

11.10 Iowa Hill California Spotted Owl Study Plan

11.10.1 Pertinent Issue Questions

This study addresses the following terrestrial resource questions for the proposed Iowa Hill Pumped Storage Development Project, as identified by the Upper American River Project (UARP) Relicensing Terrestrial Resources Technical Working Group (TWG) and as adapted from previously approved UARP studies:

- Do California spotted owls occur within the proposed Project Area?
- What are the potential impacts of the construction, operation, and maintenance of the proposed Project on California spotted owls and their habitat?

11.10.2 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 California spotted owl has been found to inhabit a broader array of habitat conditions than the northern spotted owl (Moen and Gutierrez 1997). 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 Eldorado National Forest Land and Resource Management Plan, as amended, establishes 300-acre Protected Activity Centers (PACs) around all known and newly discovered territories detected on national forest lands since 1986. (USDA Forest Service 2001) 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 0.5-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). Three spotted owl PACs have been delineated within the general vicinity of the proposed Project (see attached Figure). PAC ED195 is located immediately adjacent to the west and southwest boundary of the Project. PAC ED034 is located about 1.0-mile northeast of the Project Boundary and PAC ED123 is located approximately 0.5-mile southeast of the boundary. Current information is lacking on the occupancy status of these PACs.

11.10.3 Study Objectives

The objectives of the 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 habitat alteration actions resulting from the Project, including clearing of the appurtenant transmission line corridor. This information will be evaluated to determine if Project activities could be modified to reduce adverse impacts to the species and to support ENF management objectives for the species.

11.10.4 Study Area and Sampling Sites

The analysis area for determining effects on spotted owls will be all suitable forested habitat within 1.5-mile of proposed Project facilities. Specific survey areas, transects, and call points will be determined in consultation with ENF and CDFG biologists and will be based on standardized USFS protocols for conducting northern goshawk surveys (USDA 2000).

11.10.5 Information Needed From Other Studies

A determination of potential Project impacts on nesting spotted owls will be supported by information from the Vegetation Mapping Study and Wildlife Habitat Characterization Study. Important information will be also be derived from past and current monitoring efforts conducted by staff biologists of ENF and Sierra Pacific Industries.

11.10.6 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). This protocol states the following: One-year surveys (6-visits) provide a somewhat lower likelihood of determining the presence or absence of spotted owls. In addition, 1-year surveys will be valid only until the beginning of the following breeding season. Two-year (3 visits/year) surveys are preferable for surveying a management activity or planning area to determine the presence or absence of spotted owls. Two-year surveys may be valid for 2 additional years.

Nighttime Spot Calling Along Roads: Based on the survey protocol, the ENF has prepared a map of the overall analysis area. Biologists affiliated with the ENF, CDFG, and the Licensee will collaborate on final selection of survey area and call points prior to initiating surveys. In general, a series of calling points will be established at less than 0.5-mile intervals at prominent points along roads within the Project area (see attached figure). Calling points will be established to ensure complete coverage of the suitable habitat within 1.5-miles of the Project area. Each point will be recorded on aerial photos or maps and using Global Positioning System (GPS) technology. Observers will spend at least 10 minutes at each call point.

Timing of Surveys: The protocols provide for either 1-year or 2-year survey schedules. However, since 1-year survey protocols are presumed to be less effective at determining presence and status of spotted owls, the Licensee will implement the 2-year protocol schedule. The 2-year schedule requires three complete visits per year for two years with at least two of the visits conducted before June 30 each year. A complete visit may be a combination of a day and night field outing and may include a follow-up visit. The objective of the follow-up visit is to locate owl pairs during the day by conducting an intensive search (1-6 hours) around the original nighttime response location and usually within a 0.5-mile radius. A complete visit should be performed on consecutive days as much as possible and the entire area must be covered within 7 days in order to qualify as a complete visit. If a surveyor gets an owl response at night and conducts a follow-up visit, the combination of the two would be counted as one complete visit. If no owls are detected during a night survey, a follow-up visit is not necessary to count as one complete visit. Nighttime surveys will be conducted sunset and sunrise. Complete visits will be spaced at no less than 5-day intervals.

Performance of Surveys: Observers will start each visit from a different station than used during the previous visit. Surveyors will attempt to stimulate vocal responses from owls using a pre-recorded calls and a portable amplification device to ensure projection of the call at least 0.25-mile. The pre-recorded calls will be broadcast 3-7 times, followed by a 1-2 minute listening period, then another series of 3-7 calls. This process will continue for at least 10 minutes at each station. Observers will use a USFS-approved call tape, making every effort to obtain one that contains the male 4-note contact calls and male and female agitated calls. Surveys will attempt to record behavioral responses such as: use of agitated calls, continuous responses, movement to or away from the observer, or other responses of interest. If a nighttime response is detected observers will estimate the bird's location (e.g., using triangulation) and then survey only those remaining areas beyond the auditory range of the bird (i.e., generally over a ridge and at least 0.5-mile away). A follow-up visit will then be conducted as soon as possible (preferably within 48 hours of the initial detection). The follow-up visit will cover the area within about 0.5-mile of the detection and if no owl is found within four hours, the follow-up visit will be considered complete. If an owl is found, observers will spend up to two more hours trying to establish pair status using "mousing" and visual observation. If the owl is located but is observed roosting/sleeping and ignoring any mice that are presented for one hour, the follow-up visit is over. If the owl is active and shows interest in mice that are offered but pair status cannot be determined during a 2-hour period, the visit is complete unless the observer feels pair status can be confirmed with additional effort. If pair status is confirmed, the visit is over.

- Pair status is determined by any of the following:
 1. A male and female are heard and/or observed in proximity (i.e., < 0.25-mile apart) to each other on the same outing during the day, or on two separate night outings within a 2-year period;
 2. A male takes a mouse to a female; or
 3. A female is seen on a nest; or
 4. One or both adults are observed with young.
- Resident single status is determined by:
 1. The presence or response of a single owl within the same general area on three or more visits within a breeding season, with no response by an owl of the opposite sex after a complete survey; or
 2. The presence or response of a single owl within the same general area on three or more visits during the breeding season over a 1-3 year period.
 3. Two Birds, Pair Status Unknown is a resident single location in which there were two birds of the opposite sex, pair status could not be determined, and at least one of the birds meets the resident single status requirements.
- Status Unknown (single owl) is determined by the response of a male and/or female that does not meet the pair or resident single requirements listed above.
- Verified Unoccupied Status is determined when a complete survey has been conducted in a survey area, but no owls were detected.

Surveys will not be conducted under inclement weather conditions, such as high winds (> 10 mph), moderate to heavy rain, or high noise levels (e.g., stream noise, machinery) that would inhibit detections of responses.

11.10.7 Analysis

The location of any California spotted owl detections including nest and roost locations will be evaluated with respect to the proximity of potential Project-related disturbance sources and habitat alteration. The evaluation will consider such factors as: 1) loss or degradation of habitat utilized by spotted owls, 2) loss or degradation of habitat in PACs, 3) clear or obstructed line of sight between nest/PAC and source of disturbance; 4) distance of nest/PAC from potential disturbance; 5) timing, intensity, and duration of disturbance relative to nesting stage; 6) need to implement Limited Operating Periods for source of disturbance. The evaluation will include a 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 and will utilize data from the vegetation mapping study and ENF records on spotted owl occurrence in evaluating effects to spotted owls located within the analysis area.

11.10.8 Study Output

Complete study results, including standardized survey outing forms and mapped survey results will be provided to the Terrestrial Resources Technical Working Group (TWG) during summer 2004 in a written and electronic report format. The study report needs to include a data file that delineates call routes and call points, dates and time of survey visits, and associated results. A map depicting these features needs to have a linked data file with UTM coordinates. Ultimately, the results of the study will be incorporated into Exhibit E of the Licensee's application to FERC for a new license for the UARP. The report will address the pertinent issue questions, objectives, study area, methods, analysis, results, discussion, and conclusions.

This study plan was approved by USFS, USFWS, CDFG and SMUD via TWG discussions, a field visit to the Iowa Hill project area, emails and faxes. With incorporation of comments from CDFG and USFS, this study plan was approved via email on March 19, 2004

The study plan was approved by the Plenary Group on April 7, 2004 without modification. There was no one present at the meeting who objected to the study plan going forward for implementation.

11.10.9 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.

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