

4.1.20 Special-Status Raptors Study

4.1.20.1 Project Nexus

Continued Project O&M and Project-related recreation activities have the potential to affect special-status raptor species and their nesting habitat. For the purpose of this *Special-Status Raptors Study*, a special-status raptor species is a raptor that meets one or more of the following criteria: (1) listed under CESA as threatened (CT), endangered (CE), or candidate (C); (2) CDFW Fully Protected (FP); (3) CDFW SSC; (4) USFS Sensitive Species (FSS) and found on NFS lands; (5) BLM Sensitive and found on BLM lands; (6) formerly listed by USFWS as a Bird of Conservation Concern (BCC) or (7) protected under the Bald and Golden Eagle Protection Act.

4.1.20.2 Existing Information and Need for Additional Information

Existing, relevant, and reasonably available information regarding special-status raptors within, or with the potential to occur within, the proposed Project boundary is provided in Section 4.6.5 of the Licensees' PAD. As a summary, the Licensees found that no comprehensive special-status raptor surveys have been performed recently within the proposed Project boundary, but 11 special-status raptor species have the potential to occur (Table G-4 in the PAD [Appendix G]). Existing, relevant, and reasonably available information regarding special-status raptors and habitats within the proposed Project boundary is provided in PAD Section 4.6.5. This *Special-Status Raptors Study* will augment existing, relevant, and reasonably available information by conducting raptor studies in the proposed Project boundary.

Special-status raptor species with the potential to occur and their habitat descriptions are included in Table 4.1-14.

4.1.20.3 Study Goals and Objectives

The goal of this *Special-Status Raptors Study* is to document the presence and distribution of special-status raptor species within the proposed Project boundary or that may be impacted by activities associated with Project O&M or Project-related recreation.

4.1.20.4 Study Methods

Study Area

The *Special-Status Raptors Study* area will include specific locations within the proposed Project boundary including Pyramid Lake, Quail Lake, and a general 0.25 mile buffer around the lakes, Lower Quail Canal, and the area surrounding Castaic Powerplant. A buffer of 0.5 mile and 1.5 miles from the proposed boundary will be used to survey for California condor as described below. The *Special-Status Raptors Study* area is shown in Figure 4.1-28.

General Concepts and Procedures

- Personal safety is the most important consideration of each fieldwork team. Fieldwork will only occur in safely accessible areas and under conditions deemed safe by the field crews. Locations within the study area that cannot be accessed in a safe manner (e.g., locations containing dense vegetation or unsafe slopes) and areas inundated when the surveys are performed, will not be surveyed; these areas will be identified in the data summary and an explanation for survey exclusion will be provided.
- The *Special-Status Raptors Study* will begin after FERC issues its Study Plan Determination.
- The *Special-Status Raptors Study* does not include the development of requirements for the new license, which will be addressed outside the study.
- The *Special-Status Raptors Study* focuses specifically on the resource addressed by the Study within the proposed Project boundary, but the study area is specific to the areas within the proposed Project boundary containing ecological conditions suitable for that resource.
- If required for the performance of the *Special-Status Raptors Study*, the Licensees will make a good faith effort to obtain permission to access private property well in advance of initiating the study. The Licensees will only enter private property if permission has been provided by the landowner.
- The Licensees will acquire all necessary agency permits and approvals prior to beginning fieldwork for the *Special-Status Raptors Study*.
- Field crews may make variances to the *Special-Status Raptors Study* in the field to accommodate actual field conditions and unforeseen problems. Any variances to the *Special-Status Raptors Study* will be noted in the data resulting from the *Special-Status Raptors Study*.
- To prevent the introduction and transmittal of amphibian chytrid fungus and invasive aquatic species (e.g., quagga mussels, zebra mussel, and Asian clams), field crews will be trained on, provided with, and use materials (e.g., Quat) for decontaminating their boots, waders, and other equipment when leaving or traveling between water-based study sites. Field crews will follow DWR's Quagga and Zebra Mussel Rapid Response Plan and CDFW's Aquatic Invasive Species Decontamination Protocol which can be found at the following link: (<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=43333>). All boats used during the study will follow cleaning protocols, including inspections before and after use. All decontamination requirements in place at Project reservoirs including those of DWR's *Quagga and Zebra Mussel Rapid Response Plan* for the SWP will be strictly followed (DWR 2010).

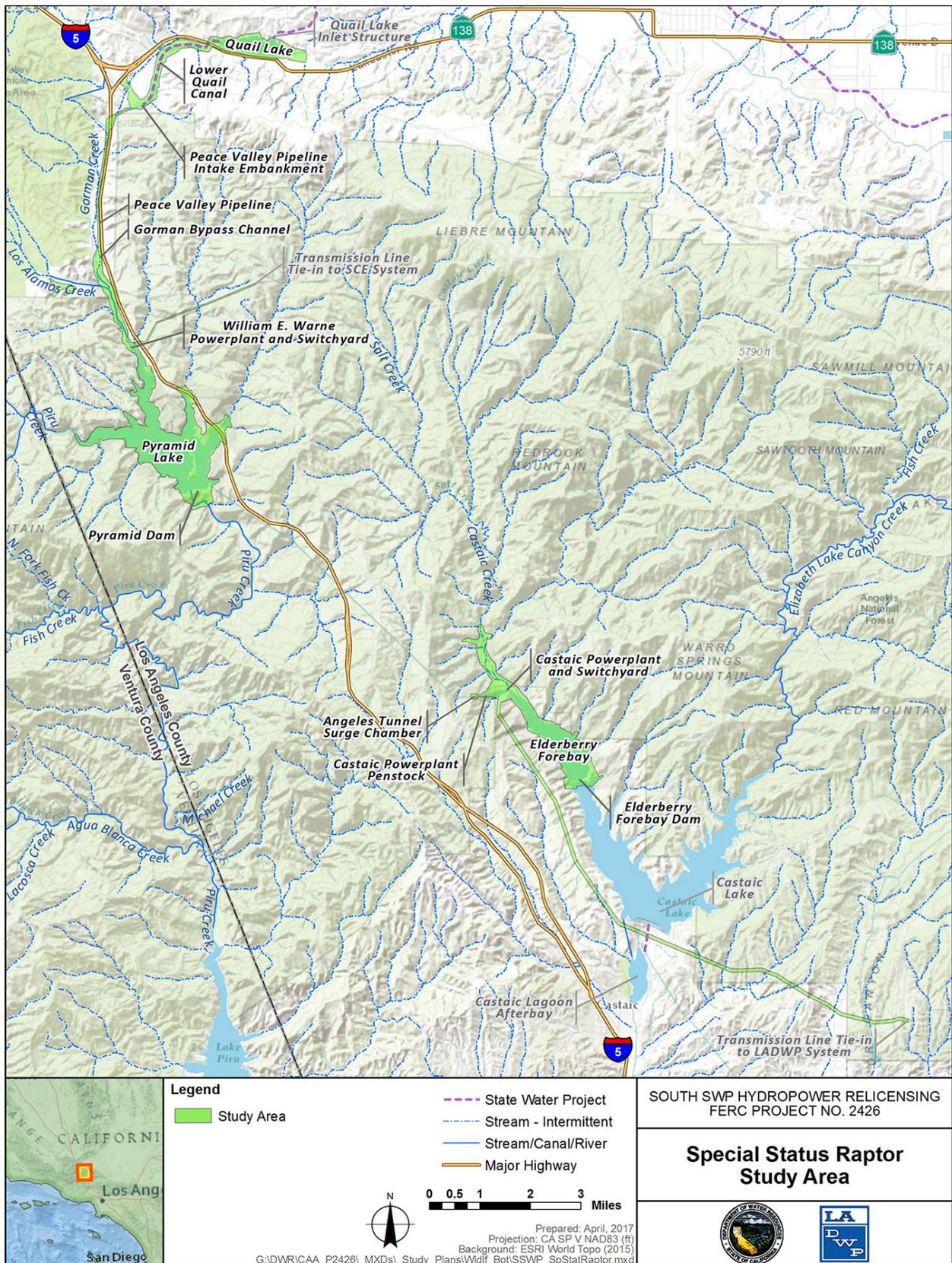


Figure 4.1-28. Special-Status Raptors Study Area

Methods

Special-status raptor surveys require that all species encountered are identified to the extent necessary to determine listing status. The *Special-Status Raptors Study* will consist of two steps: (1) gather data and prepare for field efforts, and (2) conduct special-status raptor surveys. These steps are described below.

Step 1 – Gather Data and Prepare for Field Efforts. Licensees will identify and map known occurrences of special-status raptor species within one mile of Pyramid Lake and Quail Lake, and prepare field maps for use by survey teams. This effort includes a 0.75 mile radius outside the study area to provide context for the surveyors when they perform the fieldwork associated with the study (i.e., the study area does not include this additional 0.75 mile radius outside the study area). The maps will include aerial imagery, Project features, and known special-status raptor species in the area. Survey timing will be planned based on established survey protocol periods for the target special-status raptors.

Step 2 – Conduct Special-Status Raptor Surveys. Licensees will conduct established protocol surveys for bald eagles, golden eagles, California condor, and burrowing owls. All other special-status raptors will be recorded as incidental observations only.

For all special-status raptor observations, the following will be collected: (1) digital photographs, if needed, to describe the occurrence, its habitat, and any potential threats; (2) estimated location of a bird or nest as derived from a handheld GPS unit, with a target accuracy of 50 feet. GPS data will be used to plot the sites on a GIS map; (3) estimated distance to nearest Project facility or feature, or Project-related activity, if in evidence; and (4) activities (e.g. recreational trails, maintenance, and uses) observed in the vicinity of the observation that have a potential to adversely affect the bird.

Special-status raptor species with the potential to occur and their habitat descriptions are included in Table 4.1-14.

Table 4.1-14. Special-Status Raptors with the Potential to Occur Within the Project Vicinity

Common Name	Scientific Name	Status	Habitat Requirements	Occurrence in Project Vicinity
Northern goshawk	<i>Accipiter gentilis</i>	FP, SSC, FSS, BCC, BLMS	Year-round resident of forested habitats, particularly mature coniferous and mixed forests. Few recent records in the mountains of Southern California.	No records. Considered unlikely to occur (LADWP 2012).
Golden eagle	<i>Aquila chrysaetos</i>	FP, BCC, BLMS	Generally open country, in prairies, arctic and alpine tundra, open wooded country, and barren areas, especially in hilly or mountainous regions. Nests on cliff ledges and in large trees.	One record in CNDDDB from Project vicinity (LEB quadrangle). Observed in flight near Elderberry Forebay (Aspen Environmental Group 2007).
California Condor	<i>Gymnogyps californianus</i>	FE	Generally open shrub, woodland forest	No records.
Long-eared owl	<i>Asio otus</i>	SSC	Riparian bottomland forest with over story of willows and cottonwoods; riparian forest along stream corridors (often dominated by live oak trees). Wooded areas with dense vegetation needed for roosting and nesting, adjacent open areas needed for hunting.	No records.
Burrowing owl	<i>Athene cunicularia</i>	SSC, BCC, BLMS	Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports.	Eight records in CNDDDB from the Project vicinity (LEB, MTC, NEW, PIR, and WTP quadrangles). No records in Project area.
Ferruginous hawk	<i>Buteo regalis</i>	BCC	Occurs in grasslands, desert scrub, agricultural areas or other areas of sparse shrubs, where there are poles, trees, cliffs, or other elevated features for nesting.	One record in CNDDDB from Project vicinity (LEB quadrangle).
Northern harrier	<i>Circus cyaneus</i>	SSC	Marshes, meadows, grasslands, open rangelands, emergent wetlands, and cultivated fields. Nests on the ground, often in brushy cover near water, but also in grassland, fields, and sagebrush flats.	No records.

Table 4.1-14. Special-Status Raptors with the Potential to Occur Within the Project Vicinity (continued)

Common Name	Scientific Name	Status	Habitat Requirements	Occurrence in Project Vicinity
White-tailed kite	<i>Elanus leucurus</i>	FP, BLM	Savanna, open woodland, marshes, partially cleared lands and cultivated fields, mostly in lowland situations. Often near agricultural areas. Nests in groves of deciduous trees.	One record in CNDDDB from Project vicinity (NEW quadrangle).
Prairie falcon	<i>Falco mexicanus</i>	BCC	Savanna, perennial grasslands, rangeland, and desert scrub. Nests on cliff ledges.	Three records in CNDDDB from Project vicinity (BMT, LEB, and LIM quadrangles).
American peregrine falcon	<i>Falco peregrinus anatum</i>	FP, BCC	Breeds in open landscapes with cliffs. Winters in any open habitat, mudflats, coastlines, lake edges and mountain chains, especially in areas where potential prey (other birds) are numerous.	No records.
Bald eagle	<i>Haliaeetus leucocephalus</i>	CE, FP, FSS, BCC, BLMS	Breeding habitat usually includes areas close to coastal areas, bays, rivers, lakes, or other bodies of water that reflect the general availability of primary food sources. Preferentially roosts in conifers or other sheltered sites in winter in some areas.	No records in CNDDDB. Observed in flight in the Project area (Aspen Environmental Group 2007).
California spotted owl	<i>Strix occidentalis occidentalis</i>	SSC, FSS, BCC, BLM	Mixed forests dominated by black oak, lodgepole pine, red fir from 1200 to 5500 feet elevation.	No records.
Osprey	<i>Pandion haliaetus</i>	WL	Ospreys occur primarily along rivers, lakes, reservoirs, and seacoasts. They often cross land between bodies of water. They typically build large stick nests on living or dead trees and also use numerous man-made structures such as utility poles, wharf pilings, windmills, microwave towers, chimneys, and channel. Nests are usually near or above water.	No records.

Source: Aspen Environmental Group 2007, Bolster 1998, Zeiner et al. 1988-1990, Shuford and Gardali 2008, IUCN Red List of threatened Species 2015, LADWP 2012

Key:

BCC = USFWS Bird of Conservation Concern

BLMS = BLM Sensitive

CE = CESA Endangered

FP = CDFW Fully Protected

FSS = Forest Service Sensitive

WL = Watch List species

Bald Eagle Surveys

Bald eagle surveys will be conducted by boat on Pyramid Lake and on foot from the shore at Quail Lake. It is assumed that the surveyor in the boat at Pyramid Lake and on foot at Quail Lake will be able to visually observe an area of approximately 0.25 miles from the water's edge.

Licensees will conduct bald eagle wintering and night roost surveys according to the *Protocol for Evaluating Bald Eagle Habitat and Populations in California* (Jackman and Jenkins 2004). The survey forms derived by Jackman and Jenkins (2004) will be used for both the wintering and night roost surveys. Survey methods include:

- Wintering Bird Surveys. A one-day survey will be conducted monthly from December through February (three surveys, at least two weeks apart) to capture peak wintering activity. The January survey will be conducted during the two-week nationwide, Mid-Winter Bald Eagle Surveys, coordinated by the U.S. Army Corps of Engineers (Steenhof et al. 2008), unless inclement weather prohibits safe surveys. Bald eagle activities and their exact locations will be recorded by GPS during these surveys.
- Winter Night Roost Surveys. One winter night roost survey will be conducted monthly from December through February (three surveys) if wintering bald eagles are observed in the Wintering Bird Surveys. Surveys will be conducted in the afternoon/early evening in areas where eagles were observed wintering in an effort to identify any night roosts. If roosts are located, the number of eagles will be recorded as they move from foraging to roosting habitat. These locations will be revisited the following morning, one-half hour before sunrise for at least two hours to count the number of eagles leaving the roost. If a stand is identified as a probable night roost, the area will be revisited during the day to search for any evidence of bald eagle use (e.g., feathers or castings) and the exact location will be recorded by GPS.

Licensees will conduct nesting surveys according to the *Bald Eagle Breeding Survey Instructions* (CDFG 1999) and *Protocol for Evaluating Bald Eagle Habitat and Populations in California* (Jackman and Jenkins 2004). Nesting territories will be checked at least three times during the nesting season (February through July). Survey methods include:

- Determine Occupancy of Territories and Early Incubation. Territories will be checked in early March, as weather conditions allow, in areas where bald eagles were observed during the Wintering Bird Surveys. Data collected at each site will consist of: (1) presence of adults, (2) courtship behavior, (3) evidence of nest repair or construction, (4) incubation, (5) observation of old nests, and (6) identification of any new nests. Surveys will be performed by boat, GPS coordinates will be recorded, and photographs will be taken for all nests observed.

- Confirm Occupancy of Territories and Presence of Eggs/Nestlings. Surveys will be conducted in late April or early May to determine whether the breeding pair surveyed in March is still tending the nest (e.g., incubating eggs or tending nestlings). The number of eggs/nestlings, bird behavior, and any other relevant observations will be recorded. These surveys will be conducted in the same manner as the initial surveys.
- Determine Nest Success. Surveys will be conducted in mid-June to determine how many nestlings are approaching fledgling age. These surveys will be conducted in the same manner as the other nesting surveys. The CDFW California Bald Eagle Nesting Territory Survey Form will be utilized during all nesting surveys.

Golden Eagle

Golden eagle surveys will be conducted by boat on Pyramid Lake and on foot from the dam at Quail Lake. It is assumed that the surveyor in the boat at Pyramid Lake and on foot at Quail Lake will be able to visually observe an area of approximately 0.25 mile from the water edge.

Licensees will conduct nesting golden eagle surveys according to the *Interim Golden Eagle Inventory and Monitoring; and Other Recommendations* (USFWS 2010) and *Protocol For Golden Eagle Occupancy, Reproduction, and Prey Population Assessment* (Driscoll 2010). Nesting territories will be checked four times during the nesting season (i.e., primarily February through July), with each survey spaced at least 30 days apart. Survey methods include:

- Occupancy Survey. Between January 1 and February 28, one 4-hour survey will be conducted to document courting behavior and nest building. Data collected will include: (1) description and GPS location of any nests or partial nests, (2) description and GPS location of any perches, (3) number of adults observed and behavior, (4) number of sub-adults observed and behavior, (5) GPS location of all golden eagles observed, and (6) weather.
- Incubation Survey. During March, one 4-hour survey will be conducted to document nests and egg incubation. Data collected will include: (1) description and GPS location of any nests or partial nests, (2) description and GPS location of any perches, (3) number of adults observed and behavior, (4) number of sub-adults observed and behavior, (5) number of eggs observed, (6) GPS location of all golden eagles observed, and (7) weather.
- Nesting Survey. Between April 1 and May 15, one 4-hour survey will be conducted to document nestlings. Data collected should include: (1) description and GPS location of any nests or partial nests, (2) description and GPS location of any perches, (3) number of adults observed and behavior, (4) number of sub-adults observed and behavior, (5) number of nestlings observed, description of

plumage, and behavior, (6) GPS location of all golden eagles observed, and (7) weather.

- Fledgling Survey. Between May 15 and June 30, one 4-hour survey will be conducted to document fledglings. Data collected should include: (1) description and GPS location of any nests or partial nests, (2) description and GPS location of any perches, (3) number of adults observed and behavior, (4) number of sub-adults observed and behavior, (5) number of fledglings observed, description of plumage, and behavior, (6) GPS location of all golden eagles observed, and (7) weather.

California condor

California condor surveys will be conducted by boat on Pyramid Lake and on foot from the dam at Quail Lake. It is assumed that the surveyors in the boat at Pyramid Lake and on foot at Quail Lake will be able to visually observe an area of approximately 0.25 mile from the water edge. Licensees will continue the survey on foot up to 0.5 mile from the proposed Project boundary to identify any active condor roost sites within the proposed Project boundary.

Licensees will conduct nesting California condor surveys according to the *Forest Land Management Practices Standard 28*. Surveys will be conducted out to 1.5 miles beyond the proposed Project boundary and will be checked three times during the nesting season (i.e., primarily February through July), with each survey spaced at least 30 days apart.

Burrowing Owl

Per CWHR maps in the PAD, the following areas will be surveyed for burrowing owl: Quail Lake, Lower Quail Canal, the arms of Pyramid Lake near Highway I-5, and the area surrounding Castaic Powerplant, where accessible. Licensees will conduct surveys by generally following the *Burrowing Owl Survey Protocol and Mitigation Guidelines* (The California Burrowing Owl Consortium, 1993).

First, Licensees will conduct a pedestrian survey of the study area, plus a 500-foot buffer, for 100 percent visual coverage of any signs of burrowing owl or burrows during the period September 1 through January 31. A 150-foot minimum distance from any owls or occupied burrows will be maintained. All burrows and/or burrowing owls found will be recorded, including GPS location and photographs.

If burrows are located, nesting bird surveys will be conducted between April 15 and July 15. Four surveys on four separate days will be conducted at all located burrowing sites. These will take place either two hours before sunset and one hour after, or an hour before sunrise and two hours after. Owl sightings, occupied burrows, and territorial and breeding behavior will be recorded, along with GPS location.

Incidental Raptors Sightings

For all other special-status raptors (i.e., northern goshawk, northern harrier, ferruginous hawk, white-tailed kite, prairie falcon, American peregrine falcon, long-eared owl, and California spotted owl), Licensees will record any sightings and nests observed, photograph the bird and/or nest, and record the location using GPS. If reasonably possible, Licensees will make a determination as to whether a raptor nest is active or inactive.

A list of all observed and identified bird species will be collected throughout the surveys and included in the final reporting.

4.1.20.5 Quality Assurance and Quality Control

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

4.1.20.6 Analysis

Once the location of a special-status raptor species in the study area is defined, Project operations staff will be consulted to identify Project O&M, or other Project-related, activities that typically occur in the area of the occurrence that have a potential to affect the species.

4.1.20.7 Reporting

Special-status Raptors Study results will be incorporated, to the extent they have been completed for inclusion in the Licensees' ISR, USR, DLA, and FLA.

4.1.20.8 Consistency of Methodology with Generally Accepted Scientific Practices

Elements of this *Special-Status Raptors Study* are consistent with the goals, objectives, and methods outlined for most recent FERC hydropower relicensing efforts in California, including the Don Pedro Project (FERC No. 2299), the Yuba River Development Project (FERC No. 2246), the Merced River Hydroelectric Project (FERC No. 2174), and the Camp Far West Hydroelectric Project (FERC No. 2997), and will use established survey protocols for each species.

4.1.20.9 Schedule

The *Special-Status Raptors Study* will begin after FERC issues its Study Plan Determination. Licensees anticipate the schedule below will be followed to complete the *Special Status Raptors Study*.

Fieldwork Preparation

March 2018 – July 2018

Fieldwork	February 2018 – November 2018
Data QA/QC	December 2018 – January 2019
Data Analysis and Reporting	January 2019 – February 2019

4.1.20.10 Level of Effort and Cost

Based on the work effort described above, Licensees estimate the current cost to complete this *Special-Status Raptors Study* will range between \$70,000 and \$85,000.

4.1.20.11 References

- Aspen Environmental Group. 2007. Biological Assessment and Report of Sensitive Resource Surveys for Castaic Power Plant and Vicinity. Report prepared for LADWP. September 2007.
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