

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

**NORTHERN GOSHAWK
TECHNICAL REPORT**

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6.9 Northern Goshawk Study Plan

6.9.1 Pertinent Issue Questions

The northern goshawk 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-induced recreation?"
34. "To what extent do Project operations and maintenance activities and Project-induced recreation affect northern goshawk populations?"

6.9.2 Background

The northern goshawk 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 northern goshawks 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. Recreational effects are most acute where active nests are located along trails, roads and other areas that receive heavy traffic. Goshawks initiate breeding when the ground is still covered with snow and recreational activity is minimal and nests are sometimes directly located along roads and trails that provide flight access. Such sites become prime candidates for disturbance following snowmelt as recreationists begin to use these roads and trails.

The northern goshawk on the west slope of the Sierra Nevada, breeds from about 2,500 feet in elevation in the ponderosa pine/mixed-conifer vegetation types up to approximately 10,000 feet in the red fir and lodgepole pine types (USDA 2001). They are generally year-round residents in suitable habitat but some limited seasonal altitudinal movements may occur. Nests are generally constructed in live conifer or hardwood trees, but also occasionally in snags. Nest trees are usually among the largest trees in a stand. Nests are usually established in stands of trees that exhibit greater canopy cover, greater basal area, greater numbers of large diameter trees, lower understory cover, and more moderate slopes relative to non-used stands. Currently, over 500 occupied nest territories are known to occur on national forest lands of the Sierra Nevada (USDA 2001).

The goshawk nesting period extends from mid-February through mid-September, with egg laying occurring between mid-April and mid-May (USDA 2001). The incubation period is approximately 32 to 34 days. The nestling period is approximately 42 to 45 days and, once fledged, juveniles remain in the nest area for a period of four to eight weeks before dispersing. Annual variation in reproduction is affected by weather and prey dynamics, and not all pairs of goshawks reproduce each year.

The goshawk preys mainly on small mammals (e.g., tree and ground squirrels, rabbits) and birds (e.g., Steller's jay, northern flicker, American robin) on or near the ground. Foraging typically occurs in forests with a dense to moderately open overstory, and an open understory interspersed with meadows, brush patches, riparian areas, or other openings (USDA 2001).

The U.S. Department of Agriculture, Forest Service (USFS) has been directed by the Forest Plan Amendment (USDA 2001) to establish 200-acre Protected Activity Centers (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. In patchy habitats, PACs are to consist of multiple patches greater than 30 acres within 0.5-mile of the nest site. Best available forest stands for PACs on the westside of the Sierra Nevada have the following characteristics: 1) trees in the dominant and co-dominant crown classes average 24 inches diameter at breast height or greater and 2) stands have at least 70 percent tree canopy cover. Non-forest vegetation types (e.g., brush and meadows) are not counted as part of the 200 acres.

The USFS is directed to maintain PACs 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 0.25-mile of a nest site during the breeding season (February 15 through September 15) unless surveys confirm that northern goshawks are not nesting. If the location of a nest stand within a PAC is unknown, surveys can be conducted to determine the stand location or the LOP can be applied to a 0.25-mile area 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, 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. PACs may be removed from consideration if surveys determine they are unoccupied for two years.

Eldorado National Forest (ENF) biologists have documented numerous detections of goshawk from within the ENF boundaries. Numerous PACs have also been delineated including several adjacent to Project features as shown in the following table:

Northern Goshawk PACs in the vicinity of Project Features, Bypass Reaches, and Tributaries.	
Reference Locations	Approximate Location of Protected Activity Center
Loon Lake Reservoir	About 1 mile north of upper reservoir on the Ellis Creek tributary
Gerle Creek	Along Gerle Creek about 0.5 mile north of Gerle Creek Reservoir
Gerle Creek Reservoir	About 1 mile east of reservoir between Angel Creek and Rubicon River
Union Valley Reservoir	Adjacent to northwest shore of reservoir; About 0.5 mile east of reservoir and just north of Big Silver Creek; Several scattered around headwaters of Silver Creek above U.V. reservoir
Silver Creek, Jay Bird Creek, Brush Creek, Slab Creek	Several scattered along these streams in vicinity of project reservoirs

6.9.3 Study Objectives

The objectives of the northern goshawk study are: 1) to determine the location, extent, and distribution of nesting goshawks in relation to potential sources of Project-related disturbance (e.g., operation, maintenance, and recreation activities), and 2) assess potential effects on goshawk 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 northern goshawk management.

6.9.4 Study Area and Sampling Sites

The study area for determining effects on northern goshawks will be all suitable habitat above 2,500 feet in elevation 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 goshawks due to operation and maintenance activities (e.g., dams, powerhouses, intake structures, 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 survey 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 1.5.6). 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. 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).

6.9.5 Information Needed From Other Studies

A determination of potential Project impacts on nesting goshawks 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, from a review of the scientific literature, and from consultations with the Licensee on proposed Project activities.

6.9.6 Study Methods and Schedule

The northern goshawk study methods are based on the standardized protocols in *Survey Methodology for Northern Goshawks in the Pacific Southwest Region, U.S. Forest Service* (USDA 2000). This methodology will focus on determining the presence of active nests within close proximity to potential Project-related sources of disturbance. The methodology identifies three techniques that can be used to locate goshawks and their nest sites depending on objectives and conditions of a given survey effort. In most situations, a combination of these techniques is most effective, depending on timing, amount and distribution of suitable habitat, and available resources. The three techniques or methods are: 1) Dawn Acoustical Survey; 2) Stand Searches; and 3) Broadcast Acoustical Survey. The Dawn Acoustical Survey is conducted early (February-April) in the breeding season and, therefore, can be logistically difficult to apply where access is limited by snow. Also, listening points using this method only survey a limited area (i.e., 150-yard radius), thereby necessitating many stations to cover a large study area. The Stand Search method can be effective in identifying nest stands when goshawks are not currently breeding or have failed; however, stand searches are extremely labor intensive and best suited to assessments of small habitat patches less than 100 acres in size. The Broadcast Acoustical Survey is a 2-year protocol based on broadcast of taped calls along transects to elicit defensive behavior from territorial adults. This is the most commonly used method for detecting goshawks and is applicable to large areas of land; however, the efficacy of this method for detecting non-breeding goshawks on inactive or failed territories is uncertain, it is sensitive to observer bias, and can be labor intensive and difficult to implement fully in steep, rugged terrain. Based on the specific study area characteristics and objectives of this study, the Broadcast Acoustical Survey appears to be the most appropriate method.

Pre-Field Investigations

A step-down approach is used to reduce the area requiring field surveys and to maximize efficiency in surveying specific habitats. This approach will include the following steps to be implemented in early spring 2002:

- Suitable (likely to be occupied) habitat within the Study Area, based on forest structure (species composition, size class, density), patch size, slope, aspect, and proximity of meadows and riparian habitats will be determined from the Standards and Guidelines 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 goshawk habitat will be used where available.
- The map of suitable habitat will be overlaid with a map of existing Project facilities that provide a potential source of ongoing disturbance to nesting goshawks due to operation and maintenance activities (i.e., powerhouses, dams, switchyards, intake structures, primary access roads). These map layers will be used to delineate patches of suitable habitat and buffers within 0.25-mile of each facility.
- The habitat/project features map will be overlaid on a map of known territories (from ENF records), and a 1-mile radius around each territory center will be deleted from the area to be surveyed. This radius is likely to contain the current territory AND unlikely to contain an additional territory. The protocols assume that this area is occupied and subject to LOPs. Therefore, no field surveys are required unless verification of status is desired to avoid a 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 territories (including 1-mile radius), and available safe access, develop plan for conducting broadcast acoustical surveys. Use maps and aerial photography to determine optimal placement of survey routes (e.g., roads, trails), transects, and/or points (prominent overlooks). Where the patch size is large enough, the maximum distance between

parallel transects should be 250 m and call stations should be located 200 m apart along each transect. However, based on practical experience in applying this approach along road and trail transects, a 0.25-mile spacing is often sufficient to achieve audible coverage because of the serpentine characteristics of many forest roads and trails in the ENF

Field Investigations

Field implementation of the 2-year Broadcast Acoustical Survey Method will occur in the area defined during the step-down analysis described above and will include the following procedures:

- Conduct surveys at least twice in each year of the 2-year survey effort. Survey during the nestling (May 17 - June 17) and fledgling (July 1 - August 31) periods. This includes a 4-8 week post-fledgling dependency period). The preferred intervals would be June 1 to August 15. After August 15, many fledgling will have moved out of the immediate vicinity of the nest stand. Surveys may begin 30 minutes before sunrise and must cease at least 30 minutes before sunset.
- At each station, broadcast at 60 degrees from transect line for 10 seconds, listen and watch for 30 seconds. Repeat sequence two more times, rotating 120 degrees from the last broadcast. Repeat 3-call sequence again then move (walk) to the next station.
- During the nestling period (June 1 - 30 preferred) broadcast the adult alarm call (kek-kek-kek), mixed with the food delivery call (if available).
- During the post-fledgling period (July 1 - August 1 preferred), broadcast the wail call, mixed with the male Food delivery call. This call is likely to elicit responses from juvenile birds.
- Do not survey under high wind conditions (> 15 mph) or rain.
- Sound must be detectable at least 200 m from the source. The proposed equipment items to be used are a Sony Mini-disc Walkman broadcasting pre-recorded calls through an Anchor Audio Mini-vox speaker.
- For each detection, record the following information: type of response (vocal non-approach, silent approach, vocal approach), compass bearing, station number and distance from transect, sex and age (adult versus juvenile/fledgling) of responding bird. Plot response location on a topographic map or aerial photo (take GPS reading if possible) and indicate direction of travel if detection was a fly-through.
- Following a detection, conduct stand search for sign, plucking sites, and nests. If nest is found, complete the goshawk nest site data sheet and include information on tree characteristics, California Wildlife Habitat Relationships System size class, canopy closure, slope, activity status, etc.
- Following a detection and documentation of the nest site, an area 1-mile radius surrounding the site may be deleted from further survey efforts.

6.9.7 Analysis

The location of any northern goshawk nests 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 LOPs for source of disturbance. The evaluation will include a thorough review of the literature and consultation with experts to determine findings of related studies on the response of goshawks to the types of disturbances in question.

6.9.8 Study Output

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.

6.9.9 Preliminary Estimated Study Cost

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

6.9.10 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.

6.9.11 Literature Cited

USDA (United States Department of Agriculture, Forest Service). 2000. Survey methodology for northern goshawks in the Pacific Southwest Region. August 9, 2000.

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

NORTHERN GOSHAWK TECHNICAL REPORT

SUMMARY

This technical report provides the results of surveys for Northern Goshawk (*Accipiter gentilis*) and a spatial analysis of Protected Activity Centers (PACs) relative to SMUD's UARP facilities. The study area included all suitable habitat above 2,500 feet in elevation (e.g., above Camino Powerhouse) and within 0.25-mile of UARP facilities. Study methods conformed to *Survey Methodology for Northern Goshawks in the Pacific Southwest region, U.S. Forest Service* (USDA 2000). Broadcast Acoustical Surveys, at 83 call points, were conducted during the nestling and fledgling periods each year in 2002 and 2003. The 2002 nestling period surveys were conducted June 10-14 and on June 26. The 2002 fledgling period surveys were conducted July 8-10 and on July 16. In 2003, the nestling period surveys were conducted from June 2-5 and the fledgling period surveys were conducted from July 14-17. No responses were recorded at any of the 83 call points during the 2002 and 2003 survey efforts. However, incidental observations of goshawks were observed at two locations within the UARP area. Two observations were recorded near Jaybird Springs Road and Jaybird Canyon and may have been associated with ENF PAC G22_09. Northern goshawks were also observed incidentally near Hwy 193, northwest of Placerville, California. Spatial analyses of PAC locations indicate three PACs are within 0.25-mile of SMUD 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 northern goshawk (*Accipiter gentilis*) 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.
- **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 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 northern goshawk and its habitat, nor does the report include a discussion of appropriate protection, mitigation and enhancement measures. An impacts discussion regarding the UARP 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 early 2004, and will be reported on in the PDEA.

2.0 BACKGROUND

2.1 Northern Goshawk Study Plan

Northern goshawk is afforded the following special status designations: State of California Species of Concern (CSC), Federal Species of Concern (FSC), Forest Service Sensitive Species (FSS), and Eldorado National Forest (ENF) Management Indicator Species (MIS). In response to these special status designations and the management emphasis afforded the northern goshawk 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 Northern Goshawk Study Plan. The plan 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 issue 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 northern goshawk 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 goshawks in relation to potential sources of UARP-related disturbance (e.g., operation, maintenance, and recreation activities).
2. Assess potential effects on goshawk 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 northern goshawk, and accordingly, does not address Issues Questions 7(b), 21 and 34, and Objective 2 as they pertain to UARP impacts. The Settlement Negotiations Group will assess UARP impacts during settlement discussions.

The study area for the northern goshawk study was all suitable habitat above 2,500 feet in elevation (e.g., above Camino Powerhouse) and within 0.25-mile¹ of UARP facilities (e.g., dams, powerhouses, switchyards, ancillary facilities and primary access roads). [Note: UARP features that require only minor and infrequent visitations by SMUD personnel (e.g., transmission lines) were not included in the survey area but would be surveyed should SMUD propose a vegetation management action or other significant activity that could adversely affect northern goshawk in these locations.] Field surveys were conducted within a subset of the study area as described under Pre-field Investigations in Section 3.2. Field surveys are restricted to those lands where SMUD has legal access (e.g., ownership/easement rights, public lands) and were not performed on private lands without prior permission from the landowner.

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 Northern Goshawk Study Plan was not specifically addressed, the agencies general comments regarding terrestrial studies is pertinent:

- All studies will need 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; and
- 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 northern goshawk surveys are shown in Appendix A.

In a May 13, 2004 letter, the agencies had no comments specific to the *Northern Goshawk Technical Report*.

The Terrestrial Resources TWG met on June 21, 2004 to consider “conclusions” relative to northern goshawk and to develop recommendations for consideration by the Settlement Negotiations Group. The TWG agreed on the following general conclusions:

¹ As per the guidelines for Limited Operating Periods (LOPs) presented in the Sierra Nevada Forest Plan Amendment (USDA 2004).

1. The Issue Questions and Objectives stated in the Northern Goshawk Study Plan are adequately addressed by the information provided in the *Northern Goshawk Technical Report*; and
2. Methods employed were adequate to address Issue Questions and Objectives.

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

As part of a management plan for northern goshawks:

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 goshawks or locations of existing PACs.

3.0 METHODS

The northern goshawk study methods were based on the standardized protocols in *Survey Methodology for Northern Goshawks in the Pacific Southwest Region, U.S. Forest Service* (USDA 2000). The methodology focuses on determining the presence of active nests within close proximity to potential UARP-related sources of disturbances. These protocols identify three approaches to surveying for goshawks and their nest sites depending on objectives and conditions of a given survey effort. The Broadcast Acoustical Survey method was selected for the UARP area. The Broadcast Acoustical Survey is a two-year protocol based on broadcast of taped calls along transects to elicit defensive behavior from territorial adults. This is the most commonly used method for detecting goshawks and is applicable to large areas of land such as the UARP study area.

3.1 Pre-Field Investigations

Pre-field investigations were performed to gather available information on northern goshawk occurrence, habitat, and designated PACs within the study area. Relevant information was obtained from the ENF, Pacific Ranger District, and specifically, consultations with ENF biologists D. Yasuda and J. Ebert. A step-down approach was also used to reduce the area requiring field surveys and to maximize efficiency in surveying specific habitats as described in the protocols. This step-down approach consisted of the following:

1. Available vegetation maps and ENF PAC maps were reviewed to determine the general distribution of suitable habitat within the Study Area.

2. The map of suitable habitat was compared to a map of existing UARP facilities that could be a source of ongoing disturbance to nesting goshawks (e.g., powerhouses, dams, switchyards, intake structures). Those habitats within 0.25-mile of these existing UARP facilities were identified for further evaluation and potential surveys. Areas within a one-mile radius of the center of a known nest territory were eliminated from further consideration based on the assumption that these areas are occupied by northern goshawks and subject to Forest Service protection measures (e.g., LOPs). Furthermore, ENF routinely monitors the status of many of these known goshawk nests/PACs as part of their forest management responsibilities.

3.2 Field Sampling

Eighty-three calling points were established within the habitats delineated during the step-down procedure described in Section 3.2 (Figure 3.3-1). Call point selection considered the following: 1) habitat suitability for northern goshawk as described in the Sierra Nevada Forest Plan Amendment (SNFPA; USDA 2004; Table 3.2-1); 2) proximity of UARP facilities within 0.25-mile; and 3) availability of safe access. Within suitable habitat, call points were generally placed at prominent locations at approximately 0.2-mile intervals along road transects.

Table 3.2-1. Northern goshawk habitat requisites reported in the Sierra Nevada Forest Plan Amendment		
General	Nesting	PAC
Mature conifer and deciduous forests with large trees, snags, downed logs, dense canopy cover, and open understories for nesting.	trees >40"dbh (15.8/acre), >24-40"dbh (22.1/acre), canopy cover 70.4%, shrub/sapling cover 9.9%	1) one to two tree canopy layers. 2) trees in the dominant and co-dominant crown classes averaging at least 24 inches dbh, 3) at least 70 percent tree canopy cover (including hardwoods), 4) and number of very large (>45"dbh) old trees, 5) higher than average levels of snags and down woody material.

Surveys were conducted twice at each call point in 2002 and again in 2003. The 2002 nestling period surveys were conducted June 10-14, and June 26. The 2002 fledgling period surveys were conducted July 8-10, and July 16. In 2003, the nestling period surveys were conducted from June 2-5 and the fledgling period surveys were conducted from July 14-17. Surveys generally started around 8:00 a.m. and concluded by 4:00 p.m.

Pre-recorded calls (adult alarm and wail) were obtained from Macaulay Library of Natural Sounds, Cornell University Laboratory of Ornithology, Ithaca, New York. The calls were broadcast from a Sony Mini-disc Walkman broadcasting pre-recorded calls through an Anchor Audio Mini-vox speaker at 60 degrees from the transect line for 10 seconds. Surveyors ceased calling and proceeded to listen and watch for any response for a period of 30 seconds. The sequence was repeated two more times, rotating 120 degrees from the last broadcast. Three call sequences were performed at each station, and then surveyors moved to the next station. During the nestling period (June 1 - 30) the adult alarm call was broadcast (kek-kek-kek); and during the

post-fledgling period (July 1 - August 1), the wail call was broadcast. Data collection and all other survey procedures were completed as directed by the survey protocols.

4.0 RESULTS

4.1 2002 Survey

No goshawks responded to broadcast calling at any of the 83 established call points. However, an adult goshawk was observed incidentally along Jaybird Springs Road (NW 1/4 of NE 1/4 of Section 3, T 11N, R 13E) on June 14, 2002. This bird flew from north to south across the road, perched briefly in a tree on the south side of the road, and then continued flying down slope toward Jaybird Canyon. The ENF has identified an active nest and PAC (G22_09) in this area (J. Ebert, ENF, Pacific Ranger District, personal communication). Two subsequent attempts were made in June 2002 to elicit a response from goshawks at this location using broadcast calls without success.

Reference Location	Number of call points	2002 results	2003 Results
Loon Lake Reservoir	4	No Detection	No Detection
Gerle Creek Reservoir	19	No Detection	No Detection
Robbs Peak Powerhouse	9	No Detection	No Detection
Jones Fork Powerhouse	11	No Detection	No Detection
Junction Reservoir	13	No Detection	No Detection
Ice House Reservoir	5	No Detection	No Detection
Camino Reservoir	17	No Detection*	No Detection*
Camino Powerhouse/Brush Creek	5	No Detection	No Detection

* Visual identification of goshawk within ENF established PAC

4.2 2003 Survey

As in 2002, no northern goshawks responded to broadcast calling at any of the 83 call points during 2003. However, goshawks were observed incidentally at two locations within the UARP area not associated with established call points (Table 4.1-2). On July 15, 2003, a northern goshawk was observed along Forest Service Road 11N56 (Jaybird Canyon Road) down slope from the site of the 2002 visual detection. This bird was in the middle of PAC G22_09 (Figure 3.1-1, Appendix A). The second incidental observation of northern goshawks occurred near Hwy 193, northwest of Placerville, California (SE 1/4 of NE 1/4 of Section 35, T 11N, R 10E) and involved one adult goshawk pursuing a second goshawk through dense oak woodland at an elevation of 1,560 feet, which is below the typical elevation range of the northern goshawk in this region.

5.0 ANALYSIS

The Forest Service establishes 200-acre PACs around all known and newly discovered breeding territories identified on National Forest lands according to the management guidelines presented in the SNFPA (USDA 2004). 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 west side of the Sierra Nevada have the following characteristics: 1) trees in the dominant and co-dominant crown classes average 24 inches diameter at breast height (dbh) or greater; and 2) stands have at least 70 percent tree canopy cover. Non-forest vegetation types (e.g., brush and meadows) are not counted as part of the 200 acres.

The ENF has established 85 northern goshawk PACs within the Forest Boundary (Pacific Ranger District, unpublished data, 2003). Each of these 85 PACs are subject to LOPs, which prohibit actions within 0.25-mile of a nest site during the breeding season (February 15 through September 15) unless surveys confirm that northern goshawks 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 85 PACs identified in the ENF, three are situated 0.25-mile or less from a SMUD UARP facility (including developed campgrounds) (Table 5.0-1; Figure 3.3-1, Appendix A).

Table 5.0-1. Spatial relationship between northern goshawk PACs and UARP Facilities		
Facility	Distance to PAC (miles)	ENF PAC ID
Union Valley Reservoir	0.00*	G11_04
Robbs Peak-Union Valley Transmission Line	0.00*	
Camino Cove Camp Ground	0.02	
Gerle Creek Reservoir	0.02	G11_06
Gerle Creek Campground	0.07	
Angel Creek Day Use Area	0.13	
Union Valley-Jaybird Transmission Line	0.10	G22-12

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

6.0 LITERATURE CITED

USDA (United States Department of Agriculture, Forest Service). 2000. Survey methodology for northern goshawks in the Pacific Southwest Region. August 9, 2000.

USDA (United States Department of Agriculture, Forest Service). 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

NORTHERN GOSHAWK CALL STATION LOCATIONS

Upper American River Project



**Figure 3.3-1
Northern Goshawk
Call Station Locations
Including Protected Activity Centers
in the Vicinity of the UARP**

-  Protected Activity Center
-  1/4 Mile Buffer for Limited Operating Period
-  Northern Goshawk Call Stations
-  Campground
-  Adit
-  Canal
-  Channel
-  Penstock
-  Tunnel
-  Divided Highway
-  Other Highway
-  County Roads
-  Other Roads
-  Dam
-  Transmission Lines
-  Wilderness Boundary



SCALE 1:120,000

