

6.12 Waterfowl Nesting Habitat Study Plan

6.12.1 Pertinent Issue Questions

The waterfowl nesting habitat 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?"
- 16. "Are drawdown zones on high elevation reservoirs managed correctly to retain and support wetland/riparian plants (i.e., can the upper reservoir riparian zones look more like Secret Lake and less like Aloha Lake?"
- 21. "What are the Project impacts on special status birds with particular emphasis on Project facilities, operation, maintenance and Project-influenced recreation?"
- 28. "What are the Project-related effects on existing wetlands?", and 33 ("To what extent do Project operation and maintenance activities and Project-induced recreation affect waterfowl populations?"

6.12.2 Background

Over 30 species of waterfowl (i.e., collectively loons, grebes, swans, geese, ducks, coots, etc.) are either known to occur or have the potential to occur in the vicinity of the UARP (SMUD 2001). The majority of these species utilize Project reservoirs primarily during spring and fall migration and do not breed in the area (McCaskie et al. 1979, Zeiner et al. 2001). Only four species of waterfowl are believed to nest regularly on or adjacent to Project reservoirs. These are pied-billed grebe, Canada goose, mallard and common merganser. With the exception of the pied-billed grebe, all are legally hunted species in California. Waterfowl are also a designated "watchable wildlife" species and a key prey of bald eagles, especially during winter. The basic nesting habitat requirements of the five species of waterfowl that are most likely to nest within the UARP area are as follows:

Species	Nesting Habitat Requirements
Pied-billed grebe	Over water in emergent vegetation. Mainly lower elevation sites.
Canada goose	Highly variable. Usually on firm, dry, slightly elevated site near water. Often on islands, bulrush mats, platforms, baskets. Nearby dry, loafing site for male is essential.
Mallard	Highly variable. Usually on dry sites in tall, dense herbaceous vegetation or low shrubs. Occasionally over water or in willow clumps, stumps, bridges, dense woods. Readily uses artificial islands and nest platforms.
Common merganser	Cavities or dark recesses in trees, snags, stumps, and nest boxes near water. Occasionally among roots, beneath rocks, and in caves.

Waterfowl nesting on reservoirs can be adversely effected by fluctuating water levels and Project-related recreation during nest building, incubation, and brood-rearing. Rising water levels can flood nests after established, while falling water levels can make nests accessible to predation and other disturbances. Reservoir management practices can also affect the distribution and quality of foraging habitat for waterfowl around reservoir margins. Loss of waterfowl production and reservoir utilization can have an adverse effect on bald eagle food supply and can diminish the "watchable wildlife" values of the UARP. Note that Project operations and recreation activities are not likely to have a significant affect on tree cavities that make up the primary nesting substrate of the common merganser. Therefore, this study will focus on the three remaining species.

6.12.3 Study Objectives

The waterfowl nesting habitat study has four primary objectives: 1) determine the distribution and assess the quality of nesting habitat available for pied-billed grebe, Canada goose, and mallard, at Union Valley and Gerle Creek Reservoirs (i.e., focus the evaluation on islands and emergent wetlands around reservoir margins); 2) estimate current utilization of these habitats by these species and evaluate factors that may limit their nesting success; 3)

determine the distribution and quality of foraging/grazing habitat (i.e., shallow water wetlands and upland grazing areas) at Union Valley and Gerle Creek Reservoirs; 4) evaluate how project operations (e.g., reservoir fluctuations) and recreation affect nesting and foraging habitat availability and utilization by the target species; and 5) to support the Bald Eagle Study, estimate the distribution and abundance of waterfowl utilizing UARP reservoirs during the eagle brood-rearing (April-June) and critical winter months (December-January).

6.12.4 Study Area and Sampling Sites

The waterfowl nesting habitat study area will focus primarily on habitats at Union Valley and Gerle Creek Reservoirs as a "best-case" situation. Union Valley Reservoir has substantially more shallow water wetlands and nesting opportunities for waterfowl than the other UARP reservoirs. In addition, Union Valley has the greatest amount of annual fluctuation in water levels of the Project reservoirs, and therefore, the greatest potential for impacts to nesting waterfowl. Gerle Creek Reservoir provides shallow and deep-water habitat for Canada goose and experiences daily fluctuations that may effect nesting suitability. To support Study Objective No. 5, visual estimates of waterfowl abundance (i.e., as potential prey for bald eagles) will be conducted at all Project Reservoirs during the brood-rearing and wintering seasons. 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.

6.12.5 Information Needed From Other Studies

Determination of waterfowl habitat distribution and potential sources of disturbance will use information derived from the Vegetation Mapping Study, Riparian Vegetation Study, Wetland Study, Hydrology Study, Land Management Study, and possibly the Reservoir Habitat Mapping Study. The various recreation studies will provide information on the extent, intensity, and duration of recreational use. Important information will also be derived from past and current monitoring efforts conducted by the Eldorado National Forest (ENF) staff biologists and from a review of the scientific literature.

6.12.6 Study Methods and Schedule

The waterfowl nesting habitat study is intended to evaluate the effects of project operation and recreation on nesting/foraging habitat availability and habitat utilization at Union Valley and Gerle Creek reservoirs for the following species: pied-billed grebe, Canada goose, and mallard.

Pre-Field Investigations

The following data will be gathered in spring/summer 2002 from existing sources of information and/or from other UARP resource studies, as this information becomes available:

- Findings of all available studies on responses of nesting waterfowl to hydro operation, recreation, and other sources of disturbance of relevance to the UARP [Source: literature review and consultation with experts].
- Distribution of significant nesting habitat (i.e., emergent wetlands and islands) at Union Valley Reservoir and Gerle Creek Reservoir for the three target species that may be affected by Project operation and recreation [Source: Vegetation Mapping Study, Riparian Study, Wetlands Study, ENF data, and ground-truthing as described below].
- Distribution of significant foraging habitat (i.e., shallow water wetlands, upland grazing areas) for the target species within or immediately adjacent to Union Valley Reservoir and Gerle Creek Reservoir [Source: Vegetation Mapping Study, Riparian Study, Wetlands Study, ENF data, and ground-truthing as described below].
- Location, type, intensity, and season/frequency of occurrence of recreational use within 0.25-mile of suitable waterfowl nesting/foraging habitat at Union Valley Reservoir and Gerle Creek Reservoir [Source: ENF/SMUD records and findings of Recreation studies].
- Location, timing, extent, frequency, and duration of reservoir fluctuations at Union Valley Reservoir and Gerle Creek Reservoir [Source: SMUD records].

Field Investigations

Determination of the relationship between Project-related factors and nesting habitat utilization and success at Union Valley Reservoir and Gerle Creek Reservoir will involve the following field studies.

- Ground-truthing and characterization of significant nesting and foraging habitats on or adjacent to Union Valley and Gerle Creek reservoirs throughout the range of reservoir levels in effect during the 2002 waterfowl nesting season. Each site will be visited once each month between April and July (total of four visits) with each visit spaced at least 3-4 weeks apart. For each visit to each site, photographs will be taken and a qualitative assessment made of nesting/foraging habitat quality.
- For each potential significant nesting habitat site, inspections will be made for evidence of waterfowl nesting (e.g., direct observation of birds, nests, eggs, young). Inspections will occur on foot, by boat, and/or remotely using binoculars and spotting scopes. Data to be recorded will include: date/time of survey, species, type of nest, number of eggs or young, nesting stage, distance to water/shoreline, nesting substrate, distance to potential sources of disturbance, and other anecdotal observations deemed relevant by the biologist conducting the survey. A field survey form will be developed in collaboration with ENF biologists prior to conducting the survey.
- Each potentially significant foraging habitat site (shallow water wetlands, upland grazing habitat) will be surveyed for evidence of waterfowl foraging activity (direct observation of birds, feathers, feces, etc.). Data to be recorded will include: date/time of survey, species observed, habitat characteristics, distance to water/shoreline, distance to potential sources of disturbance, and other anecdotal observations deemed relevant by the biologist conducting the survey. A field survey form will be developed in collaboration with ENF biologists prior to conducting the survey.
- To support the Bald Eagle Study, a visual estimate will be made of the distribution, abundance, and availability of waterfowl on all UARP reservoirs during the eagle brood-rearing period (April-June) and critical winter period (December-February). One visual inspection of each Project reservoir will be conducted twice during each of these months in 2002 to record the species, numbers, and distribution of all waterfowl present. Inspections will depend on accessibility by car and foot during winter months. Observations will be made using binoculars and/or a spotting scope.

6.12.7 Analysis

Waterfowl nesting and foraging habitat will be evaluated with respect to the effects of Project-operations and recreational activity. The analysis will include a thorough review of the literature and consultation with experts, as appropriate, to compare reservoir operations and recreational activities with those of similar reservoir systems that support nesting waterfowl. The analysis will also consider the potential, feasibility, and need for modifications in reservoir and recreation management that may enhance nesting potential for waterfowl.

6.12.8 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.

6.12.9 Preliminary Estimated Study Cost

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

6.12.10 TWG and Plenary Group Endorsement

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

Sacramento Municipal Utility District
Upper American River Project
FERC Project No. 2101

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.

6.12.11 Literature Cited

McCaskie, G., P. De Benedictis, R. Erickson, J. Morlan. 1979. Birds of Northern California: an annotated field list. Second Edition. Golden Gate Audobon Society, Berkeley. 84 pp.

SMUD (Sacramento Municipal Utility District). 2001. Initial Information Package for Relicensing of the Upper American River Project (FERC Project No. 2101). Sacramento. July 2001.

Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White (compiling editors). Updates 1988-1990. California's Wildlife. Volume II: Birds. California Statewide Wildlife Habitat Relationships System. California Department of Fish and Game. Sacramento. <http://www.dfg.ca.gov/whdab/cwhr/lifehistbirds.html>.