

Susitna-Watana Hydroelectric Project Document

ARLIS Uniform Cover Page

Title: Surveys of eagles and other raptors	SuWa 172
Author(s) – Personal:	
Author(s) – Corporate: Alaska Energy Authority	
AEA-identified category, if specified: Wildlife resources study requests	
AEA-identified series, if specified:	
Series (ARLIS-assigned report number): Susitna-Watana Hydroelectric Project document number 172	Existing numbers on document:
Published by: [Anchorage] : Susitna-Watana Hydroelectric Project, [2012]	Date published: 5/16/2012
Published for:	Date or date range of report:
Volume and/or Part numbers:	Final or Draft status, as indicated:
Document type:	Pagination: 7 p.
Related work(s):	Pages added/changed by ARLIS:
Notes:	

All reports in the Susitna-Watana Hydroelectric Project Document series include an ARLIS-produced cover page and an ARLIS-assigned number for uniformity and citability. All reports are posted online at <http://www.arlis.org/resources/susitna-watana/>



1.1. Surveys of Eagles and Other Raptors

1.2. Requester of Proposed Study

AEA anticipates a resource agency will request this study.

1.3. Responses to Study Request Criteria (18 CFR 5.9(b))

1.3.1. Describe the goals and objectives of each study proposal and the information to be obtained.

The goal of this study of Bald Eagles, Golden Eagles, and other tree- and cliff-nesting raptors is to provide current information on the occurrence, breeding status, nesting distribution, productivity, and habitat use of these birds in the Susitna-Watana Hydroelectric Project (Project) area, for use by the Federal Energy Regulatory Commission (FERC) during National Environmental Policy Act (NEPA) documentation and the Project licensing process, and for the development of avoidance, minimization, and mitigation measures.

Seven objectives have been identified for this study:

- 1) Identify, determine status, and map previously recorded nest locations of various species;
- 2) Delineate suitable nesting and foraging habitats;
- 3) Locate previously unrecorded nests, currently active nests, and alternative nest sites;
- 4) Create a geospatial database of all nests;
- 5) Determine success and productivity of nests;
- 6) Locate fall and winter communal roost sites; and
- 7) Identify seasonal habitat use.

1.3.2. If applicable, explain the relevant resource management goals of the agencies and/or Alaska Native entities with jurisdiction over the resource to be studied. [Please include any regulatory citations and references that will assist in understanding the management goals.]

This study will be critical for providing the information required for compliance with Federal laws, most notably the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA), and for a recent memorandum of understanding (MOU) concerning the implementation of Executive Order 13186 with regard to protection of migratory birds (FERC and USFWS 2011). That agreement was created to establish a voluntary framework to ensure that both agencies cooperate to conserve birds and their habitats by identifying and mitigating potential adverse effects resulting from the development of energy infrastructure. The MOU defines bird “species of concern” as those species—including several raptors—that are listed as sensitive or of conservation concern by various management agencies, agency working groups, and non-governmental conservation organizations (FERC and USFWS 2011; also see ABR, Inc. 2011 and AEA 2011). Given the recommendations in the MOU for minimizing impacts on birds, it is expected that concern will focus on the effects of the Project on raptors, necessitating preparation of plans to avoid, minimize, or mitigate for those impacts.

1.3.3. If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study.

Wildlife resources are owned by the State of Alaska, and the Project could potentially affect these public interest resources.

1.3.4. Describe existing information concerning the subject of the study proposal, and the need for additional information.

Extensive information on raptors was collected during the 1980s for the original Alaska Power Authority Susitna Hydroelectric Project (SHP) and for other surveys in the region (ABR, Inc. 2011). Maps are available of raptor nests located during the SHP studies in the early 1980s (LGL 1984). Other nest site records may exist in the files of the University of Alaska Museum of the North (AEA 2011). Other investigators and agency personnel may have information on raptor nest sites and important habitats, such as roosting sites, in or near the Project area. Similar regional databases of nest site information have been developed (Wildman and Ritchie 2000).

Historical information from aerial surveys of raptors in the early 1980s provided the first assessment of the distribution, abundance, and vulnerability of many raptor nests located within the proposed Project impoundment zone. Those surveys highlighted Bald and Golden eagles and Common Ravens, and, to a lesser extent, other raptors such as Northern Goshawks. However, comprehensive surveys have not been conducted recently to determine the current distribution and status of raptors nesting in the Project area. Historical surveys did not include the entire current Project footprint (e.g., proposed access roads, power transmission lines). Finally, more sophisticated geospatial analyses are now available that allow for more accurate assessments of the potential effects of the Project on raptors and their habitats. Collecting current data will be necessary for compliance with Federal laws, especially the BGEPA and the MBTA, as well as the FERC–USFWS MOU.

A limited field survey for raptors was conducted in 2011 (ABR, Inc. 2011) and more extensive surveys of the Project area are beginning in 2012 (AEA 2012) to provide the Alaska Energy Authority (AEA) with the information needed to protect raptors by restricting project activities near active raptor nests.

Historical information from raptor surveys in the 1980s is inadequate for a number of reasons. Collecting current data will be necessary for compliance with Federal laws (BGEPA and MBTA). First, comprehensive new surveys are needed to assess the current distribution and status of raptors nesting in the Project area because some raptors such as Bald Eagles have increased in number in interior Alaska since the 1980s (Ritchie and Ambrose 1996). Historical surveys did not include the entire Project area, most notably the access road and power transmission corridors (AEA 2011). Finally, more sophisticated methods of geospatial analysis are now available to provide more accurate assessments of the potential effects of the Project on raptors and their habitats.

1.3.5. Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

This study will provide baseline data on Bald and Golden eagle nest locations and territories in and near the Project area, which will be required for the BGEPA permitting process for the Project. The study will provide habitat use data for development of habitat evaluation criteria in compliance with Executive Order 13186 (FERC and USFWS 2011) and for assessment of potential risks associated with transmission lines. In concert with other Susitna-Watana study programs, the raptor study will evaluate predator-prey relationships. Data from the raptor study will provide data needed for impact assessments and for the development of mitigation strategies for avian resources protected under the MBTA and BGEPA. During Project construction, baseline data will be used to develop BGEPA take calculations; protection, mitigation, and enhancement measures; and to develop management and monitoring plans.

This study addresses the following issues identified in the Pre-Application Document (PAD, AEA 2011) regarding raptors:

- Potential loss or alteration of habitats including key habitat features such as nest sites, foraging habitats, and roost sites;
- Potential blockage or alteration of raptor use due to reservoir inundation of foraging habitats, access and transmission-line corridors, and other human activities (e.g., abandonment of territories due to flooding);
- Potential changes in prey abundance and their distribution related to Project Development (e.g., changes in the availability of prey for raptors);
- Potential impacts to raptors due to increased human presence with Project development (e.g., disturbance at raptor nests); and
- Potential impacts to habitats of special status wildlife species including many raptors.

1.3.6. Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

The methodology presented for 2013–2014 is the same as that proposed for the surveys that are beginning in 2012 (AEA 2012), focusing on the area within a radius of 3 miles around the proposed project facilities, the centerlines of the potential access road and transmission-line corridors, and the reservoir impoundment zone. Based on consultation with USFWS in April 2012, however, the area to be surveyed will be expanded to a radius of 10 miles around the reservoir impoundment zone to facilitate mapping of Golden Eagle nest territories.

The survey methodology will obtain information for an area larger than the 1980s survey coverage, will gather information on key species in a more well-defined study impact area, and will provide AEA with information needed to develop avoidance areas to reduce the potential disturbance of nesting raptors from the various field studies being conducted for the Project. The addition of other surveys, such as more intensive transect surveys for other woodland raptors and additional survey area coverage, will be evaluated in consultation with the U.S. Fish and Wildlife Service (USFWS), AEA, and agency biologists during study planning for the 2013–2014 studies.

Inventory and monitoring methods will follow established aerial and ground-based protocols for eagle nest surveys (USFWS 2007, Pagel et al. 2010). The raptor study will provide data on cliff-nesting raptors (specifically, Golden Eagle, Peregrine Falcon, Gyrfalcon, as well as Common Raven, which builds nests used by raptors) and on raptors nesting in large stick nests (specifically Bald Eagle, but also including other raptors nesting in similar sites such as Great Horned Owl and Red-tailed Hawk). Aerial surveys are inadequate, however, for locating the nests of several small-medium sized raptor species such as Short-eared Owl, Boreal Owl, Northern Hawk Owl, Northern Harrier, American Kestrel, Merlin, and Sharp-shinned Hawk. Ground surveys also have limitations including low detectability for some raptors, and requirement for intensive winter surveys for early nesting owls.

The Short-eared Owl is a species of conservation concern (AEA 2011), but nesting surveys for this owl are difficult because of their inconspicuous nests, low nesting densities, and nomadic behavior. Observations of Short-eared Owls and all raptor species will be recorded and georeferenced with associated habitats during raptor surveys. Raptor nests and observations will also be recorded during landbird and shorebird point-count surveys and all raptor observations will be plotted on wildlife habitat map using a Geographic Information System (GIS) and Global Positioning System (GPS) receiver coordinates. The wildlife habitat map will provide the basis for an ecosystem approach to assessing the effects of development-related habitat impacts on raptors. The wildlife habitat map for the Project will facilitate quantitative analyses of changes in raptor habitat availability that result from development and, in combination with raptor survey data, will allow a means to assess the potential for changes in local raptor populations during construction and operations.

A 4-seat piston helicopter (Robinson R44®, Robinson Helicopter Company, Torrance, California) would be used, carrying 2 observers in addition to the pilot. Flight altitude and speed will follow standard survey protocols for each habitat type (Pagel et al. 2010). Observers will be seated on the same side of the aircraft during surveys. Location and nest attribute data including substrate, nest species, and status will be collected for inclusion in the geodatabase.

The first nest occupancy surveys will begin in spring before leaf-out (late April to late May), keying in on primary habitats for Bald and Golden eagles, but also considering resident species nesting in woodland (Great Horned Owl and Northern Goshawk) and on cliffs (Gyrfalcon). All Bald and Golden eagle habitat within the study area boundary will be surveyed. For Bald Eagles, surveys will cover the area within a half-mile of the centers of all drainages with suitable timber and within a half-mile of all shorelines of lakes with similar characteristics in the impoundment zone and wherever these habitats cross proposed road and transmission-line corridors. Information on other large tree-nesting birds will also be collected. Survey routes for cliff-nesting raptors will be flown in a cliff-to-cliff survey pattern focused on cliffs suitable for Golden Eagle nests during this period.

A second nest productivity survey period will occur during mid-June to late July for surveys to verify and monitor nesting activity and to search for additional nests of later nesting raptors. Because of the wide range of breeding dates for all raptors considered in the study (mid-February for resident owls through early September for dispersal of Bald Eagles from nesting areas), the second survey period will encompass a broad timing window from mid-June through mid-July. The nesting chronology of each focal raptor will be considered during survey scheduling. Helicopter protocols described for the spring nest occupancy surveys would be employed during these status and productivity surveys.

Besides nesting occupancy and productivity surveys, 3 to 5 aerial surveys of foraging habitat and communal roosts, primarily for Bald Eagles, will be conducted each year at intervals of 2–3 weeks between mid-October and early December. Survey numbers and timing may be adjusted in 2013 and 2014, based on the results of the surveys planned for 2012. A helicopter or a fixed-wing aircraft carrying two observers will be used for these surveys. Surveys will be conducted near dawn or dusk. Information on fall fishery concentrations will be requested from Project fisheries researchers and from agency biologists to more effectively monitor potential Bald Eagle concentration areas.

Helicopter surveys will avoid Dall's sheep lambing areas and the Jay Creek and Watana Creek mineral licks to reduce the potential for disturbance of sheep. If necessary, ground surveys for nesting raptors will be conducted in these areas. Observations would be completed during the nest occupancy and nest productivity periods described above, but would be made at safe distances from sheep lambing areas. Spotting scopes would be required to search cliff areas; in addition, broadcast calls may be used to help determine the use of cliffs by Peregrine Falcon and Gyrfalcon. Helicopters would be used to drop off and pick up observers.

In any aerial survey, a key concern is quantifying the sightability of the target species to adjust density estimates for targets missed. The actual sightability of nests depends on many factors, including nest size, location, survey light conditions, substrate and tree density, habitat type, observer experience, and survey platform. Although Bald Eagles construct large, conspicuous stick nests, some nests are still likely missed when conducting surveys. Double-count methodology (Bowman et al. 1997, Bowman and Schempf 1999) will be used in sample of the study area to evaluate the sightability of Bald Eagle nests.

1.3.7. Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

Although some transmission lines are a persistent source of mortality by electrocution and collision for raptors (including eagles), it is assumed that all new transmission lines and power transfer stations for the Project will be built to the “eagle-safe” standards developed by the Avian Power Line Interaction Committee (APLIC 2006), and therefore will not likely constitute a significant source of mortality for raptors.

Some survey protocols recommend searching for Golden Eagle nests within 10 miles of a project boundary (Pagel et al. 2010). The resulting search area for the Susitna-Watana Project may be unreasonably large, costly, and logistically difficult to complete during the optimal survey window for nesting phenology, however. Because the 10-mile survey area recommendation was developed by USFWS primarily for projects that may cause regular mortalities, such as collisions with wind turbines, a survey area within 2–3 miles of Project facilities has been deemed adequate for the 2012 survey effort, in consultation with USFWS. The 2013–2014 survey area will be expanded to 10 miles surrounding the reservoir impoundment zone, as described earlier. Although the survey effort for the 2013–2014 study area expansion has not yet been enumerated, it is likely that an additional 3–5 days of effort may be required beyond the 31 days of field surveys planned for the 2012 study.

~~Historical information from raptor surveys in the 1980s is inadequate for a number of reasons. Collecting current data will be necessary for compliance with Federal laws (BCEPA and MBTA). First, comprehensive new surveys are needed to assess the current distribution and status of raptors nesting in the Project area because some raptors such as Bald Eagles have increased~~

~~in number in interior Alaska since the 1980s (Ritchie and Ambrose 1996). Historical surveys did not include the entire Project area, most notably the access road and power transmission corridors (AEA 2011). Finally, more sophisticated methods of geospatial analysis are now available to provide more accurate assessments of the potential effects of the Project on raptors and their habitats.~~

1.3.8. Literature Cited

- ABR, Inc.. 2011. Wildlife data-gap analysis for the proposed Susitna-Watana Hydroelectric Project. Draft report, August 16, 2011. Report for the Alaska Energy Authority by ABR, Inc.—Environmental Research and Services, Fairbanks, Alaska. 114 pp.
- AEA (Alaska Energy Authority). 2011. Pre-Application Document: Susitna-Watana Hydroelectric Project, FERC Project No. 14241. December 29, 2011. Prepared for the Federal Energy Regulatory Commission, Washington, DC.
- AEA. 2012. Surveys of eagles and other raptors for the Susitna–Watana Hydroelectric Project, FERC Project No. 14241. Draft final version (March 26, 2012). Alaska Energy Authority, Anchorage.
- APLIC (Avian Power Line Interaction Committee). 2006. Suggested practices for avian protection on power lines: The state of the art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission, Washington, DC, and Sacramento, CA.
- Bowman, T. D, and P. F. Schempf. 1999. Detection of bald eagles during aerial surveys in Prince William Sound, Alaska. *Journal of Raptor Research* 33: 299–304.
- Bowman, T. D., P. F. Schempf, and J. I. Hodges. 1997. Bald Eagle population in Prince William Sound after the *Exxon Valdez* oil spill. *Journal of Wildlife Management* 61: 962–96
- FERC (Federal Energy Regulatory Commission) and USFWS (U.S. Fish and Wildlife Service). 2011. Memorandum of Understanding between the Federal Energy Regulatory Commission and the U.S. Department of the Interior United States Fish and Wildlife Service Regarding Implementation of Executive Order 13186, “Responsibilities of Federal Agencies to protect Migratory Birds.” March 2011. 13 pp.
- LGL (LGL Alaska Research Associates, Inc.). 1984. Susitna Hydroelectric Project: Update and refinement of Bald and Golden eagle impact assessments and mitigation plans. Report for the Alaska Power Authority by LGL Alaska Research Associates, Inc., Anchorage. 68 pp. [APA Doc. No. 2374]
- Pagel, J. E., D. M. Whittington, and G. T. Allen. 2010. Interim Golden Eagle technical guidance: Inventory and monitoring protocols and other recommendations in support of eagle management and permit issuance. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Washington, DC. 30 pp.
- Ritchie, R. J., and S. Ambrose. 1996. Distribution and population status of Bald Eagles (*Haliaeetus leucocephalus*) in interior Alaska. *Arctic* 49: 120–128.
- USFWS (U.S. Fish and Wildlife Service). 2007. National Bald Eagle management guidelines. Washington, DC. 25 pp.
- USFWS. 2009. 50 CFR Parts 13 and 22. Eagle permits; take necessary to protect interests in particular localities; final rules. *Federal Register* 74: 46,836–46,879.
- Wildman, A., and R. J. Ritchie. 2000. Synthesis of survey information on cliff-nesting raptors and their habitats on the North Slope with emphasis on Peregrine Falcons in the Eastern

NPR-A and recommendations for survey needs. Report to U.S. Fish and Wildlife Service, Northern Alaska Ecological Services, Fairbanks, by ABR, Inc.—Environmental Research & Services, Fairbanks.