
Appendix J
Study Plan Outlines

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APPENDIX J

STUDY PLAN OUTLINES

- Aquatic Invasive Species Study
- Botanical Resources Study
- Non-Native Invasive Plants Study
- Special-Status Terrestrial Wildlife Species Study
- ESA-Listed Bird Species, Southwestern Willow Flycatcher and Least Bell's Vireo Riparian Habitat Evaluations Study
- ESA-Listed Plants Study
- Recreation Facilities Condition Assessment Study
- Cultural Resources Study
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STUDY PLAN OUTLINE 1. AQUATIC INVASIVE SPECIES

Summary of Existing Information and Additional Information to be Developed by the Study

Existing, relevant, and reasonably available information regarding AIS in the proposed Project boundary is provided in Section 4.5.1.1. As a summary, DWR found two documented AIS observations (American bullfrog and Anabaena) in Silverwood Lake, and identified 13 additional AIS that have not been found in the proposed Project boundary, but have a potential to be introduced from recreationists using reservoirs where these species occur. Currently, DWR conducts early detection monitoring for both the veliger and adult stages of quagga mussel and zebra mussel. DWR has not found either of these species in Project reservoirs. Additional information, which would be provided by this study, would be the presence/absence of AIS in Project waters, and the relative distribution and abundance of the AIS, if they are present.

Study Area, Methods and Analysis

The study area would consist of Silverwood Lake. The study area does not include Devil Canyon Afterbay or the Devil Canyon Second Afterbay since the afterbays are closed to public recreation, which is the major vector that introduces AIS to reservoirs.

The study would consist of four steps: (1) gather any known data and prepare for fieldwork; (2) conduct surveys; (3) prepare data and perform quality assurance; and (4) prepare a study report. Surveys would be conducted in the study area for AIS plants by boat, following standard CDFW plant survey methodology, as modified for in-water surveys. Surveys would occur between May and September when AIS plants are most readily identifiable. Surveys would be conducted for AIS mollusks using standard methods in malacology, including dip netting, sieving, and visual surveying. These surveys would be performed during the same approximate time as the AIS plant surveys. DWR would continue conducting early detection monitoring for both the veliger and adult stages of quagga mussel and zebra mussel. One AIS crustacean (red swamp crayfish), and two AIS amphibians (American bullfrog and African clawed frog) have not been found in Silverwood Lake; however, those AIS species would be noted as incidental sightings if observed during the study or other DWR relicensing studies. Water quality would be reviewed where applicable and as relevant to the potential introduction or establishment of AIS in the study area. A study report summarizing methods and results would be prepared and included in DWR's DLA and FLA.

Consistency of Methodology with Generally Accepted Scientific Practices

The study methods would be consistent with methods used to perform AIS surveys, including 2014 surveys for Asian clams in New York and 2010 surveys for New Zealand mudsnails in Washington, as well as the CDFW's 2009 protocol for botanical surveys, which generally would follow the methods for surveying invasive aquatic plants.

STUDY PLAN OUTLINE 2. BOTANICAL RESOURCES

Summary of Existing Information and Additional Information to be Developed by the Study

Existing, relevant, and reasonably available information regarding special-status plants within the proposed Project boundary is provided in Section 4.6 and Section 4.7. As a summary, DWR found that no recent comprehensive plant surveys or vegetation habitat mapping have been performed in the Project area. Existing mapping (NWI data and CalVeg data) is based on remote sensing, aerial photograph interpretation, or both, with little to no field verification. These limited data available from field surveys indicate that sensitive habitats, including wetlands, riparian areas, and littoral zones, exist in the proposed Project boundary, but the locations, extent, and conditions are not known. A number of special-status plants have the potential to occur in the Project area based on the proximity to other recorded occurrences and suitable elevation range and habitat requirements, but no special-status plant surveys have been conducted aside from surveys in isolated locations related to other projects. Additional information, which would be provided by this study, would include a determination of vegetation types, wetland and riparian conditions and special-status plants in the proposed Project boundary.

Study Area, Methods and Analysis

The study area would consist of the area within the proposed Project boundary, excluding lands overlying the San Bernardino Tunnel on which DWR does not perform any Project activities.

The study would consist of four steps: (1) map vegetation types in the study area using aerial imagery and existing information (NWI, CALVEG, etc.); (2) conduct field surveys to verify vegetation mapping, collect data on wetland and riparian area quality, and identify the locations of special-status plant species, if present; (3) prepare data and perform quality assurance; and (4) prepare a study report. Representative vegetation types would be visited during field surveys to confirm boundaries and to collect vegetation data using the CNPS rapid assessment vegetation sampling technique. Under this method, vegetation data would be collected and habitats would be described using the Manual of California Vegetation field-assessed vegetation alliance name. Wetlands and riparian areas mapped during the desktop review would be visited during the field survey to assess the condition of the habitat using the Proper Functioning Condition qualitative method in Pritchard et al. All areas of potentially suitable habitat for special-status plant species would be surveyed. Special-status plant species surveys would be conducted following CDFW's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. After completion of vegetation type and special-status plant species mapping, DWR would identify any Project O&M and recreational activities that occur in the vicinity of the identified

sensitive communities or special-status plants. A study report summarizing methods and results would be prepared and included in DWR's DLA and FLA.

Consistency of Methodology with Generally Accepted Scientific Practices

The study method would be generally consistent with the methods used for 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 would use standard botanical survey methods as defined by CDFW.

STUDY PLAN OUTLINE 3. NON-NATIVE INVASIVE PLANTS

Summary of Existing Information and Additional Information to be Developed by the Study

Existing, relevant, and reasonably available information regarding NNIP within the proposed Project boundary is provided in Section 4.6 and Section 4.7. As a summary, DWR found that no comprehensive NNIP surveys have been performed recently in the Project area. Several NNIP species have been reported in the Devil Canyon Powerplant area, but no information exists regarding the species occurrence in the vicinity of Silverwood Lake. Additional information, which would be provided by this study, would include a determination of presence and general quantity of NNIPs in the proposed Project boundary.

Study Area, Methods and Analysis

The study area would consist of the area within the proposed Project boundary, excluding lands overlying the San Bernardino Tunnel on which DWR does not perform any Project activities.

The study would be performed in conjunction with DWR's relicensing Botanical Resources Study, and would consist of three steps: (1) conduct field surveys for NNIP; (2) prepare data and perform quality assurance; and (3) prepare a study report. All areas of potentially suitable habitat for NNIP would be surveyed. The locations of any NNIP encountered during surveys would be mapped, and the number of individual plants estimated. After completion of NNIP mapping, DWR would identify any Project O&M and recreational activities that occur in the vicinity of the NNIP. A study report summarizing methods and results would be prepared and included in DWR's DLA and FLA.

Consistency of Methodology with Generally Accepted Scientific Practices

The study methods would be generally consistent with the methods used for recent FERC hydroelectric relicensing efforts in California, including the Yuba River Development Project and Merced River Hydroelectric Project, and would use standard botanical survey methods as defined by CDFW.

STUDY PLAN OUTLINE 4. SPECIAL-STATUS TERRESTRIAL WILDLIFE SPECIES

Summary of Existing Information and Additional Information to be Developed by the Study

Existing, relevant, and reasonably available information regarding special-status terrestrial wildlife species and their habitat within the proposed Project boundary is provided in Section 4.6. As a summary, DWR found no recent special-status wildlife species survey information. Based on available information, several special-status species are likely or known to inhabit the proposed Project boundary including but not limited to: coast horned lizard, San Bernardino ring-necked snake, California spotted owl, loggerhead shrike, loon, golden eagle, bald eagle, yellow warbler, San Bernardino northern flying squirrel, ringtail, Townsend's big-eared bat, and western mastiff bat. Additional information, which would be provided by this study, would include field-based habitat mapping to determine the presence/absence of special-status terrestrial wildlife species habitat within the proposed Project boundary.

Study Area, Methods and Analysis

The study area would consist of the area within the proposed Project boundary, excluding lands overlying the San Bernardino Tunnel on which DWR does not perform any Project activities.

The study would consist of five steps: (1) conduct current CNDDDB analysis; (2) prepare habitat association maps based on WHR system protocols; (3) conduct field visits to representative locations to confirm habitat types and quality, and determine presence/absence of habitat; (4) prepare data and perform quality assurance; and (5) prepare a study report. Field verification efforts would focus on habitat type, habitat continuity, surrounding land uses and the probability of the habitat supporting special-status wildlife species. Surveys would be conducted at a time of year that would yield the best opportunity to observe special-status wildlife species (i.e., nesting season, breeding season). Biologists would note Project O&M activities, including vegetation control and recreation use areas that overlap with the location of special-status wildlife habitat. A study report summarizing methods and results would be prepared and included in DWR's DLA and FLA.

Consistency of Methodology with Generally Accepted Scientific Practices

The study methods would be consistent with the methods used for many recent FERC hydroelectric relicensing efforts in California, including the Oroville Facilities relicensing (FERC No. 2100).

STUDY PLAN OUTLINE 5. ESA-LISTED BIRD SPECIES, SOUTHWESTERN WILLOW FLYCATCHER AND LEAST BELL'S VIREO RIPARIAN HABITAT EVALUATIONS

Summary of Existing Information, and Additional Information to be Developed by the Study

Existing, relevant, and reasonably available information regarding southwestern willow flycatcher and least Bell's vireo within the proposed Project boundary is provided in Section 4.8. As a summary, DWR found no existing information regarding either species within the proposed Project boundary. However, habitat evaluations and surveys for these species in areas outside of the Project boundary north of Silverwood Lake reported suitable habitat for both species and detections of migrating willow flycatchers, but no breeding southwestern willow flycatchers. One singing least Bell's vireo on Horsethief Creek was detected in 2013. Additional information, which would be provided by this study, would include determining the occurrence and identification of breeding habitat of southwestern willow flycatcher or least Bell's vireo in the proposed Project boundary, if they occur.

Study Area, Methods and Analysis

Since southwestern willow flycatcher and least Bell's vireo utilize riparian habitat, the study area would consist of riparian habitat within the proposed Project boundary, excluding lands overlying the San Bernardino Tunnel on which DWR does not perform any Project activities.

The study would be coordinated with DWR's relicensing Botanical Resources Study, which would identify, map, and describe vegetation areas, including riparian habitat, within the study area. The study would consist of four steps: (1) identify riparian habitat areas that may be affected by Project O&M and recreation; (2) conduct surveys in these areas; (3) prepare data and perform quality assurance; and (4) prepare a study report. Surveys would be performed in riparian areas in the study area potentially affected by Project O&M and recreation. All surveys would be performed following standard USFWS protocols for southwestern willow flycatcher and least Bell's vireo. Detection surveys conducted by trained personnel for southwestern willow flycatcher require at least five survey visits, distributed within the May through July period, whereas surveys for least Bell's vireo require at least eight survey visits between April 10 and July 31. Habitat evaluation and survey results would be assessed in relation to known site-specific Project O&M and Project recreation. A report summarizing study methods and results would be prepared and included in DWR's DLA and FLA. If any occurrences of willow flycatcher and least Bell's vireo are found, the report would be considered "Privileged," and would only be provided to FERC, USFWS, and CDFW, and to the USFS if any occurrences of willow flycatcher and least Bell's vireo are found on NFS lands.

Consistency of Methodology with Generally Accepted Scientific Practices

The study methods would follow survey protocol methods that are recommended by USFWS. Therefore, the study would be consistent with standard methods accepted by the scientific community, USFWS and CDFW for assessing the presence of breeding southwestern willow flycatcher and least Bell's vireo.

STUDY PLAN OUTLINE 6. ESA-LISTED PLANTS

Summary of Existing Information, and Additional Information to be Developed by the Study

Existing, relevant, and reasonably available information regarding ESA-listed plants within the proposed Project boundary is provided in Section 4.8. As a summary, DWR found no recent surveys for ESA-listed plants or documented occurrences of ESA-listed plants within the proposed Project boundary. Existing information suggests that three ESA-listed plants (i.e., slender-horned spineflower, Santa Ana River woolly-star, and thread-leaved brodiaea) could potentially occur in the proposed Project boundary if there are suitable habitats. Additional information, which would be provided by this study, is the presence/absence of these and other ESA-listed plants within the proposed Project boundary, and their relative abundance and location, if they occur.

Study Area, Methods and Analysis

The study area would consist of the area within the proposed Project boundary, excluding lands overlying the San Bernardino Tunnel on which DWR does not perform any Project activities.

The study would be performed in conjunction with DWR's relicensing Botanical Resources Study, which consists of a comprehensive floristic survey within the study area. The study would consist of four steps: (1) identify potential habitat for ESA-listed plants; (2) conduct surveys; (3) prepare data and perform quality assurance; and (4) prepare a study report. Surveys would follow methodology described in the botanical survey section of CDFW's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. Additional efforts would focus on habitats with a higher probability of supporting ESA-listed plants. Taxonomy and nomenclature would be based on The Jepson Manual. If an ESA-listed plant occurrence is identified, Project O&M and recreation activities that occur in the area would be noted. A report summarizing study methods and results would be prepared and included in DWR's DLA and FLA. If any ESA-listed plants are found, the report would be considered "Privileged," and would only be provided to FERC, USFWS, and CDFW, and to the USFS if any ESA-listed plants are found on NFS lands.

Consistency of Methodology with Generally Accepted Scientific Practices

The study methods would be consistent with the methods used for recent FERC hydroelectric relicensing efforts in California, including the Don Pedro Project, Yuba River Development Project and Merced River Hydroelectric Project, and would use standard botanical survey methods as defined by CDFW.

STUDY PLAN OUTLINE 7. RECREATION FACILITIES CONDITION ASSESSMENT

Summary of Existing Information and Additional Information to be Developed by the Study

Existing, relevant, and reasonably available information regarding recreational resources within the proposed Project boundary is provided in Section 4.9. As a summary, existing data includes a basic inventory of Project recreation facilities, maps showing locations of existing recreational trails, statistics on visitor use, and management guidelines and regional needs assessments from relevant regional resource management plans, including the SCORP and SBNF's LRMP. DWR also has 2015 and historical attendance (i.e., recreation day) information for Silverwood Lake SRA's recreation facilities. Recreation use information for Project day use areas and dispersed use areas is collected every six years for FERC Form 80 reporting; the most recent collection year was 2014. DWR also filed an updated recreation plan in May of 2016. In addition, DWR has been continuously working with DPR to rehabilitate and improve existing Project recreation facilities and has information on several projects, but not a comprehensive analysis of how the improvements and facilities rate with regard to condition, serviceability, and adequacy in terms of current guidelines and policies. While many facilities have been upgraded, other existing Project recreational facilities may need upgrading to meet current applicable accessibility guidelines. Information, which would be provided by this study, would include a detailed condition assessment and inventory of Project recreation facilities.

Study Area, Methods and Analysis

The study area would consist of Project recreation facilities at Silverwood Lake. The study area would not include Devil Canyon Afterbay and Second Devil Canyon Afterbay because these areas are closed to the public and no recreational use occurs there. The study area would not include lands overlying the San Bernardino Tunnel on which DWR does not perform any Project activities.

The study would consist of five steps: (1) create forms and templates for assessment; (2) conduct site condition assessments completing detailed inventory conditions forms; (3) assemble results and create maps; (4) prepare data and perform quality assurance; and (5) prepare a study report. The inventory would include assessments of parking areas, and the location and number of parking spaces, picnic and camping units, boat and trailer parking spaces, accessible parking spaces, and facility components. Trailheads and trails would be inventoried for signage, types of improvements, general widths, and general trail conditions. The field reconnaissance would include a physical inspection of existing Project recreation facilities and user-defined and designated Project trails and general trail conditions. The reconnaissance would be used to identify use patterns and help determine and verify recreation amenities as related to likely user experiences and common access points and travel routes. Observable resource impacts at developed and dispersed Project recreational sites would be noted. A report summarizing study methods and results would be prepared and included in DWR's DLA and FLA.

Consistency of Methodology with Generally Accepted Scientific Practices

An inventory of recreation opportunities/facilities using existing information and information collected during a site visit would be consistent with generally accepted practices employed during hydroelectric relicensings in California, including Bucks Creek (FERC No. 619) and Big Creek Hydroelectric Project (FERC No. 2175). Evaluating outdoor recreation facilities per the Architectural Barriers Act Accessibility Guidelines would be a common technique to establish the level of accessibility at outdoor recreation areas, parks, and recreation facilities.

STUDY PLAN OUTLINE 8. CULTURAL RESOURCES

Summary of Existing Information and Additional Information to be Developed by the Study

Existing, relevant, and reasonably available information regarding cultural resources within the proposed Project boundary is provided in Section 4.11. As a summary, DWR reviewed 78 previous cultural resources investigations that identified 44 archaeological sites and seven historic built environment resources within the existing FERC boundary. Only one archaeological site has been previously evaluated and was found not to be eligible for the NRHP. Four of the historic built environment resources have been evaluated as eligible for listing on the NRHP. DWR's review of historical maps indicates that approximately 25 potential historic-era sites or features may be located in the Project area. Additional information, which would be provided by this study, would include the location of historic properties inside the proposed Project boundary.

Study Area Methods and Analysis

The study area would consist of the area within the proposed Project boundary, excluding lands overlying the San Bernardino Tunnel on which DWR does not perform any Project activities.

The study methods would consist of five steps: (1) conduct archival research; (2) complete field surveys; (3) conduct NRHP evaluations of resources that can be evaluated at the survey level without additional investigation; (4) prepare data and perform quality assurance; and (5) prepare a study report. Under step 1, additional archival research would be used to augment the data collected for the PAD to provide the prehistory and history specific to the study area. The research would be used to prepare the historic contexts against which identified resources may be understood, and if possible at the survey level, evaluated for the NRHP. The field surveys conducted under step 2 would be supervised by qualified, professional archaeologists and others who meet the Secretary of the Interior's Standards for professional archaeologists, historians, and/or architectural historians. Fieldwork would follow the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation and the California Office of Historic Preservation's Instructions for Recording Historical Resources. In step 3, NRHP evaluations would be completed for archaeological sites and historic built environment resources for which the data gathered during steps 1 and 2 are sufficient to assess significance against the NRHP criteria found at 36 CFR § 60.4. A report, conforming to the guidelines of the Archaeological Resources Management Reports, would be prepared and included in DWR's DLA and FLA as "Privileged" information, and would only be provided to FERC, SHPO, and interested Native American tribal chairs or their designated tribal representatives, and to the USFS if any cultural resources are found on NFS lands.

Consistency of Methodology with Generally Accepted Scientific Practices

The study methods would be consistent with the methods used for recent FERC hydroelectric relicensing efforts in California, including for the Don Pedro Project, Yuba River Development Project and Merced River Hydroelectric Project. The methods would be consistent with the ACHP's guidelines.

STUDY PLAN OUTLINE 9. TRIBAL RESOURCES

Summary of Existing Information, and Additional Information to be Developed by the Study

Existing, relevant, and reasonably available information regarding tribal resources within the proposed Project boundary is provided in Section 4.13. As a summary, in the Project area DWR identified 78 previous cultural resources investigations, none of which identified any TCPs, ITAs or other cultural resources of tribal significance. DWR found the area within the proposed Project boundary has not recently been surveyed, and interested tribes have not been consulted regarding their interests. Additional information, which would be provided by this study, would include tribal interests in proposed Project boundary.

Study Area, Methods and Analysis

The study area would consist of the area within the proposed Project boundary, excluding lands overlying the San Bernardino Tunnel on which DWR does not perform any Project activities.

The study would consist of six steps: (1) conduct archival research; (2) conduct tribal consultation; (3) implement site visits with tribal representatives; (4) complete NRHP evaluations of resources that can be evaluated at the study level; (5) prepare data and perform quality assurance; and (6) prepare study report. Under step 1, additional archival research would be used to augment the data collected for the PAD to provide the prehistory and ethnography specific to the Project area, and that research would be used to prepare the historic context against which identified tribal resources may be understood and evaluated for the NRHP. In step 2, a professional ethnographer/oral historian would meet and consult with interested tribal members to conduct interviews regarding past and traditional tribal use and activities in the study area, and may visit archaeological sites or other locations within the study area with the tribes under step 3 to further gain knowledge relevant to tribal interests and resources. Identified tribal resources would be documented during step 3 and evaluated for the NRHP under step 4, unless additional investigation is required to conduct the NRHP evaluation. The documentation and NRHP evaluation of tribal interests would be consistent with National Register Bulletin No. 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties. A report, conforming to National Register Bulletin No. 38, would be prepared and included in DWR's DLA and FLA as "Privileged" information, and would only be provided to FERC, SHPO, and interested Native American tribal chairs or their designated tribal representatives, and to the USFS if any tribal resources are found on NFS lands.

Consistency of Methodology with Generally Accepted Scientific Practices

The study methods would be consistent with the methods used for recent FERC hydroelectric relicensing efforts in California, including for the Don Pedro Project, Yuba

River Development Project and Merced River Hydroelectric Project. The methods would be consistent with the ACHP's guidelines.

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