

SUSITNA-WATANA HYDROELECTRIC PROJECT

Formal ILP Proposed Study Plan Review

August 9, 2012

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Environmental Research & Services



Wildlife Resources: Proposed Studies, I

- Surveys of Eagles and Other Raptors
- Waterbird Migration, Breeding, and Habitat Use
- Breeding Surveys of Landbirds and Shorebirds
- Wood Frog Distribution and Habitat Use

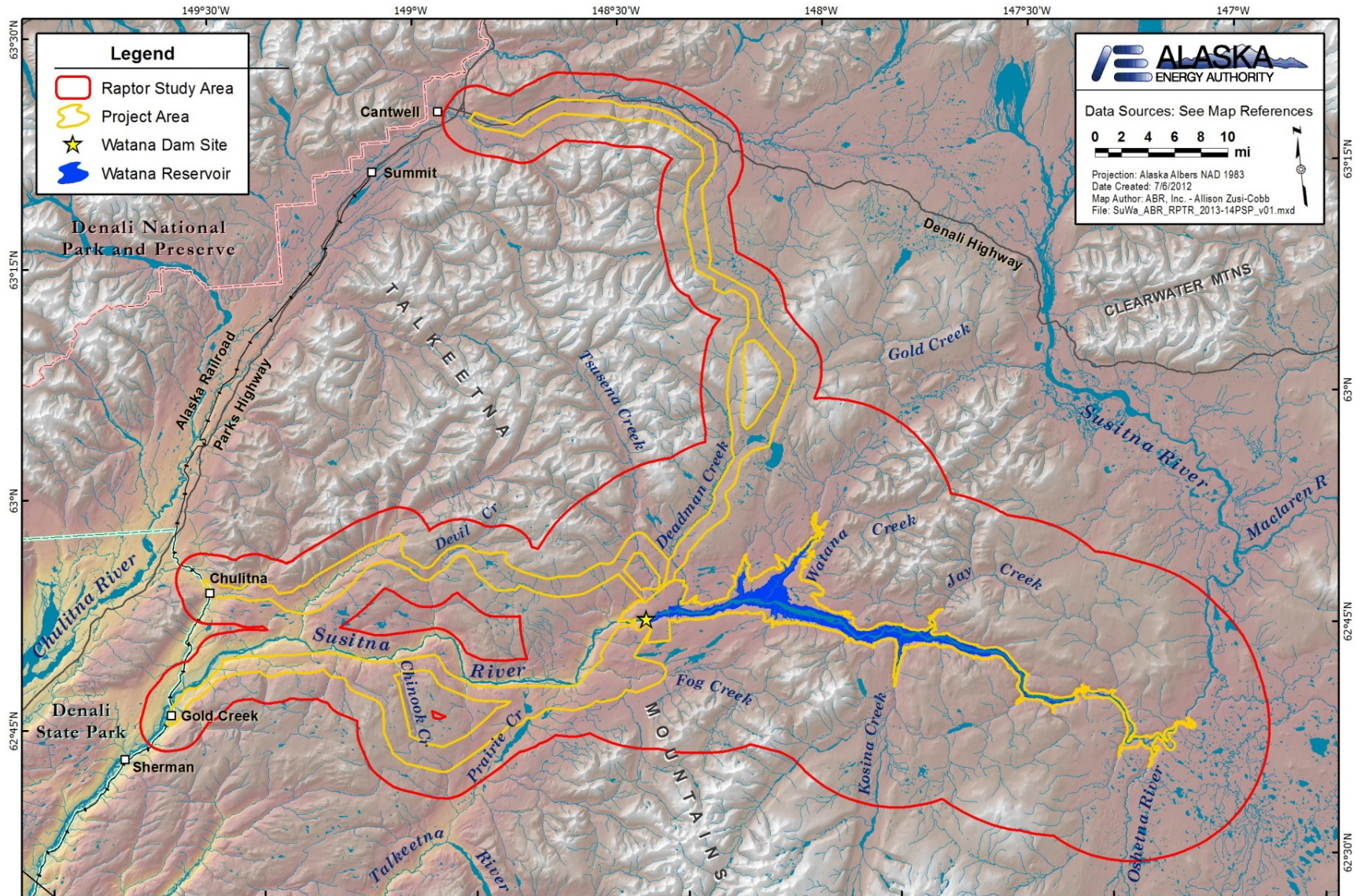


Objectives: Eagles/Other Raptors

Objectives:

- Enumerate and identify locations and status of raptor nests and territories
- Delineate habitat features in GIS, characterizing and mapping habitats as suitable or not suitable for nesting and foraging for raptors
- Identify, map, and characterize habitat-use patterns at fall and winter communal roost sites and foraging
- Assess potential collision risk to migrating or nesting raptors in transmission-line corridors;
- Provide information on distribution, abundance, and diet of piscivorous (fish-eating) raptors and information on effects of mercury for the Mercury Assessment and Potential for Bioaccumulation Study.

Study Area: Eagles/Other Raptors



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Methods: Eagles/Other Raptors

- Field surveys:
 - Aerial surveys of nest occupancy and productivity (eagle study area expanded to 10-mile radius around reservoir impoundment zone; otherwise, 3-mile buffer around Project area)
 - Fall and winter surveys for communal roosts and foraging areas
 - Nest detectability assessment by intensive subsampling
 - Distribution/abundance of small raptors from point counts and other wildlife surveys, rather than dedicated surveys (cavity-nesting owls not targeted specifically)
- Compile nest locations in geodatabase for spatial analyses (inter-nest spacing and territory size)
- Characterize food habits and diets of piscivorous species for Mercury Assessment and Potential for Bioaccumulation study

Expected Results: Eagles/Other Raptors

- Cliff- and tree-nest locations and productivity data
- Mean inter-nest distance and average territory sizes for eagle permits
- Migration counts and assessment of collision risk in transmission-line corridors
- 2012 survey methods worked well, as anticipated from previous experience, but Golden Eagle cliff habitat and nests were more extensive than anticipated, so more time will be allotted for detectability assessment during occupancy surveys in 2013–2014.
- 2013–2014 study area will be 2–3 times larger than in 2012 (due to expansion to 10-mile radius around reservoir), requiring allocation of more survey time.



Relationship to Other Studies: Eagles/Raptors

- Ground-based landbird/shorebird point counts and waterbird brood surveys will collect data on small to medium-sized raptors, which are not readily detectable on aerial surveys.
- Wildlife habitat mapping will be used with raptor nest data (from raptor, landbird/shorebird, and waterbird studies) to identify and quantify raptor nesting habitats and potential impacts.
- Study will provide background information on food habits and diets, and potentially baseline sampling of feathers and unhatched eggs, of piscivorous raptors for Mercury Assessment and Potential for Bioaccumulation study.



Summary of 2012 Activities: Eagles/Other Raptors

- 2 occupancy surveys (May) + 2 productivity surveys (July):
 - Survey area: 2-mile buffer around proposed Project area
- Golden Eagle:
 - 103 nest structures, 27 occupied territories, 15 incubating, 7 successful
- Bald Eagle:
 - 42 nest structures, 23 occupied territories, 17 incubating, 11 successful
- Other Raptors:
 - Peregrine Falcon: 8 occupied, 2 successful
 - Gyrfalcon: 4 occupied, none successful
 - Red-Tailed Hawk: 1 occupied, successful
- Extensive cliff habitat required more helicopter time than expected, so survey effort will be adjusted accordingly.



Discussion: Eagles/Other Raptors

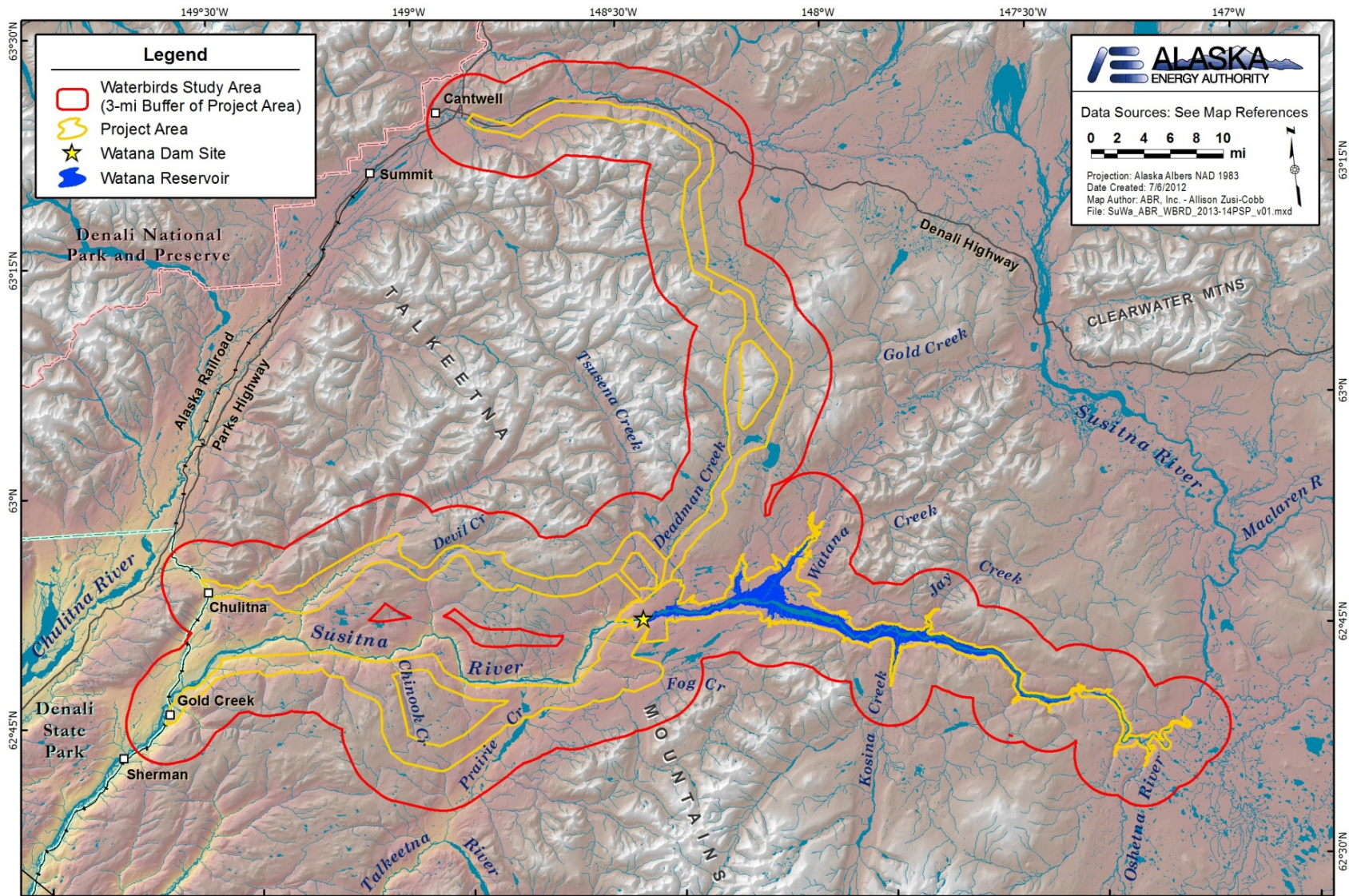
- Study area expanded around proposed reservoir for calculation of “local average territory size” of eagles, at USFWS request
- Further USFWS consultation may be needed regarding nest productivity assessment, mapping of suitable nesting habitat, and nesting surveys of small raptors (especially “intensive winter surveys” of owls)
- Migration counts added to assess collision risk from transmission lines, per USFWS study request and BLM comments
- Other questions or concerns with proposed study plan content?

Objectives: Waterbirds

Objectives:

- Document occurrence, distribution, abundance, productivity, and habitat use of waterbirds breeding in the Project area
- Document occurrence, distribution, abundance, habitat use, and seasonal timing of waterbirds migrating through the Project area in spring and fall
- Review available information to characterize food habits and diets of piscivorous (fish-eating) waterbirds as background for Mercury Assessment and Potential for Bioaccumulation study.

Study Area: Waterbirds



Methods: Waterbirds

- Aerial migration surveys in spring and fall
- Aerial surveys of breeding pairs (USFWS protocol)
- Ground-based brood surveys around waterbody margins
- Aerial surveys of stream courses for Harlequin Ducks (nesting & brood-rearing); method also will provide data on mergansers and goldeneyes
- Migration surveys near transmission-line corridors during spring and fall migrations; use of radar techniques will be considered
- Literature-based characterization of food habits and diets of piscivorous waterbirds for Mercury Assessment and Potential for Bioaccumulation study



Expected Results: Waterbirds

- Breeding-pair numbers and densities
- Breeding occurrence and numbers in study area, based on brood surveys
- Species composition and abundance during spring and fall migrations
- Migration surveys in transmission-line corridors
- Habitat-use information (for wildlife habitat evaluation study)

Discussion: Waterbirds

- Further consultation needed with USFWS regarding differences between study request and study plan (15-mile study-area radius around reservoir, methods for breeding-pair surveys, methods for productivity assessment and tree-cavity nesters) and with ADF&G regarding brood-survey methods for sea duck species other than Harlequin Duck (scoters)
- Are radar surveys needed near transmission-line corridors during spring and fall migrations, or will visual methods suffice in 2013 (to be reevaluated for 2014)? The available data do not indicate that the Project area is a major migratory corridor.
- Other questions or concerns with the proposed study plan?

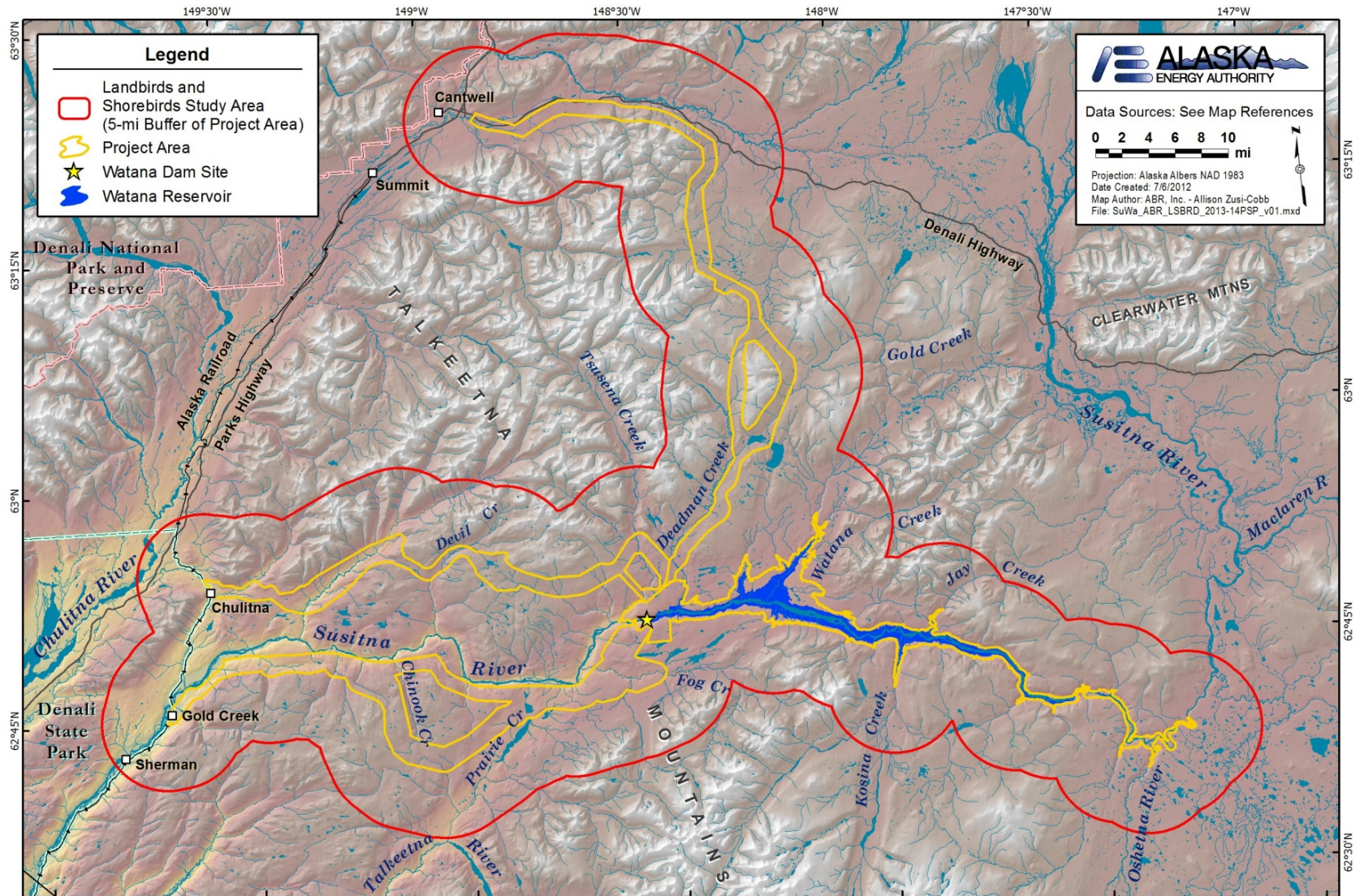
Objectives: Landbirds and Shorebirds

Objectives:

- Conduct point-count surveys to collect field data on the distribution and abundance of landbirds and shorebirds during the summer breeding season
- Collect habitat-use data for landbirds and shorebirds during point-count surveys, for use in the wildlife habitat evaluation
- Conduct additional habitat-specific point-count surveys in riverine and lacustrine areas for distribution and abundance of piscivorous species and other species using fluvial habitats
- Review literature on food habits and diets of piscivorous landbird species for use in the Mercury Assessment and Potential for Bioaccumulation study
- Compare historical (APA Susitna Hydro Project) data on landbirds and shorebirds with current data to evaluate potential changes in distribution, abundance, and habitat use.



Study Area: Landbirds/Shorebirds



Methods: Landbirds/Shorebirds

- Field surveys:
 - Ground-based point-count surveys with distance estimation (rather than plot-based territory mapping approach used in the 1980s), providing density estimates and habitat-use data
 - Additional point-count surveys in riverine and lacustrine habitats for fluvial- and shoreline-nesting species
 - Opportunistic observations during other wildlife surveys
- Literature-based review of food habits and diets of piscivorous species for use in Mercury Assessment and Potential for Bioaccumulation study



Expected Results: Landbirds/Shorebirds

- Species-specific data on occurrence, distribution, density, and habitat use of breeding species in both years of study
- Habitat-use data will be combined with wildlife habitat mapping to enable quantification of impacts
- Food habits and diet information for Mercury Assessment and Potential for Bioaccumulation study

Discussion: Landbirds/Shorebirds

- Further consultation with USFWS is needed to address differences between USFWS study request and Proposed Study Plan:
 - Study-area buffer (1–10 miles vs. 5 miles) around Project area
 - Rationale for “study plots” in Denali NP&P, Copper River Basin, etc.
 - Surveys of “overwintering” birds and spring surveys of resident breeding species
 - Mist-netting during migration
 - Nocturnal sampling with radar during migration
- Other questions or concerns regarding the proposed study plan?

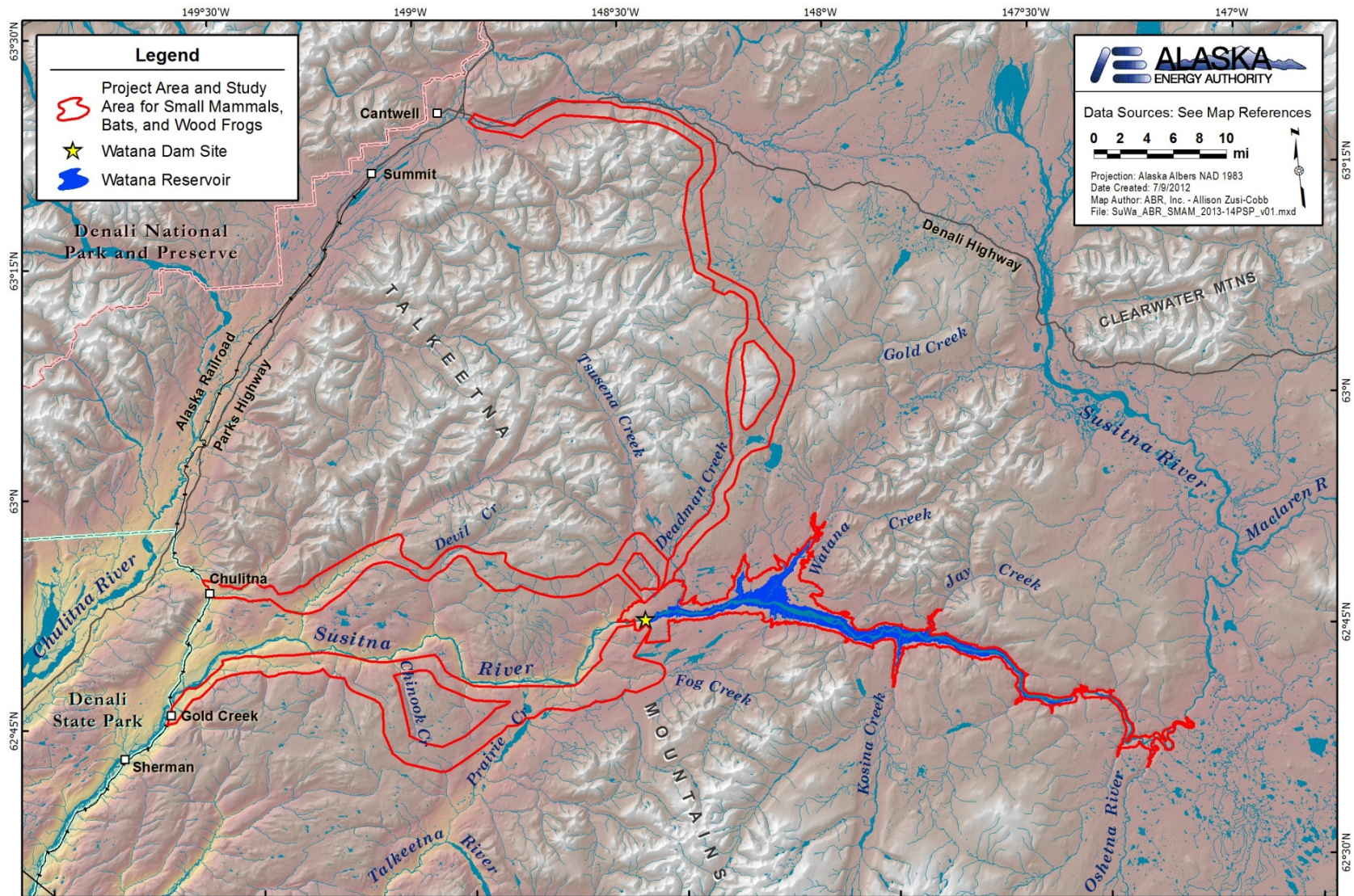
Objectives: Wood Frog

Objectives:

- Compile and review existing habitat use and distribution data for breeding wood frogs (*Rana sylvatica*) in the region encompassing the Project area
- Assess current distribution of breeding wood frogs in the Project area through a combination of field surveys and habitat-occupancy modeling
- Use information on current habitat use and distribution to estimate the habitat loss and habitat alteration expected for the species from development of the Project.



Study Area: Wood Frog



Methods and Expected Results: Wood Frog

- Field surveys and occupancy modeling:
 - Identification of potential breeding habitat
 - Ground-based auditory surveys and habitat assessment during the spring breeding season
 - Double-count surveys to estimate detectability
 - Verification of occupancy model in second year of surveys
- Opportunistic bioassays for chytrid fungus (*Batrachochytrium dendrobatidis*, or Bd), pending further consultation with USFWS and other agencies regarding the likelihood of a Project nexus and suitable assay techniques

Discussion: Wood Frog

- Suitability of field survey and occupancy modeling approach
- Assessment of Project nexus regarding exposure and spread of chytrid fungus
- Other questions or concerns regarding the proposed study plan?