

ELDORADO NATIONAL FOREST  
BIOLOGICAL EVALUATION FOR SENSITIVE PLANTS

EI DORADO PROJECT, FERC NO. 184  
APPLICATION FOR LICENSE AMENDMENT

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## I. INTRODUCTION

Forest Service Manual (FSM) 2670.32 directs that a biological evaluation (BE) be prepared to determine the effects of proposed projects on Regional Forester designated sensitive species, in order to ensure that project decisions do not adversely affect species viability or create significant trends towards federal listing. This BE analyzes the effects of the Forest Service Terms and Conditions developed in connection with Relicensing of the El Dorado Hydroelectric Project (FERC No. 184) upon sensitive plant species.

TABLE 1. Status of the sensitive plants known or suspected to occur on the Eldorado National Forest (California Dept. of Fish and Game April 2003; Federal Register 1996).

Note: *The Lake Tahoe Basin Management Unit's (LTBMU) sensitive plant species list was reviewed and all LTBMU species with potential to be impacted by the proposed action are included in Table 1. These potentially affected species are known from the Desolation Wilderness Area and are included in the Eldorado National Forest Sensitive Plant list.*

SPECIES	E	T	P	S	SC	R
<i>Arctostaphylos nissenana</i>				X	X	
<i>Botrychium</i> spp.				X	X	
<i>Calochortus clavatus</i> var. <i>avius</i>				X	X	
<i>Cypripedium montanum</i>				X		
<i>Draba asterophora</i> var. <i>asterophora</i>				X		
<i>Draba asterophora</i> var. <i>macrocarpa</i>				X	X	
<i>Eriogonum tripodium</i>				X		
<i>Epilobium howellii</i>				X		
<i>Horkelia parryi</i>				X	X	

SPECIES	E	T	P	S	SC	R
<i>Lewisia longipetala</i>				X	X	
<i>Lewisia serrata</i>				X	X	
<i>Lomatium stebbinsii</i>				X	X	
<i>Meesia triquetra</i> and <i>M. uliginosa</i>				X		
<i>Navarretia prolifera</i> ssp. <i>lutea</i>				X		
<i>Phacelia stebbinsii</i>				X	X	
<i>Senecio layneae</i>		X		X		X

State & Federal Status: E = Federal Endangered; T = Federal Threatened; P = Federal Proposed; S = Region 5/Sensitive; C = Candidate; SC = Species of Concern; R = State/Rare.

The project occurs within the South Fork American River (SFAR) watershed, on both private land and lands administered by the Eldorado National Forest and Lake Tahoe Basin Management Unit. The project boundary includes 1,334 acres of National Forest land, occurring between about 3,400 and 8,000 feet in elevation. The El Dorado Project consists of four storage reservoirs (Lake Aloha, Echo Lake, Silver Lake, and Caples Lake), seven diversion dams (occurring on seven tributaries of the SFAR) that provide water to the El Dorado Canal. The El Dorado Canal occupies National Forest System land between the Kyburz Diversion Dam (located on the SF American River just below its confluence with the Silver Fork American River), to the western edge of the Forest boundary at Fresh Pond.

**TABLE 2.** Potential for the sensitive plants known or suspected to occur on the Eldorado National Forest and the Lake Tahoe Basin Management Unit to be affected by the FERC 184 Amendment Project.

SPECIES	POTENTIAL Yes/No	RATIONALE FOR DETERMINATION OF NO EFFECT
<i>Arctostaphylos nissenana</i>	No	This species grows on shallow shale soils often associated with closed-cone conifer forest. This project will not affect this habitat.
<i>Botrychium</i> spp.	No	These species are found in meadows, marshes and along edges of stream/lakes at elevations above 4,800 feet. The project area, although out of the elevation range was surveyed for these spp and none were found.
<i>Calochortus clavatus</i> var. <i>avius</i>	No	Surveys within the project area were conducted. No occurrences were found.
<i>Cypripedium montanum</i>	No	This species occurs in deep, loamy soil, on north-facing slopes in the shade of mature pine and fir stands at elevations between 4,000 and 6,000 feet. It will not be affected by the proposed project. So far, this species has not been documented on ENF lands.
<i>Draba asterophora</i> var. <i>asterophora</i>	No	This subspecies is restricted to subalpine and alpine habitats above 8,600 feet. The project will not affect any known occurrences.
<i>Draba asterophora</i> var. <i>macrocarpa</i>	No	This subspecies is restricted to subalpine and alpine habitats above 8,400 feet in elevation. Cup Lake Draba is known from two occurrences in the Desolation Wilderness. These occurrences will not be affected by the proposed relicensing project.
<i>Eriogonum tripodium</i>	No	This shrubby buckwheat is a serpentine endemic. Implementation of this project will not affect its habitat.
<i>Epilobium howellii</i>	No	Subalpine fireweed occurs in wet meadows and seeps in subalpine coniferous forest at elevations above 6,500 feet. There are no known occurrences of this species on the ENF and project surveys were negative.

<i>Horkelia parryi</i>	No	This species is found in open chaparral and cismontane woodland on lone formation soils, a habitat not found in the project area.
<i>Lewisia longipetala</i>	No	This species is restricted to subalpine and alpine habitats above 8,600 feet in elevation. Highest elevations of the project area (Lake Aloha) are below 8,400 feet.
<i>Lewisia serrata</i>	No	This plants habitat -- steep nearly vertical cliffs -- to the extent present in the project area has been surveyed and this species was not found to be present.
<i>Lomatium stebbinsii</i>	No	This perennial herb is known only from the Stanislaus N.F. and has yet to be detected on the Eldorado. Its habitat, rocky, barren volcanic ridges and spurs, will not be affected by the proposed action.
<i>Meesia triquetra</i> <i>Meesia uliginosa</i>	No	These moss species occur in meadows that are generally in the upper levels of mixed conifer to subalpine forests. They seem to prefer acidic meadows at elevations between 4,200 to 8,200 feet. Often grows in association with <i>Sphagnum</i> (sphagnum moss), <i>Drosera</i> (sundew), and <i>Vaccinium</i> (huckleberry). Cold spring fed fens in the meadow also seem essential. They require permanent saturation and are not found in meadows that dry out. No sphagnum-type meadows are known to exist in the project area.
<i>Navarretia prolifera</i> ssp. <i>lutea</i>	No	Project surveys (Resource Insights 1999) along the canal discovered an extension to a known population. The new occurrence is along the canal berm between Alarm 23&24. A known occurrence (NAPRL 02) is located upslope from the canal at Alarm 23. These sites will be protected during routine canal maintenance activities.
<i>Phacelia stebbinsii</i>	No	Surveys for this species were conducted in support of this project. This species was not found present in the project area.
<i>Senecio layneae</i>	No	This plant and its habitat -- oak/foothill woodlands with serpentine soils -- do not occur on the Placerville or Pacific Ranger Districts.

## II. CURRENT MANAGEMENT DIRECTION

General management direction for sensitive species on the ENF can be found in the following documents, available at the Eldorado National Forest Supervisor's Office:

### **Forest Service Manual and Handbooks (FSM/H 2670)**

As part of the National Environmental Policy Act process, review programs and activities, through a biological evaluation, to determine their potential effect on sensitive species.

Avoid or minimize impacts to species whose viability has been identified as a concern. If impacts cannot be avoided, analyze the significance of potential adverse effects on the population or its habitat within the area of concern and on the species as a whole.

Establish management objectives in cooperation with the States when a project on National Forest System lands may have a significant effect on sensitive species population numbers or distribution. Establish objectives for Federal candidate species, in cooperation with the FWS and the States.

### **Eldorado National Forest Land and Resource Management Plan (LRMP), as amended in January 2001.**

Utilize administrative measures to protect and improve endangered, threatened, rare, and sensitive species. Standards and guidelines from the LRMP and the Sierra Nevada Forest Plan Amendment Record of Decision (ROD) that are pertinent to this project are summarized below.

### III. PROJECT DESCRIPTION

The Federal Energy Regulatory Committee (FERC) is in the process of deciding if it will issue a new license for the continued operation of the El Dorado Hydroelectric Project, and, if so, what conditions it will impose in any license issued. In connection with this decision, the Forest Service has developed proposed 4(e) conditions based on the Land and Resource Management Plans (as amended) for the Eldorado National Forest and Lake Tahoe Basin Management Unit. The Forest Service's proposed action is to issue the project conditions described in the document entitled *Forest Service Preliminary Terms and Conditions Provided Under 18 CFR § 4.34 (b) b(1) In Connection With the Application for Relicensing of the El Dorado Hydroelectric Project (FERC No. 184) (May 1, 2003)* which shall be included in any new license the FERC may issue for the continued operation of the El Dorado project.

The El Dorado Hydroelectric Project and its associated facilities are described in the Draft Environmental Impact Statement, El Dorado Hydroelectric Project (FERC No. 184-065), issued in March of 2003. The project occurs within the SFAR watershed, on both private land and lands administered by the Eldorado National Forest and Lake Tahoe Basin Management Unit. The project boundary includes 1,334 acres of National Forest System land, occurring between about 3,400 and 8,000 feet in elevation. The El Dorado Hydroelectric Project consists of four storage reservoirs (Lake Aloha, Echo Lake, Silver Lake, and Caples Lake), seven diversion dams (occurring on seven tributaries of the SFAR) that provide water to the El Dorado Canal. The El Dorado Canal occupies National Forest System land between the Kyburz Diversion Dam (located on the SFAR just below its confluence with the Silver Fork American River), to the western edge of the Forest boundary at Fresh Pond. Project facilities on National Forest System lands also include a 110 by 40 foot power house on the SF American River, and portions of a 2.8-mile long combination pipeline and penstock conveyance between the El Dorado Forebay and the Akin Powerhouse.

The proposed action identifies the following specific conditions to project sensitive plant species that may occur in the project area, or may be affected by the project.

#### Condition No. 38 - Wildlife and Sensitive Plant Protection Measures

Before taking actions to construct new Project features (including but not limited to proposed recreation developments) that may affect a wildlife or plant species proposed for listing, or listed under the federal Endangered Species Act, or that may affect that species' critical habitat, or a FS sensitive species or its habitat, the licensee shall prepare a Biological Evaluation evaluating the potential impact of the action on the species or its habitat and submit it to the FS for approval. In consultation with FERC, the FS may require mitigation measures for the protection of the affected species.

If new threatened, endangered, or sensitive wildlife or plant species occurrences are discovered prior to or during construction activities or other Project operations, the licensee shall notify and consult with the FS prior to continuing operations. If the FS determines that the Project-related activities are adversely affecting the sensitive species, the licensee shall, in consultation with the FS, develop and implement appropriate protection measures.

#### Other Management Considerations

Invasive plant species referred to as noxious weeds are spreading into the Sierra Nevada. Many of these species have the capability to compete with and displace native plant species. Standards and guidelines from the Eldorado National Forest Land and Resource Management Plan (LRMP) and the Sierra Nevada Forest Plan Amendment Record of Decision (ROD) include establishing weed prevention measures when amending or re-issuing permits. Pursuant to that direction EID has developed a Weed Prevention and Control Plan as outlined below.

#### Condition No. 39 – Noxious Weeds

Within 6 months after license issuance, the licensee shall file with FERC a plan approved by the FS for the prevention and control of Project-related noxious weeds. The plan shall include (a) areas to be surveyed to determine existing noxious weed populations on National Forest System lands and licensee adjoining property, (b) a monitoring plan that

details ongoing yearly monitoring surveys conducted to detect any new noxious weed occurrences from Project construction, operation, or maintenance activities, the corrective measures that will be taken if Project-related noxious or exotic weeds are found, and the prevention measures employed to minimize the risk of weed introductions; (c) a requirement for an annual written report documenting the results of the monitoring and all known noxious weed populations within the Project area, and (d) a description of how the licensee shall clean construction equipment before entering Project areas and ensure that seeds of noxious weeds are not introduced into construction areas.

The licensee shall use certified weed-free straw for all construction or restoration needs. If certified weed-free straw is not available, rice straw may be substituted. The licensee shall comply with the Eldorado National Forest and Lake Tahoe Basin Management Unit prescriptions for seed, mulch, and fertilizer for restoration or erosion control purposes.

#### Condition No. 28 - Erosion Control Plan For New Construction and Measures For Project Maintenance and Operations

During planning and prior to any new ground-disturbing construction or non-routine maintenance (including but not limited to any recreation-related construction), the licensee shall file with FERC, a plan approved by the FS for the control of erosion, stream sedimentation, dust, and soil mass movement.

If seeding is required in the erosion control plan all seed used must comply with the Eldorado Seed, Fertilizer, and Mulch Prescriptions (ENF 1999)

#### Riparian Restoration

##### Condition No. 34 - Oyster Creek Restoration

Within 2 years of license issuance, the licensee shall survey the channel and develop a plan that is approved by FS for restoration of the Oyster Creek channel. The licensee shall implement the plan within 5 years of license issuance.

##### Condition No. 35 - Esmeralda Creek Restoration

Within 2 years of license issuance, the licensee shall survey the portion of the channel located on National Forest System lands and shall develop a plan that is approved by FS for restoration of the Esmeralda Creek channel. The licensee shall implement the plan within 5 years of license issuance.

#### Riparian Monitoring

Baseline data on willow recruitment has been collected at Caples Meadow (Richard R. Harris and Donna Lindquist, October, 2000). Twenty-four sites were chosen on the two study reaches. These were chosen because they were on or near fluvial deposits where recruitment would be expected or most likely. These study sites will be resampled after 5, 10, and 15 years.

#### Species Composition Study

In order to provide for more detailed evaluation of riparian condition and response to changes in streamflow regime, baseline data on species composition from 14 transects at eight study sites ("sensitive reaches") was collected in 2000 by EID consultant Richard Harris and Donna Lindquist (*Composition of Riparian Herb Communities on Streams with Regulated and Unregulated Streamflow, Eldorado National Forest, California.*). Monitoring at the end of each 5-year period provides an index of changes in riparian conditions over that period of modified streamflow.

#### Mitigations Associated with Operation of the El Dorado Canal:

The February 2000 application for license (Vol 3, Exhibit E, page 4-170) states that where the ENF sensitive plant species, yellow bur *Navarretia*, occurs along certain sections (between Alarms 23 & 24) of the canal these locations will be noted on project maps as Sensitive Botanical Areas. Within these areas no pre-emergent herbicides will be used at any time; no contact herbicide will be used November through July; ground disturbing activities will be limited to August 1 through October; and upslope from Alarm 23 ground disturbing activities will be avoided at all times.

### III. SPECIES ACCOUNTS

*Navarretia prolifera ssp. lutea* (yellow bur *navarretia*): This plant is a highly localized subspecies that is restricted to a narrow east-west band that is 18 miles long and 8 miles wide in El Dorado County. Within the 170 square-mile area described above there are 80 documented occurrences of this annual forb. About two-thirds of these occurrences are located on federal land; the remainder are found on private lands.

These plants grow in openings in or adjacent to mixed conifer forest plant communities. Most are found on a very shallow, cobbly, sandy loam soil. The trend for this taxon is stable. Threats from management activities are not expected to be detrimental unless whole occurrences are extirpated since this species responds well to disturbance. Threats on private property include development.

### IV. EFFECTS

No direct, indirect or cumulative effects are expected to occur to yellow bur *Navarretia* from normal project activities due to the mitigation mentioned above (herbicide restrictions and limited operating periods (LOPs) for mechanical disturbance). Normal maintenance procedures (vegetation control) when performed as prescribed in the LOP may serve to enhance, at least temporarily, the population of yellow bur *Navarretia* located near Alarm 23 by reducing competition from shrubs and other perennial species.

### VI. REFERENCES

California Department of Fish and Game. Guidelines for Assessing the Effects of Proposed Development on Rare and Endangered Plants and Plant communities. 1984.

California Department of Fish and Game. Natural Diversity Data Base. April 2003. Species Plant List. Quarterly Publication. Mimeo. 119p.

Eldorado National Forest. Eldorado National Forest Soil Resource Inventory. 1989.

Eldorado National Forest. Sensitive plant habitat and occurrence maps, and unpublished occurrence records. 2000.

Eldorado National Forest Land and Resources Management Plan. 1989.

Eldorado National Forest Seed, Mulch and Fertilizer Prescriptions. March 1999.

Federal Register. Volume 58, Number 188. 1993.

Federal Register. Volume 61, Number 203. 1996.

Federal Energy Regulatory Commission. El Dorado Project (FERC No. 184) Application for Licence. Volume 3, Exhibit E. 2000.

Study Plan for Special Status Plants, El Dorado Irrigation District, Project 184. Resource Insights, Sacramento CA. May 1999.

USDA Forest Service. Forest Service Manual: Wildlife, Fish, and Sensitive Plant Habitat Management (section 2670), WO Amendment 2600-90-1. 1990.

USDA Forest Service. Forest Service Manual. Noxious Weed Management (section 2080), WO Amendment 2000-95-5. Effective 11/29/95.

USDA Forest Service. Threatened and Endangered Plants Program Handbook (R-5 FSH 2609.25) Amendment 1, Exhibit 1: R-5 Sensitive Plant Species. 1990.

USDI Fish and Wildlife Service. Species list. March 2003.