

6.5 California Spotted Owl Study Plan

6.5.1 Pertinent Issue Questions

The California spotted owl study addresses Terrestrial Resource Issue Questions:

- 7(b). "What are the relevant and known factors (limiting and beneficial) affecting special status bird populations in the Project area and how/where are these factors influenced by Project operation and maintenance?"
21. "What are the Project impacts on special status birds with particular emphasis on Project facilities, operation, maintenance and Project-influenced recreation?"
23. "To what extent do Project operations and maintenance activities and Project-induced recreation affect spotted owl populations?"

6.5.2 Background

The California spotted owl has the following special status designations: Federal Species of Concern, California Species of Concern, Forest Service Sensitive Species, and Forest Service Management Indicator Species. Nesting spotted owls may be affected directly or indirectly by any new Project construction that may be proposed (e.g., loss of habitat to new recreation facilities, maintenance activities such as vegetation clearing within transmission line rights-of-way, or by related activities such as recreational use of the area.

Little information is available on the historic distribution, abundance, and habitat associations of California spotted owl in the Sierra Nevada (USDA 2001). The subspecies now ranges from south of the Pit River in Shasta County, throughout the entire Sierra Nevada, and the south and central Coast Ranges as far north as Monterey. Based on California Department of Fish and Game (CDFG) records through 1999, 1,452 owl sites have been recorded within the Eldorado National Forest (ENF) since 1987 including 172 pairs, 41 territorial single birds, and 18 singles. The elevation of known nest sites ranges from about 1,000 to 7,700 feet, with about 86 percent occurring between 3,000 and 7,000 feet.

The exact habitat requirements of the California spotted owl is currently a matter of scientific debate, although it has been found to inhabit a broader array of habitat conditions than the northern spotted owl (Moen and Gutierrez 1997). Call et al. (1992) discovered that the number of vegetative strata, high old-growth and mature basal tree area, and high canopy closure were the most important distinguishing characteristics of forest stands used by the California spotted owl. The Sierra Nevada Forest Plan Amendment (USDA 2001) notes that four vegetation types provide the spotted owl habitat on the west slope of the Sierra Nevada: 1) foothill riparian/hardwood; 2) ponderosa pine/hardwood; 3) mixed-conifer forest; and 4) red fir forest. The mixed conifer type receives the most use with about 80 percent of known sites located in this type. In general, stands suitable for owl foraging have: 1) at least two canopy layers; 2) dominant and co-dominant trees in the canopy averaging at least 11 inches dbh; 3) at least 40 percent canopy cover in overstory trees (30 percent in the red fir type); and 4) higher than average numbers of snags and downed woody material. Nesting and roosting stands, in general, have: 1) two or more canopy layers; 2) dominant and codominant trees in the canopy averaging at least 24 inches dbh; 3) at least 70 percent total canopy cover; 4) higher than average levels of very large, old trees; and 5) higher than average levels of snags and downed woody material.

The spotted owl breeding season extends from about mid-February through September (USDA 2001). The egg laying through incubation period extends from early April through May, and young owls typically fledge in mid- to late-June. In the weeks after fledging the young are very weak fliers and remain near the nest tree. Adults continue to feed the young until late September.

Spotted owl above the mid-elevation conifer forests of the Sierra Nevada (about 4,000 to 5,000 feet) prey mainly on flying squirrels. Owls in the mid-to-lower elevations of the mixed-conifer zone, and the upper part of the ponderosa pine zone, prey heavily on both flying squirrels and woodrats. Spotted owls in the foothill riparian/hardwoods primarily consume woodrats.

The U.S. Forest Service has been directed by the Forest Plan Amendment (USDA 2001) to establish 300-acre Protected Activity Centers (PACs) around all known and newly discovered territories detected on national forest lands since 1986. PACs are intended to contain the best available habitat as described above. PACs are maintained regardless of occupancy status, unless the habitat is rendered unsuitable by a catastrophic stand-replacing event (e.g., fire) and surveys confirm non-occupancy (USDA 2001). Fuel treatment and vegetation management activities are limited within PACs. In addition, Limited Operating Periods (LOPs) prohibit activities within approximately one-quarter of a mile to a nest site during the breeding season (March 1 through August 31) unless surveys confirm that the spotted owl is not nesting. LOPs do not apply to existing road and trail use and maintenance or continuing recreation use, except where analysis of a proposed project or activity indicates that disturbance to a nest is likely to result. The LOP may also be waived for individual projects or activities of limited scope and duration, or when a biological evaluation documents that such projects are unlikely to result in breeding disturbance. Where a biological evaluation determines that a nest site will be shielded from planned activities by topographic features that minimize disturbance, the LOP buffer distance may be reduced.

ENF biologists have conducted protocol-level surveys for the spotted owl since 1989 and have documented numerous detections of the spotted owl within the ENF boundaries (ENF 1997). Numerous PACs have also been delineated including several adjacent to Project features as shown in the following table:

California Spotted Owl PACs near Project Features, Bypass Reaches, and Tributaries (ENF 1999)	
Reference Locations	Approximate Location of Protected Activity Centers in the Project area.
Gerle Creek - North of Reservoir	Two PACs along Gerle Creek from 1-3 miles north of Gerle Creek Reservoir
Gerle Creek Reservoir	One PAC on the south side of the reservoir; One PAC about 1 mile east of reservoir between Angel Creek & Rubicon River
Union Valley Reservoir	Two PACs along road between Gerle Creek Reservoir and Union Valley Res.; One PAC adjacent to west shore of reservoir; One PAC about 0.5 mile east of reservoir and just north of Big Silver Creek;
Ice House Reservoir	One PAC adjacent to west shore of reservoir; One PAC adjacent to east shore of reservoir
Silver Creek, Jay Bird Creek, Brush Creek, Slab Creek	Several scattered along these bypass reaches and tributaries in vicinity of Project reservoirs

6.5.3 Study Objectives

The objectives of the California spotted owl study are: 1) to determine the location, extent, and distribution of nesting spotted owls in relation to potential sources of Project-related disturbance (e.g., operation, maintenance, and recreation activities), and 2) assess potential effects on spotted owl habitat, including foraging and nesting requirements, due to any habitat alteration actions proposed by the Fire and Fuels Management Plan to be developed by the Licensee. This information will be evaluated to determine if Project activities should be modified to reduce adverse impacts to the species and to support the ENF for spotted owl management.

6.5.4 Study Area and Sampling Sites

The study area for determining effects on California spotted owls will be all suitable habitat above 1,000 feet in elevation (e.g., above White Rock Powerhouse) and within 0.25-mile (as per LOP guidelines presented in the Sierra Nevada Forest Plan Amendment) of Project facilities that provide a potential source of ongoing disturbance to nesting spotted owls due to operation and maintenance activities (e.g., dams, powerhouses, switchyards, and primary access roads). [Note: Project features that require only minor and infrequent visitation by SMUD personnel (e.g., transmission lines) are not included in the study area. However, the transmission line corridor would be surveyed should a vegetation management action or other significant activity be proposed within the line. In those situations, a separate evaluation will be performed to consider effects of the action on spotted owls.] Field surveys will be conducted within portions of the study area delineated as described under Pre-field Investigations (See Section 1.6.6). Field studies will be restricted to those lands where the Licensee has legal access (e.g., ownership/easement rights, public lands) and will not occur on private lands without prior permission from the landowner. In particular, BLM-owned parcels within the study area between 1,000 and 3,000 feet elevation will be investigated to determine

if suitable habitat exists; if habitat is not suitable for nesting spotted owls, these areas will not be surveyed. Additional study areas will be included as deemed appropriate by the Licensee in collaboration with agency biologists (e.g., the developed and dispersed recreation areas being identified by the recreation TWG, other areas as determined by the fire and fuels management plan, and project roads that would be identified through the project sources of sediment study in coordination with the recreation and aquatic TWGs).

6.5.5 Information Needed From Other Studies

A determination of potential Project impacts on nesting spotted owls will require information from the Recreation Supply Study, Vegetation Mapping Study, and the Land Management Study. Important information will be also be derived from past and current monitoring efforts conducted by ENF staff biologists and from a review of the scientific literature.

6.5.6 Study Methods and Schedule

The spotted owl study methods will follow the standardized *Protocol for Surveying For Spotted Owls in Proposed Management Activity Areas and Habitat Conservation Areas* (USDA 1993). A step-down approach is used to reduce the area requiring field surveys and to maximize efficiency in surveying specific habitats. Prior to conducting field surveys the following pre-field investigations will be conducted:

- Review findings of all available studies on responses of nesting spotted owls to hydro operations and maintenance activities, recreation, and other sources of disturbance of relevance to the UARP [Source: literature review and consultation with experts].
- Locate, map, and verify status (i.e., configuration, occupancy) of all past and current nest sites, PACs, and Habitat Conservation Areas (HCAs) within one mile of project features as defined above for Study Area [Source: ENF records and annual ENF monitoring activities].
- Determine suitable (likely to be occupied) habitat within the Study Area based on forest structure (species composition, size class, density), patch size, slope, and aspect as defined in the Standards and Guidelines for spotted owl presented in the Sierra Nevada Forest Plan Amendment (USDA 2001) and supplemented by ENF records. Suitable habitat will be mapped using this information along with the results of the Vegetation Mapping Study. Alternatively, ENF maps of spotted owl habitat distribution will be used where available.
- Determine the location, type, and season/frequency of occurrence of all Project-related sources of disturbance as defined under Study Area [Source: SMUD/ENF records and findings of recreation studies].
- Overlay map of suitable habitat with map of Project features to delineate patches of suitable habitat within 0.25-mile of each feature representing a potential Project-related source of disturbance.
- Overlay habitat/project features map with a map of known PACs/territories (from ENF records), and delete overlapping areas from area to be surveyed. This area is assumed to be occupied and subject to Limited Operating Periods. Therefore, no field surveys are required unless verification of status is desired to avoid an LOP. [Note: ENF may verify status of existing nests/PACs as part of their annual management efforts].
- Based on amount of remaining suitable habitat, patch size and distribution, distribution of known PACs/territories, and available safe access, develop plan for conducting protocol surveys. Use maps and aerial photography to determine optimal placement of survey routes (e.g., roads, trails), transects, and/or points (prominent overlooks).

6.5.7 Analysis

The location of any California spotted owl nests, HCAs or PACs will be evaluated with respect to the proximity of potential Project-related disturbance sources. The evaluation will consider such factors as: 1) clear or obstructed line of sight between nest/PAC and source of disturbance; 2) distance of nest from/PAC from potential disturbance; 3) timing, intensity, and duration of disturbance relative to nesting stage; 4) need to implement Limited Operating Periods for source of disturbance. The evaluation will include a thorough review of the literature to determine findings of related studies on the response of nesting California spotted owls to the types of disturbances in question.

6.5.8 Study Output

First-year study results will be presented to the Terrestrial Resources Technical Working Group (TWG) and Plenary Group toward the end of 2002. However, the ultimate study output will be a written report that includes the issues addressed, objectives, study area, methods, analysis, results, discussion, and conclusions. The reports will be prepared in a format that allows the information to be inserted directly into the Licensee-prepared Draft Environmental Assessment that will be submitted to FERC with the Licensee's application for a new license.

6.5.9 Preliminary Estimated Study Cost

A preliminary estimated study cost will be prepared after the Plenary Group approves the plan.

6.5.10 TWG and Plenary Group Endorsement

The Terrestrial TWG approved this plan, as amended, on March 22, 2002. The participants at the meeting who said they could "live with" this study plan were USFS, CDFG, CNPS, and SMUD. None of the participants at the meeting said they could not "live with" this study plan.

On May 1, 2002 the following participants gave Plenary Group approval to the plan: USFS, BLM, USFWS, Taxpayers of El Dorado County, Friends of El Dorado County, Camp Lotus, El Dorado County Water Agency, El Dorado County, Placer County Water Agency, California Department of Fish and Game, California State Water Resources Control Board, Pacific Gas and Electric and Friends of the River. None of the participants at the meeting said they could not "live with" this study plan.

6.5.11 Literature Cited

Call, D.R., R.J. Gutierrez, and J. Verner. 1992. Foraging habitat and home-range characteristics of California spotted owls in the Sierra Nevada. *Condor* 94(4):880-888.

ENF (Eldorado National Forest). 1997. Revision of the environmental analysis for recreation facilities associated with the Upper American River Project, FERC License 2101: Consideration of new information and changed circumstances. ENF EA #PA86-6.

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USDA (United States Department of Agriculture, Forest Service). 1993. Protocol for surveying for spotted owls in proposed Management Activity Centers and Habitat Conservation Areas. March 12, 1991 (Revised February 1993).

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