BOX CANYON HYDROELECTRIC PROJECT (FERC NO. 2042)

RARE PLANT/SENSITIVE SPECIES MANAGEMENT PLAN

LICENSE ARTICLE 411 AND USFS 4E CONDITION 11

PUBLIC UTILITY DISTRICT NO. 1
OF PEND OREILLE COUNTY
Newport, Washington

Submitted by:
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February 2007

Box Canyon Project
Rare Plant/Sensitive Species Management Plan

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Section 1
Introduction

Article 411 in the FERC license order[1] for the Box Canyon Hydroelectric Project, FERC No. 2042, required that the Public Utility District No.1 of Pend Oreille County (District) develop and implement a Rare Plant/Sensitive Species Management Plan that includes the following:

> *...measures to protect Forest Service sensitive and rare plants, including the rare plant Hedeoma, growing on licensee-owned or licensee-managed land within the project boundary.*

Appendix A to the Box Canyon Project license order includes USDA Forest Service (USFS) 4(e) Condition No.11, Sensitive Species Management, which requires the District to:

- Describe the process the Licensee shall follow to determine when field surveys, biological evaluations/ assessments, and monitoring shall be undertaken to assess whether proposed changes in Project operations, habitat improvements, or ground disturbing activities, could potentially affect sensitive species on National Forest System lands.
- Establish standards for field surveys (protocols, sighting forms, etc.). Maintain a record of sensitive species occurrences in the Project area, and provide a mechanism for sharing this information with the USDA Forest Service.
- Ensure that biological evaluations /assessments are completed according to USDA Forest Service policy and include mitigation to avoid or minimize adverse effects to sensitive species, if necessary.
- Ensure that measures used to reduce adverse effects to sensitive species will be implemented and monitored for their effectiveness.
- Periodically review and update the plan as species are added to or removed from the sensitive species list, or as new information pertaining to managing the species is obtained. Updates to the plan shall be completed in consultation with and approved by the USDA Forest Service and submitted to the Commission for approval.
- Within one year of license issuance, provide USDA Forest Service all their sensitive plant survey data including maps of areas surveyed and methods used.
- Within two years of license issuance, complete additional surveys on National Forest System lands for Nuttall's pussytoes, black snake-root, purple meadowrue, Canadian St. John's-wort, prairie cordgrass, and adder's tongue, and provide the survey results to USDA Forest Service. Surveys shall be conducted according to USDA Forest Service protocols in effect at the time the surveys are undertaken and completed at the appropriate time of year to positively identify these species.

[1] 112 FERC 61,055 issued July 11, 2005.

- Monitor and protect sensitive plant populations on National Forest System lands that are potentially affected by Project-induced erosion and related noxious weed infestations. Monitoring and reporting schedules and protection measures shall be developed in consultation with and approved by the USDA Forest Service.

The Rare Plant/Sensitive Species Management Plan describes the District's efforts to comply with these license requirements. For the purposes of the Plan, "sensitive species" are defined as all plants and animals listed as threatened, endangered, candidate, species of concern, sensitive, priority, or review status by the USFS (2004), the U.S. Fish and Wildlife Service, Washington Natural Heritage Program, or Washington Department of Fish and Wildlife. Lands affected by the Project are defined as those that are any of the following:

- Within the FERC Project Boundary;
- Influenced by Project induced erosion or noxious weed infestations;
- Influenced by habitat improvements conducted as part of Project operations or license compliance activities (including noxious weed control);
- Influenced by ground disturbing activities conducted as part of Project operations or license compliance.

Section 2
Objective

The objectives of the Rare Plant/Sensitive Species Management Plan are as follows:

- Ensure the protection of sensitive species on District and National Forest System (NFS) lands affected by the Project;
- Meet USFS guidelines for surveys, monitoring, and reporting on sensitive species when such activities are conducted on NFS lands affected by the Project.

Section 3
Consultation and Process

This section describes the process the District shall follow to determine when biological evaluations, field surveys, and/or monitoring efforts for sensitive species will be conducted and prepared. Additional efforts specific to sensitive plants are described in section 4.0.

3.1 Review of Ground Disturbing and Other Activities

Prior to their implementation, all District-proposed habitat improvements, new ground disturbing activities, or substantive changes in Project operations will be evaluated for their potential to affect sensitive species. Evaluations will be based on known occurrences, the likelihood of presence or absence of the species or its habitat, and the

likelihood of an adverse impact caused by the project under review. These evaluations will include reference to relevant federal, state, and local GIS databases for the general vicinity of Box Canyon Reservoir. When the action under consideration may affect any National Forest System (NFS) lands, the evaluation will meet USFS standards for biological evaluations/ assessments, as defined in USFS Manual 2672. Evaluations/ assessments that find a project has the potential to negatively affect sensitive species will detail all reasonable measures to avoid, minimize, or mitigate such impacts, in that order of preference. The District will present evaluations of each of its proposed activities and associated measures to the Box Canyon Technical Committee, and will follow the subsequent recommendations of the Committee, and the USFS where measures are conducted on NFS lands.

Any measures undertaken with respect to sensitive species will be coordinated by District staff with other resource efforts and will, in particular, take into account the need to prevent disturbance to any known cultural resources, and to take appropriate actions in the event of unanticipated discovery of cultural materials.

3.2 Field Surveys

Field surveys in support of the review of ground-disturbing and other activities will be conducted when available information is not sufficient to reasonably assess the potential for an activity to affect the species. Field surveys may also be required for species that are newly listed as sensitive. Methods for field surveys on National Forest System lands affected by the Project will meet USFS protocols, when available, or those of relevant state agencies. For sensitive plants, surveys will follow guidelines established in *Threatened, Endangered and Sensitive Plants Survey Field Guide* (USFS 2005a).

3.3 Changes in Species List

The USFS will notify the District of any changes to the Sensitive Species List for the Colville National Forest (the current list, updated in 2006, is included as Appendix A). If a newly listed species or its habitat is likely to occur in areas affected by planned ground-disturbing activities, habitat improvements, or operations changes, the District will include the species in its Biological Evaluation of the activity."

3.4 Data Management

The District will maintain a GIS including records of all known sensitive species occurrences in the Project Area. Data maintained in the District's GIS will include all occurrences documented during survey efforts, as well as any relevant data supplied by the USFS, Kalispel Tribe, or other members of the Box Canyon Technical Committee. The District GIS will be complemented by separate datasets maintained by the Washington Natural Heritage Program and Washington Department of Fish and Wildlife; each will be queried as part of the evaluation process for new ground-disturbing or other activities, as described above.

Section 4
Sensitive Plant Surveys and Protection

4.1 Surveys

Sensitive plant surveys of Box Canyon Reservoir were conducted in 1996 and 1997. In 2007, The District will conduct additional sensitive plant surveys on all District and NFS lands affected by the Project. Nuttall's pussytoes, black snake-root, purple meadowrue, Canadian St. John's-wort, prairie cordgrass, and adder's tongue will be among the target species. These surveys will be repeated at ten-year intervals for the duration of the Project license, to assess changing habitats and species distributions. Surveys will collect all data required to meet FS standards described in *Threatened, Endangered, and Sensitive Plants Survey Field Guide* (USFS 2005a). Newly located occurrences will be documented following *Threatened, Endangered, and Sensitive Plants Element Occurrences Field Guide* (FS 2005b). The results of each survey will be combined with descriptions of recommended protection and monitoring measures for presentation to the Box Canyon Technical Committee.

4.2 Protection

Data from survey efforts will be used to evaluate appropriate protection measures, if any, for each sensitive plant occurrence on District or NFS lands affected by the Project. Because 1996 and 1997 surveys documented noxious weeds as the primary threat to sensitive plants, initial protection efforts will consist of noxious weed control in the vicinity of sensitive plant occurrences on all District and NFS lands affected by the Project. To this end, these lands are included in the District's Integrated Weed Management Plan, which provides for annual treatment of noxious weeds. Future survey efforts may suggest that additional protection measures are warranted, a determination that will be made by the Box Canyon Technical Committee and by the USFS for NFS lands.

4.3 Monitoring

During each ten-year sensitive plant survey effort and at five-year intervals in between surveys , known sensitive plant occurrences on District and NFS lands affected by the Project will be relocated for monitoring purposes. Monitoring efforts will collect data meeting USFS standards described in *Threatened, Endangered, and Sensitive Plants Element Occurrences Field Guide* (FS 2005b). Monitoring results will be presented to the Box Canyon Technical Committee and used to refine protection measures as necessary.

4.4 Hedeoma

Relicensing studies conducted in 1997 documented what appeared to be an unusual species in the genus *Hedeoma* growing in part on District lands within the Project

Boundary. In April 1999, District botanists received a letter from Dr. Billie Turner of the University of Texas at Austin stating his determination that *Hedeoma* specimens from the site represent an undescribed species. Since that time, additional research efforts suggest this determination is inaccurate, and the plant is an introduced member of the genus *Acinos* (personal communication, Katy Beck, botanist, March 30 2006). This assessment is shared by the USFS (personal communication, Kathy Ahlenslager, USFS botanist, April 26 2006) and the Washington Natural Heritage Program (personal communication, Joe Arnett, WNHP botanist, May 2 2006). Such a plant does not meet the definition of "sensitive" for the purposes of this plan. No further efforts are planned regarding this species.

Section 5
Schedule, Reporting and Coordination

All Rare Plant/Sensitive Species Management Plan provisions will be formally adopted and implemented by the District upon FERC approval of the plan. Rare Plant/Sensitive Species Management Plan provisions will be recognized in the implementation of other Project management plans, including the Erosion Control Monitoring Plan, so that activities involving these plans do not impact sensitive plant sites or other sensitive species.

All Rare Plant/Sensitive Species Management Plan activities in a given year will be documented in an annual report distributed to state and federal agencies, the Kalispel Tribe and FERC. In addition, the District will host an annual Integrated Weed Management Plan meeting to coordinate noxious weed and rare/sensitive species management efforts, review noxious weed and rare/sensitive species management goals and techniques, evaluate management results and monitoring data, and modify the Rare Plant/Sensitive Species Management Plan as required to respond to changing technology and conditions in the Project area.

Section 6
References

USDA Forest Service (FS). 2005a. Threatened, endangered, and sensitive plants survey field guide. Washington, DC. 24 pp.

USDA Forest Service (FS). 2005b. Threatened, endangered, and sensitive plants element occurrence field guide. Washington, DC. 39 pp.

Appendix A
Habitats of Threatened, Endangered and Sensitive (TES) Species

USDI Fish and Wildlife Service **Threatened and Endangered Species**
Listed for the Colville National Forest (FWS reference: 1-9-05-SP-0272).
Last update: October, 2006

Species	Status	Essential Habitats
northern bald eagle *(Haliaeetus leucocephalus)*	T	foraging – rivers and large lakes with abundant fish, (ex. Pend Oreille River, Sullivan Lake) nesting/perching - large trees that stand above the main forest canopy, and usually within one mile of a foraging area roosting - late and old structural stage stands with good canopy closure
bull trout *(Salvelinus confluentus)*	T	spawning – upper reaches of streams that have high water quality, low gradient, uniform flow and uniform gravel or small cobble substrate Stream temperatures that exceed 35-39 degrees F. are limiting to bull trout.
Canada lynx *(Lynx canadensis)*	T	This species occupies higher elevation (above 3500 feet) forest habitats. foraging - extremely dense, young lodgepole pine, other conifers, or mixed conifer/ hardwood stands (snowshoe hare habitat) denning - late and old stands with jackpots of down logs (also habitat for red squirrels, an important alternate prey species) other considerations - habitat connectivity, seclusion from human disturbance
gray wolf *(Canis lupus)*	E	foraging - habitats that support big game, particularly winter ranges, calving/fawning sites denning - moderately steep slopes on south aspects within 400 feet of water seclusion from human disturbance
grizzly bear *(Ursus arctos)*	T	Grizzly bear recovery habitat is located east of the Pend Oreille River on the Sullivan Lake Ranger District. spring foraging - lower elev. riparian areas, meadows, with succulent herbs, grasses, etc. summer/fall foraging - mid to high elevation, berry producing shrub fields denning – commonly on the north side of ridges with deep soils seclusion from human disturbance
woodland caribou *(Rangifer tarandus)*	E	Woodland caribou recovery habitat is located east of the Pend Oreille River on the Sullivan Lake Ranger District. suitable habitat - late and old stands in the cedar/hemlock and subalpine fir/spruce habitat series, above 4000 feet in elevation late winter, calving - ridgetops, open stands of subalpine fir/spruce with arboreal lichens seclusion from human disturbance

USDA Forest Service Region 6 Sensitive Species listed for the Colville National Forest

Species	Documented on CNF?	Range/Essential Habitats
northern leopard frog *(Rana pipiens)*	Yes	Found in wet meadows, potholes and riparian areas with much concealing cover, this frog may be very susceptible to predation by bullfrogs.
Pacific fisher *(Martes pennanti)*	Yes	Fishers inhabit dense coniferous or mixed coniferous/deciduous forests with good canopy closure. They prefer late and old structural stage stands. travel habitat - forest stands adjacent to lakeshores, riparian areas, ridges denning - large hollow logs or snags, tree cavities, brush piles etc.
Townsend's big-eared bat *(Corynorhinus townsendii)*	Yes	hibernation - caves or mine adits that are generally close to freezing reproduction - nursery colonies are typically located in sites above 50 degrees F., often in old abandoned buildings roosting – caves, mine adits, old buildings, and the undersides of bridges
wolverine *(Gulo gulo)*	Yes	denning - rock slides, caves, crevices, particularly in glacial cirque basins foraging - all habitats but particularly those where carrion can be found seclusion from human disturbance
common loon *(gavia imner)*	Yes, nesting confirmed	Loons require large lakes or rivers with abundant fish (example; Pend Oreille River) that have adequate shoreline vegetation to conceal a nest. Seclusion from human disturbance is critical to nesting loons.
eared grebe *(Podiceps nigricollis)*	Yes, but nesting not confirmed	This species occupies lakes and marshes and nests in colonies. The nearest colony is on the Turnbull National Wildlife Refuge near Cheney, WA. Individual birds have been reported from Sullivan Lake, Little Pend Oreille Lakes.
great gray owl *(Strix nebulosa)*	Yes, but nesting not confirmed	foraging - open, grassy habitat including open forest stands, selective and clear-cut logged areas, meadows and wetlands nesting - forest stands near lakes, wet meadows, and pastures nest structures - large, broken topped snags, abandoned raptor nests.
peregrine falcon *(falco peregrinus anatum)*	Yes, but nesting not confirmed	foraging - habitats that provide waterfowl, upland game birds, and larger passerine birds; particularly open marshes, river bottoms and seacoasts nesting - scrapes placed on a ledge of a tall (150 foot +) sheer cliff face.
sandhill crane *Grus canadensis)*	Yes, but nesting not confirmed	feeding/resting - large tracts of undisturbed marshes or meadows nesting - isolated sites with good cover more than ¼ mile from roads.
pygmy whitefish *(Prosopium coulteri)*	Yes	This species is found in oligotrophic lakes usually deeper than 20 feet and cold streams from WA to AK. spawning - riffles of streams or near lake shores.
westslope cutthroat (*O. clarki lewisi*)	Yes	This subspecies inhabits lakes and streams from the Cascades to the upper Missouri River. Spawning, first three years of rearing occur in stream habitat with cool water temps, low substrate embeddedness and high habitat complexity.
interior redband trout (*O. mykiss spp.*)	Yes	This subspecies inhabits streams in the Columbia River basin from the East Cascades to the Rockies into British Columbia and Alberta. Spawning and rearing occur in streams with cool water, low substrate embeddedness and a high proportion of riffle to pool habitat.

USDA Forest Service, Region 6 Sensitive Species
listed for the Colville National Forest – plants (last update 1/2005)

Vascular Plant Species	Documented on CNF?	Habitat
meadow pussytoes *(Antennaria corymbosa)*	Yes	Bogs, 5000 ft.
Nuttal's pussy-toes *(Antennaria parvifolia)*	Yes	Dry, open places, on sandy or gravelly riverbanks, openings of ponderosa pine forests 1900-2600 ft.
least bladdery milk vetch *(Astragalus microcystis)*	Yes	Open woods near shorelines, riverbanks, floodplains, 1900-2100 ft.
upswept moonwort *(Botrychium ascendens)*	Yes	Dry meadows, 3000-3400 ft.
crenulate moonwort *(B. crenulatum)*	Yes	Western redcedar-western hemlock forests, streambanks, floodplains, 2030-4600 ft.
Western moonwort *(B. hesperium)*	Yes	Dry to moist meadows, 3200-3300 ft.
skinny moonwort *(B. lineare)*	Yes	Western redcedar-western hemlock forests, streambanks, floodplains, 2000-4000 ft.
two-spiked moonwort *(B. paradoxum)*	Yes	Dry meadows, perennial and intermittent streams, 2500-3600 ft.
stalked moonwort *(B. pedunculosum)*	Yes	Dry to moist meadows, perennial streams, 2500-3300 ft.
(Carex capillaries)	No	Streambanks, wet meadows, moderate to high elevations.
bristly sedge *(Carex comosa)*	Yes	Marshes, lake margins, drainage ditches, wet meadows, 30-2000 ft.
(C. dioica var. gynocrate)	No	Bogs, marshes, moderate to high elevations.
yellow sedge *(Carex flava)*	Yes	Fens, bogs, wet meadows and ponds, 2420-4300 ft.
bronze sedge *(Carex foenea)*	Yes	Marshes, 2585 ft.
porcupine sedge *(Carex hystricina)*	Yes	Wet meadows, ponds, marshes, seeps, 550-1500 ft.
beaked sedge *(Carex rostrata)*	Yes	Bogs and fens, 4600-5000 ft.
Russet sedge *(C. saxatilis* var. *major)*	Yes	Wet meadows and margins of lakes and streams.
(Chrysosplenium tetrandrum)	No	Perennial and intermittent streams, seeps in rock outcrops, moderate elevations.
bulb-bearing water hemlock *(Cicuta bulbifera)*	Yes	Marshes, bogs, wet meadows, edge of ponds, shores of beaver ponds, shallow standing water, 2200-3720 ft.
Steller's rockbrake *(Cryptogramm stelleri)*	Yes	Cliffs, 3000-35000 ft.
yellow lady's slipper *(Cypripedium parviflorum)*	Yes	Perennial streams on limestone rock under mixed conifer forest, 2300-2700 ft.
yellow mountain avens *(Dryas drummondii)*	Yes	Cliffs, 2000 ft.
crested shield fern *(Dryopteris cristata)*	Yes	Fens, wet meadows and wooded swamps, 2150-4100 ft.
green keeled cotton-grass *(Eriophorum viridicarinatum)*	Yes	Fens and marshes, 2900-4650 ft.

USDA Forest Service, Region 6 Sensitive Species listed for the Colville National Forest – plants continued

Vascular Plants continued	Documented on the CNF?	Habitat
creeping snowberry *(Gaultheria hispidula)*	No	Moist areas in coniferous woods, 2960-3360 ft.
water avens *(Geum rivale)*	Yes	Wet meadows, fens, bogs, perennial streams and shrub wetlands, 2900-3700 ft
Canadian St. John's-wort *(Hypericum majus)*	No	Mudflats, 1500 ft.
Kalm's lobelia *(Lobelia kalmii)*	No	Bogs.
tree-like clubmoss *(Lycopodium dendroideum)*	Yes	Coniferous forests, 3000-3650 ft.
(Lycopodiella inundata)	No	Bogs, 1800 ft.
marsh muhly *(Muhlenbergia glomerata)*	Yes	Bogs, fens, streambanks, wet meadows, marshes, lake and pond margins, 2950-3380 ft.
adder's tongue *(Ophioglossum pusillum)*	Yes	Moist meadows, 2800-3200 ft.
Okanogan flameflower *(Phemeranthus sediformis)*	Yes	Rock outcrops, 2700-4800 ft.
(Physaria didymocarpa var. *didymocarpa)*	No	Talus, 2000 ft.
small northern bog-orchid *(Planthera obtusata)*	Yes	Moist meadows and perennial streams in coniferous forests, 4100-4400 ft.
hoary willow *(Salix candida)*	Yes	Fens, 2400-3000 ft.
MacCall's willow *(Salix maccalliana)*	Yes	Fens, 2400-3000 ft.
Northern willow *(Salix pseudomonticola)*	Yes	Fens, 2900 ft.
black snake-root *(Sanicula marilandica)*	Yes	Bogs, fens, streambanks, floodplains, benches, 1800-3050 ft.
blue-eyed grass *(Sisyrinchium septentrionale)*	Yes	Dry to moist meadows, perennial streams, 2200-3850 ft.
prairie cordgrass *(Spartina pectinata)*	Yes	Sandy, silt loam soil adjacent to areas seasonally flooded and moist in late summer along large rivers, 2000 ft.
woodsage *(Teucrium canadens* ssp. *Viscidum)*	No	Wet margins of lakes and ponds, streambanks, 1500-2300 ft.
purple meadowrue *(Thalictrum dasycarpum)*	Yes	Dry meadows, mixed conifer forests, riverbanks, floodplains, 2000 ft.
velvet-leaf blueberry *(Vaccinium myrtilloides)*	Yes	Coniferous forests, 2000-3000 ft.
kidney-leaved violet *(Viola renifolia)*	Yes	Moist lowland forests, 2300-4400 ft.

USDA Forest Service, Region 6 Sensitive Species listed for the Colville National Forest – plants continued

Lichens	Documented on CNF?	Habitat
brook lichen *(Dermatocarpon luridum)*	No	Aquatic; on rocks, boulders and bedrock in streams, rivers, or seeps, usually submerged or inundated for most of the year.
jellyskin *(Leptogium burnetiae* var. *hirsutum)*	No	Typically epiphytic on trees but also on decaying logs, rocks and moss.
blue jellyskin *(Leptogium cyanescens)*	No	Tree bark of conifers and hardwoods, logs, mossy rocks in cool, moist micro-sites.
naked kidney lichen *(Nephroma bellum)*	Yes	On branches and twigs of trees, especially conifers. Also on mossy rocks in humid forests.
black saddle lichen *(Peltigera neckeri)*	No	Mossy logs, soil and tree bases in wet forested habitats.
fringed pelt *(Peltigera pacifica)*	No	Mossy logs, soil and rocks in moist forest habitats
urn lichen *(Tholurna dissimilis)*	No	On twigs and branches of exposed conifers in humid subalpine and alpine habitats

Bryophytes	Documented on CNF?	Habitat
luminous moss *(Schistotega pennata)*	No	Damp acidic rock, soil and decaying wood, in dark places (openings of caves or mine shafts), in rock crevices or overhangs, animal burrows, on shaded banks, in crevices of root balls or fallen trees, or around tree roots in dark dense forests.
splashzone moss *(Scouleria marginata)*	No	Semi-aquatic on rocks along the edge of streams.
tetraphis moss *(Tetraphis geniculata)*	No	Moist coniferous forest with large down logs. It occurs on the cut or broken ends or lower sides of decay class 3, 4, 5 rotted logs or stumps and occasionally on peaty banks in moist coniferous forests from sea level to subalpine elevations.