SACRAMENTO MUNICIPAL UTILITY DISTRICT
UPPER AMERICAN RIVER PROJECT
(FERC NO. 2101)

CALIFORNIA SPOTTED OWL
TECHNICAL REPORT

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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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Moen, C.A., and R.J. Gutierrez. 1997. California spotted owl habitat selection in the central Sierra Nevada. Journal of Wildlife Management 61(4):1281-1287.

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).

USDA (United States Department of Agriculture, Forest Service). 2001. Sierra Nevada Forest Plan Amendment: Final Environmental Impact Statement, Volumes 1-6 and Record of Decision. USDA Forest, Service, Pacific Southwest Region, San Francisco, CA. January 2001.

CALIFORNIA SPOTTED OWL TECHNICAL REPORT

SUMMARY

This technical report provides the results of surveys for California spotted owl (*Strix occidentalis occidentalis*) and a spatial analysis of Protected Activity Centers (PACs) relative to SMUD's UARP facilities. The study area included all suitable habitat above 1,000 feet in elevation (e.g., above White Rock Powerhouse) and within 0.25-mile of UARP facilities. Study methods conformed to *Survey Methodology for Spotted Owls in Proposed Management Activity areas and Habitat Conservation Areas, U.S. Forest Service* (USDA 1993). Three complete broadcast call surveys, at 18 call points, were conducted each year in 2002 and 2003. First year surveys were conducted between June 18 and July 23. Second year surveys were conducted on June 17-18, July 16-17 and August 13-14. In 2002, responses were obtained from two adults and one juvenile in the vicinity of Long Canyon, southeast of Slab Creek Reservoir. In 2003, responses were obtained from two adult and two juvenile spotted owls near Union Valley Dam. Also in 2003, four responses were obtained from adult owls presumed to represent the pair recorded in 2002 in the vicinity of Long Canyon. All responding birds appear to be associated with known PACs. Spatial analyses of PAC locations indicate 14 PACs are within 0.25-mile of UARP facilities.

1.0 INTRODUCTION

This technical report is one in a series of reports prepared by Devine Tarbell & Associates, Inc., (DTA) for the Sacramento Municipal Utility District (SMUD) as an appendix to SMUD's application to the Federal Energy Regulatory Commission (FERC) for a new license for the Upper American River Project (UARP or Project). The report addresses California spotted owl (*Strix occidentalis occidentalis*) and includes the following sections:

- **BACKGROUND** – Summarizes the applicable study plan approved by the UARP Relicensing Plenary Group; a brief description of the issue questions addressed, in part, by the study plan; the objectives of the study plan; the study area, and agency information requests. In addition, requests by resource agencies for additions to this technical report are described in this section.
- **METHODS** – A description of the methods used in the study.
- **RESULTS** – A description of the data obtained during the study.
- **ANALYSIS** – An analysis of the results, where appropriate.
- **LITERATURE CITED** – A listing of all literature cited in the report.

This technical report does not include a detailed description of the UARP Alternative Licensing Process (ALP) or of the UARP, which can be found in the following sections of SMUD's application for a new license: The UARP Relicensing Process, Exhibit A (Project Description), Exhibit B (Project Operations), and Exhibit C (Construction).

Also, this technical report does not include a discussion regarding the effects of the UARP on California spotted owl and its habitat, nor does the report include a discussion of appropriate protection, mitigation and enhancement measures. Discussion regarding operation and maintenance of the UARP and potential effects on California spotted owl is included in the

applicant-prepared preliminary draft environmental assessment (PDEA) document, which is part of SMUD's application for a new license. Development of resource measures will occur in settlement discussions commencing in 2004, and will be reported on in the PDEA.

2.0 BACKGROUND

2.1 California Spotted Owl Study Plan

The California Spotted Owl is afforded the following special status designations: State of California Species of Concern (CSC), Federal Species of Concern (FSC), USDA Forest Service Sensitive Species (FSS), and Eldorado National Forest (ENF) Service Management Indicator Species (MIS). In response to these special status designations and the management emphasis afforded the California Spotted Owl under the ENF Land and Resource Management Plan (LRMP) and the California Fish and Game Code, the UARP Terrestrial Resources Technical Working Group (TWG) developed the California Spotted Owl Study Plan, which was approved by the Terrestrial Resources TWG on March 22, 2002 and by the UARP Relicensing Plenary Group on May 1, 2002. The study plan was designed to address, in part, the following issues questions developed by the Plenary Group:

Issue Question 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 those factors influenced by Project operation and maintenance?
Issue Question 21.	What are the Project impacts on special status birds with particular emphasis on Project facilities, operation, maintenance and Project-induced recreation?
Issue Question 34.	To what extent do Project operations and maintenance activities and Project-induced recreation affect spotted owl populations?

Based on a review and discussion of the initial issue questions, the TWG developed the following study objectives:

1. Determine the location, extent, and distribution of nesting spotted owls in relation to potential sources of UARP-related disturbance (e.g., operation, maintenance, and recreation activities).

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 SMUD.

As noted above, this technical report does not address UARP impacts to California Spotted Owl, and accordingly, does not address Issues Questions 7(b), 21 and 34 and Objective 2 as they pertain to UARP impacts. The Settlement Negotiation Group will assess UARP impacts during settlement discussions.

The study area for the California Spotted Owl study was all suitable habitat above 1,000 feet in elevation (e.g., above White Rock Powerhouse) and within 0.25-mile[1] of UARP facilities (e.g., dams, powerhouses, switchyards, ancillary facilities and primary access roads). [Note: UARP features that require only minor and infrequent visitation by SMUD personnel (e.g., transmission lines) were not included in the study area but would be surveyed should SMUD propose a vegetation management action or other significant activity that could adversely affect spotted owls in these locations.]. Field surveys were conducted within a subset of the study area as described under Pre-field Investigations in Section 1.6.6. Field studies were restricted to those lands where SMUD had legal access (e.g., ownership/easement rights, public lands) and were not performed on private lands without prior permission from the landowner. In addition, the United States Bureau of Land Management (BLM)-owned parcels within the study area between 1,000- and 3,000-feet elevation were evaluated to determine habitat suitability and need for surveys.

2.2 Agency Requested Information

In a letter dated December 17, 2003 to SMUD, the agencies identified, by study, information they believed they needed to begin settlement discussions, with the understanding that additional information might be requested. While the California Spotted Owl Study was not specifically addressed, the agencies general comment regarding terrestrial studies is pertinent:

- All studies will need Geographic Information System (GIS) shape files showing habitat/ vegetation types and spatial relationships with meta-data.
- Shape files will need to include survey locations and positive sightings/responses.
- Spreadsheet formats that include: bats, bald eagle/osprey, mesocarnivores, goshawks, California spotted owl, willow flycatcher, rare plants, noxious weeds.

    - Location
    - Date
    - Species observed/captured and specific UTM coordinates
    - Habitat composition
    - On site (In situ) verification of WHR habitat types
    - Method of capture
    - Nest locations
    - Activity centers

The locations of call points used in spotted owl surveys are shown in Figure 3.1-1, Appendix A. Field data forms and survey summaries are provided in Appendix B. GIS shape files with the information requested above were provided to the agencies via compact disc in September 2004.

In a May 13, 2004 letter, the agencies stated in regards to the *California Spotted Owl Technical Report* (March 2004) the following:

[1] As per Limited Operating Period [LOP] guidelines presented in the Sierra Nevada Forest Plan Amendment; USDA 2004

- The status of the spotted owls in the Slab Creek area is unclear from the existing study information. This owl territory is within the area being studied for the Iowa Hill Development, which has additional study requirements.

SMUD is currently implementing two-year protocol surveys for California spotted owl in the vicinity of the proposed Iowa Hill Development as requested by the Forest Service.

- Although few spotted owl activity centers are located immediately adjacent to Project facilities, portions of 14 spotted owl Protected Activity Centers (PACs) occur near Project facilities. In many cases, the Forest Service has recent (within the last 2 years) documentation of occupancy status for these PACs from surveys conducted for other projects. In some cases, there has been no recent survey effort to confirm continued occupancy at the designated activity center. SMUD needs to coordinate with the Forest Service to evaluate the survey status of the PACs listed in Table 5.0-1. Where recent surveys have not been conducted (more than 2 years ago), SMUD needs to coordinate with the Forest Service to conduct site visits to the activity center of each PAC to determine if the activity centers are still current. Where existing activity centers are not current, additional surveys may be needed to determine if a new activity center exists that may be affected by Project activities. In addition, spotted owls may be affected by Project-related activities (including dispersed recreation) that occur near nest sites, and Project-related activities may be precluding occupancy of additional spotted owl territories. To ensure the study area, as defined in Section 6.5.4 of the study plan, has been appropriately surveyed SMUD needs to work with the Forest Service to assess spotted owl habitat suitability for these areas.

The California Spotted Owl Study Plan was approved by the Terrestrial Resources TWG on March 22, 2002, and by the UARP Plenary Group on May 1, 2002. This plan specifically excluded existing PACs from the area to be surveyed based on the assumption that all PACs are occupied and would be subject to Limited Operating Periods (LOP). Field surveys would only be conducted if verification of nesting status is desired to avoid an LOP. The study plan also acknowledged that Forest Service biologists might choose to verify status of existing nests/PACs as part of their annual management efforts but imposed no obligation on SMUD to perform such studies. Prior to implementing the protocol-level surveys for spotted owl, SMUD's biologists met with ENF biologists, Don Yasuda and Jennifer Ebert, and received their concurrence that the number and distribution of call points proposed for the survey effort were appropriate. In addition, the Terrestrial Resources TWG met on June 21, 2004 to consider "conclusions" relative to California Spotted Owl and to develop recommendations for consideration by the Settlement Negotiation Group. The TWG agreed on the following general conclusions:

1. The Issue Questions and Objectives stated in the California Spotted Owl Study Plan are adequately addressed by the information provided in the *California Spotted Owl Technical Report*.

2. Methods employed were adequate to address Issue Questions and Objectives.

As a result of these confirmations by the TWG, SMUD does not agree with the request to assess status of spotted owl nesting activity in known PACs.

The TWG also developed the following recommendation for consideration by the Settlement Negotiation Group:

As part of a management plan for California Spotted Owl:

1. Focused field surveys will be a prerequisite of any future development or expansion of UARP or Forest Service recreational facilities in appropriate potential habitat areas and depending upon the specific activity proposed.

2. UARP operations and maintenance activities need to observe the Forest Service-established LOPs. For example, vegetation management work along transmission line rights-of-way (ROW) would require assessment of the corridor within a one-quarter mile distance of the ROW centerline to determine presence of nesting owls or locations of existing PACs.

3.0 METHODS

Three complete surveys were conducted over a two-year period (2002 and 2003) in accordance with standardized protocols in *Survey Methodology for Spotted Owls in Proposed Management Activity areas and Habitat Conservation Areas, U.S. Forest Service* (USDA 1993). First year surveys were conducted between June 18 and July 23, 2002. Second year surveys were conducted June 17-18, July 16-17 and August 13-14, 2003. Eighteen call stations (Figure 3.1-1, Appendix A) were selected via a step-down process that included a review of available information on spotted owl occurrence in the study area, site visits to prospective call stations in order to determine habitat suitability, and final selection of call sites based on site reconnaissance and consultation with ENF biologists (Personal Communication with Jennifer Ebert, ENF, Pacific Ranger District, June 18, 2002). Prospective call points that were located on private land, within existing Protected Activity Centers (PACs), or outside the elevational range for the species were excluded from further investigation. Habitat suitability was based on Standards and Guidelines for California Spotted Owl habitat presented in the Sierra Nevada Forest Plan Amendment (SNFPA; USDA 2004). The SNFPA identifies suitable California Spotted Owl habitat as Foothill riparian/hardwood, ponderosa pine/hardwood, mixed-conifer forest, red fir forest, and PAC/nesting habitat as containing: 1) two or more canopy layers; 2) dominant and co-dominant trees in the canopy averaging at least 24 inches diameter at breast height (dbh); 3) 70 percent canopy cover (including hardwood component); 4) higher than average levels of very large, old trees; and 5) higher than average levels of snags and down woody material.

At each station, a Sony ccf 914 audio cassette player was utilized to project adult primary contact calls obtained from USDA Region 6. A set of three to seven calls was broadcast at each station. After each set of calls was broadcast, a 1.5-minute listening period was initiated prior to resuming another set of calls. This was repeated for 10 minutes at each calling station. If there

was no response, surveyors moved to the next station. If a response did occur the type of response (vocal non-approach, silent approach, vocal approach) was recorded, as well as the compass bearing, station number and distance from transect (if possible), sex and age (adult versus juvenile/fledgling) of responding bird. Additionally, the location of the response was plotted on a topographic map and a follow-up visit was performed within 48 hours of detection.

4.0 RESULTS

4.1 2002 Surveys

An adult pair of California Spotted Owls responded vocally to broadcast calls on two visits (June 18 and July 23, 2002). The responses came from Long Canyon, south and west of call points along the access road to Camino Powerhouse, southeast of Slab Creek Reservoir (Table 4.1-1; Figure 3.1-1, Appendix A). Reproduction by this pair was confirmed by detection of juvenile calls. The required follow-up survey was not completed due to unsafe access associated with extremely steep topography. The responding birds may reside in either PAC ED_034 North of Long Canyon or PACs ED_195 or ED_123 near Iowa Hill (Figure 3.1-1, Appendix A).

Table 4.1-1. Results of protocol surveys for California spotted owl during 2002 and 2003.

Reference Location	Number of call points	2002 Results	2003 Results
Ice House Dam	1	No response	No response
Junction Reservoir	3	No response	2 adults, 2 Juveniles
Camino Reservoir	4	No response	No response
Brush Creek Reservoir	2	No response	No response
Slab Creek Reservoir and Dam	8	2 adults, juvenile (no.unknown)	4 adult responses

4.2 2003 Surveys

On June 17 and July 16, 2003, vocal responses were received from a California Spotted Owl pair in Long Canyon south of the call points located along the access road to Camino Powerhouse, southeast of Slab Creek Reservoir (Table 4.1-1; Figure 3.1-1, Appendix A). The responding pair may have been the same pair recorded during the 2002 surveys. A second male was detected on July 17, 2003 along the south slope of Independence Ridge near Forebay Road. However, surveyors were unable to determine whether the responding male was a non-territorial bird or if he was the male from the Long Canyon territory, and had followed surveyors to the call point on Independence Ridge. On August 18, 2003, a third male California Spotted Owl responded to calls at Independence Ridge but its territorial status was not confirmed. No nest or other evidence of nesting by this bird was detected during the follow-up survey. Biologists also elicited responses from an adult pair and two juveniles near Union Valley Reservoir (Figure 3.1-1, Appendix A). The birds may be part of a family group from PAC ED_043 located north of Union Valley Dam and Junction Reservoir.

5.0 ANALYSIS

In accordance with the Sierra Nevada Forest Plan Amendment (USDA 2004), the Forest Service establishes 300-acre PACs around all known and newly discovered breeding territories detected on National Forest lands. PACs are intended to contain the best available nesting habitat in the largest contiguous blocks possible, based on aerial photography. The best available forest stands for PACs on the Westside of the Sierra Nevada have the following characteristics: 1) two or more canopy layers; 2) trees in the dominant and co-dominant crown classes average 24 inches diameter at breast height (dbh) or greater; 3) at least 70 percent tree canopy cover; 4) higher than average levels of very large, old trees; and 5) higher than average levels of snags and downed woody material. As a result, the Forest Service (Pacific Ranger District unpublished data, 2003) has established 198 California Spotted Owl PACs throughout the ENF. All 198 PACs within the ENF are subject to limited operating periods (LOPs), which prohibit activities within 0.25-mile of a nest site during the breeding season (March 1 through August 31) unless surveys confirm that spotted owls are not nesting. If the location of the nest site is unknown, the LOP may be applied to 0.25-mile surrounding the PAC. 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.

Of the 198 PACs identified in the ENF, 14 are situated 0.25-mile or less from a UARP facility (including recreations campgrounds) (Table 5.0-1; Figure 3.1-1, Appendix A).

Table 5.0-1. Spatial relationship between California spotted owl PACs and UARP facilities.

Facility	Distance to PAC (miles)	ENF PAC ID
Camino-Lake Transmission Line, Camino-White Rock Transmission Line	0.05	ED_034
Slab Creek Reservoir	0.00*	
Ice House Campground	0.06	ED_041
Northwind Campground	0.07	
Ice House Reservoir	0.02	
Jaybird Tunnel Adit	0.00*	ED_042
Union Valley-Camino Transmission Line	0.00*	
Union Valley Dam	0.20	ED_043
Robbs Peak-Union Valley Transmission Line	0.00*	
West Point Campground	0.07	
Union Valley Reservoir	0.09	
Jones Fork-Union Valley Transmission Line	0.16	ED_050
Jaybird-White Rock Transmission Line	0.00*	ED_052
Loon Lake-Robbs Peak Transmission Line	0.00*	ED_056
Airport Flat Campground	0.14	ED_081
Gerle Creek Canal	0.00*	ED_082
South Fork Campground	0.00*	
Loon Lake-Robbs Peak Transmission Line, Robbs Peak-Union Valley Transmission Line	0.00*	ED_100
Union Valley Reservoir	0.18	ED_101
Big Silver Campground	0.11	ED_123
Camino-Lake Transmission Line, Camino-White Rock Transmission Line	0.23	

Table 5.0-1. Spatial relationship between California spotted owl PACs and UARP facilities.		
Facility	**Distance to PAC (miles)**	**ENF PAC ID**
Camino-Lake Transmission Line, Camino-White Rock Transmission Line	0.00*	ED_195
Jaybird Powerhouse	0.14	ED_216
Camino Dam	0.18	
Union Valley-Camino Transmission Line	0.12	

* Denotes project facilities that are within a designated PAC boundary.

6.0 LITERATURE CITED

USDA. 1993 (United States Department of Agriculture, Forest Service). Protocol for Surveying for Spotted Owls in Proposed Management Activity Areas and Habitat Conservation Areas. March 12, 1991 (Revised Feb 1993).

USDA. 2004 Sierra Nevada Forest Plan Amendment: Final Environmental Impact Statement, Volume 1-6 and Record of Decision. Pacific Southwest Region, San Francisco, CA. January 2001.

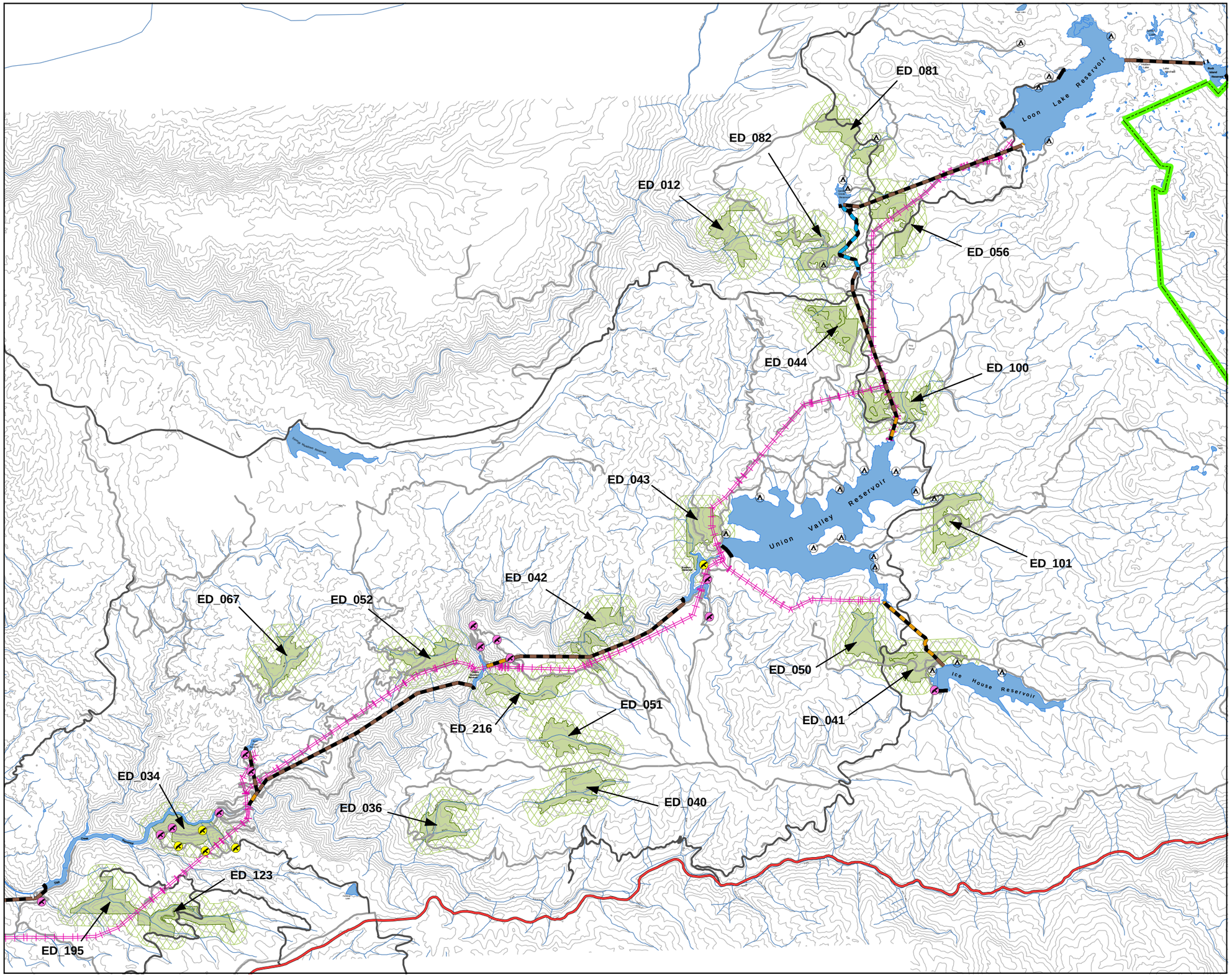
APPENDIX A

CALIFORNIA SPOTTED OWL
CALL STATION LOCATIONS

Upper American River Project

SMUD

Figure 3.1-1
California Spotted Owl Call Station Locations
Including Protected Activity Centers in the Vincinity of the UARP



Protected Activity Center

1/4 Mile Buffer for Limited Operating Period

Spotted Owl Call Stations

- Response
- No Response

- Adit
- Canal
- Channel
- Penstock
- Tunnel

- Divided Highway
- Other Highway
- County Roads
- Other Roads

- Dam
- Transmission Lines
- Campground
- Wilderness Boundary

N

SCALE 1:120,000

0 1 2 3 4 Miles

Prepared by VESTRA Resources, Inc., Redding. CA. Mar. 04, 2004

APPENDIX B

FIELD DATA FORMS FOR 2002-2003 CALIFORNIA SPOTTED OWL SURVEYS

CUT + PASTE FW
JW

JON WINTER
5331 El Marcado Pkwy.
Santa Rose, CA 95403

June 14-15, 2002-Pollock Pines, El Dorado Co., CA

Met with **Tom Beck** to set up the SPOW call points on the **SMUD Upper American River Project (UARP)**. We reviewed all of the available maps and started up country at Loon Lake on 6/14. We ended up throwing out several sites on the basis of unsuitable habitat, private land, PACs, etc. Loon Lake was thrown out (too high), Jones Fork PH (private land), Ice House Reservoir (1 CP), Gerle Creek (part of the SPOW demographics study area), White Rock (too low). We did put in CPs at Jaybird, Union Valley & Junction Dam, Brush Creek PH & Camino PH, and Slab Creek. We only put in 18 CPs total which considerably shortens the project time. We will be able to do the entire project area in one night between us.

We finished up on 6/15 and I arrived home arriving at 15:30.

18 June 2002-Kenwood, Sonoma Co., CA

24:15-CP#7

No owls heard tonight. Leaving the site.

12:00-Left SR at noon for **Pollock Pines** (only took me 2½ hours) meet with **Tom Beck** at about 15:30 to meet with Jennifer Ebert of the USFS to go over our CP plan for the SMUD project. She approved what we laid out. Then Tom and I had dinner before starting our surveys for tonight.

21:00-Started at Brush Creek CP#1. Weather: no wind; clear; temp=64°. Excellent weather for calling owls.

21:16-BC#2. This CP is noisy because they are releasing water from the dam. When Tom and I put this CP in it was quiet. Had I known it was this noisy with the dam release I would have put if further away.

21:41-C7.

21:55-C6.

22:11-C5.

22:23-C4. Dogs barking @ 255°.

22:36-C3. 1 ♀ **WESO** calling at 22:43 and 1 **SPOW** calling at 186° out 1 mile. Hard to hear this bird. This bird is well out of range for a followup. The Screech-

Owl was giving a "chittering" call that ♀♀ sometimes give when there are young out of the nest. Have heard if before. Skipped C2 to avoid following behavior.

22:53-C1. Dogs here too. Moon setting.

23:35-SC1. Stream noise noticeable. The next day Tom Beck stopped by the hotel in Pollock Pines and told me that a couple of the PACs on our maps do not agree with the PACs we got from the USFW. Specifically the area where I heard the SPOW at CP C3 was in a PAC. Tom had a couple of places as well where there were PACs on his set of maps and not on the ones we got from VESTRA. The SPOW at CP3 was in Long Canyon and it is in a known PAC. Will have to resolve this issue somehow.

25 June 2002-Pollock Pines, El Dorado Co., CA

14:15-Leaving SR. Continuing with the second SPOW survey for the SMUD UARP.

21:09-Starting at Camino PH C1.

21:21-C2

21:34-C3. 1 ♀ **WESO** at 21:38 @ 348° 20 m.

21:47-C4. **1 WESO** at 21:51 @ 280° 100 m. Dogs barking at this CP.

22:01-C5.

22:14-C6.

22:28-C7.

22:48-Moon rise; nearly full (full on 6/24)

22:53-B1.

23:05-B2.

26 June 2002-Pollock Pines, El Dorado Co., CA

24:15-Slab Creek SC1.

Drove to Pinecrest today via Hwy 49. Very slow highway! Weather warm today. To start the **second SPOW visit** on the **TriDam Project in Tuolumne Co.** Spent some of the day at Wright's Lake and Silver Creek before heading south to Pinecrest. Ran into Tom Beck at Cold Springs on his way up to Pinecrest to do his part of the survey. I gave him my mice which he put in the colony at the Pinecrest RD office.

23 July 2002-Pollack Pines, El Dorado Co., CA

Will be doing the 3rd and final SPOW visit on the UARP project for this year. I left SR about 13:00 and arrived in Pollack Pines at about 16:30.

20:53-C1. Weather: dead calm; clear; temp = 69°. No moon as yet.

21:00-Moon rising.

21:07-CP C2.

21:20-CP C3.

21:25-Have a ♀ **SPOW calling at 202° about 150 m.**

21:27-A ♂ **SPOW** is calling on the same azimuth at about ¾-mile near the bottom of canyon.

21:29-Can hear at least one juvenile calling.

Skipping CP#4 to avoid following behavior.

21:37-CP#C5.

21:54-CP#C6.

21:57-One ♀ **& 1 ♂ WESO** at 34° about 100 m. Female giving a chitter-like bark while the male is doing a double trill. I am sure they have young out of the nest.

22:07-CP#7.

22:36-CP B1.

22:50-CP B2.

24 July 2002-Pollack Pines, El Dorado Co., CA

24:19-CP SC#1.

24:24-One **WESO at 90° 60 m.** Chitter calls plus a double-trill.

24:29-End survey and return to hotel.

10:31-Looking around CP #C3 to see if I can find anything. Weather: clear; no wind; temp=75°. Ground very steep. Called in both directions for about an hour and went down slope looking, but I fell a couple of times (banged up a knee and elbow) because the ground was very steep. Gave up a follow-up after about 1½ hours because it is too dangerous. Did not find any birds. This is a traditional PAC area that now may have been abandoned under new criteria. I did not do follow-ups in the past because we assumed that it was a PAC that had been left out of the data we received from the FS. I am now told that this PAC no longer exists, but the follow up in this terrain is dangerous. I am sure I heard at least one juvenile, so I can assume that **reproduction was confirmed.** It is too late to find a nest at this time of year anyway.

FIELD NOTES

JON WINTER

16 July 2003-Pollock Pines, El Dorado Co., CA (continued)

21:20-SPOW calling at 110° about 1½-miles out. Calling without prompting by the tape. When I plotted it out on the map it crossed out in NW of SW of sec.22, T11N, R12E (Slate Mountain Quad) near the transmission line NW of CP#1. It is well up on the ridge from CP#C6.

Skip C7 because of following behavior.

21:59-CP#B2. Found a small larva worm that has a bright, single bioluminescent band of on its abdomen that can been several feet away. I have never see this species that I remember. Saw two on the ground while waiting for the end of the CP. Fascinating little bug.

22:10-CP#B1.

23:17-CP#SC1. No moon up yet.

23:27-End survey. Return to Pollock Pines.

16 July 2003-Pollock Pines, El Dorado Co., CA

Weather warm today. Got over 100° in the valley. I thought I should do a follow up on the bird I heard near CP#C1 last night. Sky clear; no wind; temp=78°. Called for 4 hours going down into several roads north of CP#C,1 but failed to get any response. Weather warm though. I think that this bird is from the CP#C3 pair of Long Creek Canyon or it is a floater ♂. The location of the bird heard from CP#C6 is only about 1 miles NE of the area when I have heard the Long Canyon pair. This is the first time I have had a bird at CP#C6. It stands to reason it is from Long Canyon or a floater.

20:16-CP#I1. Weather: clear; no wind; temp=80°.

21:23-CP#JB1.

21:37-CP#JB2.

21:52-CP#JB3.

SPOTTED OWL SURVEY FORM

YEAR 2003

1. SURVEY LOCATION Pollock Pines - ElDorado @ VARP   2. DATE: 7/6

3. VISIT NO: 5   4. OUTING NO: 1   5. SURVEY TYPE: CP

6. OBSERVER(S): Jon Winter [signature]

7. WEATHER (average for survey)

WIND SPEED: 0   PCT CLOUDS: 0   PRECIP: 0   TEMP: 82°   MOON PHASE: O

BEGIN: 20:26

END: 23:27   N/H=Nothing Heard

8. SURVEY DETAIL (Continue results on next line, if necessary)

CALL POINT	TIME START	TIME END	RESULTS
C1	2026	2036	N/H
C2	2043	2053	N/H
C3	2058	2101	21:01 Pair SPOW 186° 3/4-1 mi out - Same area 6/18/02
C4	–	–	Skipped to avoid following behavior
C5	2110	2120	N/H
C6	2126		21:20 1♂ SPOW 1/2 mi out @110°
C7	–	–	Skipped to avoid following behavior
B2	2159	2209	N/H
B1	2210	2220	N/H
SC1	2317	2327	N/H

DETECTIONS:

CALL POINT	SPECIES	AZIMUTH & DISTANCE	DETECT TYPE	NUMBER/AGE/SEX
C3	SPOW	186° 3/4-1 mi	H	1♂·1♀
C6	SPOW	110° 1/2 mi	H	1♂

CALL PTS SURVEYED: C1-C7, B1+B2, SC1

... Pollock Pines PH, Slab Creek PH

STF FIELD OUTING

Location: T1N, R12E. NW/SW Sec 22	Date: 7/17/03
Observers: JON WINTER	Start time: 0800
Cloudcover (%): 0 Temp (C/F): 78°F	End time: 12:10
Wind: 0 Sunset:	Total time (min): 4:10

Visit type: (FOLLOW-UP)	Visit#: 1	Results: NEG

Time/observations:

0800. AREA WHERE SPBL CROSSED OUT WAS NEAR CP#C1
FOLLOW-UP DONE IN NW/SW Sec 22, T1N, R12E

- NO RESPONSE -

TSTRD WAS PROBABLY OF FROM CP#C3 - LONG DOWN IN OR A FLOATER.

FIELD NOTES

JON WINTER

5 August 2003- South Fork Silver Creek, El Dorado Co., CA (continued)

thunder clouds and we turned back about 1.5 short of the lake. Nice time had by all in spite of the weather. It never did rain.

At Wright's Lake I saw the following:

Common Merganser-6
Olive-sd. Flycatcher-1
Evening Grosbeak-few
Common Nighthawk-1
Bufflehead-8 (bred0
Osprey-2
Mallard-several broods

Took another walk in the meadow again on the morning of the 6th. I saw a Willow Flycatcher that was undoubtedly a migrant. List below is for both days.

Species List-Aug 6-7

Canada Goose-11
Yellow-rumped Warbler-2
Cassin's Finch- C
Spotted Sandpiper-1
Western Bluebird-C
Dark-eyed Juncos C (juvs)
White-crowned Sparrow-1
Black-headed Grosbeak-4
Common Raven-3
Willow Flycatcher-1
Yellow Warbler-1
Red-tailed Hawk-1
Williamson's Sapsucker-1imm ♂
Western Wood Pewee-1
Chipping Sparrow-C (juvs)
Am. Robin-C
Western Tanager-1
Brewer's Blackbird-C
No. Flicker-2
Lazuli Bunting-2

We left the morning of the 7th as the kids had things to do. Too short a vacation, if you can call it that. Chris and the kids will be gone to Hawaii later in the month. I will remain home working. It is one of the drawbacks of being self-employed.

13 August 2003-Pollock Pines, El Dorado Co., CA

I will be doing the last SPOW survey for the UARP project the next two days.

Weather 20% CC; no wind; temp = 67°.

FIELD NOTES

JON WINTER

13 August 2003-Pollock Pines, El Dorado Co., CA (continued)

Lots of bats around flying.

20:21-Start at CP#C1.

20:26-**Saw-whet Owl** calling at 228° at about 250 m. Single male.

20:37-CP#C2.

20:43-Had a ♂ **SPOW** calling at 328° about 250m out. Also had a **Screech-Owl** calling as well; 37° out 25m. Have not had a SPOW at this CP until now. I suspect it is the same bird I heard at CP#C8 on my last visit. See FN 7/16/03. But I will have to do a follow-up on this bird to be sure. It is too close to the ROW to dismiss it.

Skipped CP#3 to avoid following behavior.

20:55-CP-#C4.

21:11-CP-#C5.

Skip CP-#C6 because it is right below the area where I heard a SPOW at CP-#C2. May draw the bird down slope.

21:27-CP-#C7.

21:51-CP-#B2.

22:00-Moon rising nearly full.

22:06-CP-#B1.

23:12-CP-#S1.

23:39-Return to Pollock Pines.

FIELD NOTES

JON WINTER

14 August 2003-Pollock Pines, El Dorado Co., CA

08:43-Doing a follow-up on the bird I heard last night at CP#C2. Weather:clear, no wind, temp=60°.

I worked along the ridge (Independence Point) near the transmission line.

10:44-Worked down to CP-#C3 and called there. I skipped this CP last night. Did not hear anything.

I worked several roads that lead down into the canyon below the ridge for 4 hours and worked both north and south of Independence Point (Ridge) and checked areas where I had records earlier this year and last year. Not a peep.

20:40-Start calling the up country SPOW area. Starting at CP-#Ice House 1. Weather: CC 15%; no wind; temp=50°. No moon as yet.

20:45-**Common Nighthawk** over Ice House Reservoir.

21:20-CP-#J3.

21:35-CP-#J2.

21:56-CP#J1.

22:25-Moon is up. 75% full.

Common Poor-will on the Junction Dam road.

22:45-CP-#JB1.

22:58-CP-#JB2.

23:11-CP-#JB3.

23:24-CP-#JB4. End UARP surveys; six visits over two years completed.

Mars is in close proximity to the moon right now and by the weekend of August 23rd it will be closer that is has been in 60,000 some years (see attached).

SPOTTED OWL SURVEY FORM

YEAR 2013

1. SURVEY LOCATION Pollock Pines - El Dorado NF 2. DATE: 8/13/13

3. VISIT NO: 6 4. OUTING NO: 1 5. SURVEY TYPE: CP

6. OBSERVER(S): Jon Winter [signature]

7. WEATHER (average for survey)

WIND SPEED: 0 PCT CLOUDS: 0 PRECIP: 0 TEMP: 67° MOON PHASE: 0

BEGIN: 20:21

END: 23:22

N/H=Nothing Heard

8. SURVEY DETAIL (Continue results on next line, if necessary)

CALL POINT	TIME START	TIME END	RESULTS
C1	20:21	2032	2021 [illegible] - 225°, 250m 1♂
C2	20:37	2047	SPOW ♂ @ 326° 250m / [illegible] 32° @ 25m
C3	—	—	SKIPPED TO AVOID FOLLOWING BEHAVIOR
C4	2055	2105	N/H
C5	2111	2122	N/H
C6	—	—	SKIPPED C6 [illegible] - FOLLOWING BEHAVIOR
C7	2127	2137	N/H
B2	2151	2201	N/H
B1	2206	2216	N/H
SC1	2212	2322	N/H

****

DETECTIONS:

CALL POINT	SPECIES	AZIMUTH & DISTANCE	DETECT TYPE	NUMBER/AGE/SEX
C1	NSSO	225° 250m	H	1♂
C2	SPOW	326° @ 250m	H	1♂

CALL PTS SURVEYED: C1 - C7, B1+2, SC1

22:00 NEAR FULL MOON RISING

SPOTTED OWL SURVEY FORM

YEAR 2003

1. SURVEY LOCATION Pollock Pines - El Dorado NF 2. DATE: 8/14/03

3. VISIT NO: 6 4. OUTING NO: 2 5. SURVEY TYPE: CP

6. OBSERVER(S): Jon Winter

7. WEATHER (average for survey)

WIND SPEED: 0 PCT CLOUDS: 15% PRECIP: 0 TEMP: 50° MOON PHASE: [illegible]

BEGIN: 2040
END: 2324

N/H=Nothing Heard

8. SURVEY DETAIL (Continue results on next line, if necessary)

CALL POINT	TIME START	TIME END	RESULTS
I 1	2041	2050	Common Nighthawk near Reservoir
J3	2130	2140	N/H
J2	2145	2155	N/H
J1	2151	2206	N/H Poor Will on Junction Dam Road
JB1	2245	2255	N/H
JB2	2258	2308	N/H
JB3	2311	2322	N/H -
JB4	2324	2334	N/H - End Yard Surveys - Moon 75% Full

****

DETECTIONS:

CALL POINT	SPECIES	AZIMUTH & DISTANCE	DETECT TYPE	NUMBER/AGE/SEX

CALL PTS SURVEYED: I1, J1-3, JB1-4, J1-3

STF FIELD OUTING

Location: POLLOCK PINES - ELDORADO NF CP C 2	Date: 8/14/03
Observers: J. WINTER	Start time: 08:43
Cloudcover (%): 0% Temp (C/F): 60°F	End time: 12:48
Wind: NO WIND Sunset:	Total time (min): 4 hrs

Visit type:	Visit#:	Results:
FOLLOW-UP	6	NEG

Time/observations:

08:43 - START FOLLOW UP AT CP-C 2
WORKED ALONG INTERDEPENDENCE POINT NEAR TRANSMISSION LINE

10:44 - WORKED DOWN TO CP-C 3. SKIPPED THIS CP LAST NIGHT
N/A

12:43 - ENTIRE AREA SURVEYED - NOTHING FOUND
END FOLLOW-UP