Bernardino, California, between the Cities of Hesperia and San Bernardino (Figure 1.2-1).

Project facilities include Cedar Springs Dam, Silverwood Lake, San Bernardino Tunnel intake, San Bernardino Tunnel and Penstocks, Devil Canyon Powerplant and Switchyard, Devil Canyon Afterbay, Devil Canyon Second Afterbay, recreational facilities, and appurtenant facilities (Figure 1.2-2). The Project area consists of all lands within the Project boundary that were included in the new license.

[1] For the purposes of this plan, the Project boundary is as defined in DWR's Application for New License (see Exhibit G of the license application).

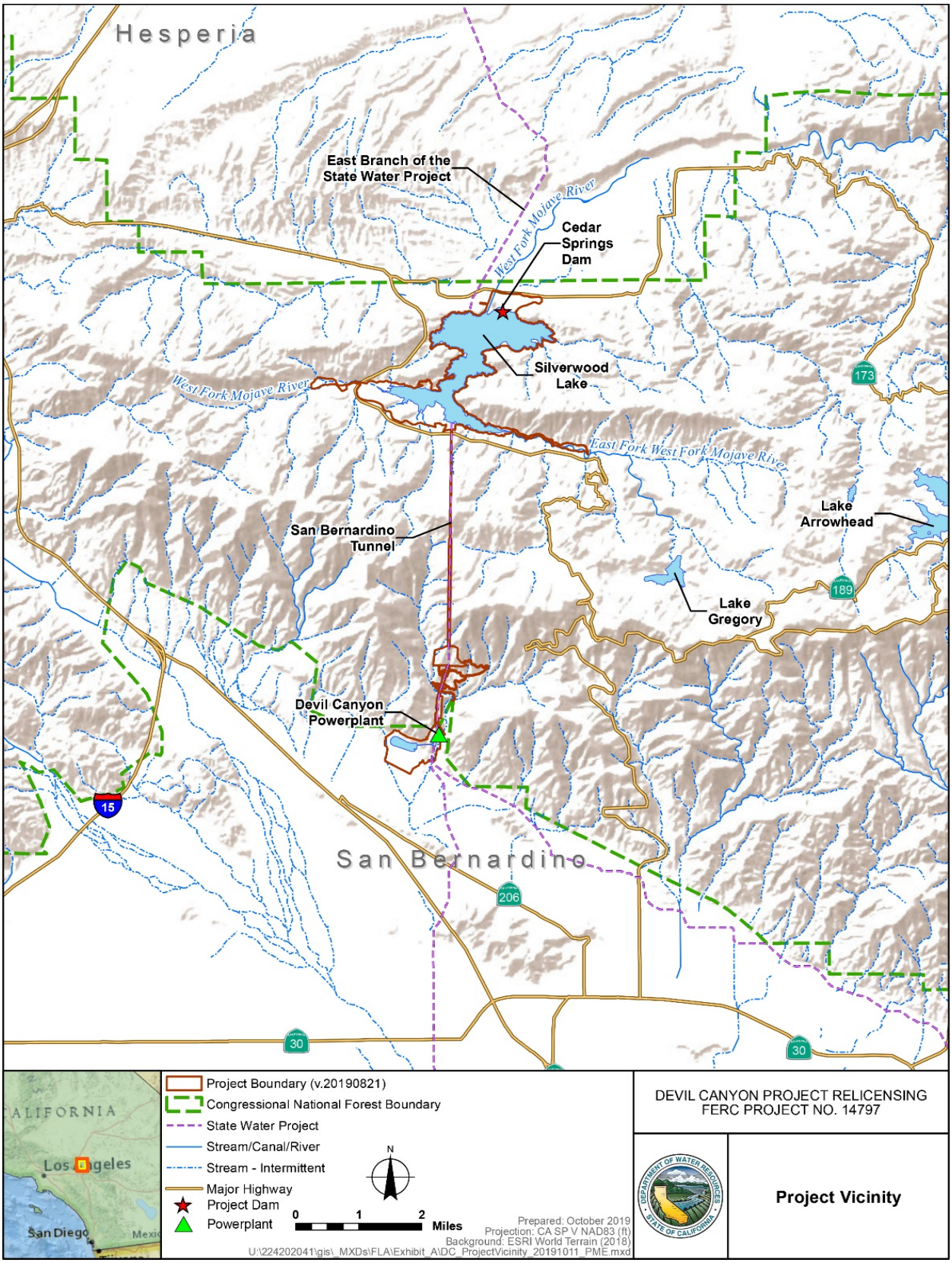

Figure 1.2-1. Devil Canyon Project Vicinity

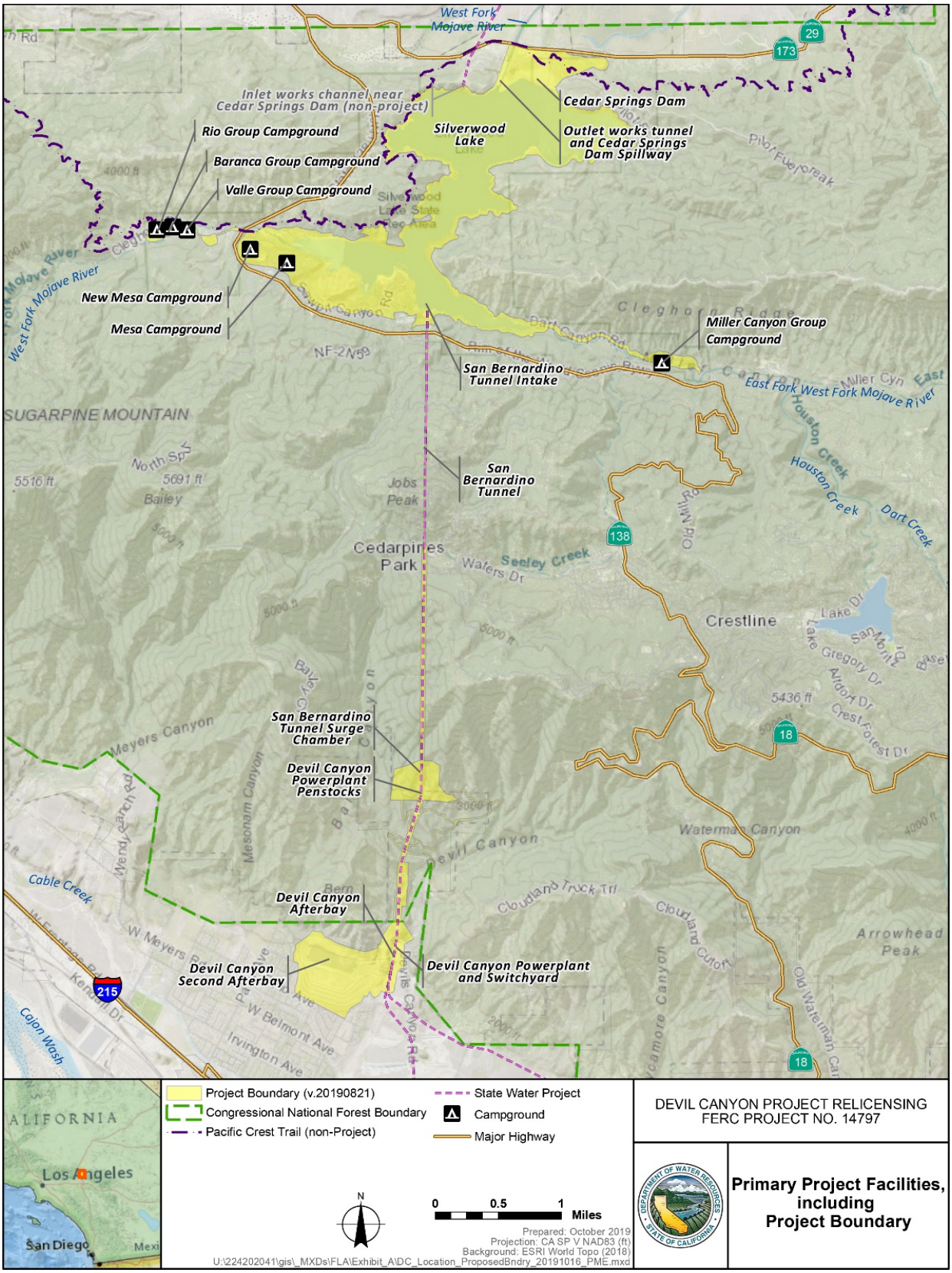

Figure 1.2-2. Land Ownership and Location of the Devil Canyon Project

1.3 PURPOSE OF THE INTEGRATED VEGETATION MANAGEMENT PLAN

This plan provides guidance for the management of terrestrial vegetation within the Project boundary, which includes the implementation of protection measures for special-status plant populations and sensitive natural communities, as well as guidance for vegetation management related to Project O&M activities within the Project boundary. The plan area consists of lands within the Project boundary that are reasonably accessible.

This plan is to be used in conjunction with other resource management plans pertaining to Project resources, as coordinated by DWR. These plans will consider the need to avoid or minimize disturbance to sensitive areas. Sensitive areas, as defined for the purpose of this IVMP, include areas of known special-status plants and wildlife, areas of known sensitive natural communities (including riparian zones and wetlands), and other predetermined areas with significant resources (i.e., cultural and tribal resources, culturally sensitive plant species).

More specifically, the purpose of this IVMP is to facilitate the integrated management of vegetation with several factors related to operation of the Project, including:

- Facility reliability, including powerline safety and reliability regulations
- O&M demands
- Staff and public safety
- Federal regulations governing special-status species protection
- Recreation management
- Vegetation fuels management
- Non-native invasive plant (NNIP) management
- Herbicide Best Management Practices (BMP)

1.4 GOAL AND OBJECTIVES OF THE INTEGRATED VEGETATION MANAGEMENT PLAN

The goal of this plan is to provide a terrestrial vegetation management framework that includes identifying, assessing, monitoring, and controlling NNIP within the Project boundary for the duration of the license. The following six objectives are critical to the success of reaching this goal:

1. Manage NNIP through prevention of the introduction, establishment, and spread of new NNIP, and the control of known infestations.

2. Provide guidance to protect known special-status plants and sensitive natural communities that could be affected by future Project O&M and other activities.

3. Provide guidance for vegetation management related to future Project O&M.

4. Revegetate natural landscapes disturbed by Project O&M activities, conserve native vegetation resources, reduce soil erosion, and monitor these efforts.

5. Apply herbicide using BMPs.

6. Provide guidance for protection of sensitive areas from the effects of vegetation management activities.

With the varying ownership there can be different regulatory requirements regarding vegetation management that would apply. Refer to Figure 1.2-2 for land ownership in the Project boundary. For example, on NFS lands, approvals for NNIP control efforts will follow all U.S. Department of Agriculture, Forest Service (USFS) guidance, in addition to the relevant federal, State, and local regulations relating to herbicide applications that are applicable to all other lands.

1.5 PROTOCOLS

Baseline botanical surveys conducted for the Project relicensing followed protocols detailed in the *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (U.S. Fish and Wildlife Service [USFWS] 1996 or most current) and *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities* (CDFW 2009, 2018c). Surveys included data collection on NFS lands that required completing CDFW's California Natural Diversity Database forms and USFS' Threatened, Endangered, and Sensitive Plant Occurrence forms. These forms include information regarding relative abundance, phenology, habitat description, habitat condition, and the presence of any NNIP.

Documentation of surveys on NFS lands included completion of USFS data forms for any USFS Sensitive Species, as specified in the USFS Threatened, Endangered, and Sensitive Plants Survey Field Guide (USFS 2005a), and the Threatened, Endangered and Sensitive Plants Element Occurrence Protocol Field Guide (USFS 2005b). Special-status plants and natural communities identified during the 2017 baseline botanical surveys were documented using a Global Positioning System (GPS) unit. All data collected was reviewed in a Geographic Information System (GIS) database.

Protocols for any future botanical surveys would utilize the most up to date methods from CDFW, USFWS, and/or USFS, where applicable. In order to maintain a complete dataset, data from new methods or protocols will remain compatible with data previously collected under this plan.

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2.0 NON-NATIVE INVASIVE PLANT MANAGEMENT

2.1 NON-NATIVE INVASIVE PLANTS WITHIN PROJECT BOUNDARY

Surveys for target NNIP were completed in 2017, along with a comprehensive and systematic botanical inventory, within the Project boundary (where accessible) in support of the Project relicensing. A total of 177 occurrences of 13 target NNIP species were observed during field surveys. These occurrences are summarized in Appendix A, as presented in Table A.1-1 and Table A.1-2, and depicted on Figures A.1-1 through A.1-5. For occurrences that extended beyond the Project boundary, attributes of the entire occurrence, including estimated numbers of individuals and acreage, were recorded.

2.2 PLANS FOR PREVENTION AND CONTROL OF NON-NATIVE INVASIVE PLANTS

While NNIP are widespread in the area and throughout California in general, there are species that are of certain concern to various regulators and advisors throughout the State. A list of species was compiled by looking at the various species that the California Department of Food and Agriculture (CDFA), California Invasive Plant Council (Cal-IPC), and USFS have recorded in the local area. This list will be concurrently updated with revisions from the previously listed agencies prior to survey activities during the term of the new license. Target species are outlined in Appendix A, Table A.1-2.

Target NNIP for treatment within the Project boundary are CDFA A-, B-, C-, and Q-rated weeds; Cal-IPC high- or moderate-ranked weeds; and those designated by USFS, where they occur on NFS lands. CDFA keeps track of NNIP for their invasiveness and potential to spread explosively in agricultural settings such as rangelands, row crop farms, and orchards. Cal-IPC maintains a separate list from CDFA for “Exotic Pest Plants of Greatest Ecological Concern in California.” Rather than focus on agricultural pests, Cal-IPC is concerned about NNIP species that have the potential for serious impacts to wildlands and native ecosystems. Additionally, USFS compiled a list of NNIP known, or suspected, to occur in its National Forest.

This plan complies with the direction contained within USFS Manual, Section 2900, Invasive Species Management (USFS 2011 or most current). That direction includes initiating, coordinating, and sustaining actions to prevent and control priority infestations of invasive species in terrestrial areas of the NFS that are affected by Project O&M activities using an integrated pest management approach. The plan for control of NNIP within the Project boundary is based on four principal elements:

1. BMPs
2. Surveying and documentation
3. Control of existing infestations

4. Long-term monitoring

2.2.1 Best Management Practices

The following BMPs will be utilized with the objective of minimizing the potential for the introduction and spread of NNIP by Project O&M activities. They will coincide with information, measures and guidelines outlined in local USFS biological opinions and National Environmental Policy Act (NEPA) documents where applicable. Specifically, the BMPs will be used by DWR and its contractors working within the Project boundary. Note that exceptions may occur in unusual or time-sensitive circumstances (i.e., emergency maintenance and repairs). BMPs used in other circumstances (i.e. construction, stormwater) may differ from those identified in this plan. The use of BMPs is dynamic and may change or be modified depending on the circumstances, present knowledge, and current technology.

1. Minimize ground disturbance, especially during routine O&M activities. When soil must be moved or stockpiled, DWR will grade the soil to match local contours if the soil is not just being stockpiled temporarily and mulch and/or reseed the disturbed areas with certified weed-free and/or plant materials native to the region.

2. Where possible, restrict travel to established roads, previously disturbed bare areas, and motorized trails, and avoid traveling through areas with known NNIP occurrences. When possible, staging and laydown areas will be in areas known to be weed-free. If travel or staging within an NNIP infestation area cannot be avoided, to the extent feasible, conduct work in NNIP-free area(s) first and clean equipment (e.g., brush tires and/or undercarriages of off-road equipment) after working in infestation areas.

3. Construction equipment that has been used offsite or off road at another site will be cleaned to the extent practical before entering the Project boundary. This is to minimize the risk of establishment by new NNIP through dispersal of seeds and plant fragments.

4. Certified weed-free straw/mulch will be used for all construction, erosion control, or restoration needs, and gravel and sand from weed-free sources (as directed by USFS on NFS lands) will be used where possible.

5. When feasible, DWR will not leave stockpiles from proposed ground disturbance activities of soil uncovered for longer than one month. In general, stockpiles left in place longer than one month will be covered with tarps and plastic to prevent plant growth. DWR will seed topsoil stockpiles when the stockpiles will remain in place for longer than two months to maintain soil microbe health and to help prevent the establishment of NNIP. All topsoil stockpiles will be seeded with commercially available native plant seeds local to the area.

6. DWR will consult with appropriate land management agency specialists and follow applicable procedures, as appropriate, at least one month prior to the

Agency Consultation Meeting (see Section 6.2, Agency Consultation) to determine the appropriate plant material that complies with current guidelines. For areas where fill is required, DWR will use fill material collected onsite where available and revegetated with locally collected plant material if feasible or a commercially available local native seed mix reflective of the affected habitat type.

7. In general, a draft of site-specific revegetation activities will be developed before ground-disturbing actions larger than 0.25 acres. If the ground-disturbing actions occur on NFS lands, DWR will work with USFS to develop a revegetation plan if a revegetation plan has not been provided by USFS. Revegetation and seeding of disturbed areas, including topsoil piles and berms, will commence within 30 to 60 days following completion of construction or ground-disturbing activities related to Project O&M, or as soon as possible during the appropriate season, unless otherwise agreed to by USFS in the Agency Consultation Meeting. In some situations, seeding in the fall may be preferred due to timing of rainfall and the type of plant species involved with revegetation activities.

8. Erosion control materials that do not pose an entanglement risk to wildlife will be used. All fiber rolls and/or erosion control mesh will be made of loose-weave mesh that is not fused at the intersections of the weave, such as jute or coconut (coir) fiber, or other products without welded weaves. Non-welded weaves reduce entanglement risks to wildlife by allowing animals to push through the weave, which expands when spread.

9. Erosion control BMPs will not pose a risk or barrier to wildlife movement and will be installed to allow for the safe passage of wildlife movement, particularly less agile species (such as small mammals and reptiles), out of the project area. Long, continuous lengths of silt-fencing or other erosion control BMP materials installed without gaps can create a barrier to wildlife movement, trapping animals within the project area. Areas of safe passage can be easily accommodated by leaving small gaps between parallel and overlapping lengths of erosion control BMPs.

2.2.1.1 USFS Recommended BMPs

In addition to the BMPs mentioned above, USFS recommended BMPs outlined in the *National Best Management Practices for Water Quality Management on National Forest System Lands* (USFS 2012) that may be applicable in certain situations on NFS lands. The names and objectives of these BMPs are described in Appendix B, with specifics for implementation of these BMPs found within the aforementioned document.

2.2.2 Surveying and Documentation

Current information on known locations of target NNIP within the Project boundary was developed from comprehensive botanical surveys in 2017 (Table 2.1-1). The NNIP surveys documented species' composition, location, and relative abundance. DWR will

use the results of the NNIP surveys as a baseline inventory of the existing target NNIP within the Project boundary.

2.2.3 Control Measures for Existing Populations

Where contiguous NNIP occurrences extend beyond the Project boundary by up to 50 feet (the visual limits of the 2017 botanical surveys), DWR, DPR, and USFS (when also on NFS lands) will coordinate to develop a schedule and identify the appropriate level of control measures for such populations. This is intended to manage existing populations of target NNIP populations that are in areas where there is a high potential for Project-related disturbance and/or dispersal to areas beyond the existing occurrence. This may include plans for DWR, DPR, and USFS to cooperatively manage existing known target NNIPs, as DWR would not have sufficient information about NNIP populations extending beyond the Project boundary. Control measures may include but are not limited to manual methods (manual pulling, hoeing), mechanical methods (such as mowing, grubbing), and chemical methods (herbicides). Results and methods of the plans will be tracked and analyzed to help determine which methods are most successful for each target species. DWR will assess the use and appropriateness of control methods on a case-by-case basis.

Target NNIP will be designated for active management efforts aimed at eradication of small occurrences and control of larger ones on lands within the Project boundary in those cases where the occurrence poses a threat to other resources, such as special-status wildlife species. In general, emphasis will be placed on the feasibility of successful control of a given NNIP species, and the threat posed by the occurrence. This will be done on a case-by-case basis. For instance, it is not possible to completely eliminate a widespread species such as yellow star-thistle, therefore control measures rather than elimination measures are the most feasible in this case. However, if yellow star thistle occurs next to a special-status plant species, elimination measures may be more feasible to prevent the yellow star-thistle from outcompeting the special-status plant for resources. NNIP populations that do not pose a threat to other resources will not be targeted for eradication. Control and containment of NNIP will be reviewed at the Agency Consultation Meeting. Site-specific circumstances may dictate deviations from these guidelines.

2.2.4 Long-Term Monitoring

As described in Sections 1.5 and 2.1 (above), comprehensive baseline botanical surveys were completed in 2017. NNIP occurrences posing a threat to sensitive resources and other resources, including Project facilities, and to public safety will be treated with appropriate control methods as discussed in Section 5.0. This will be conducted according to a schedule that treats and/or monitors NNIP occurrences in phases, with treatment priority given to NNIP occurrences that pose the greatest threat to sensitive resources and other resources and public safety, and/or are most likely to facilitate the spread of NNIP species into other areas within the Project boundary. Some low priority NNIP occurrences that do not pose a threat to sensitive resources and other resources or to public safety may only necessitate monitoring. This NNIP schedule and

phasing plan will be developed within two years of license issuance and will be discussed as part of the Agency Consultation Meeting (see Section 6.2). Following initial treatment, and if revegetation is determined necessary, occurrences will be monitored annually for three years, beginning with the first year of application of control treatments (generally within 30 days of treatment). In areas treated on NFS lands, any resulting weed record will need to be collected in a manner that is consistent with the USDA *National Resources Inventory* (USDA 2015) to allow for tracking of control efforts. Over time, during the three years, if monitoring results show declining or complete eradication of NNIP populations in the treatment area, the frequency of monitoring may be reduced or eliminated. Conversely, during the three years, if monitoring results show no change or an increase of NNIP populations in the treatment area, DWR will consult with the appropriate resource agencies during the Agency Consultation Meeting.

DWR will evaluate the need to update the inventory every 5 to 10 years based on available information at the time of the evaluation. If surveys are warranted, they will target NNIP populations in areas where there is a high chance for disturbance and/or dispersal, such as the recreation areas or areas that are disturbed by frequent Project O&M activities.

2.2.5 Adaptive Management

Weed management techniques will and could change over time in response to new data, techniques, and scientific research. New data from research and agency-developed methods should be incorporated into the decision-making process to identify the use and application of new techniques for this plan. Results from monitoring data (weed control measures) will be entered into a central database and used to inform future management decisions. Where available, new more efficient techniques will be incorporated into the adaptive management program.

This plan may be modified or amended as resources are added or removed from sensitive species lists, survey protocols are changed, or new survey technology emerges. In order to maintain a complete dataset, data from new methods or technology will be compatible with data previously collected under this plan. All data will be stored in a central DWR database.

2.3 VARIATIONS IN TREATMENT ON SAN BERNARDINO NATIONAL FOREST LANDS

NNIP will be controlled on NFS lands within the Project boundary where feasible. On NFS lands, approvals for control efforts will follow all USFS guidance (USFS 1994, 2013) including local USFS Biological Opinions and NEPA documents.

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3.0 SPECIAL-STATUS PLANTS, SENSITIVE NATURAL COMMUNITIES, AND CULTURALLY SENSITIVE PLANT MONITORING

3.1 SPECIAL-STATUS PLANTS, SENSITIVE NATURAL COMMUNITIES, AND CULTURALLY SENSITIVE PLANT SURVEYS

In 2017, DWR conducted comprehensive floristic surveys and mapped locations of special-status plant populations and sensitive natural communities within the Project boundary. The surveys included: (1) determining presence of any special-status plants or natural communities; and (2) revising previously documented special-status plants or natural communities. Results of the surveys are included in Appendix C.

Special-status plants are defined as the following:

- Listed as a USFS sensitive species and occurs on NFS lands;
- Listed under the California Endangered Species Act (CESA) as an endangered, threatened, or rare plant;
- State-listed rare or a State candidate for listing species under the Native Plant Protection Act of 1977 (CDFW 2018a);
- Listed by the California Native Plant Society (CNPS) on its Inventory of Rare and Endangered Plants, including species that are rated as CNPS 1A through 4B; or
- Listed as federally threatened or endangered under the federal Endangered Species Act (ESA), or as candidates or species proposed for listing under the ESA.

Sensitive natural communities are defined as: listed by CDFW as sensitive in the California Natural Community List (CDFW 2018b).

Culturally sensitive plants are defined as the following: a concentration of a specific plant species and/or plant gathering or collection areas as identified by a Native American tribe to be culturally significant. A list of species important to the San Manuel Band of Mission Indians was provided to the botanical group for survey purposes, but is not referenced due to the sensitive nature of the information, which is considered to be Privileged, and provided only to those on a need to know basis.

3.1.1 Survey Area

The Project boundary comprises 2,079.2 acres, of which 125.7 acres are NFS lands managed by USFS as part of the SBNF. Most of these federal lands within the Project boundary are located in a small area at the top of the Devil Canyon Powerplant penstocks and include the surge chamber. Other NFS lands surrounding the Project boundary include the area on the west side of Silverwood Lake (west of State Highway 138), and the San Bernardino Tunnel. The survey area for the 2017 relicensing studies,

where a baseline inventory of NNIP and botanical resources were completed, occurred within the Project boundary, excluding the area above the San Bernardino Tunnel.

3.1.2 Survey Frequency

3.1.2.1 Baseline Botanical Inventory Surveys

Between April 4, 2017 and June 16, 2017, DWR conducted a comprehensive botanical inventory of the entire area within the Project boundary under the new license, excluding the area over the San Bernardino Tunnel, to identify locations of special-status and culturally sensitive plant species. See Exhibit E of the license application for details of methodology and results of the study. No Project O&M activities occur in the area over the San Bernardino Tunnel because the tunnel is underground. No federal ESA- or CESA-listed plant species were observed in surveyed areas.

3.1.2.2 Future List Review and Surveys

Beginning in the second calendar year after license issuance, a biennial desktop review of current USFWS, CDFW, CNPS, USFS, and San Manuel Band of Mission Indians (confidential) lists of special-status plants potentially occurring within the Project boundary will be conducted. In the event a species is newly listed by the USFWS, CDFW, CNPS, USFS, or San Manuel Band of Mission Indians, DWR will confer with the appropriate resource agency to determine if the species is likely to occur within the Project boundary. If a newly protected species is likely to occur within the Project boundary, DWR will assess the potential for the species to be affected by planned maintenance or other ground-disturbing activities, and implement appropriate surveys or resource protection measures, if necessary.

If incidental observations of special-status plants and sensitive natural communities occur during NNIP monitoring, DWR and contractor observations, or pre-construction/pre-disturbance surveys will be recorded to identify if any of these resources are within areas of potential disturbance. In the event that a newly identified special-status plant species is observed, the location (latitude and longitude), number of individuals, and percent cover will be recorded. If the observed species is not located within an area where routine O&M or Project-related recreational activities occur, the location will be noted in a central database and will be surveyed during inventory updates every 5 to 10 years. If the observation is within an area where regular O&M or Project-related recreation typically takes place, surveys will be conducted to determine the extent of the newly observed special-status plant species or sensitive natural community in the Project boundary.

3.2 SPECIAL-STATUS PLANTS, SENSITIVE NATURAL COMMUNITIES, AND CULTURALLY SENSITIVE PLANTS WITHIN PROJECT BOUNDARY

Forty-three occurrences of three different CNPS-listed species were observed during the 2017 baseline botanical surveys, as summarized in Table C.1-1, and depicted in Figures C.1-1 through C.1-3. None of the species is listed under the ESA, CESA, or USFS Special-Status Species lists. All have been assigned a California Rare Plant

Rank of 4.2, which denotes plants of limited distribution that are moderately threatened in California (defined by CNPS as “20 to 80 percent occurrences threatened, with a moderate degree and immediacy of threat”) (CNPS 2018). In addition, during other DWR relicensing studies, there were no incidental observations of special-status plants.

One occurrence of a sensitive natural community was observed during field surveys: valley foothill riparian, as depicted in Figures C.1-4 through C.1-5. This community is generally characterized by wetland trees and shrubs along or within water bodies. In general, this community is located in relatively isolated areas not likely to be affected by future Project O&M activities as discussed in the license application (see Exhibit E).

Although some plant species on the San Manuel Band of Mission Indians’ list were identified within the study area during the *Botanical Resources Study* survey, no locations specific to tribal collection were identified during the *Tribal Resources Study* (Lerch and Swope 2019) conducted as part of the relicensing. Therefore, no locations of culturally sensitive plants requiring avoidance or other management measures have been identified at this time. However, it is possible that plant gathering areas may be defined as such during the term of the new license by the San Manuel Band of Mission Indians or other Native American tribes. Should such plant gathering areas be identified by a participating tribe during the term of the new license, DWR will consult with the tribe and will coordinate with DPR where applicable, to determine the appropriate management measures for any location identified prior to implementing herbicide use or ground-disturbing activities as part of the IVMP.

Although this IVMP provides for protective measures of plants with a CNPS ranking of 1 or 2 and plants that fall within one or more of the other categories of special-status plants defined in Section 3.1 management of plants with a CNPS ranking of 3 or 4 will consist of biennial review during the special-status species list reviews described in Section 3.1.2.2 and monitoring. In the event that a species currently listed with a CNPS ranking of 3 or 4 is elevated to a ranking of 1 or 2, or one of the other categories of special-status plants defined in Section 3.1 of this IVMP, they will then be managed as such in the manner described in this IVMP.

3.3 DISTURBANCE MONITORING

3.3.1 Regular Disturbance Activities

As of the 2017 surveys, no special-status plants listed under the ESA, CESA, USFS, or sensitive natural communities have been documented in areas that would be disturbed by regular Project O&M activities. The three CNPS plants species ranked as 4.2 observed during surveys are not listed under the ESA, CESA, or USFS. Therefore, no effects are expected to occur to ESA, CESA, USFS special-status plants, or sensitive natural communities due to continued Project O&M activities.

3.3.2 Future Disturbance Activities

For future scheduled O&M activities (i.e., non-emergency, ground-disturbing construction activities) that will be conducted near documented special-status plant or

sensitive natural community occurrences, including riparian/wetland zones, a pre-construction assessment and construction monitoring will be conducted. The planned disturbance areas will be defined, mapped, and cross-referenced with the GIS database containing known sensitive resources. To avoid and minimize impacts to special-status plants and communities documented within the Project boundary, the following actions will be implemented:

- A protective buffer with flagging will be installed around sensitive plants and natural communities within the Project boundary and no vegetation removal activities will take place within the buffer. Buffer sizes for documented sensitive plants and natural communities include:
    - 10 feet for CNPS ranked plants 1A through 2B
    - 25 feet for upland sensitive natural communities
    - 100 feet for riparian, wetland, and wet meadow habitats

Although no ESA, CESA, or FSS species were identified during the 2017 surveys, in the event that a plant with these listings is incidentally identified or identified during a pre-construction assessment and is within an area that will be disturbed by O&M, a 25-foot buffer of protective flagging will be installed and no vegetation removal or disturbance activities will be performed within the buffer. In the event that CNPS 1A through 2B plant species are incidentally identified or identified during a pre-construction assessment and is within an area that will be disturbed by O&M, a 10-foot buffer of protective flagging will be installed and no vegetation removal or disturbance activities will be performed within the buffer. In the event that sensitive resources, including special-status wildlife[2] are known, observed, or expected to occur and could potentially be affected by a specific O&M activity, DWR will establish an exclusion buffer with flagging that is adequately sized to protect the species. Should DWR determine that the buffer size is not adequate to avoid sensitive resources impacts, DWR will consult with CDFW and USFWS to identify appropriate minimization measures. Note that should an O&M activity that was not considered under the relicensing ESA consultation result in the potential to adversely affect any federal ESA or CESA/FP species, DWR will consult with the appropriate resources agency. Disturbance areas near sensitive areas will be monitored during the activity to reduce the potential for the Project to impact special-status plant populations, sensitive natural communities, or riparian/wetland zones occurred as a result of the disturbance. Disturbance to a resource can include events such as eliminating special-status plant individuals, encroaching on wetland/riparian boundaries, and/or increasing the density of NNIP. Documentation of such events will

[2] Special-status wildlife discussed in this section meet at least one of the following criteria: (1) listed under federal ESA as threatened, endangered, or candidate, (2) listed under CESA as threatened, endangered, or candidate, (3) classified as Fully Protected (FP) by the State of California; (4) listed by the CDFW as a Species of Special Concern (SSC) (CDFW 2018a); (5) listed as FSS and occurring on NFS lands (USFS 2013); or (6) protected under the Bald and Golden Eagle Protection Act (16 United States Code 668-668c).

be included as part of the monitoring activities. Sites that warrant revegetation will begin revegetation efforts within 30 days, or as soon as feasible depending on weather, seasonality, or other considerations affecting the success of the effort. Post-construction revegetation monitoring will commence within 30 days of construction and will continue on a yearly basis for up to three years. The subsequent annual monitoring will take place during the time when the resource is identifiable (i.e. blooming period). Monitoring will occur at resource locations identified by qualified staff in the most recent comprehensive surveys that are within or adjacent to the disturbance activity. Post-construction revegetation monitoring may be coordinated with other surveys if they take place concurrently.

If the disturbance and associated revegetation monitoring coincides with the blooming period of the documented resource (or the area is re-assessed within one year to capture the appropriate time of year), recorded information will include:

- Subjective assessment of the population or vegetation community's health, viability, or changes from observations during previous comprehensive survey(s); and

- Measured changes in size of the population or vegetation community (geographic extent or number of individuals).

If the disturbance and associated monitoring is conducted outside of the blooming period of the documented resource (or at a time when the resource is either not identifiable or present above-ground), data collected will follow the same measures as much as feasible given the phenology. Should there be a disturbance within the exclusion area, the appropriate resource agency will be contacted to identify appropriate measures and at a minimum, data will be collected that includes the resource type and the amount of disturbance occurred within the flagged area.

If a previously unknown sensitive resource is observed during vegetation management planning or implementation, depending on the species involved and the land ownership, the appropriate agencies (e.g., USFS, CDFW) will be notified as soon as reasonably possible.

3.4 SPECIAL-STATUS PLANTS AND SENSITIVE NATURAL COMMUNITIES PROTECTION

Multiple measures will be used to protect special-status plants, sensitive natural communities, and riparian/wetland zones within the Project boundary during O&M activities, including vegetation management, and to avoid or minimize significant adverse effects. Specifically:

- CDFW, DPR (on land within the SRA), and USFS (on NFS lands) will be consulted in the development of specific usage plans for areas surrounding known occurrences of sensitive natural communities and sensitive resources

areas. This includes any impacts to the bed, bank, or channel of a lake or stream requiring CDFW notification and consultation.

- Employee training with appropriate staff (employees and contractors) will be conducted every two years and as appropriate, and will include information on recognition of special-status plant species and the location of existing occurrences of sensitive resources and areas to be avoided (including sensitive natural communities and riparian/wetland zones)

- Flagging will be installed to facilitate avoidance of sensitive areas within a site and resource-specific buffer prior to any vegetation management activities, including management for target NNIP

- Manual activities (e.g., utilizing hand tools) will be encouraged, where reasonable, in sensitive areas

Emergency work is exempt from the measures above. However, DWR will work with CDFW and/or USFS (if applicable) to ensure that routine vegetation management occurs with implementation of these protection measures. In addition, as soon as the emergency has been addressed, regular sensitive resource protection measures will resume. Where it is not possible to implement these measures during emergencies, any known sensitive botanical resource issues will be reported to the appropriate resource agencies with the initial notification by phone within 3 days, with detailed reporting and/or any applicable reports being submitted as soon as possible. Sensitive resource disturbances on NFS lands will also be reported to USFS. The reports will include the location and types of emergency activities that were conducted within sensitive resource areas. If disturbance occurs within a sensitive resource area, DWR will work with USFS on NFS lands and CDFW on State and private lands to determine any necessary mitigation measures (e.g., if substantial disturbance, a mitigation plan may be required; if minor disturbance, corrective actions may be discussed at the Agency Consultation Meeting).

Emergency work includes, but is not limited to, emergency repairs to Project facilities necessary to maintain service essential to the public health, safety, or welfare. Emergency repairs include those that require a reasonable amount of planning where delay of a project or activity would result in substantial safety or environmental impacts. Furthermore, emergency projects include specific actions necessary to prevent or mitigate an emergency. Emergency projects or activities do not include long-term projects undertaken for the purpose of preventing or mitigating a situation that has a low probability of occurrence in the short-term.

4.0 VEGETATION MANAGEMENT RELATED TO PROJECT OPERATIONS AND MAINTENANCE

4.1 REVEGETATION

Revegetation is the process of reestablishing vegetation cover in disturbed areas and is a standard component of Project O&M and other construction activities. Revegetation includes erosion control, site restoration, and replanting. The main functions of revegetation are to conserve native plant resources, reduce soil erosion, and restore wildlife habitat.

Certain Project areas such as the Cedar Springs Dam face must remain free of vegetation and will not undergo revegetation. Some public use areas and other developed areas that contain existing ornamental landscaping and hardscape will also not be revegetated with native plants. Sites that are subject to continual disturbance (e.g., berm roads) or where bare ground needs to be maintained (e.g., firebreak clearances around transmission poles) will not be subject to revegetation under this IVMP. Sites subject to disturbances that are not Project-related will also not be revegetated. Legacy sites – areas that are not deliberately kept unvegetated, but have not naturally revegetated prior to license issuance – will not be subject to revegetation.

Revegetation objectives include the following:

- Native vegetation cover is within 20 percent absolute cover when compared to similar sites on the adjacent undisturbed area. Revegetation within areas where NNIP are present will keep/reduce NNIP to low levels, with the following guidelines:
    - If the area adjacent (i.e. within 50 feet) to the revegetation site contains less than 25 percent cover of NNIP, revegetation will be considered acceptable when the cover of NNIP on the revegetation site is equal to or less than five percent
    - If the area adjacent to the revegetation site contains 25 to 50 percent cover of NNIP, revegetation will be considered acceptable when the cover of NNIP on the revegetation site does not exceed 10 percent
    - If the area adjacent to the revegetation site contains more than 50 percent cover of NNIP, revegetation will be considered acceptable when the cover of NNIP on the revegetation site does not exceed 25 percent
- Reduce potential for significant erosion and the delivery of sediment to channels; rills at the end of revegetation should be eliminated if feasible. If not feasible, BMP measures should be implemented to ensure the rills do not deliver sediment to nearby channels and/or water bodies
- Implement native vegetation that is vigorous, self-sustaining, and contains a diverse mixture of natives that is consistent with the adjacent undisturbed areas

4.1.1 Areas Subject to Revegetation

DWR will evaluate areas of ground disturbance within the Project boundary caused by Project O&M and construction activities on a site-by-site basis to determine if revegetation is necessary or appropriate. Areas subject to revegetation include, but are not limited to:

- Areas over one-quarter acre treated for NNIP that have resulted in bare ground or limited vegetation growth; and
- Areas over one-half acre subject to ground disturbance by Project O&M activities

For routine O&M not affecting sensitive resources, not involving target NNIP infestations, and lacking ground disturbance larger than one-half acre, DWR will follow the revegetation guidelines from Section 4.1.4 of this IVMP without further consultation.

Areas over one-quarter acre treated for NNIP require further revegetation, as NNIP removal often creates gaps or patches of bare soil and can promote further invasion by the same NNIP species or other undesirable plants. Passive revegetation (i.e., allowing revegetation to occur from the native vegetation already present at the site) may be appropriate if the bare patches are small. However, if the treatment site is severely degraded and native plants are absent or in low abundance, active revegetation efforts may be required to promote recovery of the native plant community. NNIP treatment sites requiring revegetation will be identified at the Agency Consultation Meeting following the site evaluations detailed in Section 6.2 of this IVMP.

4.1.2 Evaluating Sites for Revegetation

Prior to ground disturbance within the Project boundary and once DWR has determined a disturbed area may be subject to revegetation (post-disturbance activity), DWR will assess the area to determine size, percent vegetation cover of both native and non-native species, erosion potential, and adjacent plant community composition (i.e., reference site species composition). This will include the following information that will be utilized in Section 4.1.3, Revegetation Planning:

- General site conditions, including slope, terrain, soils, land use, access, and proximity to water
- Proximity to target NNIP occurrences/likelihood of new infestations
- Vegetation community specifics, including species composition, richness, and density
- Site complexity, including the variety of landforms

Once this assessment is completed, the following criteria will be used to determine if revegetation is necessary:

- Slow rate or low likelihood of propagation or spread of nearby native plant species;
- Little or no evidence of successful reproduction of nearby native plant species;
- Low composition or cover of native plant species in the area;
- High percentage of NNIP in the area (25 percent or greater relative cover);
- Adjacent sites within the Project boundary are disturbed as a result of Project O&M; or
- Soil compaction.

If one or more of the above criteria are met, then a plan will be developed for revegetating the site within the Project boundary. If none of the criteria are met, then revegetation at the site will be deemed unnecessary. If the site has not reached the objectives, DWR will consult with the appropriate resource agencies during the Agency Consultation Meeting to identify feasible adaptive management measures. If target native cover is unattainable, the site will be re-evaluated. CDFW (on State lands) and USFS (on NFS lands) will be informed of the adjustment to the success criteria for erosion control, rather than native plant success criteria, given site-specific circumstances.

For events that are considered outside of DWR's control, the criteria for active revegetation will be re-evaluated. The majority of these areas would no longer meet the criteria required for active revegetation. Other remedial actions will be developed, where applicable, including passive revegetation following a wildfire.

4.1.3 Revegetation Planning

Immediately after revegetation of a site has been deemed necessary, and prior to ground disturbance, a draft Revegetation Plan will be developed. Information collected in the initial site assessment (Section 4.1.2) will be used to develop this plan.

For non-routine sites (i.e., sites larger than one-half acre on NFS lands), a Revegetation Plan will be developed for USFS review, if such a plan has not already been provided by USFS. The plan will include site-specific desired conditions, species to be planted, methods for revegetation, site design, soil treatment, success criteria, monitoring plan, target NNIP management, schedule of activities, and remedial actions.[3] USFS will have at least 30 days to review the plan and comment. Comments will be addressed and the final plan will be submitted to USFS for approval and then it will be implemented. If no

[3] USFS currently has site-specific desired condition statements for NFS land, which will be followed in the Revegetation Plans.

response is received from USFS within 30 days, the Revegetation Plan will be implemented as written. When possible, the Revegetation Plan will be developed and submitted to USFS at least 10 days prior to the Agency Consultation Meeting, with the potential for a total of 30 to 60 days for review (i.e., 10 days for review prior to the Agency Consultation Meeting and between 20 to 50 days for review after the meeting). In these cases, comments will be discussed at the Agency Consultation Meeting and provided to DWR in writing for incorporation into the final Revegetation Plan. It should be noted that the timeframe specified above assumes that this timeline is feasible; shorter deadlines may be required and negotiated to complete FERC mandated repairs or maintenance, as dictated by the specific orders or mandates.

For sites smaller than one-half acre on NFS lands, DWR will develop a list of revegetation actions, including species to be planted, methods of revegetation and an implementation schedule. The list of actions will be submitted to USFS for approval within 30 days of any scheduled revegetation action, or within an agreed upon timeframe prior to any scheduled revegetation action. If approved, revegetation will proceed; otherwise, the actions will be revised and resubmitted for approval. If there is no response from USFS within 30 days, DWR will implement the revegetation actions.

4.1.4 Revegetation Methods

On NFS lands, revegetation will be consistent with USFS guidelines for revegetation (USFS 1994, 2013). On all lands, revegetation efforts will commence within 30 days of the completion of ground disturbance activities or as soon as feasible depending on weather, seasonality, or other considerations affecting the success of the effort. Revegetation will begin with site preparation, which, if necessary, may include breaking up soils to reduce compaction and ease seeding and planting. At sites where compaction may be a problem, topsoil (the upper 12 inches of soil, when present) may be removed and salvaged in such a manner as to keep it usable for replanting. If topsoil is to remain in place for longer than one month, it will be stored in a manner to maintain soil microbe health and prevent NNIP establishment. At some sites, amendments, such as compost or fertilizer, may be added to the soil. In sites that are being seeded, seeding will take place a few days after topsoil is replaced, or soon thereafter as reasonably practicable during the appropriate season (i.e., prior to the rainy season).

The selection of appropriate species for revegetation is dependent upon a number of different factors, including site-specific management objectives, physical characteristics of the site, seed availability and cost, genetic makeup, and species morphology and ecology. DWR will coordinate with DPR on the proposed plant pallets, and will use commercially available native seed mixes collected from the immediate vicinity of the site where feasible or from the regional area that will comprise the same species as those being disturbed by the project.

For sites over one-quarter acre and smaller than one-half acre on NFS lands, DWR will use a native seed mix that is commercially-available and composed of native seed only, which will be reviewed by USFS during the Agency Consultation Meeting. In general,

standard or customized commercially available seed mixes will be used on larger sites greater than one-half acre, as detailed in the site-specific Revegetation Plans or actions. A mixture of seeding techniques may be used and will be described in the individual Revegetation Plans or actions. Seeding rates will be determined based on pure live seed methods and in a mixture to improve seeding success. Seeds will be covered with not more than three times the thickness of the seed. Sites will be covered with mulch from onsite materials (e.g., chipped trees/slash) after seeding, with the intent of covering the surface through germination. If there is no onsite material or an insufficient amount, certified weed free mulch will be utilized.

Larger sites will typically be replanted, where consistent with existing habitat, with a mixture of native trees, shrubs, and forbs. For some sites, it may be feasible to use salvaged plants or seed and stock collected onsite ahead of time. Where salvage is not feasible, purchased native plants will be used. Specifics will be described in detail in the site actions or Revegetation Plans. All plant materials will be handled as little as reasonably possible and protective features for planted vegetation will be installed where necessary.

Seeding of all areas subject to revegetation, including topsoil piles and berms, will commence within 30 days following construction or ground-disturbing activities, or as soon as feasible depending on weather, seasonality, or other considerations affecting the success of the effort.

4.1.5 Revegetation Monitoring

Each revegetation site will be monitored annually for up to three years until criteria from developed actions or plans (per the Agency Consultation Meeting) are met. If, after three years, success criteria are not met, consultation with the appropriate resource agency will take place and remedial measures will be implemented, if determined necessary

Monitoring of revegetation projects may include monitoring vegetation cover, species richness, survivorship, and native and invasive tree and shrub species counts. At the Agency Consultation Meeting, a revegetation monitoring update will be provided..

Based on past wildfire events, it is possible that a revegetation site may be burned from a local wildfire. In the event that a site in the process or designated for revegetation is burned from a wildfire, the revegetated areas will be re-evaluated and active revegetation activities may be abandoned.

4.2 ROUTINE VEGETATION MANAGEMENT

A variety of routine vegetation management activities will be conducted, often driven by regulatory requirements. These measures ensure safe and continued Project operations and include the continued implementation of ongoing fire protection measures to comply with applicable codes and safeguard Project assets. This includes, for example, creating a defensible space around Project structures, as discussed in the Fire Prevention Plan, Recreation Management Plan, Erosion and Sediment Control Plan, Hazardous Materials Plan, and Historic Properties Management Plan which are

provided in DWR's Application for New License. Routine vegetation management activities are enacted while protecting sensitive resources and preventing/minimizing the introduction, establishment, and/or spread of NNIP (see Section 2.0, Non-Native Invasive Plant Management, and Section 3.0, Special-Status Plants and Sensitive Natural Communities Monitoring). Examples of routine vegetation management include facility and transmission line management, road maintenance, hazard tree removal, and recreation site management.

4.2.1 Facility Management

Vegetation will be routinely controlled as required for safety and compliance in the immediate vicinity of Project facilities, including powerhouses, access roads, support facilities, access trails, tunnels, conduits, overchutes, transmission lines, diversions, gages, dam faces, and reservoirs. Activities typically include vegetation trimming or clearing, ditch cleaning, and spraying herbicides. To maintain vegetation control at Project facilities and adjacent areas, mechanical or chemical methods will be utilized. The necessary permissions will be obtained from USFS prior to applying herbicides on NFS lands. Any documented occurrences of special-status plants or sensitive natural communities will be protected from vegetation management at facilities (see Section 3.0, Special-Status Plants and Sensitive Natural Communities Monitoring).

4.2.2 Road Maintenance

Project O&M activities conducted along roads typically include landslide and debris removal, road grading, vegetation trimming and clearing, and culvert cleaning. As much as practical, the timing of these activities will be coordinated such that any scheduled surveys for NNIP or special-status plant species will be completed prior to vegetation clearing and NNIP treatments. Vegetation that occurs along roadsides frequently encroaches into those roads and requires trimming and/or mowing. DWR will take reasonable measures to prevent the potential for cross contamination of equipment used to manage roadside vegetation (free of target NNIP) and target NNIP. Equipment will be cleaned after cutting/mowing the target NNIP as soon as reasonably possible. When areas of dense shrubs are cut/mowed, they will be chipped onsite. However, no documented population of a target NNIP will be chipped.

When mulch is needed for erosion control during road maintenance activities, it is preferable to use mulch from onsite native materials (e.g., chipped trees/slash). Materials should not pose an entanglement risk to wildlife, and the placement should be such that it does not pose a barrier to wildlife movement. If mulch from onsite materials is unavailable, then a certified weed-free mulch will be obtained from other sources, if a weed-free product is commercially available. When mulch is needed to prevent weed establishment along roads, it will have high void spaces (long-fiber mulch), low water-holding capacity and be relatively deep (dependent on the type of weed, a depth of 2 to 4 inches). Material from right-of-way clearing (e.g., road-side brushing) can be shredded (to create long-fiber mulch), but woody NNIP species will not be shredded or used as mulch.

Any documented occurrences of special-status plants or sensitive natural communities will be protected from vegetation management during road maintenance activities (see Section 3.0, Special-Status Plants and Sensitive Natural Communities Monitoring).

4.2.3 Recreation Site Management

4.2.3.1 Special-Status Plants or Sensitive Natural Communities

Any documented occurrences of special-status plants or sensitive natural communities at Project recreation facilities will be protected from recreation site vegetation management activities (see Section 3.0, Special-Status Plants and Sensitive Natural Communities Monitoring).

4.2.3.2 Hazardous Tree Removal

At Project recreation sites, vegetation management activities include the removal of vegetation, hazardous branches, and hazard trees, as identified by DPR and DWR, to facilitate recreation activities, protect public safety, and reduce fire hazards. Hazardous trees will be surveyed for wildlife usage before removal, unless immediate removal is required to protect life and property.

When DWR identifies non-emergency hazard trees, those trees will be surveyed for the presence of bats or their habitat prior to their removal. Each tree will be assessed for their suitability as roosting habitat, using a scoring system of 0-3, with 0 being no suitability and 3 representing trees with signs of bats. Trees will be assessed based on the presence of bats and bat signs (e.g., guano, staining), cavities, sloughing bark, height and size. For trees with a score of 2, a bat emergence survey will be conducted following standard protocol no more than five days prior to tree removal. If bats or bat signs are located at a hazard tree, the tree will not be removed until surveys verify no bats are present. A biological monitor will check the hazard tree directly prior to removal to confirm no bats are present.

4.2.3.3 Fuel Reduction Treatments

Within and adjacent to all developed Project recreation sites on State lands, DPR and DWR will coordinate with fuels reduction treatments (removal of standing and downed dead fuels) at developed Project recreation facilities. Slash will be chipped and broadcast onsite, or piled at an agreed upon location for DPR to burn.

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5.0 HERBICIDE BEST MANAGEMENT PRACTICES

5.1 APPLICATION AND SCHEDULE

Treatment in areas that are required to be void of vegetation generally requires the use of herbicides, and is DWR's preferred safe and practical method to meet FERC-mandated conditions required for the protection and inspection of hydroelectric facilities. Although this is the preferred method, other reasonable and practicable methods for vegetation treatment will be evaluated prior to proposing herbicides.

The choice of methods will be based on an analysis of potential environmental impacts and anticipated effectiveness, along with site characteristics, security, safety and health, and economics. Site-specific measures will be identified and implemented to protect non-target plants and animals. Proposed vegetation management treatments on NFS lands will be part of the Agency Consultation Meeting (see Section 6.2, Agency Consultation) between DWR and USFS. Additionally:

- When feasible, manual methods of vegetation removal will be utilized. In addition, non-toxic herbicides (i.e., soap and vinegar-based herbicides) will be used where applicable and/or feasible.

- Any herbicides used on the Project will be limited to products registered with the U.S. Environmental Protection Agency and the California Department of Pesticide Regulation.

- Herbicides will be applied according to label instructions and use restrictions by qualified pesticide applicators, under recommendation from a certified pesticide advisor.

- Any USFS conditions relating to herbicide use on NFS lands will be referenced during development of site-specific applications for herbicide use.

During the Agency Consultation Meeting, a request for approval of planned uses of herbicides on NFS lands for the upcoming year will be submitted. At a minimum, the following information will be discussed:

- Specific locations of use

- Specific herbicides proposed for use

- Application rates

- Dose and exposure rates

- Safety risk and timeframes for application

- Explanation of why herbicide applications are essential for use on NFS lands

Exceptions to this schedule may be allowed only when unexpected outbreaks of NNIP require control measures that were not anticipated at the time of the Agency Consultation Meeting. Schedule details will be developed with the application proposal to USFS for NFS lands, but generally spring and fall applications are most effective due to botanical physiological activity.

5.2 LOCATIONS FOR HERBICIDE APPLICATION

Specific locations for herbicide application are generally associated with Project facilities where bare ground is required. For the Project, these locations include but are not limited to: Project powerhouse, access roads, gaging stations, and land beneath overhead powerlines. Treatment in these areas generally requires the use of herbicides and is DWR's preferred safe and practical method to meet FERC-mandated conditions required for the protection and inspection of hydroelectric facilities. Most of these locations are not on NFS lands. Specific locations will be included when proposals for herbicide application on NFS lands are submitted to USFS.

Additional locations may be associated with invasive weed control. See Figures 2.1-1 through 2.1-5 for currently known locations of invasive weeds. In some cases, NNIP locations may be outside the Project boundary, but still have a high potential for dispersal into the Project boundary; these will be discussed during the Agency Consultation Meeting and will be managed in a coordinated effort by DWR, DPR, and USFS.

5.3 APPLICATION ON NATIONAL FOREST SYSTEM LANDS

When feasible, herbicide use and application on NFS lands should be avoided. During the Agency Consultation Meeting, a request for approval of planned uses of herbicides on NFS lands for the upcoming year will be submitted to USFS. If herbicide use is necessary on NFS lands, only USFS-approved herbicides, such as Glyphosate, Triclopyr, Imazapyr, or Sporax, will be used.

5.4 METHODS

Prior to each site-specific treatment, DWR's decision process for selecting one or more invasive weed control method will consider the following:

- Site access
- Physical size and characteristics of the area to be treated, including soils, general terrain, and slopes
- Extent of native vegetation and native plant communities to be avoided during treatment when feasible
- Availability and effectiveness of biological control methods
- Potential effects on special-status plants and animals, and how adverse effects will be avoided or minimized

- Seasonal conditions affecting plant growth, including temperature, wind, and precipitation
- Proximity to surface water bodies and potential for run-off
- Proximity to recreational use areas
- Economics
- Control goals

Only herbicides registered in California will be used within the Project boundary. If the application site is within the NFS and once permission is obtained from USFS, all USFS policies and practices relating to herbicide use will be followed.

Any herbicides used on the Project will be applied by licensed and certified herbicide applicators. Only herbicides registered for aquatic use by the California Department of Pesticide Regulation will be utilized within or adjacent to streams, reservoirs, riparian and wetland vegetation, and other aquatic habitats per label instructions and streamside management zone buffers. Label instructions will be followed in the preparation and application of herbicides and disposal of excess product and containers. Site-specific recommendations will be prepared by a licensed Pest Control Advisor for herbicide applications. All chemical application staff including DWR's contractors will be qualified, trained, and licensed, and will adhere to rules, regulations, and reporting requirements.

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6.0 TRAINING, CONSULTATION, AND PLAN REVISIONS

6.1 EMPLOYEE AND CONTRACTOR TRAINING

Biennial and as-needed environmental training for appropriate staff and contractors working within the Project boundary will be provided, as outlined in Section 3.4 above. The goal of the training will be to familiarize staff and contractors with special-status species, target and watch list NNIP, and sensitive areas known or suspected to occur within the Project boundary, and procedures to avoid adverse effects. The training will include information on the following:

- NNIP BMPs, with an emphasis on preventing spread of existing occurrences
- Recognition of any known special-status plants, sensitive natural communities, and special-status wildlife present within the Project boundary
- Recognition of high-priority terrestrial NNIP species (based on guidelines described above)
- Reporting procedures for special-status plants and NNIP

6.2 AGENCY CONSULTATION

DWR will annually review with SBNF the IVMP management activities on NFS lands for the previous calendar year as well as any activities planned for the upcoming calendar year.

The goals of this review are to share information, identify concerns regarding activities and their potential effects on sensitive resources, and determine measures required to avoid or mitigate potential effects. At each Agency Consultation Meeting, DWR will review with USFS, as appropriate, vegetation management activities (including treatment of target NNIP infestations, current BMPs and any updates to the current BMPs, and necessary revegetation planning or monitoring) planned for the upcoming calendar year on NFS lands, identify any IVMP revisions needed for these activities, and make adjustments to the IVMP or schedule for these activities, as deemed appropriate.

6.3 PLAN REVISIONS

DWR will evaluate the requirements of this IVMP during the life of the new license and may modify those requirements in consultation with USFS, DPR, and CDFW. DWR will allow 30 days for the SBNF, CDFW, and SWRCB to provide written comments and recommendations before filing the updated IVMP with FERC for approval. DWR will include documentation of all relevant coordination and consultation associated with the updated Plan filed with FERC. If DWR does not adopt a particular recommendation, the filing will include DWR's reasons for not doing so. DWR will implement the IVMP as approved by FERC. The IVMP will not be considered revised until FERC issues its approval.

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Appendix A

Results of NNIP Surveys

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Table A.1-1. Target NNIP Species Surveyed Within the Project Boundary

Scientific Name[1]	Common Name	CDFA Rating[2]	Cal-IPC Rating[3]	NFS Invasive Non-Native Plant Species List[4,5]
**Ageratina adenophora*	eupatory	--	Moderate	Y
***Ailanthus altissima*	tree-of-heaven	C	Moderate	Y*
***Arundo donax*	giant reed	B	High	Y*
**Brassica nigra*	black mustard	--	Moderate	Y
**Brassica tournefortii*	Sahara mustard	--	High	Y
**Bromus diandrus*	ripgut brome	--	Moderate	Y
**Bromus madritensis* ssp. *rubens*	red brome	--	High	Y
**Bromus tectorum*	cheatgrass	--	High	Y*
***Centaurea melitensis*	tocalote	C	Moderate	Y
***Centaurea solstitialis*	yellow star-thistle	C	High	Y*
***Cirsium vulgare*	bull thistle	C	Moderate	Y
**Cortaderia selloana*	Pampas grass	--	High	Y*
**Eucalyptus globulus*	blue gum	--	Limited	Y
**Festuca (=Schedonorus) arundinacea*	reed fescue	--	Moderate	Y
**Ficus carica*	edible fig	--	Moderate	Y
**Foeniculum vulgare*	fennel	--	Moderate	Y
**Hedera helix* and *H. canariensis*	English Ivy, Algerian Ivy	--	High	A Y
**Picris (=Helminthotheca) echioides*	bristly ox-tongue	--	Limited	Y
**Holcus lanatus*	common velvet grass	--	Moderate	Y
**Lolium perenne* ssp. *multiflorum*	Italian ryegrass	--	--	Y
**Medicago polymorpha*	California burclover	--	Limited	A
**Nicotiana glauca*	tree tobacco	--	Moderate	Y
**Pennisetum setaceum*	crimson fountain grass	--	Moderate	A
**Ricinus communis*	castor bean	--	Limited	Y
**Robinia pseudoacacia*	black locust	--	Limited	Y
**Rubus armeniacus (=discolor)*	Himalayan blackberry	--	High	Y
***Salsola tragus*	Russian thistle	C	Limited	Y
***Saponaria officinalis*	bouncing-bet	C	Limited	Y
**Schinus molle*	Peruvian pepper tree	--	Limited	Y
**Schismus arabicus, S. barbatus*	Mediterranean grass	--	Limited	Y
**Silybum marianum*	milk thistle	--	Limited	A Y?

Table A.1-1. Target NNIP Species Surveyed Within the Project Boundary (continued)

Scientific Name[1]	Common Name	CDFA Rating[2]	Cal-IPC Rating[3]	NFS Invasive Nonnative Plant Species List[4,5]
***Spartium junceum*	Spanish broom	C	High	Y*
***Tamarix parviflora, T. ramosissima*	saltcedar	B	High	Y*
**Verbascum thapsus*	woolly mullein	--	Limited	Y
**Vinca major*	periwinkle	--	Moderate	Y
Subtotal of NNIP Species with CDFA and Cal-IPC Ratings		9	35	36 species are identified by USFS as occurring in or near SBNF
Total	**36**			

Notes:
**Full-datasets collected only on NFS land*
***Occurrence mapped wherever found*
[1]For species that are not listed by CDFA (identified with one asterisk), data were collected in accordance with USFS protocols (United States Department of Agriculture, Forest Service. 2013. Forest Service National Strategic Framework for Invasive Species Management. Available online: https://www.fs.usda.gov/main/r5/plants-animals. Accessed: August 28, 2018.) only for occurrences on NFS lands. For species identified with two asterisks (species that have a CDFA Rating of A, B, or C), occurrence data were collected wherever they were observed.
[2]CDFA Ratings:
- *B = Pest of known economic or environmental detriment and, if present in California, it is of limited distribution;*
- *C = Pest of known economic or environmental detriment and, if present in California, it is usually widespread.*

[3]Cal-IPC Ratings (Cal-IPC ratings are provided for reference but were not a criterion in determining which species were target species):
- *Limited = These species are invasive, but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.*
- *Moderate = These species have substantial and apparent, but generally not severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.*
- *High = These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.*

[4]USFS Designation:
- *A = adjacent or near Forest, reasonable to expect invasion on Forest lands within next five years (as cited in U.S. Department of Agriculture, Forest Service. 2005. Land Management Plan Part 1, Southern California National Forests. USFS Pacific Southwest Region. R5-MB-075. September 2005.)*
- *Y = present on Forest*
- *Y* = Forest is currently treating, in process of treating or has treated in past*
- *Y? = plants are adjacent or near and highly likely to be present but not documented*

[5]U.S. Department of Agriculture, Forest Service. 2005. Land Management Plan Part 1, Southern California National Forests. USFS Pacific Southwest Region. R5-MB-075. September 2005.
Key:
Cal-IPC = California Invasive Plant Council
CDFA = California Department of Food and Agriculture
NFS = National Forest System
SBNF = San Bernardino National Forest
USFS = U.S. Department of Agriculture, Forest Service

Table A.1-2. NNIP Target Species Occurrences Within the Project Boundary

Scientific Name	Common Name	NFS Land Occurrence	Number of Occurrences in the Project Area
Ailanthus altissima	tree of heaven	No	3
Brassica nigra	black mustard	Yes	2
Bromus diandrus	ripgut brome	Yes	2
Bromus madritensis ssp. *rubens*	red brome	Yes	1
Bromus tectorum	cheat grass	Yes	1
Centaurea melitensis	tocalote	Yes	29
Cirsium vulgare	bull thistle	No	61
Robinia pseudoacacia	black locust	Yes	1
Salsola australis/tragus	Russian thistle	No	4
Saponaria officinalis	bouncing bet	No	10
Silybum marianum	blessed milk thistle	Yes	1
Spartium junceum	Spanish broom	Yes	38
Tamarix parviflora, T. ramosissima	saltcedar	No	24
		Total	**177**

Note: NNIP target species occurrences within the Project boundary were documented during DWR's 2017 field surveys. Excludes the area over the San Bernardino Tunnel.
Key:
NFS = National Forest System
NNIP = non-native invasive plant

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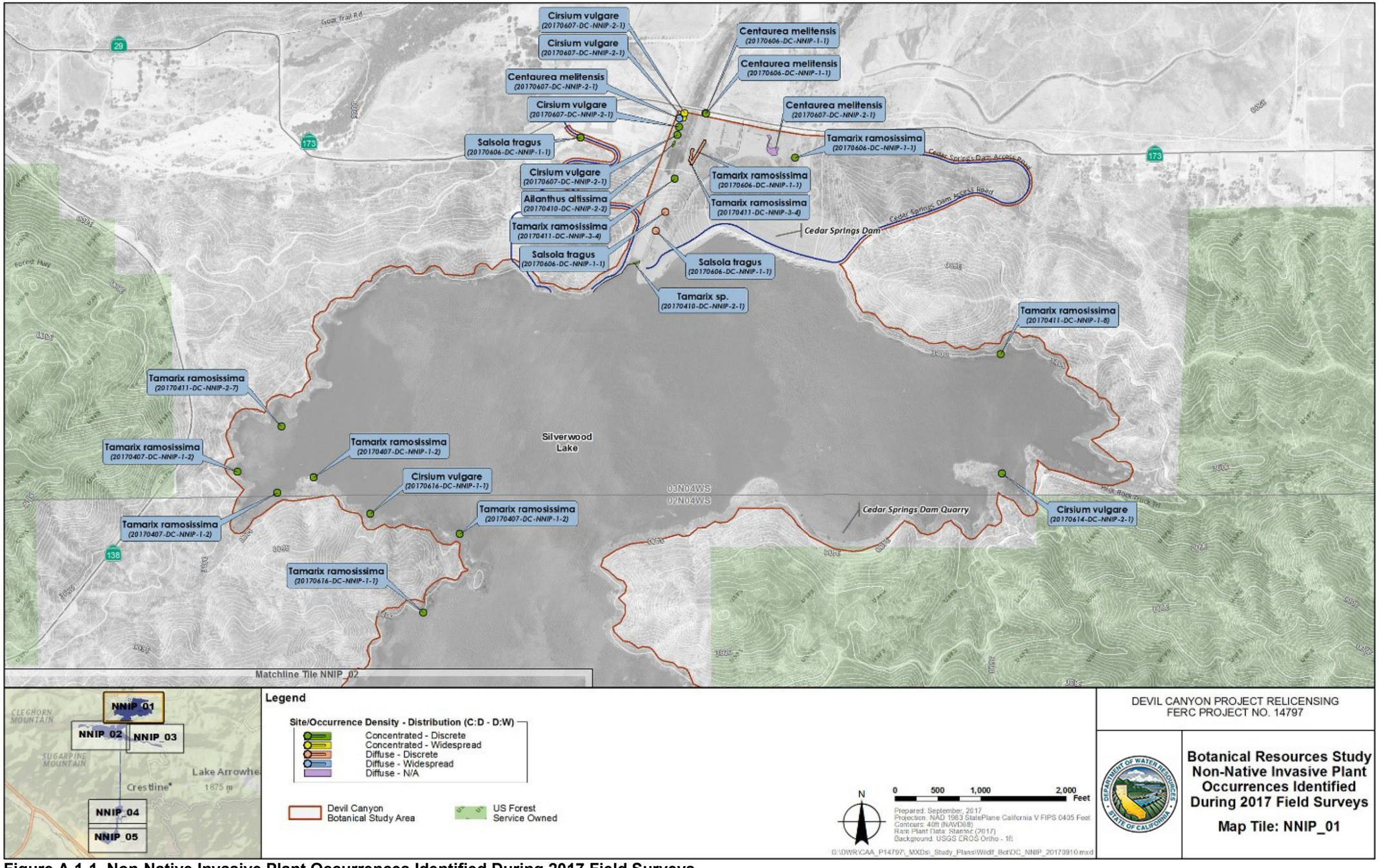

Figure A.1-1. Non-Native Invasive Plant Occurrences Identified During 2017 Field Surveys

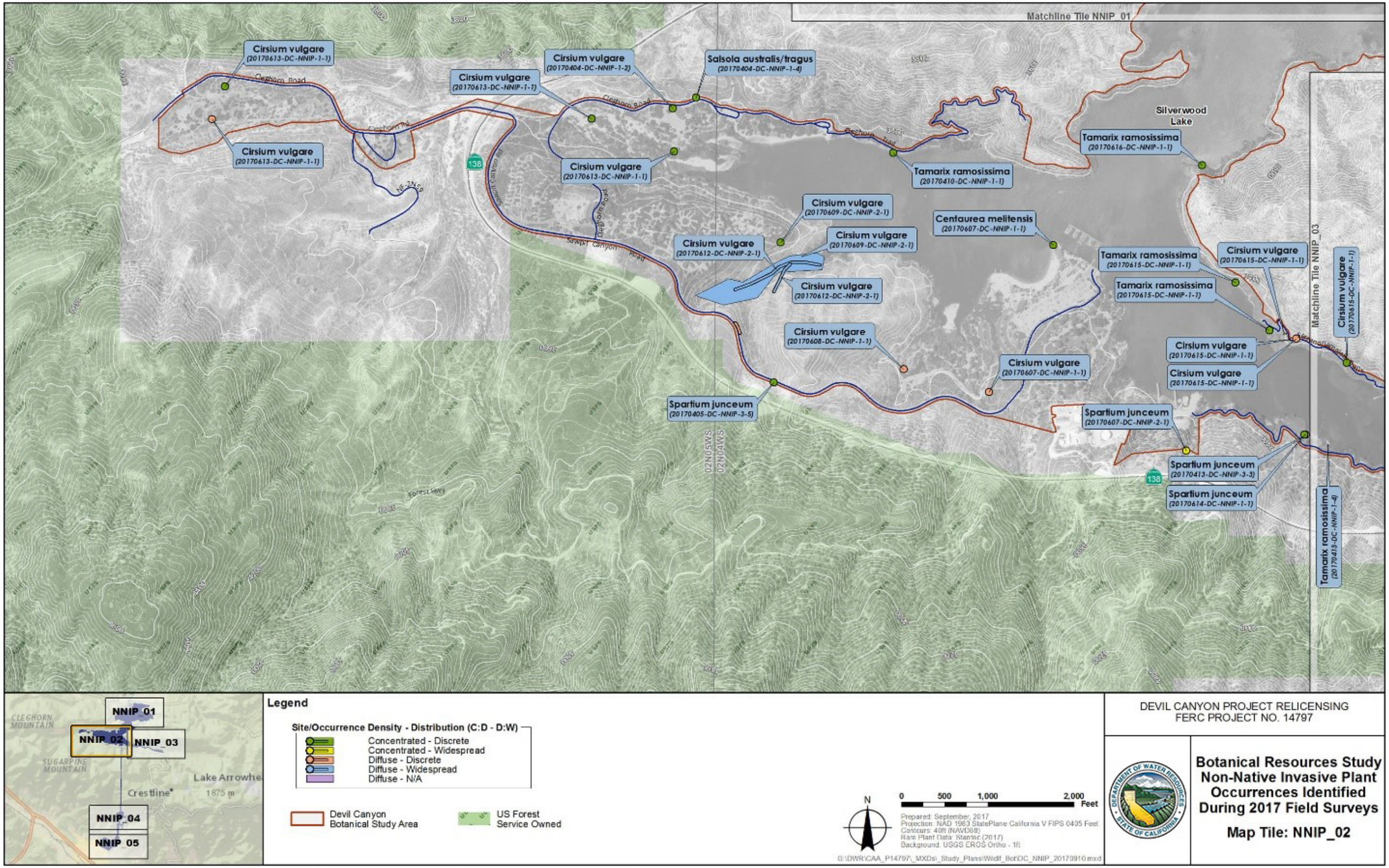

Figure A.1-2. Non-Native Invasive Plant Occurrences Identified During 2017 Field Surveys

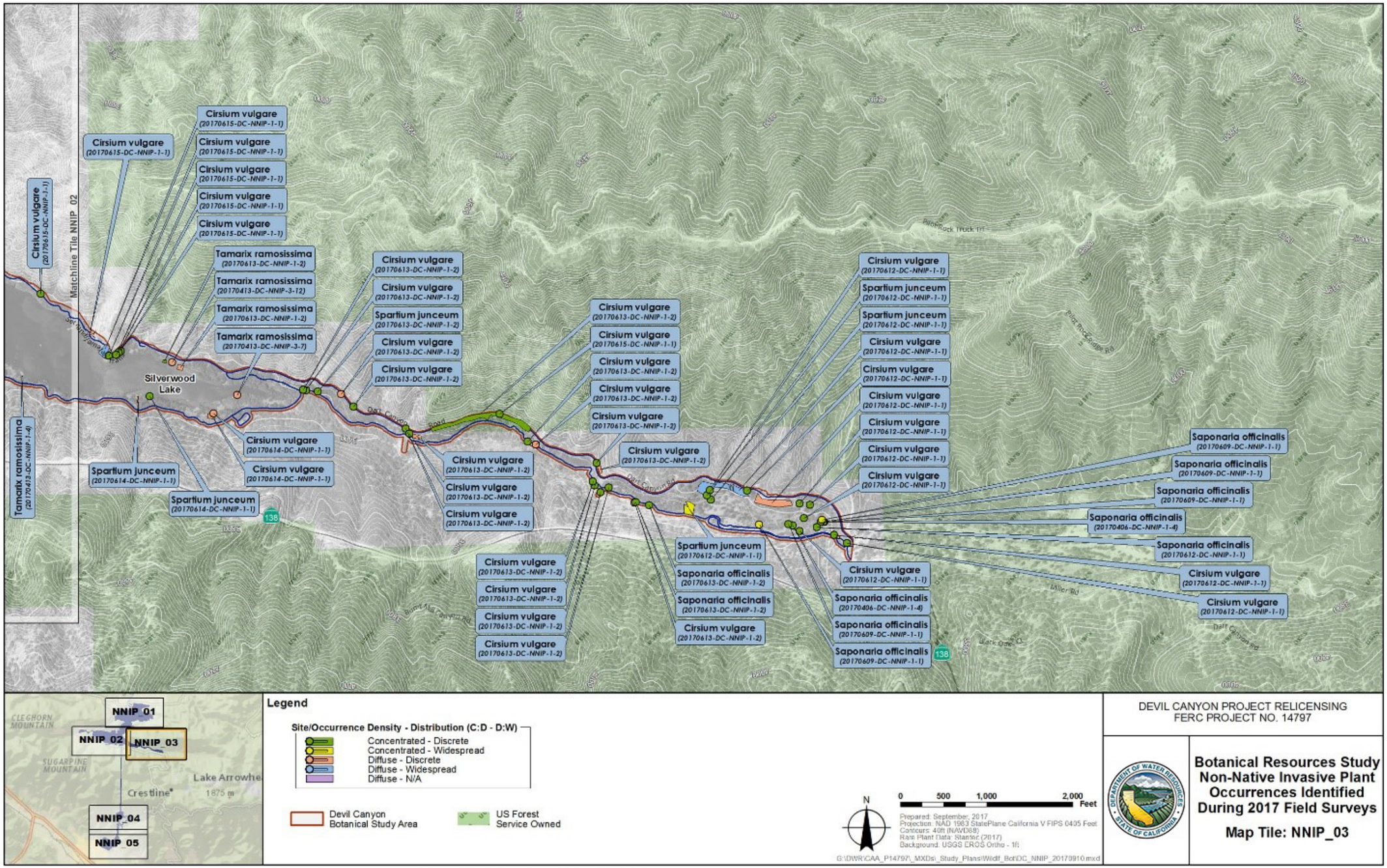

Figure A.1-3. Non-Native Invasive Plant Occurrences Identified During 2017 Field Surveys

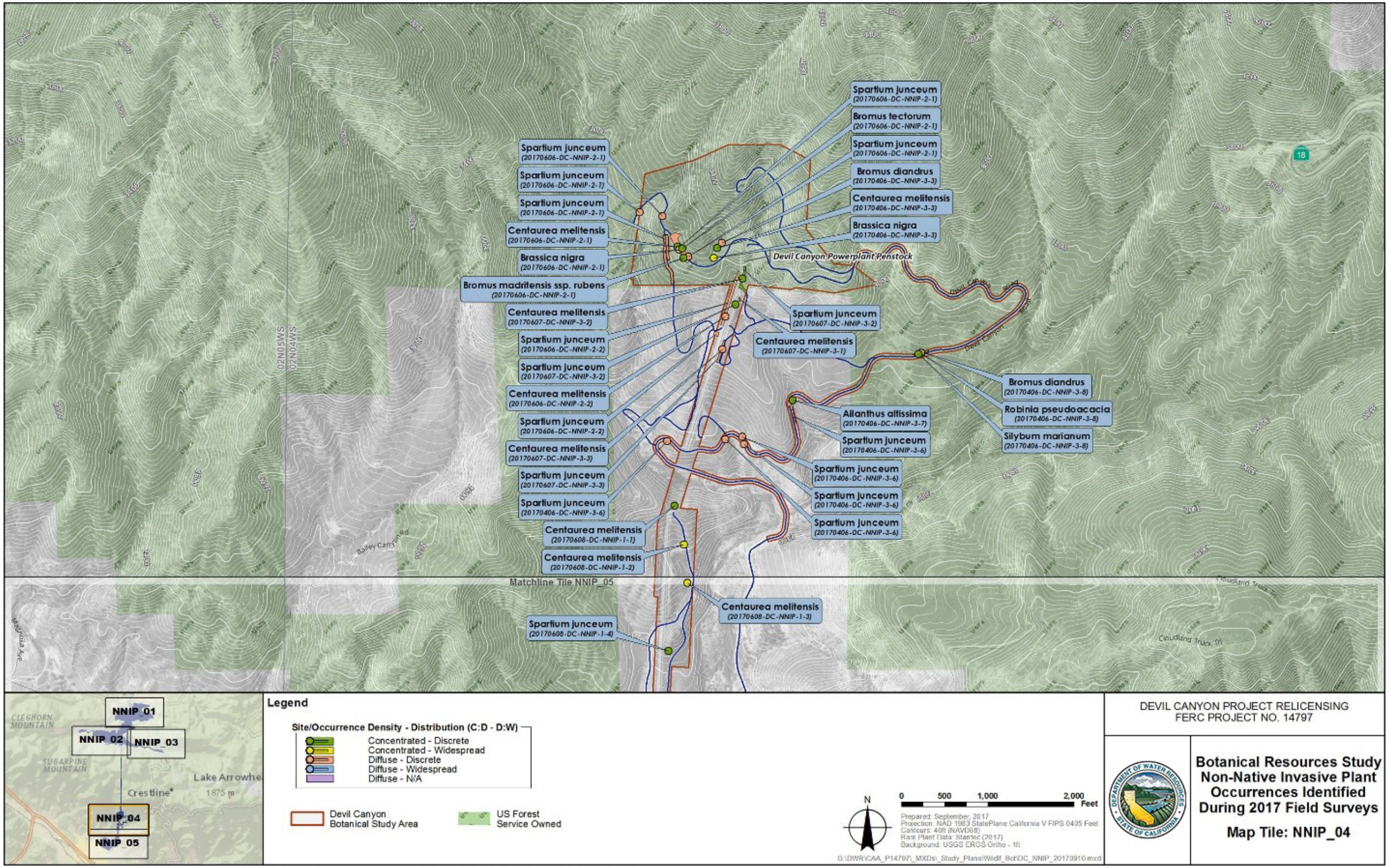

Figure A.1-4. Non-Native Invasive Plant Occurrences Identified During 2017 Field Surveys

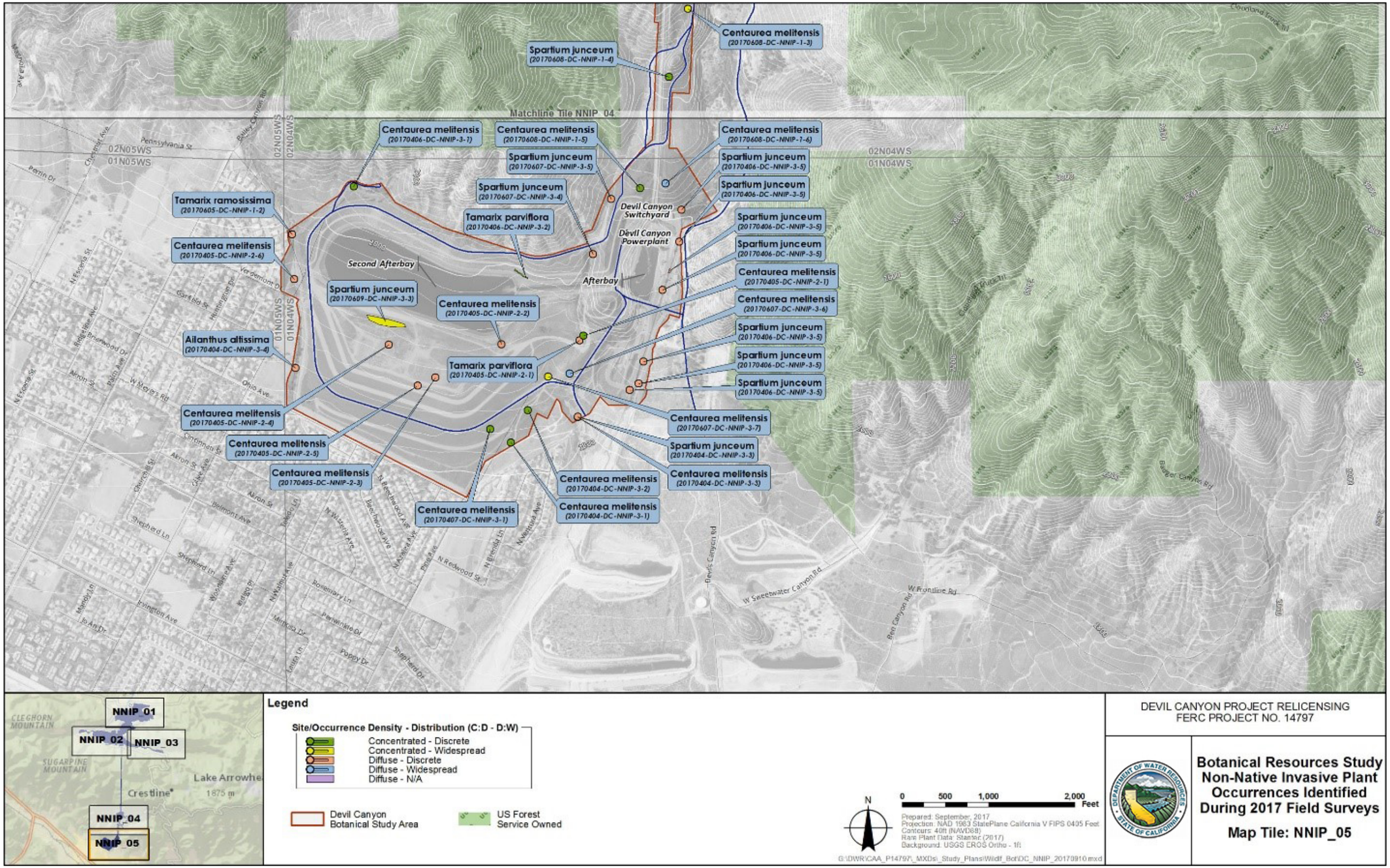

Figure A.1-5. Non-Native Invasive Plant Occurrences Identified During 2017 Field Survey

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Appendix B

USFS Recommended BMPs

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Road Management Activities BMPs

Road-4. Road Operations and Maintenance. Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources by controlling road use and operations and providing adequate and appropriate maintenance to minimize sediment production and other pollutants during the useful life of the road.

Road-7. Stream Crossings. Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources when constructing, reconstructing, or maintaining temporary and permanent waterbody crossings.

Road-9. Parking and Staging Areas. Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources when constructing and maintaining parking and staging areas.

Road-11. Road Storm-Damage Surveys. Monitor road conditions following storm events to detect road failures; assess damage or potential damage to waterbodies, riparian resources, and watershed functions; determine the causes of the failures; and identify potential remedial actions at the damaged sites and preventative actions at similar sites.

Mechanical Vegetation Management Activities

Veg-1. Vegetation Management Planning. Use the applicable vegetation management planning processes to develop measures to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources during mechanical vegetation treatment activities.

Veg-2. Erosion Prevention and Control. Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources by implementing measures to control surface erosion, gully formation, mass slope failure, and resulting sediment movement before, during, and after mechanical vegetation treatments.

Veg-3. Aquatic Management Zones. Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources when conducting mechanical vegetation treatment activities around and adjacent to waterbodies.

Veg-8. Mechanical Site Treatment. Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources by controlling the introduction of sediment, nutrients, chemical, or other pollutants to waterbodies during mechanical site treatment.

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Appendix C

Special-Status Plant and Sensitive Natural Community Survey Results

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Table C.1-1. Special-Status Plant Occurrences Observed During 2017 Surveys

Scientific Name	Common Name	CNPS Ranking[2]	Number of Occurrences	Location of Occurrences	Site Quality	Threats
Calochortus plummerae	Plummer's mariposa lily	4.2	20	Throughout the Project boundary (Figure 1.2-1); no occurrences were on NFS lands.	5 sites excellent, 10 sites good, 5 sites fair, 1 site poor	Recreation/human use; one occurrence on the west side of Silverwood Lake (feature 20170616-rp-sl-24-A) is threatened by erosion
Juglans californica	Southern California black walnut	4.2	21	Most occurrences are near Devil Canyon Powerplant. One occurrence is near the Silverwood Lake marina. Five occurrences were on NFS lands.	14 sites good, 21 sites fair, 1 site poor	Encroachment of NNIP, road and vehicle use, and human use; occurrences located within the powerplant area may potentially be affected by facilities maintenance
Lilium humboldtii ssp. *ocellatum*	Ocellated Humboldt lily	4.2	2	East Fork of the West Fork Mojave River. No occurrences were found on NFS lands.	2 sites good	Recreation/human use
Total	**3 Plant Species**	**4.2**	**43**	**--**	**--**	**--**

Source: California Department of Fish and Wildlife. 2018. California Natural Diversity Database. Special Vascular Plants, Bryophytes, and Lichens List. August 2018. Quarterly publication. 126 pp. Available online: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline. Accessed: August 28, 2018.
Notes:
[1]CNPS Ranking: 4.2 = Plants of limited distribution that are moderately threatened in California (defined by CNPS as "20 to 80 percent occurrences threatened, with a moderate degree and immediacy of threat")
[2]An occurrence includes all plants of a given species mapped within 0.25-miles. Occurrences may include more than one "site" within 0.25-mile radius. Therefore, the number of sites may be greater than the number of occurrences.
Key:
CNPS = California Native Plant Society
NFS = National Forest System
NNIP = non-native invasive plant

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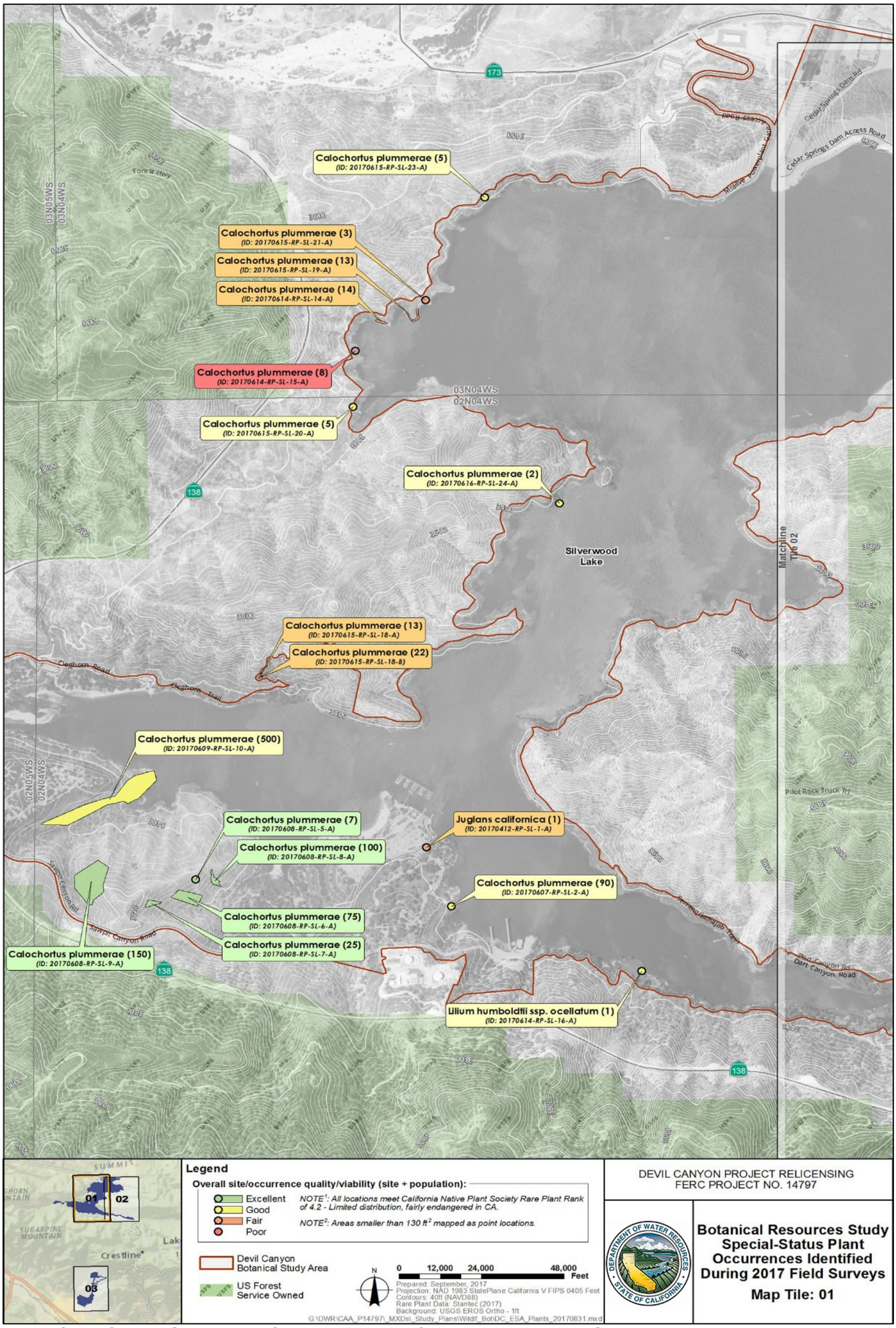

Figure C.1-1. Special-Status Plant Occurrences Identified During 2017 Field Surveys

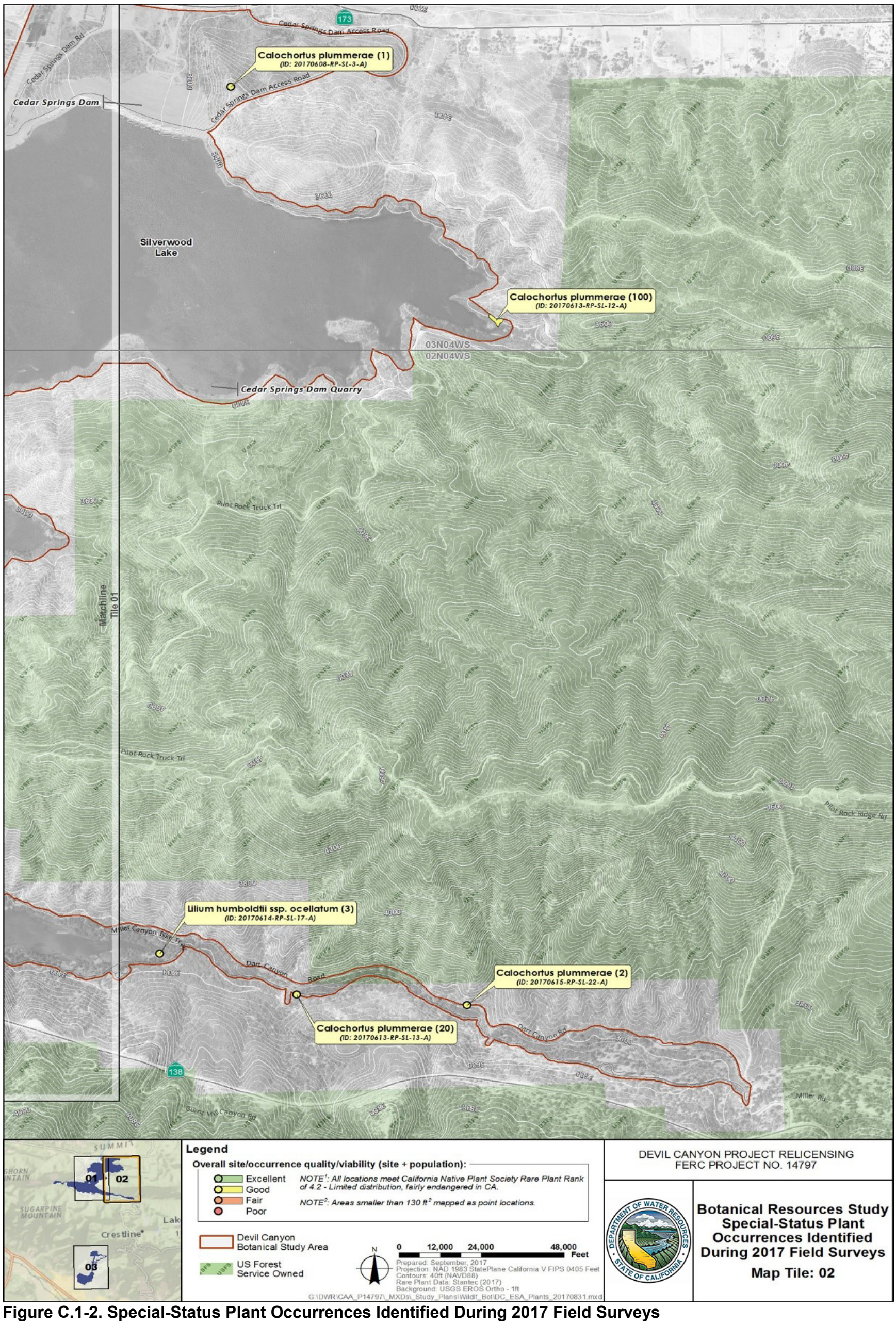

Figure C.1-2. Special-Status Plant Occurrences Identified During 2017 Field Surveys

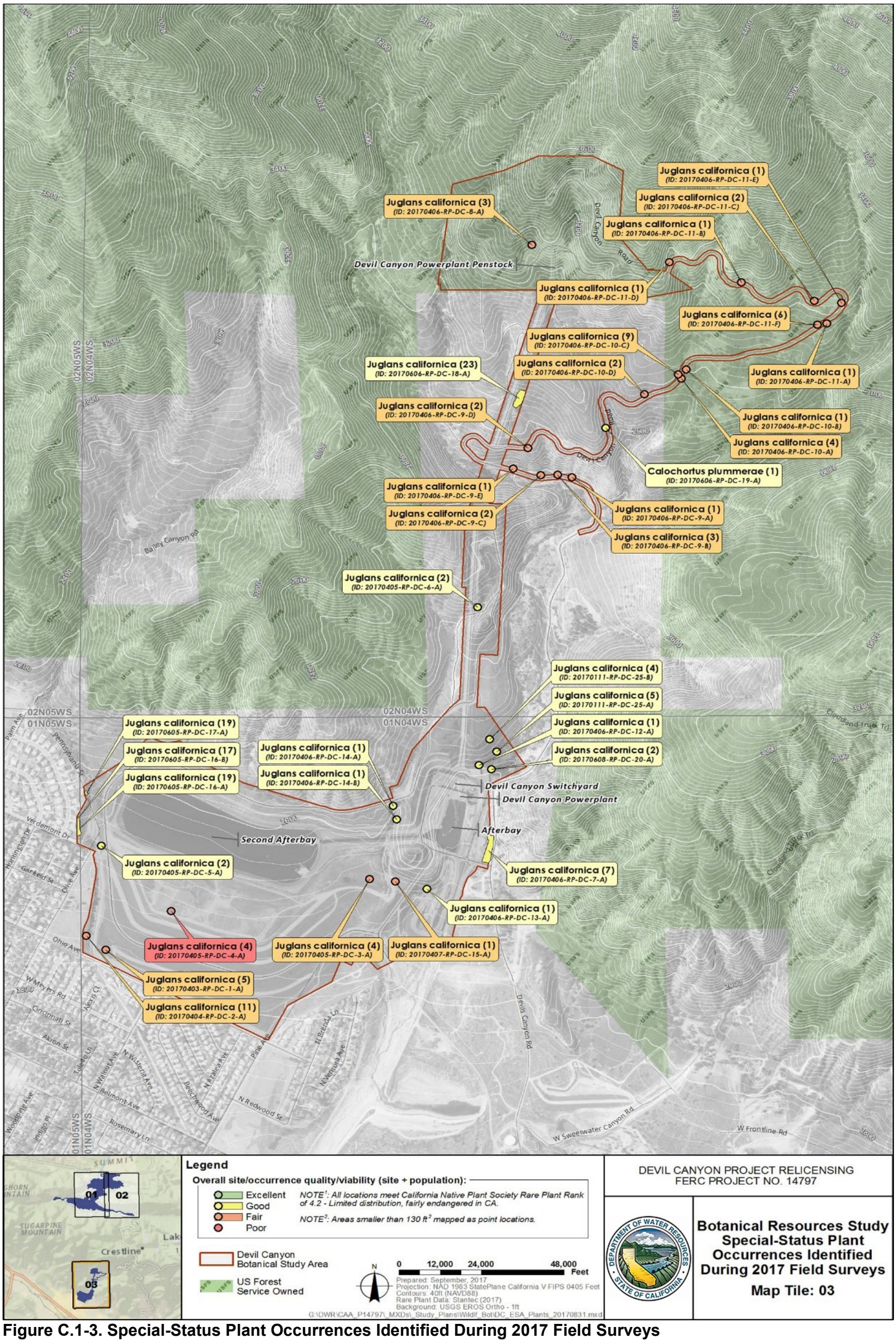

Figure C.1-3. Special-Status Plant Occurrences Identified During 2017 Field Surveys

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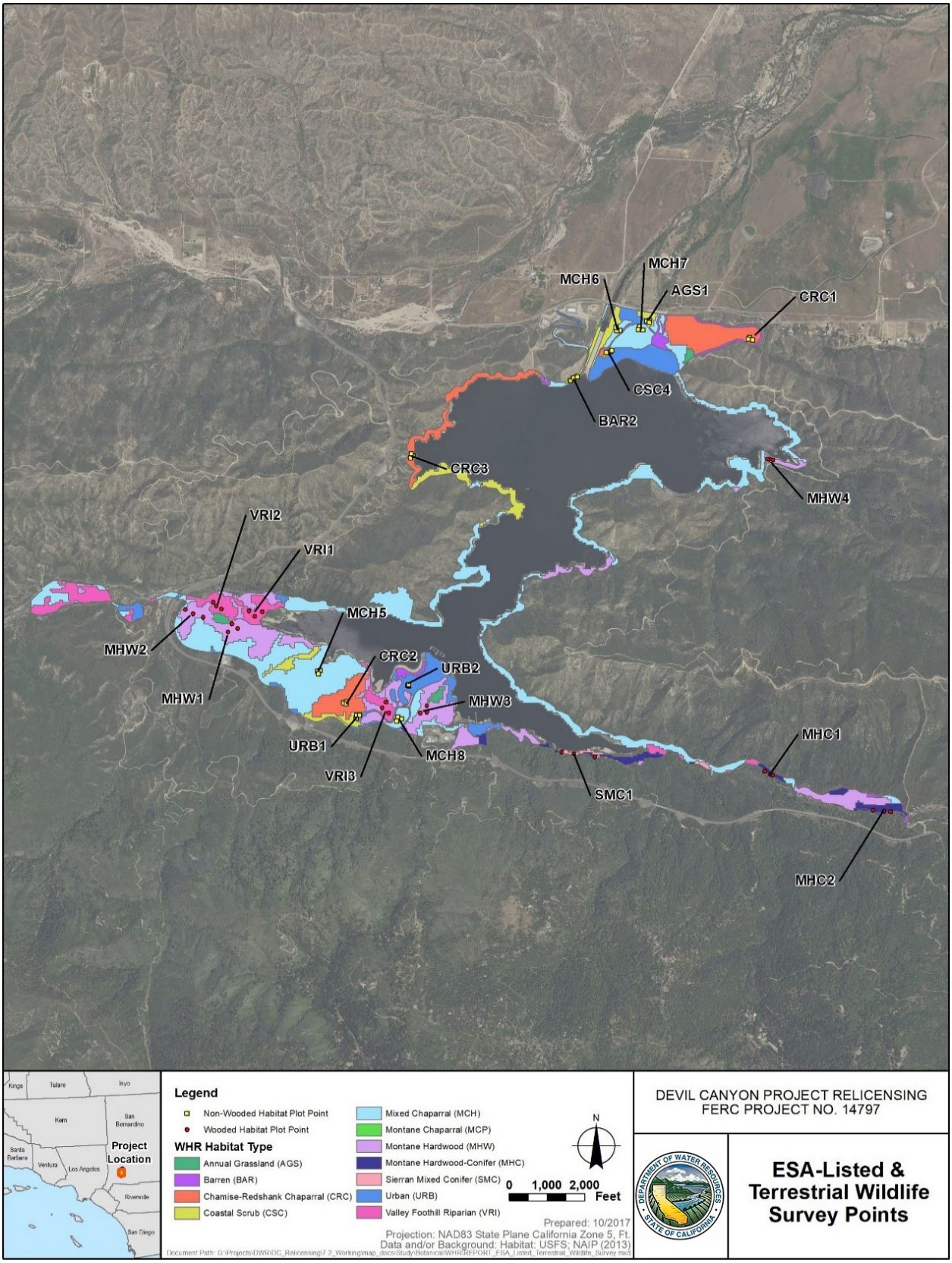

Figure C.1-4. Vegetation Communities Identified During 2017 Field Surveys

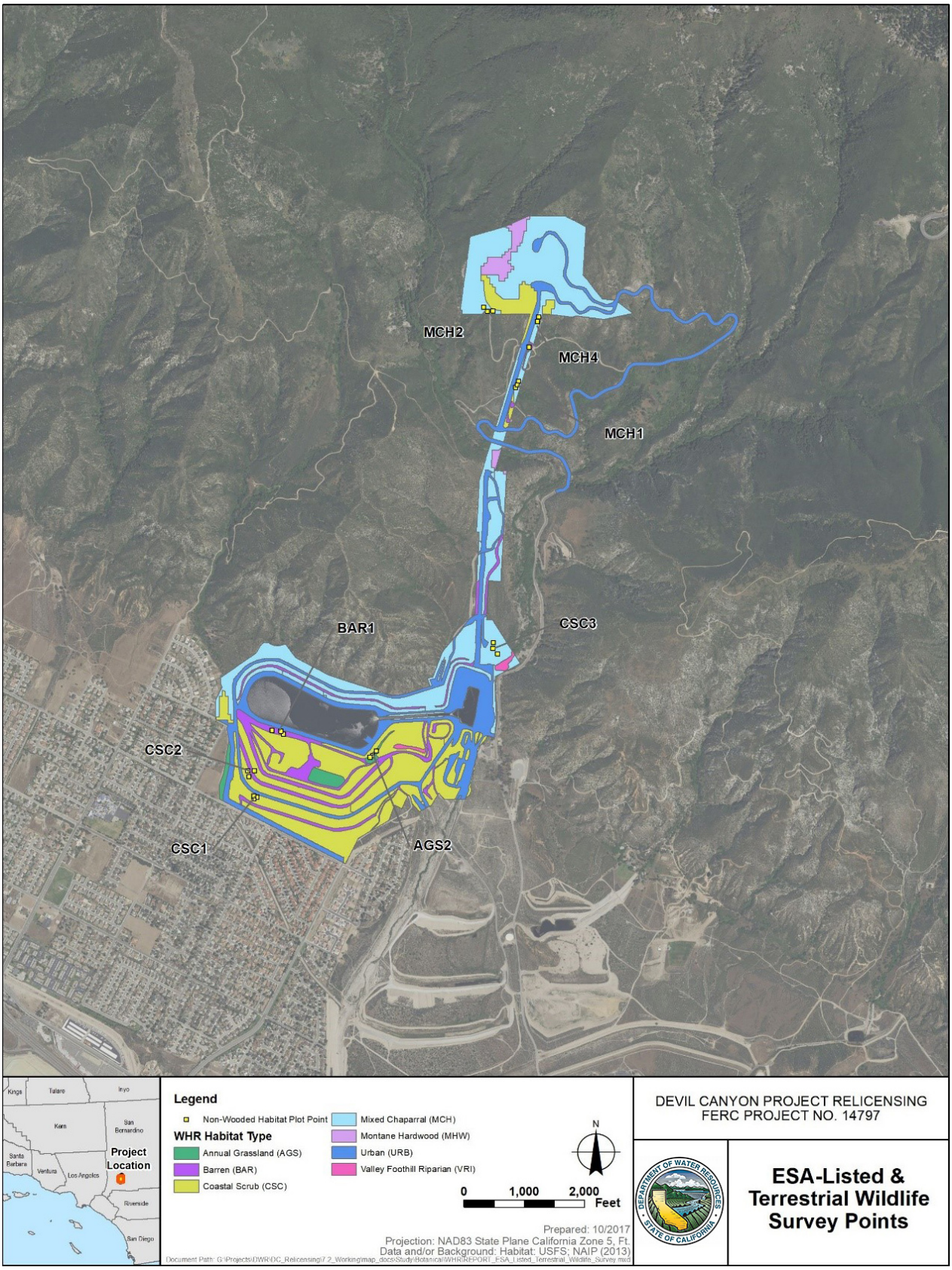

Figure C.1-5. Vegetation Communities Identified During 2017 Field Surveys