

Appendix B-6

Supplemental Botanical Report Julie Kierstad Nelson

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Pit 3, 4, and 5 Relicensing (FERC #233) Project Supplemental Botanical Report

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1. Introduction

The purpose of this report is describe management direction and analyze the effectiveness of proposed mitigation measures for botanical aspects of the proposed project other than threatened, endangered, and sensitive plants.

Summary of botanical concerns for the Pit 3, 4, and 5 Relicensing Project, other than those addressed in the attached Biological Evaluation:

1. Watch List rare plant species
2. Survey and Manage, old-growth associated vascular & non-vascular plant species, lichens, and fungi
3. Noxious weeds
4. Site restoration

The Forest Service proposed Preliminary 4(e) Conditions in October 2002, and revised them in 2003. Each category of concern in this supplemental botanical report begins with a summary of Forest Service management direction and a summary of known sites and species within the project area. This information is followed by the current 4(e) conditions intended to mitigate project effects, recommendations from FERC's DEIS, and finally, my analysis of the effectiveness of proposed mitigations.

II. Current Management Direction and Affected Environment

A. Watch List Plants

Watch list species, also known as 'Special Interest Species' or "Species of Concern" are those which do not meet the criteria to be included on the Regional Forester's sensitive plant list, but are of sufficient local viability concern to be considered in the planning process. Typically these are drawn from the California Dept. of Fish and Game's Special Plant List (CNDDDB, 2003), the U.S. Fish & Wildlife list of species of concern, and the Native Plant Society's Inventory of rare plants (Tibor, 2001)

June 10, 1998 direction recommends compilation of a 'Watch List' of plant species for which viability is a concern, but that concern is not great enough to warrant inclusion on the Regional Forester's Sensitive Species List. Watch List species are mapped and potential effects analyzed during project planning. The following Watch List species

were documented during Project botanical surveys (Garcia & Associates, 2001; including maps):

Susanville milk vetch (*Astragalus inversus*)—6 occurrences in open Jeffrey pine/Oregon white oak woodland, in the Lake Britton area between Hwy. 299 bridge and Pit 3 dam.

Geyer's sedge (*Carex geyeri*)—1 occurrence ca. ¾ mile south of Pit 4 powerhouse in Douglas-fir/ponderosa pine forest along PG&E access road, with *Clarkia stellata* and *Streptanthus 'shastensis'*.

Bidwell's knotweed (*Polygonum bidwelliae*)—2 occurrences in mixed conifer forest on the shore of Lake Britton, including one near Northshore campground.

Ishi jewelflower (*Streptanthus 'shastensis'*)—1 occurrence on access road between Pit 4 powerhouse and Deep Creek campground.

Silvery false lupine (*Thermopsis californica* var. *argentata*)—30 occurrences in Jeffrey pine within the project area, with the major concentration from Hwy. 299 bridge to Pit 3 dam.

Land & Habitat Management Plans (LHMP) for Protection of Threatened, Endangered, Proposed for Listing and Sensitive Species

- Before taking actions to construct new project features on NFSL (including, but not limited to, proposed recreation developments) that may affect a species proposed for listing, or listed under the federal Endangered Species Act (ESA), or that may affect that species' critical habitat, **or a Forest Service sensitive, survey and manage, or other special status species or their habitats**, the Licensee shall prepare, in consultation with other appropriate agencies, a biological evaluation evaluating the potential impact of the action on the species or its habitat and submit it to the Forest Service for approval. In consultation with the Commission, the Forest Service may require mitigation measures for the protection of the affected species. For species where current information on population occurrence is lacking (e.g. valley elderberry longhorned beetle, terrestrial molluscs, Pacific fisher, and survey and manage species) the Licensee shall perform necessary surveys prior to ground-disturbing activities.

FERC DEIS recommendations: Biological monitoring & adaptive management; Vegetation Management

*Develop a biological monitoring and adaptive management plan, in consultation with the CDFG, FS, FWS, SWRCB, and the Tribe, that establishes the framework for evaluating the effects of environmental measures on fish and wildlife...and whether or not there is a need to adjust measures that may be specified in a new license or implement new measures. **The plan would define consultation procedures that would be taken prior to undertaking any actions that would affect FS sensitive species or their habitat, to***

determine whether preparation of a Biological Evaluation would be necessary, identify BMPs, and develop any specific protection measures that should be implemented. The plan would be revised, as needed, every 4 years and filed with the Commission with a summary of monitoring results and description of any changes in environmental measures that are proposed, and the basis for the changes...

*...we recommend that PG&E develop a vegetation management plan for all project lands that does the following: **provides for the protection of special status plan[t]s [sic]**, control of noxious weeds (including the bypassed reaches because riparian habitat is influenced by the project flow regimes and can represent fertile ground for many weed species), improvement of wildlife habitat by using such measures as prescribed burns and other fuel control measures, and enhancement of ethnobotanical resources.*

My analysis

Proposed 4(e) conditions and FERC recommendations are both adequate to address special status plants. The challenge will be to educate project operation staff and recreationists to recognize special status plants and thereby avoid damaging them out of ignorance. The integration of vegetation management and restoration plans with special status plant monitoring will also be beneficial in avoiding unintended effects to special status plants from weed control, underburning, recreational construction and maintenance, etc.

B. Survey & Manage Vascular Plants, Bryophytes, Lichens, & Fungi

Forestwide standards and guidelines for "Survey & Manage" old-growth associated species were revised in January 2001 and described in *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures, Standards and Guidelines (2001)*. Annual Species Reviews have adjusted required surveys and management recommendations for these species as warranted by new information. Currently, the plant species that require pre-disturbance surveys within the Pit 3, 4, and 5 project area are:

<i>Ptilidium californicum</i>	Pacific fuzzwort	non-vascular/liverwort
<i>Cypripedium montanum</i>	mountain lady's-slipper	vascular plant
<i>Cypripedium fasciculatum</i>	clustered lady's-slipper	vascular plant
<i>Botrychium minganense</i>	Mingan moonwort	vascular plant
<i>Botrychium montanum</i>	mountain moonwort	vascular plant

Field surveys were performed for these species in 2000 and 2002 (Garcia and Associates, 2001 and 2003) throughout the project area. Several populations of mountain lady's-slipper were found; potential impacts and mitigations are addressed in the plant Biological Evaluation for this project. No other Survey and Manage species from the list above were found during field surveys.

Proposed 4(e) Conditions & FERC recommendations: see ‘Watch List’ section above, and mountain lady's-slipper information in my biological evaluation for plants, Pit 3,4, and 5 project.

C. Noxious Weeds

Current management direction for management of noxious weeds is given in FS Manual 2080, amendment No. 2000-95-5, effective 11-29-95. Policy is excerpted below:

2081.03 - Policy. When any ground disturbing action or activity is proposed, determine the risk of introducing or spreading noxious weeds associated with the proposed action.

1. For projects having moderate to high risk of introducing or spreading noxious weeds, the project decision document must identify noxious weed control measures that must be undertaken during project implementation.

...

4. Use contract and permit clauses to prevent the introduction or spread of noxious weeds by contractors and permittees. For example, where determined to be appropriate, use clauses requiring contractors or permittees to clean their equipment prior to entering National Forest System lands.

2081.2 - Prevention and Control Measures. Determine the factors which favor the establishment and spread of noxious weeds and design management practices or prescriptions to reduce the risk of infestation or spread of noxious weeds.

Where funds and other resources do not permit undertaking all desired measures, address and schedule noxious weed prevention and control in the following order:

1. First Priority: Prevent the introduction of new invaders,
2. Second Priority: Conduct early treatment of new infestations, and
3. Third Priority: Contain and control established infestations.

Weed species of concern within the proposed project area are as follows (Garcia & Associates, 2001):

Barbed goatgrass (<i>Aegilops triuncialis</i>)	found in project approx. 3 miles downstream from Pit 4 Dam on river floodplain.
Cheatgrass (<i>Bromus tectorum</i>)	common throughout project area, particularly on access roads and around powerhouses and recreational facilities.
Hairy whitetop (<i>Cardaria pubescens</i>)	found in project area near the natural gas line crossing of the Pit River upstream of Lake Britton.
Spotted knapweed (<i>Centaurea maculosa</i>)	found in project area at Pit 3 powerhouse and 15 small infestations downstream between Big Bend Hot Springs & James B. Black powerhouse.
Yellow star-thistle	Ubiquitous along project area roads and sporadic on Pit

<i>(Centaurea solstitialis)</i>	River floodplain
St. John's wort, Klamath weed (<i>Hypericum perforatum</i>)	The most common noxious weed in the project area, on access roads, around facilities, and in remote areas of the river corridor.
Himalayan blackberry (<i>Rubus discolor</i>)	Forms intermittent band from Lake Britton Dam to Pit 5 powerhouse, and sporadically around Lake Britton.
Bouncing-bet (<i>Saponaria officinalis</i>)	Found sporadically in riparian habitats along Pit River and near active scour zone below Lake Britton.
Medusa-head (<i>Taeniatherum caput-medusae</i>)	Common in project area in grazed annual grassland on river floodplain upstream of Lake Britton.

Land & Habitat Management Plans (LHMP) for Management of Noxious Weeds

The Licensee shall file with the Commission, within one year of license issuance or prior to any ground-disturbing activities, a Noxious Weed Management Plan that is approved by the Forest Service for the purpose of controlling and containing the spread of noxious weeds on NFSL. This plan shall be implemented following approval. At a minimum the plan shall include:

- Inventory and mapping of new populations of noxious weeds.
- Actions/strategies to prevent and control spread of known populations or introductions of new populations, such as vehicle/equipment wash stations.
- Treatment of all new infestations (any class) and existing infestations of California class A and B rated weeds, plus select class C weeds: Klamath weed (*Hypericum perforatum*) and Scotch broom (*Cytisus scoparius*).
- At specific sites where other objectives need to be met (e.g. recreational use) all classes of noxious weeds may be required to be treated.
- Monitoring of known populations of noxious weeds to evaluate the effectiveness of re-vegetation and noxious weed control measures.
- As per the “Modification of Forest Service Conditions” license condition above, the Forest Service may request that the Licensee identify and implement methods for prevention of aquatic noxious weeds. These actions may include, but may not be limited to: (1) public education and signing of public boat access, (2) preparation of an Aquatic Plant Management Plan approved by the Forest Service, and in consultation with other agencies and, (3) boat cleaning stations at boat ramps for the removal of aquatic noxious weeds.

FERC DEIS recommendation 5. Vegetation Management

...we recommend that PG&E develop a vegetation management plan for all project lands that does the following: provides for the protection of special status plan[t]s [sic], control of noxious weeds (including the bypassed reaches because riparian habitat is influenced by the project flow regimes and can represent fertile ground for many weed

species), improvement of wildlife habitat by using such measures as prescribed burns and other fuel control measures, and enhancement of ethnobotanical resources.

My analysis

4(e) conditions and FERC recommendations are both adequate to address existing and future noxious weed inventory, treatment, and prevention, depending on the quality and detail of the plan developed by PG&E, and its implementation. One potential challenge is the controversy over use of herbicides on NF lands. Although herbicides are not the first choice for treatment, chemical control is generally more effective and cost efficient than hand-pulling when a patch of weeds has exceeded a few dozen plants, and/or when a weed seed bank has developed on the site. It is sometimes the only effective method for some rhizomatous or deep-rooted species.

Selection of an herbicide or herbicides should be as target-specific as possible, so that the weeds are eliminated, but natives or other desirable plants are not. Application methods should also focus on direct application limited to target weeds. This helps maintain native plant communities and vegetative competition to resist reinfestation.

D. Site Restoration

Current management direction for site restoration is given in a Region 5 memo outlining regional policy on use of native plant material in restoration and other revegetation projects, dated June 30, 1994. Policy is excerpted below:

To the extent practicable, seeds and plants used in erosion control, fire rehabilitation, riparian restoration, forage enhancement, and other vegetation projects shall originate from genetically local sources of native plants.

- 1. Prescriptions for use of plant materials for revegetation must be developed by knowledgeable plant resource specialists prior to implementation to ensure that the project is feasible and suitable plant material is used.*
- 2. All revegetation facets must be evaluated early in the planning process for Forest projects.*
- 3. Do not use plant materials of species sold as natives if the genetic origin is not known.*

Land & Habitat Management Plans (LHMP) for Management of Vegetation

The Licensee shall file with the Commission, within two years of license issuance or prior to any ground-disturbing activities, a Vegetation Management Plan that is approved by the Forest Service. At a minimum the plan shall:

- Identify and prioritize (into high, moderate, and low priority sites) all inadequately vegetated areas to be re-vegetated or rehabilitated along with an implementation schedule.
- List the plant species to be used along with planting locations, methods, and densities (emphasis shall be given to use of native plant species, especially those with cultural importance). Emphasis shall also be given to using seed from certified weed-free sources and using seed from local sources.
- The licensee shall finance or seek cooperative funding for prescribed fire treatment on up to 920 acres of upland habitat and forest around Lake Britton to enhance natural plant communities by rejuvenating decadent brush and reducing natural fuels buildup in oak and conifer forests. Treatments shall be on a 20 year re-treatment cycle.
- Address vegetation management under existing project-associated distribution and transmission lines on NFSL.
- Pile #4D - Spoil Pile restoration. Develop a site plan for Forest Service approval to convert the existing 240,000 cubic yard spoil pile covering 3.35 acres on NFSL into a canyon scenic overlook. Site plan shall include:
 - Removal of all non-native materials visible on the surface of this pile.
 - Revegetation with native plants, and reduction of star thistle invasion.

FERC DEIS recommendation 5. Vegetation Management

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My analysis

4(e) conditions and FERC recommendations are both adequate to address restoration of native vegetation, depending on the quality and detail of the plan developed by PG&E, and its implementation. One potential challenge is acquisition of locally adapted plant material—most of these plants (including their seeds) can't be purchased off the shelf, but must be custom-grown under contract. PG&E should start soon to arrange for seed collection and propagation of appropriate plant material, as there will be a lag time of 1-3 years before propagated material is ready to plant. It may be possible that the tribe is interested in growing plants for restoration.

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