

11.9 Iowa Hill Bat Study Plan

11.9.1 Pertinent Issue Questions

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

- What bat species are expected to utilize habitats to be affected by the Iowa Hill Development?
- How and to what extent will the Iowa Hill Project affect bat populations in the Project area including loss or alteration of roosts and foraging habitat?

11.9.2 Background

At least 17 species of bats have the potential to occur in the vicinity of the Project (see table below). These species have varied roosting and foraging habitat requirements. Some of these species may utilize habitats that would be disturbed by development of the Project Area. Others may benefit from the provision of new foraging habitat associated with the proposed reservoir and openings within the existing forest and proposed transmission line corridor.

Common Name	Foraging Habitat	Roosting Habitat
Fringed Myotis	Open areas and over water	Generalist: buildings, mines, caves, crevices
Little brown Myotis	Open areas and over water	Caves, mines, snags
Yuma Myotis	Open forest and over water	Generalist: buildings, mines, caves, crevices
California Myotis	Open areas and over water	Snags, trees, rocks
Long-eared Myotis	Gleans off of foliage, trees, ground	Tree bark, cavities, snags, caves, mines, rocks
Long-legged Myotis	Open forest and over water	Tree bark, cavities, buildings, crevices, mines
Western small-footed myotis	Open forest and over water	Caves, mines, talus, buildings, bark
Hoary bat	Forest and over water	Dense tree foliage
Western red bat	Open areas	Tree foliage, especially in riparian forests
Spotted bat	Over water, meadows, open forests	Cliffs, crevices, caves, buildings
Silver-haired bat	Over water and forest openings	Snags, buildings, crevices, caves, mines, bark
Townsend's big-eared bat	Open areas	Caves, mines
Pallid bat	Woodlands	Caves, mines, crevices, buildings, snags
Big brown bat	Open areas and over water	Snags, trees, caves, mines, crevices
Western pipistrelle	Open areas and over water	Crevices
Western mastiff bat	Open forests, meadows, agriculture	Cliffs, crevices, some buildings and trees.
Brazilian free-tailed bat	Open woodlands, shrublands	Caves, mines, crevices, buildings

11.9.3 Study Objectives

The objectives of the bat study are to: 1) determine which species of bats occur in the study area; 2) locate any active bat roosts that could be affected by Project-related activities; and 3) identify measures to protect or compensate for potential impacts to roosting and foraging habitat that may result for development of the Project.

11.9.4 Study Area and Sampling Sites

The study area will include all suitable roosting and foraging habitat within the preliminary project boundary as described in the Iowa Hill IIP (SMUD 2003), including the area surrounding the proposed reservoir, intake structure, and the preferred alternative transmission line route proposed by the Licensee. Sites for acoustic sampling and trapping will be determined during field reconnaissance.

11.9.5 Information Needed From Other Studies

Important information will be derived (at a minimum) from the Vegetation Mapping and Wildlife Habitat Characterization studies.

11.9.6 Study Methods and Schedule

A reconnaissance of the entire study area will be performed during early spring 2004 to determine the location of sites for trapping and acoustic sampling scheduled for late spring/early summer 2004. A recommendation on the location of sampling sites will be presented to the UARP Terrestrial Resources Working Group for review and approval prior to initiation of the sampling effort. At a minimum, trapping will occur at five separate sites over five consecutive nights. The licensee currently recommends that sampling occur in early summer (e.g., July) to provide the best opportunity for determination of breeding status of bats within the Project Area. Mist nets and/or harp nets will be used to capture bats and determine species occurrence. In most cases, trapping sites are selected near identified roost sites and/or within narrow flight corridors between roost sites and foraging habitat (e.g., within stream channels and ravines adjacent to a reservoir). All bat captures will be documented by species, sex, age, reproductive status, location, habitat descriptors, and other parameters deemed appropriate. Voucher calls will be recorded for captured bats as they are released. Trapping will be supplemented by acoustic sampling using an Anabat II detection system or other suitable acoustic detection equipment.

11.9.7 Analysis

Study results will be evaluated with respect to both positive and adverse effects related to the Project. Trapping, acoustic sampling, and habitat assessments will provide evidence of species occurrence, distribution, and habitat utilization (e.g., foraging/roosting) within the study area. An assessment will be made of the degree of risk to foraging and roosting bats due to Project development and future operation. Based on this analysis, measures will be proposed for compensation of anticipated impacts to roosting and foraging habitat of bats within the Project Area.

11.9.8 Study Output

Study results will be presented to the Terrestrial Resources Technical Working Group (TWG) within two months of study completion (Summer 2004). Ultimately, the results of the study will be incorporated into Exhibit E of the Licensee's application to FERC for a new license for the UARP. The output will likely include the issues addressed, objectives, study area, methods, analysis, results, discussion, and conclusions.

11.9.9 Technical Working Group Endorsement

This study plan was approved by the Terrestrial TWG via emails and faxes from the following entities: USFS (03/19/04), USFWS (03/19/04), CDFG (03/15/04) and SMUD. There have been no comments received from any Participant that they could not "live with" the study plan.

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

11.9.10 Literature Cited

SMUD (Sacramento Municipal Utility District). 2003. Iowa Hill Pumped Storage Development Project Initial Information Package, revision 1. Sacramento, CA.