

**Susitna-Watana Hydroelectric Project
(FERC No. 14241)**

**Botanical Resources
Study Plan Section 11 Introduction**

Final Study Plan

Alaska Energy Authority



July 2013

11. BOTANICAL RESOURCES

11.1 Introduction

The botanical resources section describes the studies proposed to collect necessary baseline data to evaluate the potential impacts to vegetation, wildlife habitat, wetland, and vascular-plant resources in the Project area. Five proposed study plans are presented in this section. Two of these studies will involve the mapping of vegetation, wildlife habitats, and wetlands in the upper and middle Susitna basin where the Project dam, reservoir, supporting infrastructure, transmission lines, and access road are proposed to be built. A third study involves the mapping of successional vegetation, wildlife habitats, and wetlands in riparian areas along the Susitna River downstream of the proposed dam site, and also will involve modeling efforts to predict the potential changes in downstream riparian areas from Project development. A fourth study will involve surveys for rare vascular plant populations in those portions of the Project area where fill, inundation of the reservoir, or disturbance to plant populations would occur, and a fifth study will involve surveys for invasive vascular plants in currently disturbed areas that could serve as source areas for the spread of invasive plants in the Project area.

11.2 Nexus Between Project Construction / Existence / Operations and Effects on Resources to be Studied

Project construction and operations activities would directly and indirectly affect vegetation, wildlife habitats, and wetlands in and adjacent to those areas where physical alteration of the landscape would occur (the site of the proposed dam, the reservoir, and in those areas where supporting infrastructure, the access road, and transmission-lines are proposed). Project development also could indirectly affect vegetation, wildlife habitats, and wetlands in riparian areas downstream of the proposed dam because of alterations in patterns of river flow, sediment transport, ice scour, and subsequent changes in riverine geomorphology. Three of the botanical resources studies (the vegetation and wildlife habitat mapping study, wetland mapping study, and riparian study) will provide the information necessary to:

- Quantify the potential direct loss and alteration of vegetation types, wildlife habitats, and wetlands (including alterations in wetland functions) from development of the proposed Project;
- Evaluate the potential indirect and cumulative effects of Project development on vegetation, wildlife habitats, wetlands, and wetland functions; and
- Prepare a Clean Water Act Section 404 wetlands permit application for the Project, which will include proposed measures to address impacts to wetlands as much as practicable.

Project development could directly or indirectly result in the loss or degradation of habitats that support rare vascular plant species through the clearing of areas for fill and through disturbance to habitats adjacent to areas within the Project footprint. Similarly, disturbance to habitats from Project construction and operations activities could create opportunities for invasive vascular plant species to become established in the Project area. Project construction and operations activities also could provide vectors for the movement of invasive plant propagules into the Project area (e.g., construction equipment, vehicles, workers' boots, plant seed mixes). Two of

the botanical resources studies (the rare plant study and invasive plant study) will provide the information necessary to:

- Quantify the potential direct loss or disturbance to habitats supporting individuals or populations of rare plants from development of the proposed Project;
- Evaluate the potential indirect and cumulative effects of Project development on individuals or populations of rare plants; and
- Evaluate the potential for invasive plant species to become established in the Project area and the level of ecological threat from establishment.

11.3 Resource Management Goals and Objectives

There are no specific management goals for vegetation and wildlife habitats in Alaska. Federal and state management goals for bird and mammal species in Alaska are described in Section 10.3 of this RSP, and most of those management goals have a habitat component, in which the maintenance of habitats for the species or species group in question is part of the overall management goal(s).

Wetlands in Alaska are regulated under jurisdiction of the Environmental Protection Agency (EPA) 40 CFR Part 230 Section 404(b)(1) and Section 10 of the Rivers and Harbors Act of 1899 33 USC 403 regulations under the Clean Water Act. These regulations were developed "...to restore and maintain the chemical, physical, and biological integrity of waters of the United States through the control of discharges of dredged or fill material." The Section 404 program is designed to minimize the loss or negative impact to the nation's waters and wetlands. Mitigation for the loss of wetlands in Alaska must be done in compliance with the compensatory mitigation regulations of the U.S. Army Corps of Engineers (USACE) 33 CFR Parts 325 and 332 and EPA 40 CFR Part 230 ruling, Compensatory Mitigation for Losses of Aquatic Resources. The compensatory mitigation rule was enacted to improve the planning, implementation, and management of compensatory mitigation projects by requiring measurable, ecosystem-based performance standards and effective monitoring for all types of compensation.

The Aleutian shield fern (*Polystichum aleuticum*) is the only plant species listed as endangered under the federal Endangered Species Act (ESA) (USFWS 2010), and it is restricted to two islands (Adak and Atka) in the central Aleutian Island chain. The State of Alaska does not list any plant species as threatened or endangered (ADF&G 2010). Portions of the Project area, however, are managed by the Bureau of Land Management (BLM), and the BLM maintains a Special Status Species list, which was created from the Alaska Natural Heritage Program's Rare Vascular Plant List (AKNHP 2012). The BLM list is designed to identify species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA.

Resource agencies have become increasingly concerned about invasive plants in Alaska because of their potential to negatively impact wildlife habitat, recreational values, rare plant populations, and native plant species diversity. In addition, they can greatly increase land management costs as financial resources are diverted from other resource management needs to control the spread of invasive species. As a result, the Alaska Department of Natural Resources, in cooperation with the Division of Agriculture, has been developing plans to help with the prevention, regulation, and enforcement of policies for the prevention and control of the spread of invasive

species (Herbert 2001, Graziano 2011). Planning tools already in place include the authority to declare pests, conduct inspections, quarantine and treat infested areas.

11.4 Summary of Consultation with Agencies, Alaska Native Entities and Other Licensing Participants Regarding Revised Study Plan Development

Summary tables of comments and responses from formal comment letters filed with FERC from November 1 through November 14, 2012, were provided in the Revised Study Plan (RSP) Appendix 1. Copies of the formal FERC-filed comment letters referenced in Appendix 1 were also included in RSP Appendix 2. In addition, a single comprehensive summary table of comments and responses from consultation, dated from Proposed Study Plan (PSP) filing (July 16, 2012) through release of Interim Draft RSPs (October 31, 2012), were provided in RSP Appendix 3. Copies of meeting summaries from release of the PSP through the interim draft RSP were included in RSP Appendix 4, organized chronologically.

Consultation subsequent to the filing of the Revised Study Plan (RSP) is described within each Final Study Plan (FSP).

Literature Cited

- ADF&G (Alaska Department of Fish and Game). 2010. State of Alaska endangered species list. Available online (accessed 29 October 2010): http://www.ADF&G.state.ak.us/special/esa/esa_home.php.
- AKNHP. 2012b. 2012 Rare Vascular Plant List. Alaska Natural Heritage Program, University of Alaska, Anchorage. Available online (accessed 15 June 2012): <http://aknhp.uaa.alaska.edu/botany/rare-plants-species-lists/2012-rare-vascular-plant-list>.
- Graziano, G. 2011. Strategic plan for invasive weed and agricultural pest management and prevention in Alaska. Alaska Department of Natural Resources, Division of Agriculture, Alaska Plant Materials Center, Palmer. 36 pp.
- Hebert, M. 2001. Strategic plan for noxious and invasive plants management in Alaska. Cooperative Extension Service, University of Alaska Fairbanks. 20 pp.
- USFWS (U.S. Fish and Wildlife Service). 2010. Endangered, threatened, proposed, candidate, and delisted species in Alaska. Anchorage Fish and Wildlife Field Office. 2 pp. Available online (accessed 12 July 2011): http://ecos.fws.gov/tess_public/pub/stateOccurrenceIndividual.jsp?state=AK.