

4.8 Vegetation Mapping Study Plan

4.8.1 Pertinent Issue Questions

The vegetation mapping study element addresses Terrestrial Resource Issue Question:

25. "What is the distribution of vegetation types in the Project area?"

4.8.2 Background

Mapping the distribution of vegetation types within the UARP provides a baseline of information for a variety of studies required as part of the license application. An initial mapping effort was conducted in 2000 by KEA Environmental, Inc. (KEA 2000), and is summarized in the Initial Information Package (IIP) (SMUD 2001). The 2000 mapping was conducted using 1996 aerial photographs obtained from the Eldorado National Forest of the UARP Project Boundary. All areas mapped were evaluated on the ground and data was gathered on potential habitat for special status plants, a description of the vegetation types (including a list of dominant plant species with cover and abundance values) and presence of weedy species (KEA 2000). This effort produced Geographic Information Systems (GIS) vegetation maps at a scale of 1:24000 that show the vegetation types, special status plants, and noxious weeds within the FERC Project Boundary. Riparian areas along the stream courses were not mapped, but areas around the reservoirs and Project facilities were mapped. SMUD also has recent aerial photography that will allow additional mapping. Additional information regarding vegetative alliances, special status plants and invasive-noxious weeds found may be found in the IIP. The 2000 inventory conducted by KEA, Inc. provides a full description of plant types found in the UARP in the inventory. That report is available from SMUD for review.

4.8.3 Study Objectives

The objective of the vegetation mapping study is to identify the vegetation types within the study area that were not mapped in the 2000 vegetation mapping exercise. The purpose of the vegetation type mapping is to map the area at a 1:24000 scale for the purposes of typing the study area; actual scales used in developing the map may be less, depending on source map (e.g., aerial photo) scales, which may be as large as 1:12,000 scale. Detailed studies of special habitat types, specifically for riparian, wetland, and special aquatic types, are not part of this study effort. Separate study plans have been developed that cover the aforementioned types. Because these types are likely to be small in area, a mapping scale appropriate to the type will be used and is defined in those specific studies.

Mapping for special-status species habitat will be developed in concert with initial surveys performed for species needing additional vegetation mapping (e.g., willow flycatcher), as determined by agency biologists and botanists. A significant amount of the Eldorado National Forest has already been mapped for USFS-managed species (e.g., spotted owl, northern goshawk), and this proposed mapping effort is not intended to duplicate that work.

4.8.4 Study Area and Sampling Locations

The study area is intended to cover vegetation that may be affected by Project operation and maintenance activities (i.e., primarily within the FERC Project boundary including bypass reaches and tributaries streams within the Project boundary) and to generate habitat information needed to support various wildlife studies. These dual purposes allow the study area to be defined based on an elevation demarcation as follows:

Below approximately 3,000 feet elevation: The study (mapping) area will be the area within approximately 500 feet of the FERC Project boundary surrounding all above-ground Project facilities/features and bypass reaches. The lack of developed recreational areas and the steep topography in the areas generally below 3,000 feet support this designation. The portion of the South Fork American River below White Rock powerhouse (e.g., Chili Bar Reservoir and powerhouse) will not be mapped in this effort. Above approximately 3,000 feet elevation: The study (mapping) area will be the area within approximately 0.5-mile of the FERC Project boundary surrounding all above-ground Project facilities/features and bypass reaches. Additional study areas will be included as deemed appropriate (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).

4.8.5 Information Needed From Other Studies

Information is available from the existing vegetation mapping that was conducted in 2000 and the Botanical Resources Inventory Upper American River Project studies conducted by KEA Environmental, Inc. also conducted in 2000. Mapping efforts for wildlife habitat assessment and for aquatic communities will also be incorporated into the overall vegetation mapping effort. Information from this study will support the studies for special status plants and animals, as well as for locating invasive weeds and riparian areas. Information from the recreation surveys will be incorporated as appropriate to determine additional areas to be surveyed. Information from initial biological surveys will dictate the need for additional vegetation mapping studies as determined necessary by agency and staff biologists and botanists.

4.8.6 Study Methods and Schedule

The 2000 vegetation mapping effort will be reviewed to identify any areas within the study area not mapped in 2000. Then, any recent aerial photography of the area or additional mapping done by the Eldorado National Forest (ENF), as well as information on special status plant populations from the California Natural Diversity Data Base (CNDDB) will be reviewed. Existing aerial photography, where available, will be used for the vegetation mapping in 2002. Portions of the Study Area not covered by existing photography will be evaluated to determine if new aerial photos are required to complete the mapping effort; as necessary, this supplemental photography will be taken in spring 2002.

Vegetation types will be mapped at a 1:24000 scale consistent with the 2000 mapping effort. A separate study plan will address riparian and wetland areas using a more detailed scale as discussed in these respective study plans. GIS mapping from the aerial photographs will be done using a minimum 1.0-acre polygon, with special elements (e.g., riparian areas, seeps, wet meadows) less than 1.0-acre in size identified by a separate symbol. Vegetation designations will be based on the descriptions of terrestrial plant types used in *CalVeg GeoBook* (USDA 2000) classification scheme, which provides vegetation mapping for the northern Sierra Nevada mountains and foothills. Additional descriptive modifiers will be added for wetland and riparian types as necessary. Areas of small size that are not well-represented on the map will be described in the narration and in the specific study plans designed to address riparian and wetland types. The CalVeg GeoBook scheme provides vegetation mapping for the northern Sierra Nevada mountains and foothills. Vegetation types will be ground-truthed where the Licensee has legal access (e.g., ownership/easement rights, public lands) and within reasonable safety limits. This will involve going to the various vegetation types within the study area and reviewing how these types show up on the aerial photographs. The photos and on-the-ground site visits will be correlated to insure accuracy of the mapping effort and description of vegetation types.

Mapping relative to the Mule Deer Study will focus on delineation of important habitat use areas for deer (e.g., migration corridors, fawning areas, holding areas) within the study area defined above; this information will be gained largely through existing California Department of Fish and Game deer habitat data. It will not be the intent of this effort to map these important deer habitat elements outside the project study area. Mapping beyond the study area will be done on a case-by-case basis as determined necessary for other wildlife studies as determined necessary by agency and staff biologists and botanists.

Terminology and data type will be consistent with that found in the California Wildlife Habitat Relations (WHR) program. If this information is determined to be necessary, the study plan will be amended by the Terrestrial TWG. Since the information generated from this study may be used in determining general and not specific wildlife habitat suitability, detailed analyses of the study area (e.g., tree size, vegetation layering, snag and downed log assessments) will not be made. General observations will be made about canopy cover and general successional characteristics.

The results of this study will be presented to the Terrestrial Resources Technical Working Group (TWG) in late 2002. Should the data indicate that additional investigation is warranted, this study plan will be amended, in

consultation with the Terrestrial Resources TWG, to include data gathering and analysis in the specific problem areas in 2003.

4.8.7 Analysis

The vegetation mapping will delineate the distribution and extent of major vegetation types within the study area. The results will support analyses for other resource studies including the Riparian, Wetland, Special Status Plants, Invasive/Noxious Weeds, and the various Aquatic Resources and Wildlife Resources studies. A "cross-walk" will be developed to facilitate comparisons between the vegetation types specified in the CalVeg Geo Book (USDA 2000) (with modifiers for wetland and riparian types), which will be included in the Riparian and Wetland study plan reports) and the designations of the California Wildlife Habitat Relationships System (CWHR).

4.8.8 Study Output

Study results will be presented to the Terrestrial Resources TWG and the Plenary Group at the end of 2002. However, the ultimate study output will be a written report that includes the issues addressed, objectives, study area, methods, results (i.e., narrative descriptions of vegetation mapping units and GIS-maps prepared at a minimum scale of 1:24000 that delineate each plant community in the study area), analysis, discussion, and conclusions. The report will be prepared in a format that will allow 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.

4.8.9 Preliminary Estimated Study Cost

[A preliminary estimated study cost will be prepared after the Terrestrial Resources TWG approves the plan and prior to presentation of the plan to the Plenary Group for consideration.]

4.8.10 TWG 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.

4.8.11 Literature Cited

KEA Environmental, Inc. 2000. Botanical inventory for the Upper American River Project. Prepared for SMUD, Sacramento, California

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

USDA (U.S. Department of Agriculture, Forest Service). 2000. Remote sensing lab CalVeg Geobook: Existing vegetation, Version 1. Pacific Southwest Experiment Station, Sacramento, CA. CD-ROM volume 2.