

## 6.7 Special Status Mesocarnivore Study Plan<sup>1</sup>

### 6.7.1 Pertinent Issue Questions

The special status mesocarnivore study addresses Terrestrial Resource Issue Question:

1. "What are the relevant and known factors (limiting and beneficial) affecting special status mesocarnivore populations in the Project area and how/where are these factors influenced by Project operations and maintenance?"

### 6.7.2 Background

Four special status species of mesocarnivores (a.k.a. furbearers) are of particular interest to the stakeholders involved in the UARP relicensing. These species are Sierra Nevada red fox, California wolverine, American marten, and Pacific fisher. Special status designations for these species are as follows:

- Sierra Nevada red fox - Federal Species of Concern, California Threatened, Forest Service Sensitive.
- California wolverine - Federal Species of Concern, California Threatened, Forest Service Sensitive, California Fully Protected.
- American Marten - Forest Service Sensitive.
- Pacific Fisher - Federal Species of Concern, California Species of Concern, Forest Service Sensitive

The preferred habitat of the **Sierra Nevada red fox** is thought to be openings and meadows in red fir and lodgepole pine forests in the subalpine and alpine zones of the Sierra Nevada. Although they may range from 4,000 to 12,000 feet elevation, they are seldom sighted below 5,000 feet, and most often occur above 7,000 feet [Note: UARP facilities are all located below 7,000 feet elevation]. It is likely that this species was never common. Dense vegetation, hollow logs, burrows, and rocky crevices are used for cover and den sites.

Scientists debate the persistence of **California wolverine** in the Sierra Nevada. Reports of sightings continue to be filed by mostly inexperienced observers, but none have been documented by photograph, track, or carcass. This is in spite of an intensive, multi-year cooperative research effort throughout suitable habitat in the central Sierras that employed Trailmaster camera bait stations; a technique that has been successful in other states with wolverine populations (Copeland and Kucera 1997). The California Natural Diversity Data Base (CNDDB) has one recent record from 1994 of a possible wolverine sighting at Island Lake in the Desolation Wilderness Area approximately 10 miles east of Union Valley Reservoir. The Eldorado National Forest (ENF) provided one record from July 7, 1994 near the north shore of Loon Lake Reservoir (ENF 1999). Although they use coniferous forest types predominantly, their significant use of non-forest alpine habitats distinguishes them from the fisher and marten (Banci 1994; Copeland 1996). However, some studies suggest that the wolverine avoids many large forest openings (Hornocker and Hash 1981), but not all forest openings (Copeland 1996). Dens are usually dug beneath snow, but caves, rock piles, trees, and downed logs are also used (Magoun and Copeland 1998).

The ENF has numerous records of **American marten** from throughout the forest. Most of these observations are from the southwest corner of the Desolation Wilderness, but unverified observations have also been reported from near Ice House Road and upper Tells Creek. Suitable habitat is present throughout much of the Project area and the species is expected to occur wherever suitable habitat exists. The species' core elevation range in the Sierra Nevada is from 5,500 to 10,000 feet, and they are most often found above 7,200 feet [Note: UARP facilities are all located below 7,000 feet elevation]. They prefer coniferous forest habitat with large diameter trees and snags, large down logs, moderate-to-high canopy closure, and an interspersion of riparian areas and meadows. The marten selects stands with 40 to 60 percent canopy closure for both resting and foraging and tend to avoid stands with less than 30 percent canopy closure (Spencer et al. 1983). They generally avoid habitats that lack overhead cover, presumably

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<sup>1</sup> Note: Because of overlap between ENF responsibilities for mesocarnivore management and the responsibilities of the Licensee to address issues raised during the Alternative Licensing Process, this study will be a collaborative effort among both parties with sharing of labor in a manner to be determined.

because these habitats do not provide protection from avian predators (Allen 1987; Bissonette et al. 1988; Buskirk and Powell 1994; Spencer et al. 1983). Various studies in the Sierra Nevada indicate that the marten has strong preferences for forest-meadow edges, and riparian forests appear to be important foraging habitats (Spencer et al. 1983; Martin 1987). Natal dens are typically found in cavities in large trees, snags, stumps, logs, burrows, caves, rocks, or crevices in rocky areas. Winter resting sites are typically in decayed wood beneath snow (Spencer 1987).

Recent surveys indicate that the **Pacific fisher** is absent from their former range for a distance of about 240 miles in the central and northern Sierra Nevada, from Yosemite National Park northward (Zielinski et al. 1995). This area includes the ENF and UARP area. Forest type is probably not as important to the fisher as the vegetative and structural aspects that lead to abundant prey populations and reduce fisher vulnerability to predation (Powell 1993). In general, the fisher uses forest or woodland landscape mosaics that include conifer-dominated stands, and they avoid entering open areas that have no overstory or shrub cover (Buskirk and Powell 1994). Riparian corridors (Heinemeyer and Jones 1994) and forested saddles between major drainages (Buck 1983) may provide important dispersal habitat or landscape linkages. The fisher rests in hollow logs, tree cavities, rocks, snags, ground burrows, fallen trees, canopy of live trees (often in witches broom), and slash piles (Heinemeyer and Jones 1994). However, in California, trees are the most commonly used rest sites. Natal (birth) dens are most common in tree cavities at heights of greater than 20 feet, while maternal (kit-rearing) dens are often in cavities closer to the ground so active kits can avoid injury in the event of a fall.

Project construction, operation, and maintenance activities and recreation developments have the potential to disturb mesocarnivores during their sensitive denning periods. The Sierra Nevada Forest Plan Amendment (USDA 2001) provides management direction to the ENF to evaluate the potential for new projects to impact these species. This study facilitates ENF compliance with the Forest Plan Amendment directives as follows:

For detections (i.e., photograph, track plate, or sighting verified by a wildlife biologist) of Sierra Nevada red fox and California wolverine, the ENF is directed to conduct an analysis to determine if activities within five miles of the detection have a potential to adversely affect the species. Activities that are determined to have an adverse impact are generally restricted from January 1 to June 30 for a period of two years following the detection.

For the American marten and Pacific fisher, the Forest Plan Amendment directs the ENF to establish 100-acre and 700-acre buffers, respectively, around known natal and maternal den sites. These buffers are to consist of the highest quality habitat in a compact arrangement surrounding the den site. These highest quality habitats for marten, in descending order of priority, are California Wildlife Habitat Relationships (CWHR) System types 6, 5D, 5M, 4D, and 4M. For fisher, highest quality habitats are CWHR size class 4 or greater and canopy cover greater than 60 percent. Buffers are to be protected from disturbance with a Limited Operating Period (LOP) (May 1 - July 31 for marten; March 1 - June 30 for fisher) for all new projects as long as habitat remains suitable or until another Regionally-approved management strategy is implemented. These LOPs may be waived for individual projects of limited scope and duration, when a biological evaluation documents that such projects are unlikely to result in breeding disturbance considering the intensity, duration, timing, and specific location of the project activity.

In summary: 1) Pacific fisher and California wolverine are believed to no longer occur or are extremely rare in the ENF; 2) Sierra Nevada red fox and American marten occur most frequently above 7,000 feet elevation, which exceeds the maximum elevation of UARP facilities, although marten may range to lower elevations within the Project area; 3) no verified detections of mesocarnivores are available from the ENF or CNDDDB from the vicinity of UARP facilities/features, based on limited surveys; 4) ENF management direction (from the Forest Plan Amendment) for these species focuses on protection of den sites; and 5) den sites for these species are extremely difficult to detect and few have ever been recorded.

### 6.7.3 Study Objectives

This study assumes that focused field surveys for mesocarnivore dens will be a prerequisite of any future development or expansion of UARP facilities, and as a result, are premature at this phase of relicensing when no such proposals have been made by the Licensee. Instead, the objectives of the mesocarnivore study are: 1) determine the spatial relationship of known mesocarnivore habitats to new or ongoing activities associated with Project operation and maintenance, recreation, or planned project improvements; 2) determine which, if any, of

these Project-related activities are scheduled to occur during established LOPs for mesocarnivores; and 3) determine number, duration, and timing of winter helicopter flights into upper elevations of the UARP that may impact denning mesocarnivores.

#### 6.7.4 Study Area and Sampling Sites

The study area for spatial/temporal analysis of Project-related activities relative to mesocarnivore habitat distribution and established LOPs (as identified by the USFS) is comprised of a 0.5-mile radius surrounding all Project-related facilities and features above 4,000 feet elevation, including all existing recreation development specified in the Project license, and all proposed improvements that may be conducted in the future. 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.

#### 6.7.5 Information Needed From Other Studies

This study will be supported by information derived from the Vegetation Mapping Study, Land Management Study, Rights-Of-Way Management Study, Effects of Roads on Wildlife Study, and the various Recreation studies. Important information will also be derived from ENF and California Department of Fish and Game (CDFG) records and reports on mesocarnivore occurrence in the study area.

#### 6.7.6 Study Methods and Schedule

As discussed above, focused field surveys for mesocarnivore dens are assumed to be a prerequisite of any future development, improvement, or expansion of UARP facilities and, as a result, are premature at this stage of relicensing when no such proposals have been made by the Licensee. Instead, the following methods will be implemented:

- Determine the spatial relationship of mesocarnivore habitats (as identified by the USFS) within 0.5-mile radius surrounding potential Project-related sources of disturbance (e.g., operation and maintenance activities, recreation developments, new proposed facility improvements). The distribution of mesocarnivore habitat (i.e., as described in the Sierra Nevada Forest Plan Amendment) will be delineated from existing ENF data and the results of the Vegetation Mapping Study. The location of potential Project-related sources of disturbance will be determined from SMUD facility descriptions and the various recreation studies. The results will be presented graphically on GIS maps at 1:12000 scale (i.e., as used for the Vegetation Mapping Study). [Note: this mapping effort is contingent upon the availability of adequate existing habitat data for the species in question and does not include a field inventory component beyond that proposed for the Vegetation Mapping Study].
- Based on the habitat mapping effort, determine which Project-related activities are scheduled to occur during established LOPs for mesocarnivores.

#### 6.7.7 Analysis

The results of this study will be analyzed with respect to potential Project-related disturbance factors, proximity of mesocarnivore habitat, and any detections of animals, dens, or sign made during field surveys. This information will then be used to determine the potential for adverse impacts to mesocarnivore dens and the need for LOPs.

#### 6.7.8 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.

6.7.9 Preliminary Estimated Study Cost

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

6.7.10 TWG and Plenary Group Endorsement

On April 16, 2002 the following TWG participants gave approval to the plan: USFS, BLM and SMUD.

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.

6.7.11 Literature Cited

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