

Susitna-Watana Hydroelectric Project Document ARLIS Uniform Cover Page

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1.1. Breeding Survey of Landbirds and Shorebirds

1.2. Requester of proposed study

AEA anticipates resource agencies 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 is to collect preconstruction baseline data on breeding landbirds and shorebirds in the Susitna–Watana Hydroelectric Project area to enable assessments of Project-related effects these birds may experience from construction and operation.

The specific objectives of the study are to (1) collect field data on the occurrence, distribution, and abundance of landbirds and shorebirds in the Project area during the summer breeding season, and (2) collect habitat-use data for landbirds and shorebirds. This information will be used in conjunction with wildlife habitat mapping to quantify breeding habitat loss and alteration for these birds and to estimate the number of breeding pairs that may be affected (at least of more common species for which sufficient data can be collected).

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.]

Landbirds and shorebirds are protected under the Migratory Bird Treaty Act (MBTA), which prohibits the “take” of these species (includes the birds themselves as well as nests, eggs, and feathers). The MBTA is enforced by the U.S. Fish and Wildlife Service (USFWS) and, in practice in Alaska, the MBTA is used primarily to ensure that land-clearing activities occur outside of the bird nesting season to prevent destruction of bird nests, and to encourage development of appropriate avoidance and mitigation measures for federally regulated development projects and activities.

There is growing concern, however, about population declines and threats to the populations of landbirds and shorebirds, and both federal and state management agencies now maintain lists of those bird species in Alaska that they consider to be of conservation concern (ADF&G 2006, USFWS 2008, Goldstein et al. 2009, BLM 2010). Most relevant to the Project is the 2011 Memorandum of Understanding (MOU) between the Federal Energy Regulatory Commission (FERC) and the USFWS regarding the 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 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, AEA 2011). Given the recommendations in FERC and USFWS (2011) for minimizing impacts on birds, it is expected that there will be concern about the effects of the Project on breeding landbirds and shorebirds, and that mitigation plans will need to be prepared to avoid or minimize 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.

In 1981, breeding landbirds and some shorebirds were surveyed for the Alaska Power Authority Susitna Hydroelectric Project using modified territory-mapping methods, which involved repeated visits to 12 study plots, each 10 hectares (24.7 acres) in size (Kessel et al. 1982, AEA 2011). Each plot was placed in an area of homogeneous habitat. At that time, territory mapping was the standard method for surveying landbirds. Because each plot was surveyed repeatedly, substantial information on bird occurrence and habitat use was obtained for the limited area encompassed by those 12 plots. However, because only 12 plots were sampled in homogeneous habitats, the data do not adequately address variability in bird occurrence and habitat use across the broader study area. Some additional information on shorebird occurrence was obtained during ground-based surveys of lakes, ponds, and wetlands for waterbirds (Kessel et al. 1982), but focused surveys for breeding shorebirds were not conducted. No more recent studies of landbirds or shorebirds have been conducted in the Project area (AEA 2011).

Because of the limitations in extrapolating results from intensive surveys of territory-mapping plots to the larger Project area, it will be necessary to study these species groups again using currently accepted protocols (point-count surveys; see Criterion 1.3.6 below), which allow large landscapes to be sampled adequately and which provide more data on variability in habitat use. Because the most recent surveys for landbirds and shorebirds were conducted over 30 years ago, and because populations of these birds and their habitats have likely changed as well, new studies are recommended.

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.

Breeding landbirds and shorebirds would be affected primarily by the loss and alteration of habitats from development of the Project, and by disturbance/displacement during Project construction and operations. Habitat loss and alteration and disturbance/displacement effects are often treated as indirect impacts. Direct impacts could occur from the mortality of landbirds and shorebirds due to collisions with transmission lines and vehicles and the possible ingestion of contaminants from accidental spills of petroleum products or other contaminants. Cumulative impacts on breeding landbirds and shorebirds could occur from loss and alteration of habitats, including the fragmentation of habitats that reduces their suitability, in areas that have already undergone some development. ~~Regional cumulative effects, however, are unlikely to be extensive because the proposed Project is located in a remote area where the primary developments include a few small lodge operations and dispersed remote dwellings.~~

The results of the breeding landbird and shorebird study would provide current information on the occurrence and habitat use of those birds in the Project area and would, in conjunction with wildlife habitat mapping, facilitate quantitative assessments of the loss and alteration of breeding habitats from development of the Project. Quantitative estimates of the number of

breeding pairs that could be affected by Project development may be possible for those species for which sufficient data can be collected to calculate densities (see Criterion 1.3.6 below).

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 proposed method for the breeding landbird and shorebird study is ground-based point-count surveys, in which all birds seen or heard are recorded, along with the horizontal distance to each bird observed. Standard 10-minute observation periods would be used. Point-count surveys, which were designed for counting singing male passerine birds, are now the preferred method for inventory and monitoring efforts for landbirds in remote, roadless terrain in Alaska (Handel and Cady 2004, ALMS 2010). These methods have been adopted for shorebirds (ASG 2008) and are especially appropriate in forested landscapes, where shorebirds typically occur in low densities and where plot-based methods would yield few observations even with a relatively large survey effort.

Point-count surveys are appropriate for large development projects which cover a large area and that include many different types of habitats. The sample points can be spread across the landscape and allocated by habitat type to ensure that all the prominent habitat types are sampled. Point-count sampling locations would be distributed using a pseudo-stratified random plot allocation procedure based on aerial-photo signatures as the sampling strata if a current and complete habitat map is not available by the time sampling would need to begin in 2013. This procedure will result in adequate sampling of habitats, over 2 years of surveys, so that habitat-use evaluations for landbirds and shorebirds will be supported sufficiently by Project area-specific data. These habitat-use evaluations are a critical link in conducting quantitative assessments of habitat loss and alteration for breeding landbirds and shorebirds.

Point-count survey data with distance estimates (which equate to variable circular plots) can be used to calculate densities for breeding landbirds and shorebirds using distance-sampling methods, which are based on detection functions calculated for each species (Buckland et al. 2001, Rosenstock et al. 2002), but those functions are reliable only when a sufficient number of species-specific observations is obtained for analysis. With 2 years of survey data, sufficient data should be available to calculate densities for many species in the Project area, but will not be possible for rare species with few observations. Density estimates can be used to develop estimates of the number of breeding pairs that may be affected by the Project.

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.

The breeding landbird and shorebird study would include a 2-year field sampling plan in early summer of 2013 and 2014, using 8 observers (4 crews of 2 each) during the peak of the breeding season (June) for landbirds and shorebirds. Point-count surveys would be conducted for about 10 days each year, with the goal of obtaining at least 300 point-count samples each year. Sampling points would be allocated proportionately in relation to habitat availability within the same study area used for the mapping of wildlife habitats (which will include the reservoir impoundment zone, access route and transmission-line corridors, facilities and infrastructure area, material sites). The sampling approach would be designed to include several occurrences

of each habitat type in the mapped study area; replicate sampling is important to be able to locate the often patchy occurrences of the less common bird species of conservation concern, which are of most concern to management agencies in Alaska. The level of analysis and reporting would be greater if density estimates are required than if they are not.

Plot-based territory-mapping methods would be an alternative to point-count surveys. As is noted above, however, plot-based methods would not yield an adequate level of habitat sampling or a reasonable spatial representation of plots across the landscape to cover the Project area, in comparison with point-count surveys. Because plots must be visited repeatedly when mapping nesting territories, it is likely that territory-mapping surveys would involve a similar level of field effort as point-count surveys, but would cover a smaller proportion of the Project area.

1.3.8. Literature Cited

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