

# SUSITNA-WATANA HYDROELECTRIC PROJECT

## Terrestrial Resources Technical Work Group Meeting 2nd Quarter 2013

### Wildlife Program Update

June 14, 2013

Prepared by ABR, Inc. —  
Environmental Research & Services



# FERC Study Plan Determination, 1 Feb. 2013

- All 16 wildlife studies were included in the 44 studies approved by FERC on this date
- 13 wildlife studies were approved with no modifications:
  - 10.6 – Caribou
  - 10.7 – Dall’s Sheep
  - 10.8 – Large Carnivores
  - 10.9 – Wolverine
  - 10.10 – Terrestrial Furbearers
  - 10.11 – Aquatic Furbearers
  - 10.12 – Small Mammals
  - 10.13 – Bats
  - 10.14 – Eagles & Other Raptors
  - 10.16 – Landbirds & Shorebirds
  - 10.18 – Wood Frog
  - 10.19 – Wildlife Habitat Evaluation
  - 10.20 – Wildlife Harvest Analysis



# FERC Study Plan Determination, 1 Feb. 2013

- 3 studies were approved with modifications recommended by FERC staff, in response to ADF&G and USFWS requests:
  - 10.5 – Moose: Remove specific date range of May 15–31 for daily radio-tracking during calving season in 2013 and 2014.  
*[These changes were accommodated by AEA.]*
  - 10.15 – Waterbirds: Use 4 observers for concurrent visual observations of migrating birds along 4 transects (cardinal directions) in spring and fall 2013.  
*[After further consultation with AEA, USFWS was satisfied with the study plan as proposed, so this recommendation was dropped].*
  - 10.17 – Ptarmigan: Increase number of capture sites to 4–6 and substitute Coda net gun and noose carpets as primary capture methods, instead of mist nets.  
*[These changes were accommodated by AEA].*



# Overview of 2<sup>nd</sup> Quarter Activities, 2013

RSP Section	Title	2 <sup>nd</sup> Quarter Activity
10.05	Moose	Browse survey; radio-collar deployment & tracking
10.06	Caribou	Radio-collar deployment & tracking
10.07	Dall's Sheep	Mineral lick visits
10.08	Large Carnivores	Spatial modeling of bear densities; prep. for hair-snaring
10.09	Wolverine	Occupancy survey & data analysis
10.10	Terrestrial Furbearers	Finish aerial track transect surveys; begin DNA lab analyses
10.11	Aquatic Furbearers	Aerial track transect surveys not completed; hair collection from trapped carcasses unsuccessful; mercury literature review
10.12	Small Mammals	No activity (study deferred until 2014)
10.13	Bats	Identify potential roost structures; deploy bat detectors
10.14	Eagles/Other Raptors	Spring migration & nest occupancy surveys; mercury lit. review
10.15	Waterbirds	Migration & breeding-pair surveys; mercury lit. review
10.16	Landbirds/Shorebirds	Design & conduct point-count surveys
10.17	Ptarmigan	Aerial transect surveys ; capture & radio-tagging
10.18	Wood Frog	Chytrid fungus sampling protocol; design & conduct field surveys
10.19	Wildlife Habitat Evaluation	No activity (study deferred until 2014)
10.20	Wildlife Harvest Analysis	No activity (study deferred until 2014)

# Study Plan Deviations

- Lack of access to some ANCSA corporation lands (CIRI & associated villages), mostly in western reservoir zone and Gold Creek corridor, required adjustment of sampling designs for several studies (terrestrial furbearers, moose browse, bats, wood frogs, landbirds/shorebirds)
- Cold, late spring and delayed breakup required postponement and rescheduling of field efforts for raptors, aquatic furbearers (muskrats), waterbirds, landbirds/ shorebirds, wood frogs
- Three studies deferred until next fiscal year (beginning 1 July 2014):
  - 10.12 – Small Mammals
  - 10.19 – Wildlife Habitat Evaluation
  - 10.20 – Wildlife Harvest Analysis



# Wildlife Study Program Updates

- ADF&G studies (update by Mark Burch):
  - 10.5 – Moose
  - 10.6 – Caribou
  - 10.7 – Dall’s Sheep (aerial survey)
  - 10.8 – Large Carnivores (bear population density modeling)
  - 10.9 – Wolverine
  - 10.17 – Willow Ptarmigan
- University of Alaska Fairbanks study (update by Laura Prugh)
  - 10.10 – Terrestrial Furbearers
- Studies by ABR, Inc. (update by Brian Lawhead):
  - 10.7 – Dall’s Sheep (mineral licks)
  - 10.8 – Large Carnivores (bear hair-snares at salmon spawning streams)
  - 10.11 – Aquatic Furbearers
  - 10.12 – Small Mammals
  - 10.13 – Bats
  - 10.14 – Eagles/Other Raptors
  - 10.15 – Waterbirds (including radar/visual study of migration)
  - 10.16 – Landbirds/Shorebirds
  - 10.18 – Wood Frog
  - 10.19 – Wildlife Habitat Evaluation
  - 10.20 – Wildlife Harvest Analysis



## – Presentation Break –

- See separate presentations by ADF&G Division of Wildlife Conservation and UAF Institute of Arctic Biology



*Caribou crossing Susitna River near Fog Creek, 11 May 2013.*



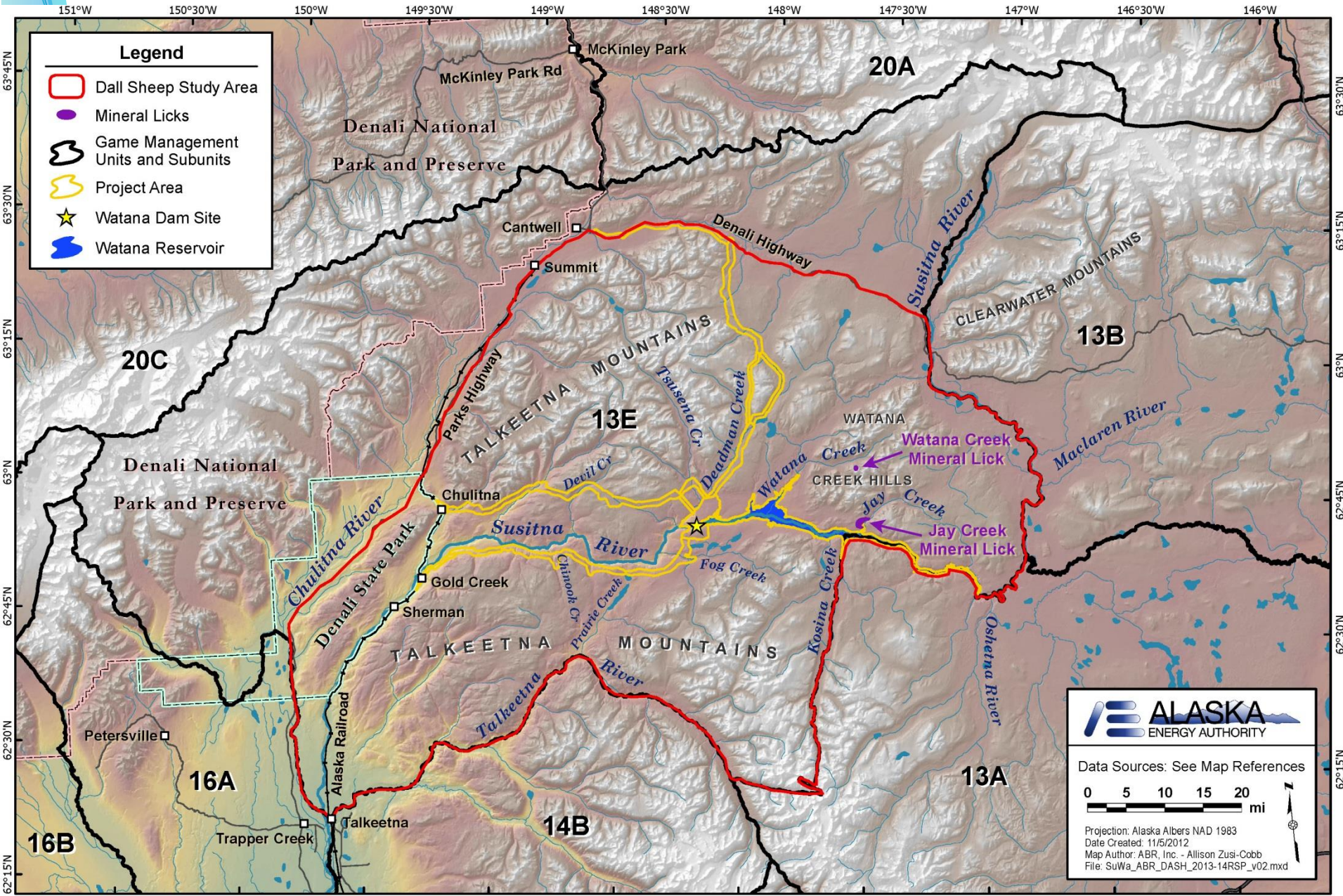
## 10.7 — Dall's Sheep (mineral licks)

- Field visit to Jay Creek and Watana Creek licks on May 28–29:
  - 3 sheep at Watana Creek lick on May 28.
  - 4 sheep at Jay Creek lick on May 29.
  - Time-lapse camera (10-minute intervals) deployed at Jay Creek.
- Next visit planned for June 19-20 (after lambing).





# Dall's Sheep study area



## 10.8 — Large Carnivores

- Single-catch hair-snaring of bears is planned along salmon spawning streams (downstream from dam site), late July to mid-September.
- Hair samples will be analyzed for DNA to provide minimum estimate of number of bears using streams, plus stable isotopes to characterize diet composition.

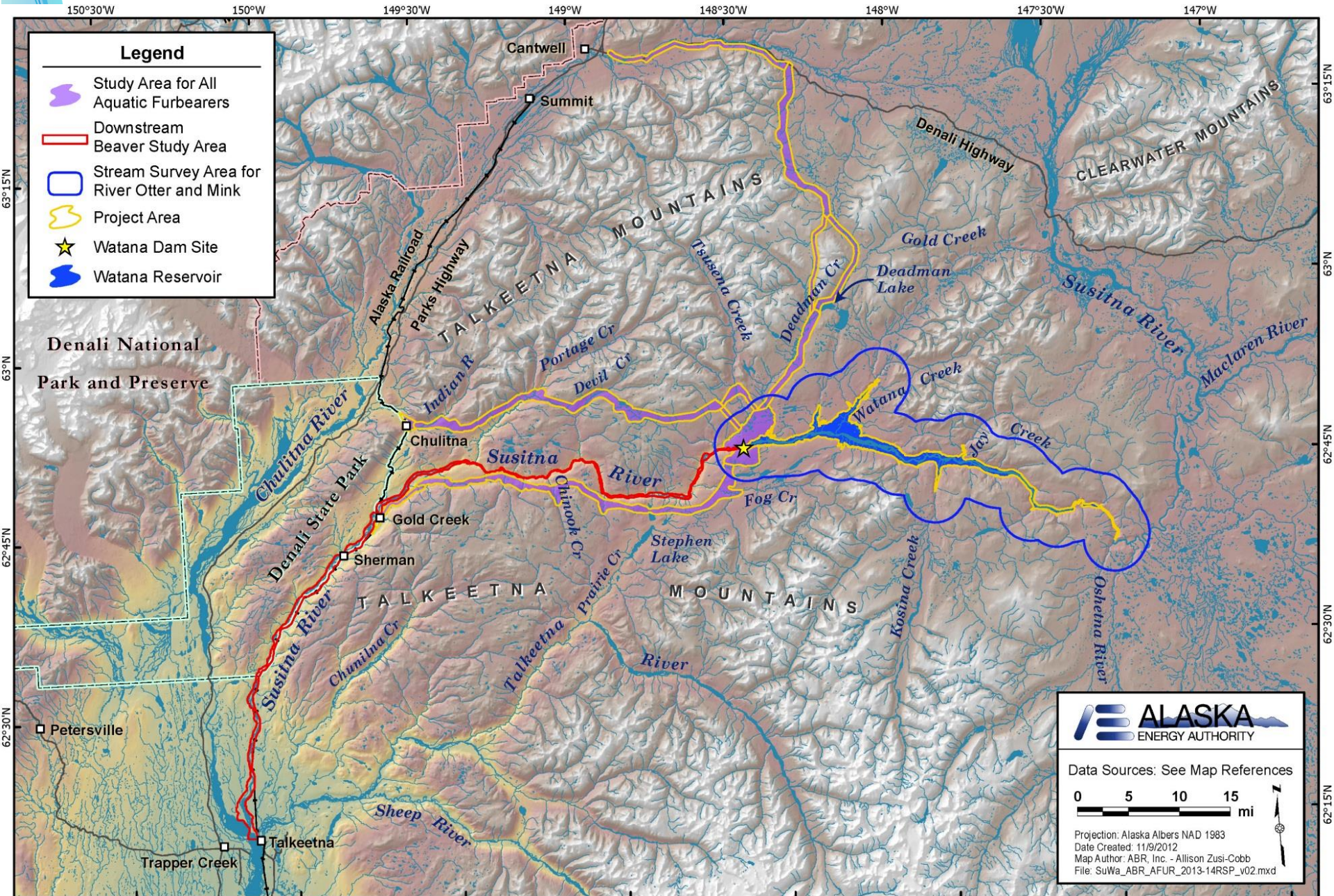


## 10.11 — Aquatic Furbearers

- Transect surveys for tracks of river otters and mink were not flown in late winter 2013; instead, sightings were recorded during helicopter surveys for terrestrial furbearer tracks, waterbird migration, and raptor nest occupancy; track surveys are planned next winter (November–March).
- No furs of trapped river otters were obtained for mercury sampling because no carcasses were presented for sealing from the study area, so whole carcasses will be solicited for purchase next winter.
- Aerial survey of muskrat sign (“push-ups” on pond and lake ice) was planned for April, but was cancelled due to late spring; instead, comparable data on muskrat sign was collected during waterbird migration and raptor nest surveys (first sign was noted in 3<sup>rd</sup> week of May due to persistent snow cover on ice).
- Aerial survey of active beaver colonies (lodges & fresh food caches) is planned in October.



# Aquatic Furbearer study area



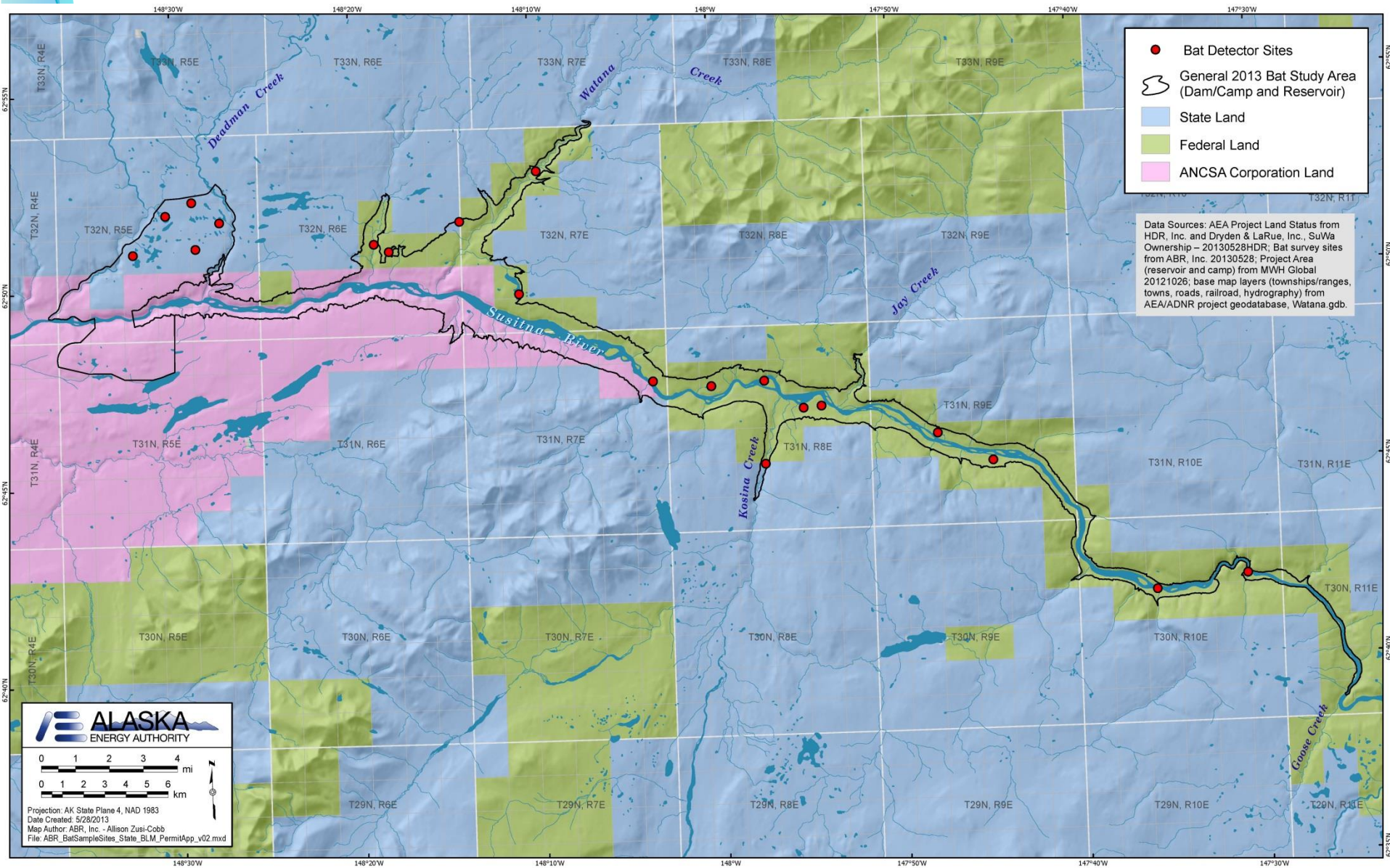
## 10.13 — Bats

- 20 Anabat® detector stations (see below) were deployed on state and federal lands in late May for automated recording of bat vocalizations until early October.
- 40 sampling points were selected randomly after habitat stratification, with final 20 being selected after field inspection (8 ponds, 4 streams, 4 cliffs, 4 upland sites).
- Cabins & other structures were identified in the study area to contact landowners for permission to conduct searches for potential roosts in early July & October.
- Other potential habitat (cliff faces, rock crevices) will be searched for roosts also.



- Data card exchanges and equipment checks will be conducted at 2-week intervals until October end date.
- Initial results detected one little brown bat (*Myotis lucifugus*) on May 25, when ponds were still frozen.
- One detector near the Susitna mainstem was flooded during break-up, but has been replaced.

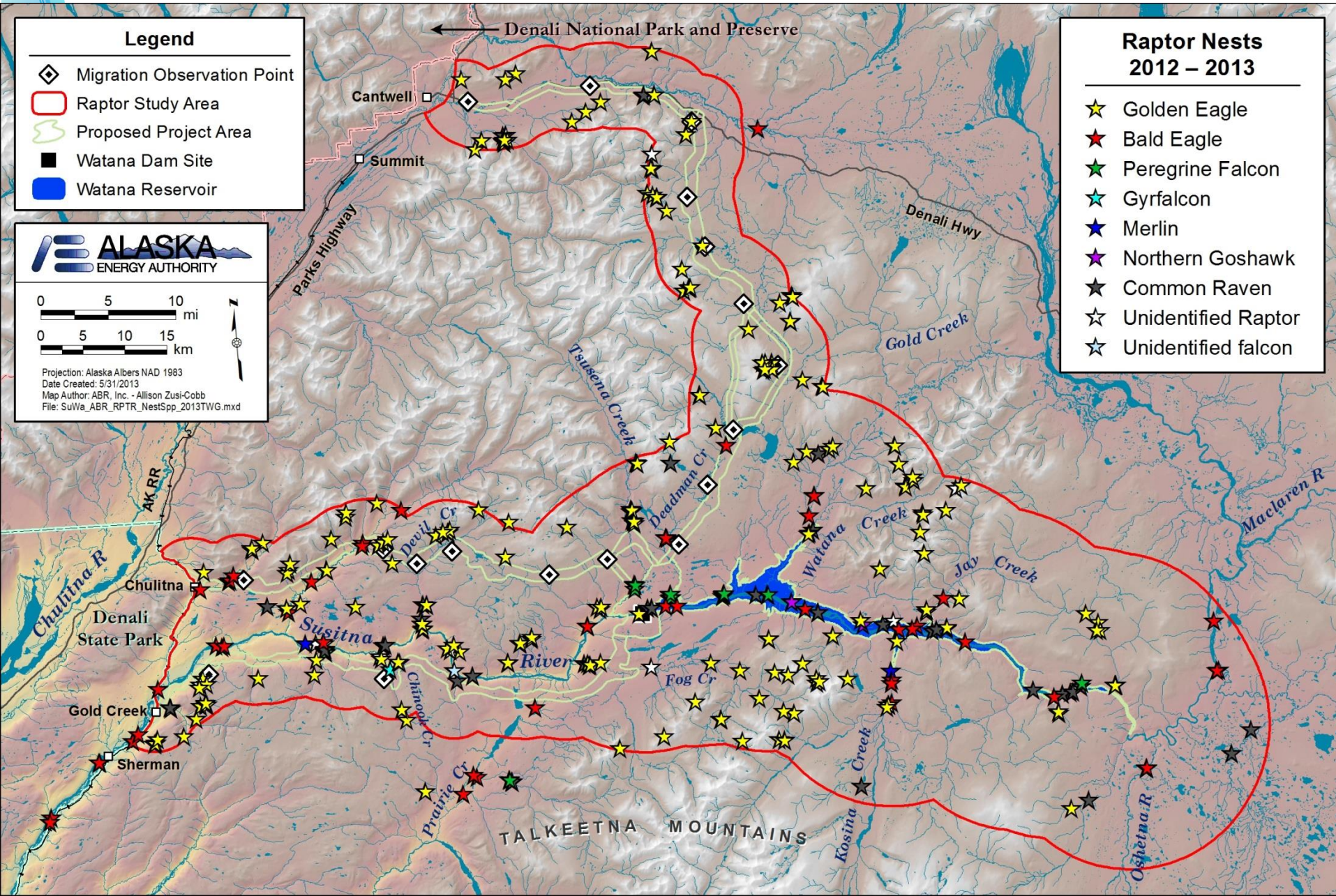
# Bat study area & acoustic detector sites



## 10.14 — Eagles & Other Raptors

- Helicopter-supported, ground-based observations were used to study migration from 18 observation points located in or near potential transmission-line corridors (avoiding ANCSA corporation lands other than Ahtna's) during April 12–May 11, based in Cantwell.
- Helicopter surveys were flown to locate nests and quantify occupancy during May 4–12 and May 19–24, based at Stephan Lake Lodge.
- Expansion of study area from 2012 required 2 helicopters for nest occupancy surveys in early May and resulted in the discovery of numerous additional nests.
- Late spring and delayed melt resulted in persistent snow cover on cliff nests and delayed nesting by eagles and other raptors.
- Resurveys of survey area subsamples to evaluate detectability will be flown later in season due to late melt.
- Nest productivity will be evaluated during next surveys planned for July 4–12 and July 24–29.
- Fall migration will be examined during ground-based observations, currently scheduled for September 15–October 15.
- Late fall/early winter roosting & staging surveys will be conducted from October to December.

# Study area for Eagles & Other Raptors



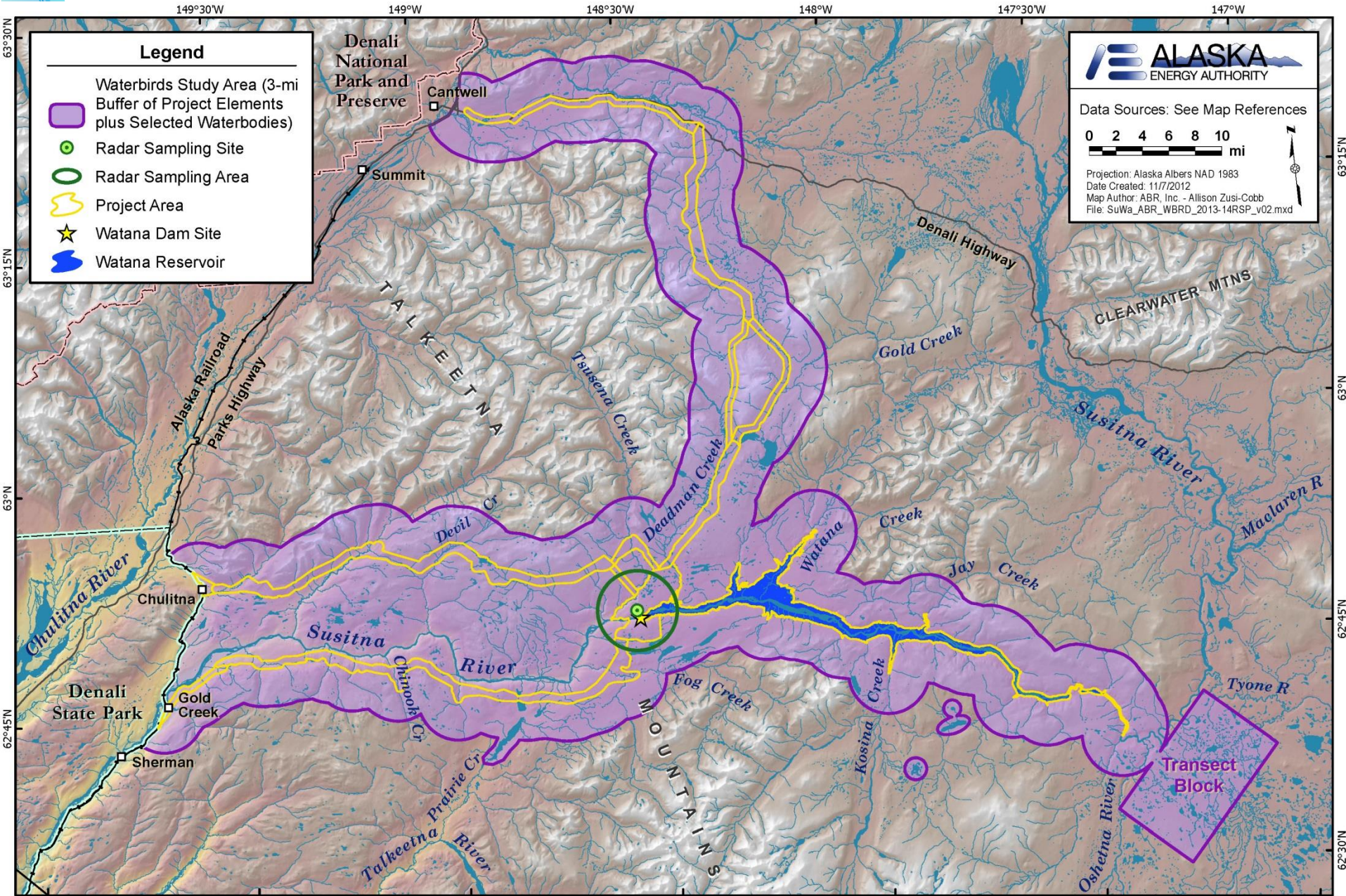


## 10.15 — Waterbirds (aerial surveys)

- Waterbird aerial surveys are designed to document the timing and species composition, and numbers of waterbirds migrating through, and breeding in, the study area.
- Surveys were flown at 200–500 ft agl in a Robinson R-44 helicopter, based at Talkeetna early in the season and at Stephan Lake Lodge later, after more waterbodies thawed.
- Surveys cover major drainages of the Susitna River from the railroad bridge crossing near Indian River to the Tyone River and of the Nenana River between Seattle Creek and Cantwell, as well as lake complexes within 3 miles of the Susitna River from Indian River to the Tyone River and the Nenana River between Seattle Creek and Cantwell.
- Migration surveys were not postponed due to the late spring, but early surveys were of short duration due to delayed melting of ice.
- Migration surveys: April 23, 29; May 5, 11, 18–19, 23–24, 28–29.
- Harlequin Duck & waterbird breeding-pair surveys: June 1–6, 14–17.
- Brood surveys are scheduled in July.



# Waterbird study area



## 10.15 — Waterbirds (radar/visual migration surveys)

- 4-person tent camp was established just northwest of the proposed dam site to monitor all bird movements during both day and night in spring migration.
- Activities at the site included both radar and visual surveys, conducted from fixed locations.
- A portable marine radar, powered by a portable generator, was used in both surveillance and vertical modes during all nocturnal and 3 diurnal hours (dictated seasonally by night length) to record the flight patterns, numbers, and behavior of all birds within 6 km (3.75 miles) of the site.
- During a portion of the night, an observer also used night-vision equipment to record the relative numbers of different species flying through the area.
- During diurnal periods, visual observers recorded numbers, flight characteristics, and behaviors of all birds observed within 10 km (6.2 miles) of the site.
- Observations were conducted at the camp site 24 hours per day throughout a 45-day period in the spring (20 April–3 June) and are planned for a 75-day period in the fall (15 August–28 October).

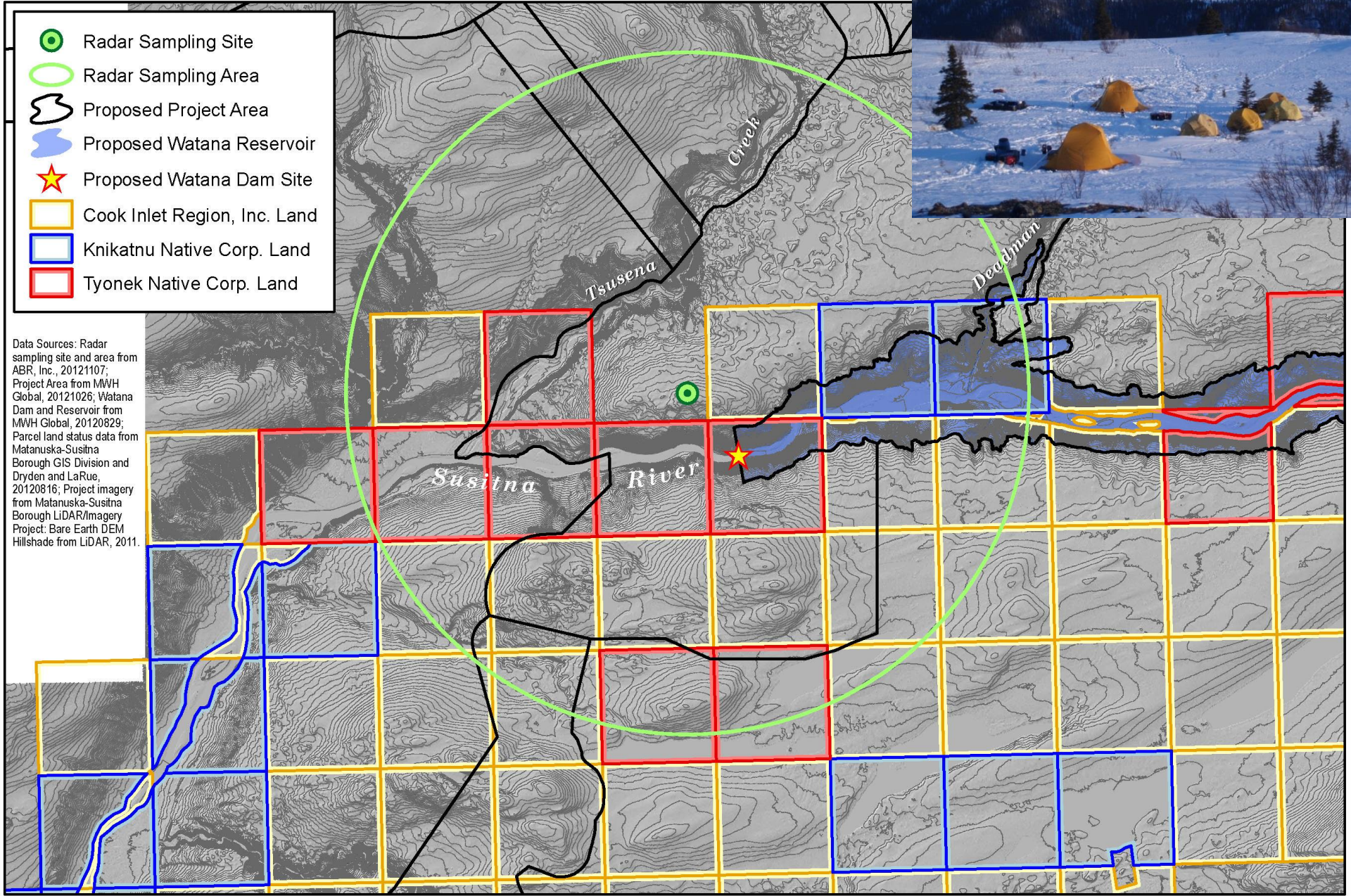


# Radar/Visual Migration Survey Site



- Radar Sampling Site
- Radar Sampling Area
- Proposed Project Area
- Proposed Watana Reservoir
- Proposed Watana Dam Site
- Cook Inlet Region, Inc. Land
- Knikatnu Native Corp. Land
- Tyonek Native Corp. Land

Data Sources: Radar sampling site and area from ABR, Inc., 20121107; Project Area from MWH Global, 20121026; Watana Dam and Reservoir from MWH Global, 20120829; Parcel land status data from Matanuska-Susitna Borough GIS Division and Dryden and LaRue, 20120816; Project imagery from Matanuska-Susitna Borough LiDAR/imagery Project; Bare Earth DEM Hillshade from LiDAR, 2011.

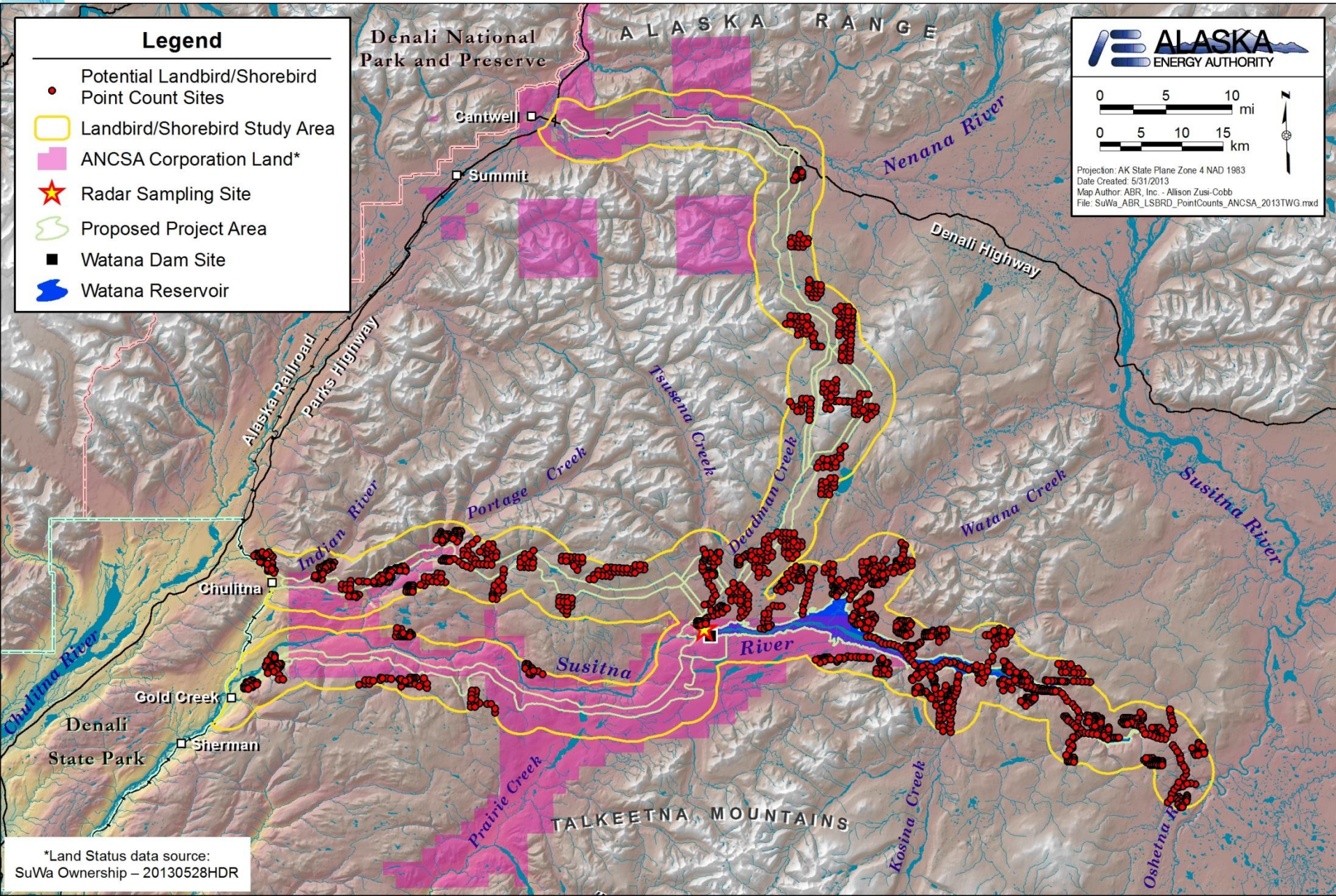


## 10.16 — Landbirds & Shorebirds

- Primary method is early morning point-count surveys to detect singing male birds occupying breeding territories; riparian transects also are being sampled.
- Point-count surveys began on May 23 and are scheduled to continue until June 20.
- 8 biologists (4 crews of 2 each) are based at Stephan Lake Lodge.
- As of June 13, 905 point-count stations had been sampled on 75 different transect locations (point locations stratified by vegetation type).
- Sampling design was revised to avoid ANCSA corporation lands (other than Ahtna), so those lands will need to be sampled in 2014.
- Habitat-association analyses can combine data across both years, but abundance analyses (breeding densities) may need to be conducted separately by year.
- Unusually cold spring and late snowmelt necessitated a delay of about 1 week in start of surveys, with adaptive timing of sampling in different parts of the study area due to melt patterns (surveys are tracking snow melt to west and up in elevation).
- Riparian transects have been delayed by late melt, high water levels, and attendant safety concerns, but will be conducted as soon as feasible.



# Landbirds/Shorebirds study area & sampling points

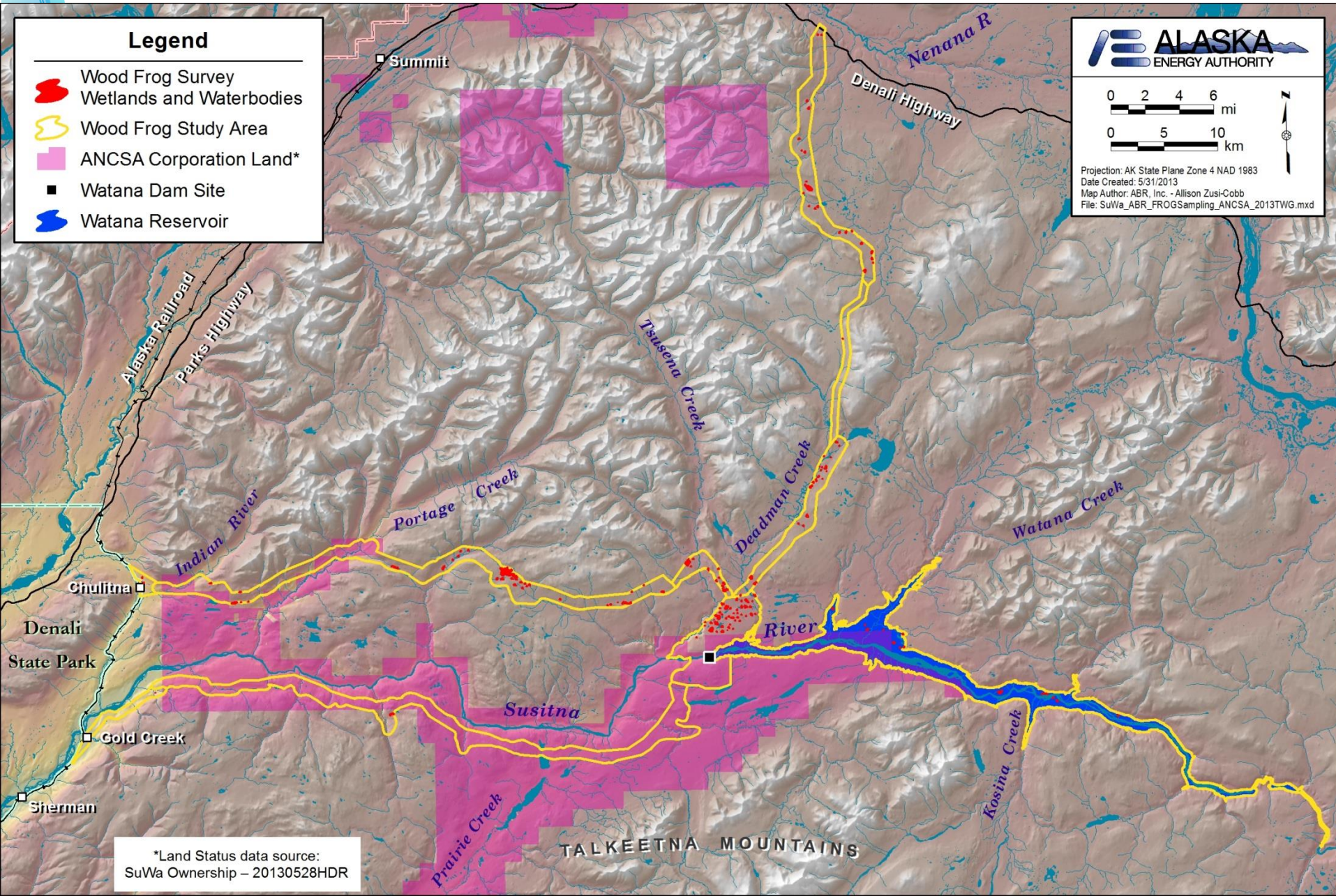


## 10.18 — Wood Frogs

- Objective is to investigate occurrence and habitat occupancy in the study area.
- Primary sampling method is acoustic survey to detect calling frogs during the spring breeding season; egg masses also will be recorded if seen.
- Frogs captured opportunistically by hand will be swabbed for laboratory assay for the presence of *Batrachochytrium dendrobatidis* (Bd, or chytrid) fungus.
- Surveys conducted by 2 crews of 2 observers each, based at Stephan Lake Lodge, with staggered timing of starts to allow repeated visits over the 10-day sampling period (May 30–June 8).
- Start of surveys was postponed about 2 weeks due to cold, late spring & delayed melt.
- Detectability being assessed through multiple site visits and deployment of acoustic monitors at 5 sites where frogs were detected on first survey.
- Initial results indicate detection of frogs at approximately 40% of sampling sites.

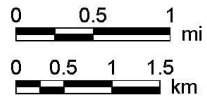


# Wood Frog study area & potential sampling locations





# Wood Frog acoustic monitors

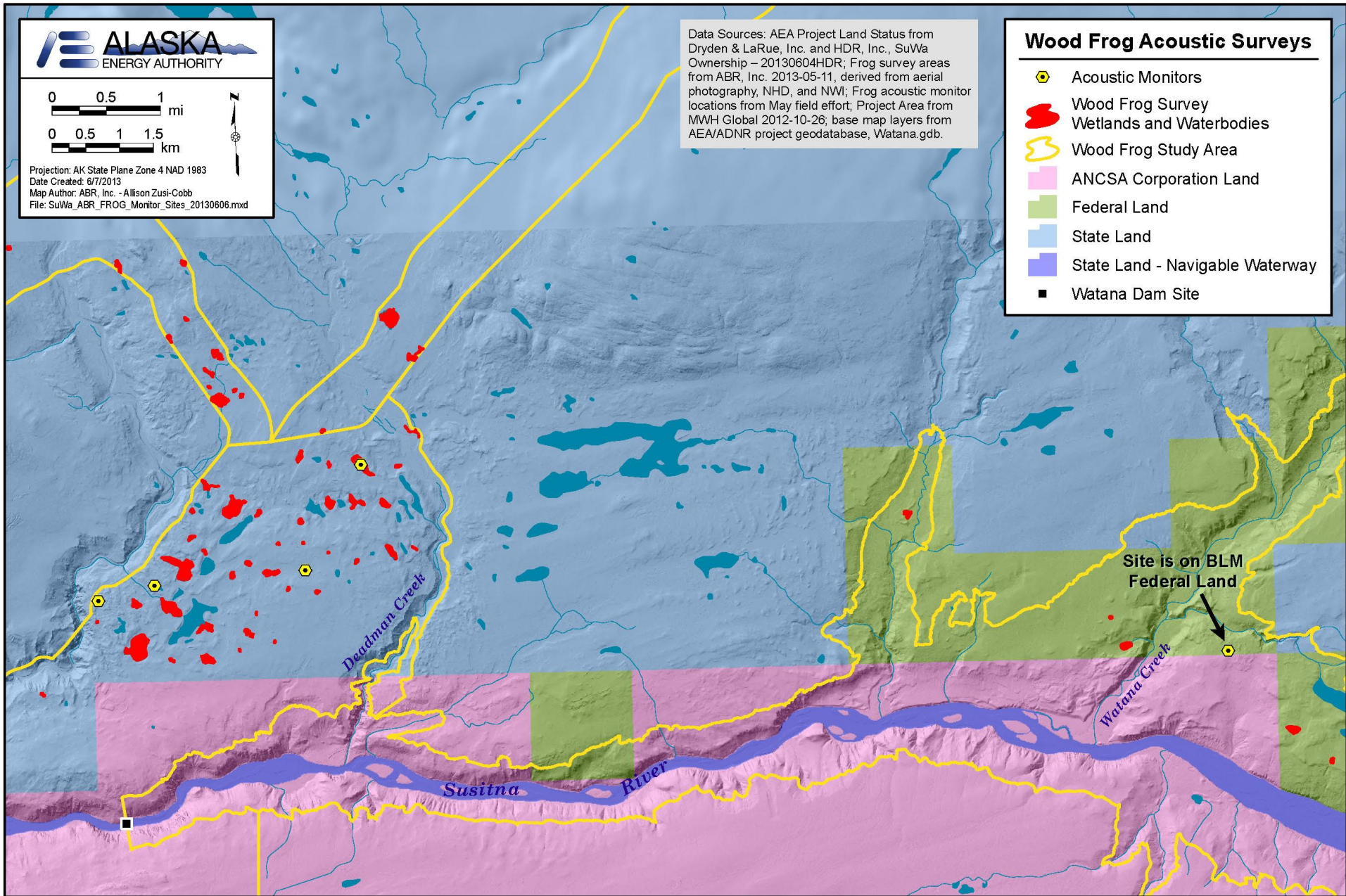


Projection: AK State Plane Zone 4 NAD 1983  
Date Created: 6/7/2013  
Map Author: ABR, Inc. - Allison Zusi-Cobb  
File: SuWa\_ABR\_FROG\_Monitor\_Sites\_20130606.mxd

Data Sources: AEA Project Land Status from Dryden & LaRue, Inc. and HDR, Inc., SuWa Ownership - 20130604HDR; Frog survey areas from ABR, Inc. 2013-05-11, derived from aerial photography, NHD, and NWI; Frog acoustic monitor locations from May field effort; Project Area from MWH Global 2012-10-26; base map layers from AEA/ADNR project geodatabase, Watana.gdb.

## Wood Frog Acoustic Surveys

- Acoustic Monitors
- Wood Frog Survey Wetlands and Waterbodies
- Wood Frog Study Area
- ANCSA Corporation Land
- Federal Land
- State Land
- State Land - Navigable Waterway
- Watana Dam Site



# Questions?



*Male mountain goat in upper Portage Creek drainage, 10 May 2013.*

