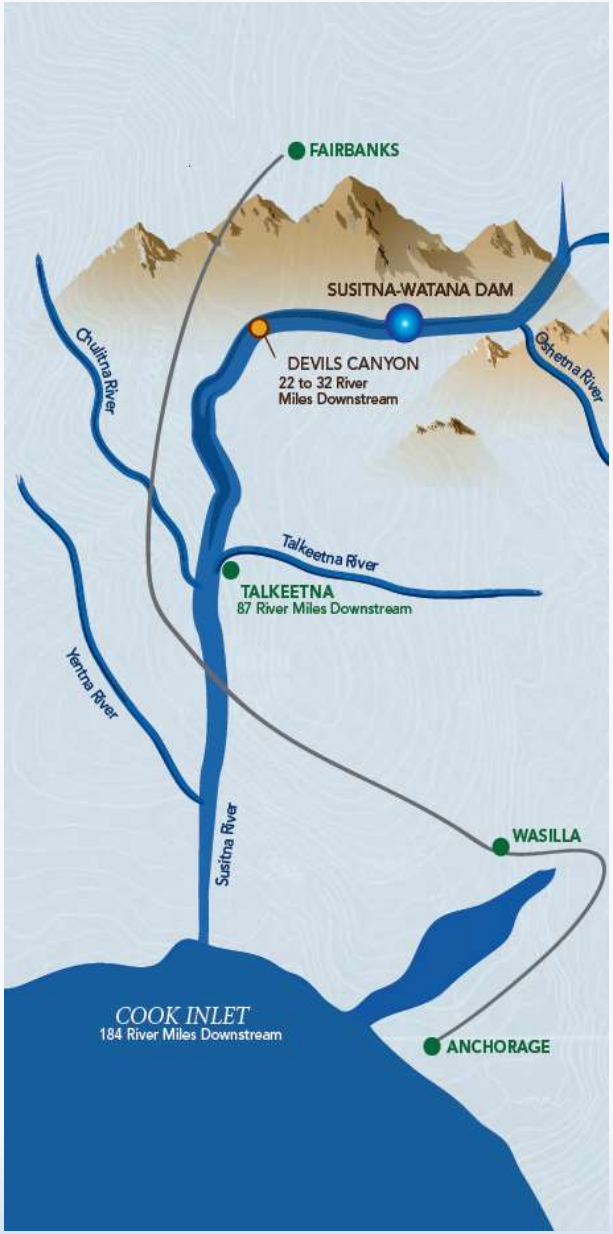



# Initial Study Report Meeting

# Study 10.14
# Surveys of Eagles and Other Raptors

March 29, 2016

Prepared by

ABR, Inc.—Environmental Research & Services

# Study 10.14 Status

**ISR Documents** (ISR Part D Overview):

- Initial Study Report Parts A, B, and C (June 3, 2014)
- 2014 Study Implementation Report (SIR) (November 4, 2015)

**Status**:

- Conducted occupancy and productivity surveys of nesting raptors in 2012–2014 to locate and characterize nests and nesting success.
- Completed first year of woodland raptor surveys in 2013.
- Completed first year of nest sightability surveys in 2013.
- Completed 2 years (2012 and 2013) of surveys for fall and winter communal roosts and foraging areas.
- Conducted first year of ground-based migration surveys in spring and fall 2013.
- Delineated eagle nesting habitat using results of 2012–2014 surveys.

# Study 10.14 Status

- Although no field surveys were conducted in 2015, the study team conducted the following analyses:
  - Updated the geospatially referenced relational database for raptor nests.
  - Further delineated eagle nesting habitat using data from field surveys and remote sensing.
- The Study Plan objectives will be completed in a future year.

# Study 10.14 Objectives

- Locate and determine the status of raptor nests and territories that could be affected by Project construction and operations.
- Estimate Project effects on the productivity of raptors.
- Estimate effects on habitats by delineating habitat features in a geospatial database.
- Conduct field surveys and literature review to study the habitat-use patterns at fall and winter communal roost and foraging sites of raptors.
- Assess whether planned overhead transmission lines pose a collision risk to migrating or nesting raptors and identify migratory corridors.
- Provide information on the distribution, abundance, food habits, and diet of piscivorous (fish-eating) raptors for Study 5.7 (Mercury Assessment and Potential for Bioaccumulation); feather samples for characterization of mercury levels; and information on the effects of methylmercury on piscivorous raptors.

# Study 10.14 Components

- Nest Occupancy and Productivity Surveys (ISR Part A, Section 4.1, p. 5)
- Foraging and Roost Surveys (ISR Part A, Section 4.2, p. 8)
- Migration Surveys (ISR Part A, Section 4.3, p. 8)
- Mercury Assessment (ISR Part A, Section 4.4, p. 10)
- Delineation of Eagle Nesting Habitat (ISR Part A, Section 4.5, p. 10)

# Study 10.14 Variances
## (ISR Part D, Section 6)

- Occupancy and productivity surveys included limited extensions outside of the study area (RSP Section 10.14.3) in 2013 and 2014 to replicate the study area covered in the 2012 surveys. (ISR Part A, Section 4; SIR Section 4)
- Access to some (at least 4) potential observation sites for the migration survey task (RSP Section 10.14.4.1) could not be achieved in 2013 due to the lack of a land-access agreement with the Cook Inlet Regional Working Group (CIRWG).
  (ISR Part A, Section 4)
- Feather samples were not obtained from piscivorous raptors for mercury analysis in 2013 (RSP Section 10.14.4.1) because the necessary federal permit for salvage of Bald Eagle feathers could not be obtained in time before the season ended.
  (ISR Part A, Section 4)
- Study area was adjusted in 2014 to reflect elimination of the Chulitna Corridor from further consideration and the addition of the Denali East Option.
  (ISR Part D Overview, Section 1.3)

# Study 10.14: Summary of Results in ISR

## (ISR Part A, Section 5)

### Nest Occupancy and Productivity Surveys, 2013

- Golden and Bald eagles are the most common species.

| 2013 Species | Total Nests | No. of Occupied Nests | No. of Occupied Territories [1] | No. of Incubating Pairs | No. of Successful Pairs [2] | No. of Nestlings |
|---|---|---|---|---|---|---|
| Golden Eagle | 235 | 43 (24) | 37 [3] (19 [4]) | 5 | 2 | 2 |
| Bald Eagle | 40 | 23 (3) | 23 [5] (1) | 13 [5] | 5 [5] | 5 [5] |
| Gyrfalcon | 6 | 3 | 3 | 3 | 2–3 | 3–4 |
| Peregrine Falcon [6] | | 7 | 7 | 7 | 4–6 | 9–13 |
| Red-tailed Hawk | | (1 [7]) | (1) | 0 | 0 | 0 |
| Common Raven | 35 | 6 | 6 | 5 | – | – |
| Unidentified raptor | 24 | 0 | 0 | 0 | 0 | 0 |
| Northern Goshawk | 4 | 1 | 1 | 0 | 0 | 0 |

(Parentheses indicate additional possible territories or nests as a result of unknown occupancy status.)

[1] Some occupied territories contained several occupied nests.

[2] Young ≥75% of fledging age (estimated by comparing with known-age photos).

[3] One occupied nest that did not have incubating adults was located 50 m outside of the study area and the occupied territory was included in calculations.

[4] One nest with an unknown occupancy status was found 68 m outside of the study area and the unknown occupancy status was included in calculations.

[5] One nest located 185 m outside of the study area was occupied by a breeding pair of Bald Eagles. Due to this nest's proximity to the study area this territory was included in calculations.

[6] Ledges and nests were only recorded if currently occupied by a Peregrine Falcon.

[7] A Red-tailed Hawk was possibly occupying the same Golden Eagle nest it used in 2012.

# Study 10.14: Summary of Results in SIR

## (SIR Section 5)

### Nest Occupancy and Productivity Surveys, 2014 (smaller study area)

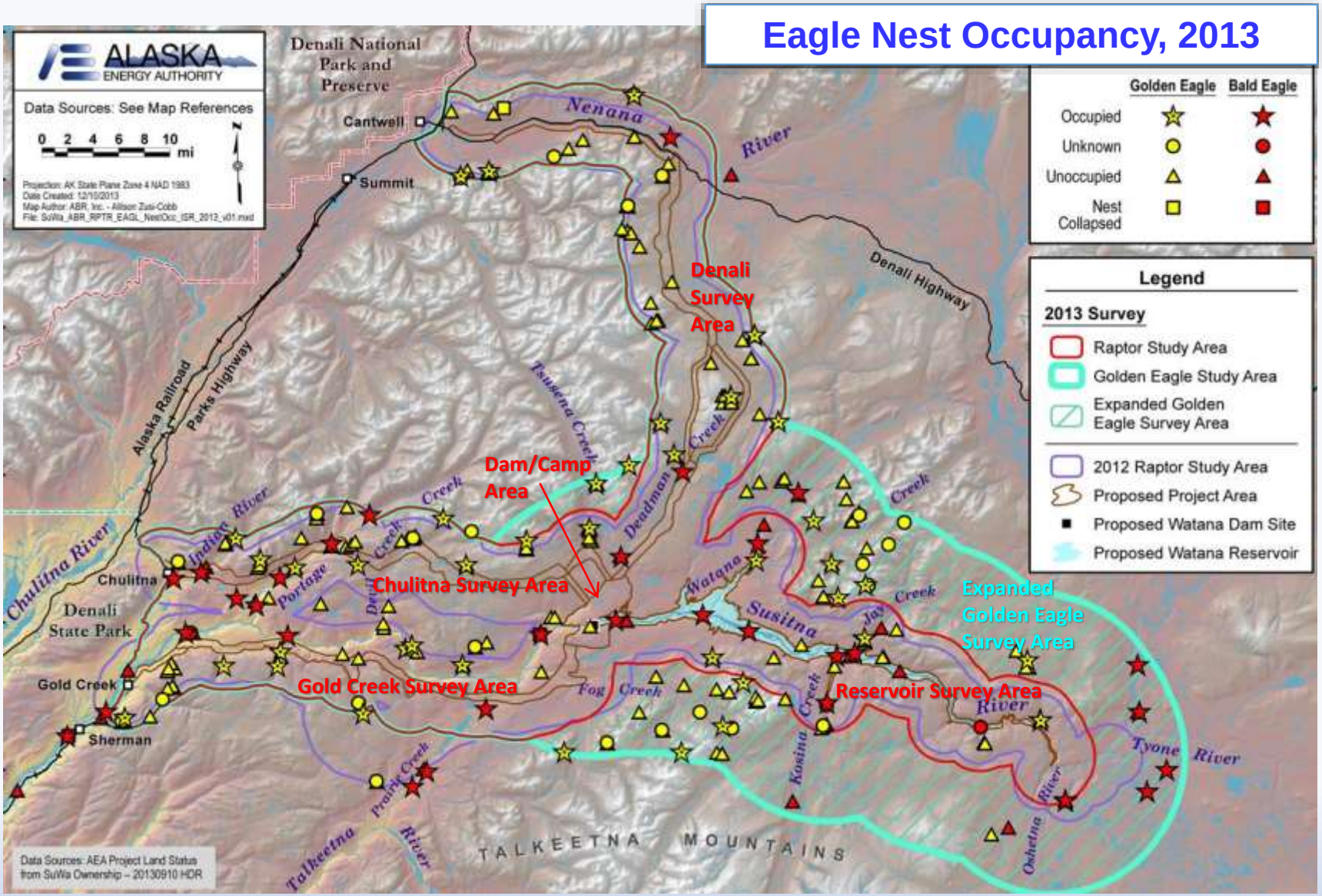
- Golden and Bald eagles are the most common species.

| 2014 Species | Total Nests | No. of Occupied Nests | No. of Occupied Territories [1] | No. of Incubating Pairs | No. of Successful Pairs [2] | No. of Nestlings |
|---|---|---|---|---|---|---|
| Golden Eagle | 217 | 37 (9) | 37 [3] (6) | 22 [3] | 4 [3] | 4 [3] |
| Bald Eagle | 29 | 14 | 15 [4] | 11 [4] | 7 | 10 |
| Gyrfalcon | 6 | 5 | 5 | 3 | 1 | 2 |
| Peregrine Falcon [5] | | 14 (2) | 11 (1) | 7 | 0 | 0 |
| Red-tailed Hawk | | 0 | 0 | 0 | 0 | 0 |
| Common Raven | 44 | 12 | 12 | 10 | 6 | – |
| Unidentified raptor | 28 | 0 (3) | 0 (3) | 0 | 0 | 0 |
| Northern Goshawk | 4 | 1 | 1 | 0 | 0 | 0 |

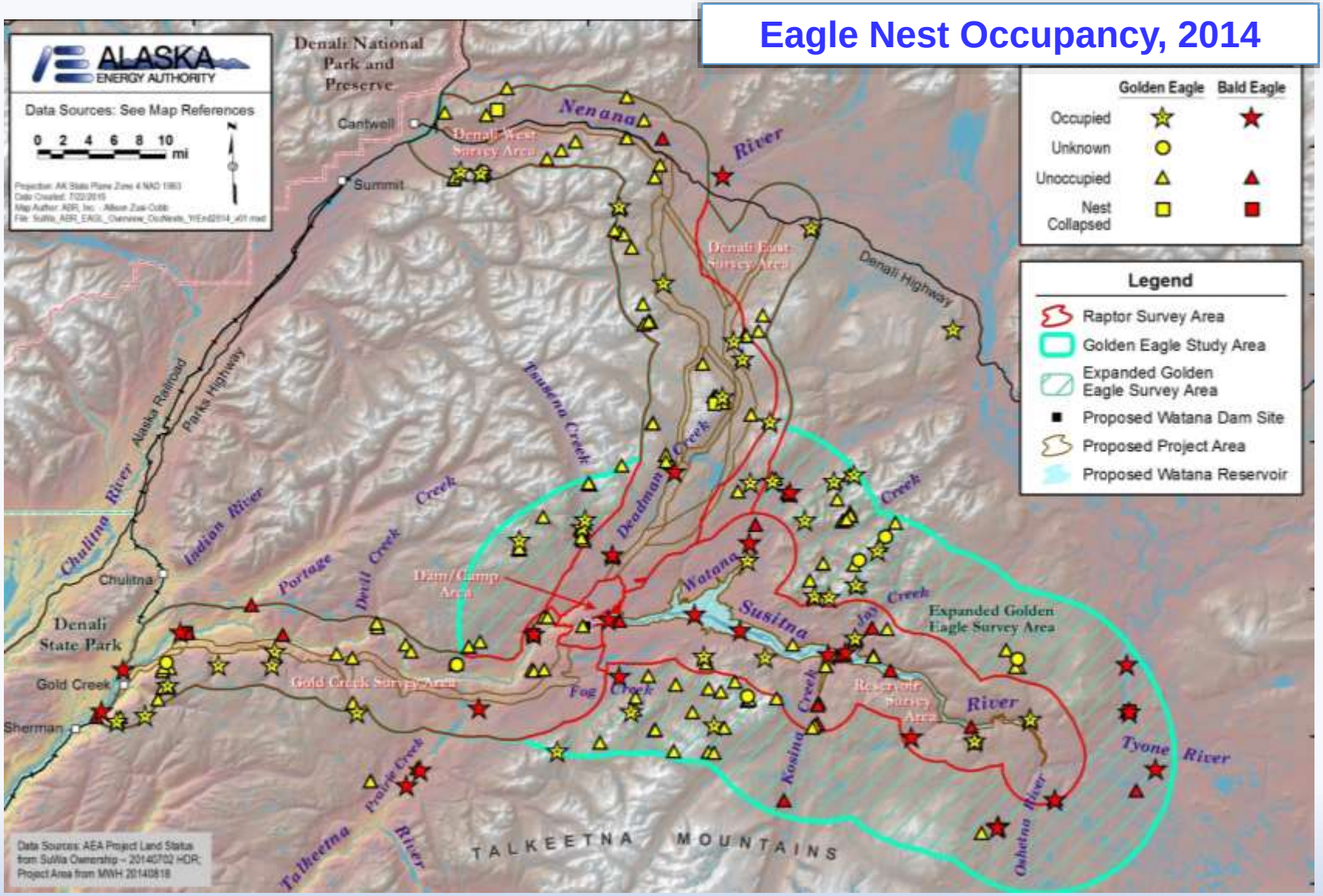
(Parentheses indicate additional possible territories or nests as a result of unknown occupancy status.)

[1] Some occupied territories contained several occupied nests.
[2] Young ≥75% of fledging age (estimated by comparing with known-age photos).
[3] One nest (172GOEA) with an incubating adult was located 440 m outside of the study area, it is not included in Occupied Nests, but the occupied territory was included in all other calculations because of its proximity to the study area.
[4] One nest (050BAEA) with an incubating adult was located 185 m outside of the study area, it is not included in Occupied Nests, but the occupied territory was included in all other calculations because of its proximity to the study area.
[5] Ledges and nests were only recorded if currently occupied by a Peregrine Falcon.

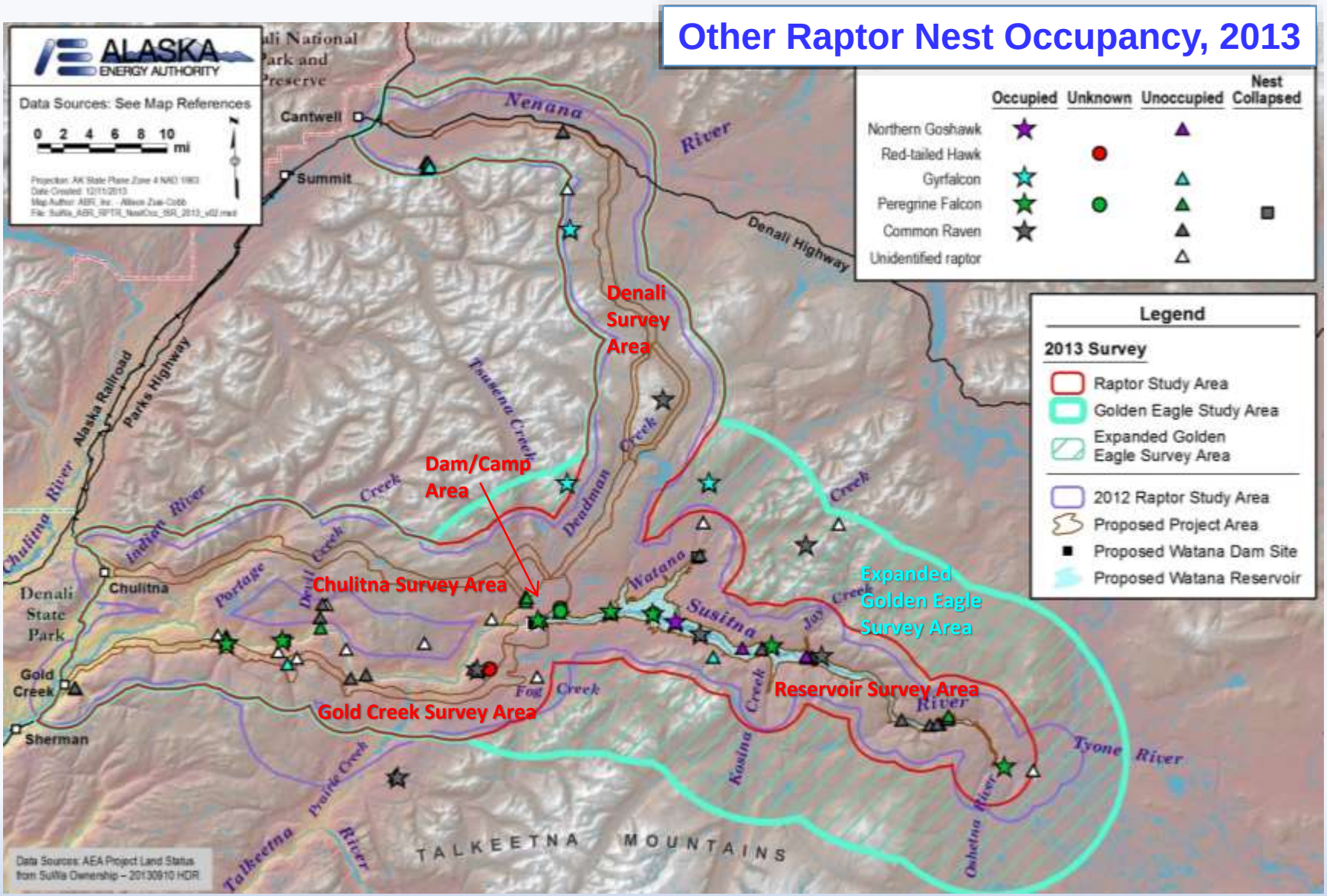
# Study 10.14: Summary of Results in ISR (ISR Part A, Figure 5.1-1)



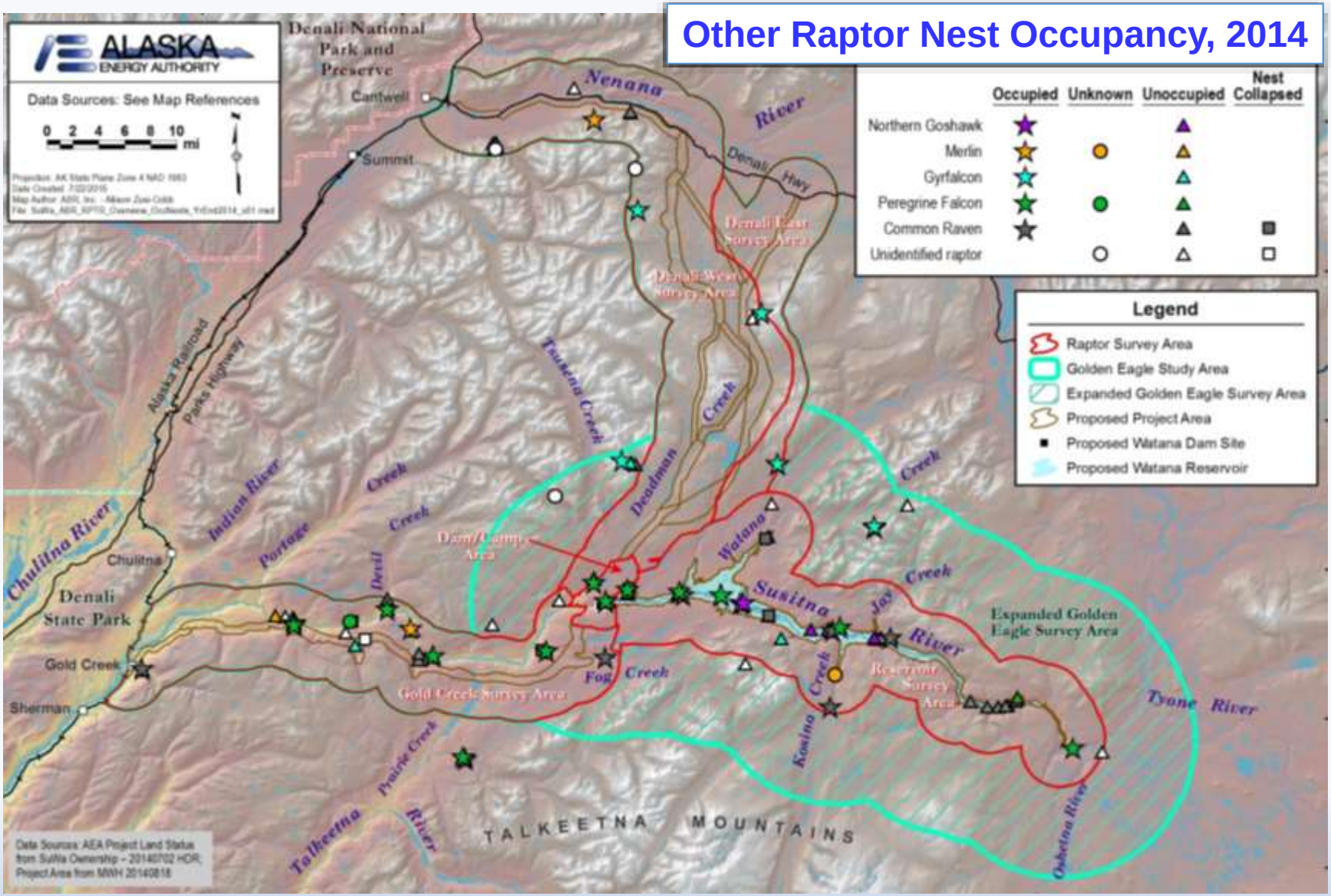
# Study 10.14: Summary of Results in SIR (SIR Figure 5.1-1)



# Study 10.14: Summary of Results in ISR (ISR Part A, Figure 5.1-5)



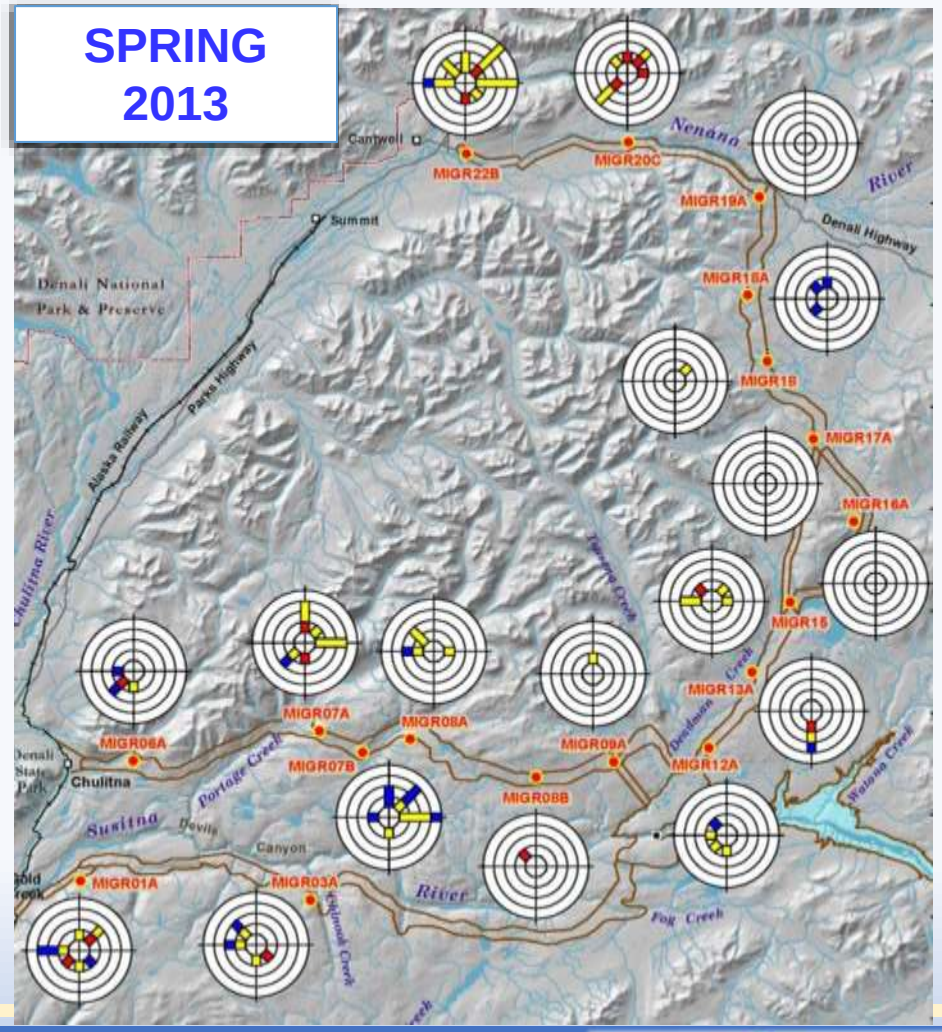
# Study 10.14: Summary of Results in SIR (SIR Figure 5.1-5)

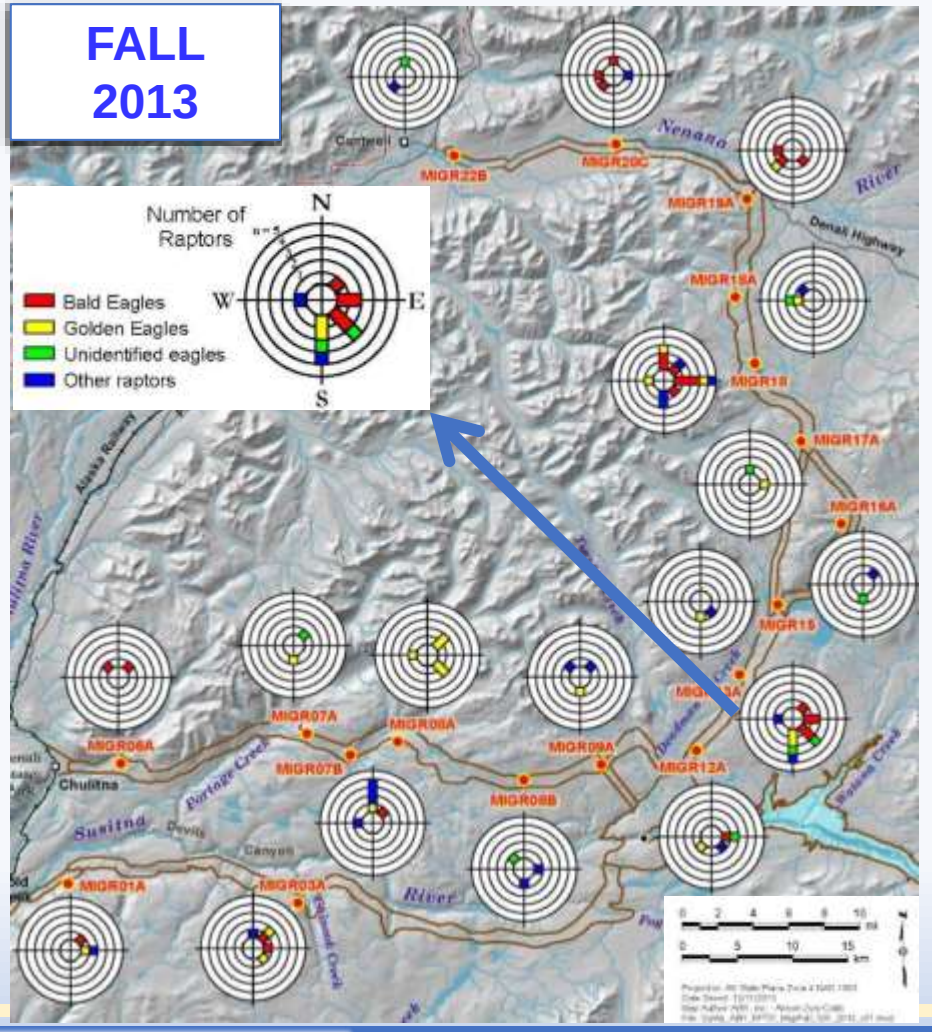


# Study 10.14: Summary of Results in ISR (ISR Part A, Figures 5.3-3 & 5.3-8)

**Raptor migration surveys** focused on proposed transmission routes:

- Bald and Golden eagles were the most commonly detected species.
- Migration occurred over a broad area, with mostly random flight directions.



# Study 10.14: Summary of Results in ISR (ISR Part A, Section 5)

- **Nest sightability surveys for eagles:**
  - Several nest structures were located that were not found on primary surveys.
  - Sightability correction factor suggested that the majority of nests have been found after multiple surveys.
- **Woodland raptor surveys** (within proposed reservoir zone):
  - Very low nest density (4 nests).
    - No nests detected on normal-intensity transects.
    - 3 nests detected within high-intensity plots, 1 detected on winter survey.
  - Steep terrain complicated survey and decreased sightability.
    - **Suggests modification of methods to increase survey intensity.**
- **Foraging and communal roosting surveys** (fall and early winter 2012–2013):
  - Small numbers of Bald Eagles in late fall.
  - No communal roosts or winter foraging areas were located.
- **Nesting habitats for eagles** were mapped using a combination of field maps and remote sensing/GIS:
  - This analysis will be used to help delineate potential breeding/foraging habitat.

# AEA Proposed Modifications to Study 10.14

- **In 2014, AEA eliminated the Chulitna Corridor from further consideration** (ISR Part D Overview, Section 1.3) **and added the Denali East Option** road and transmission corridor (ISR Part C, Section 7.1.2) to the study area:
  - 3-mile buffer from the center lines of the new road and transmission alignments.
  - Surveyed Denali East Option in the 2014 nesting season.
- **The woodland raptor survey intensity will be increased** (ISR Part C, Section 7.1.2):
  - Both observers on the same side of the aircraft looking into the slope.
  - Survey twice as many transect lines.
  - Decrease transect spacing from 400 m to 200 m.
  - Reduce the coverage to 50 percent of the 2013 study area; select sample of blocks to survey.

# AEA Proposed Modifications to Study 10.14

- **No further eagle foraging and communal roosting surveys will be conducted** (SIR Section 7):
  - Surveys were conducted for two complete seasons (fall/early winter 2012–2013).
  - No major concentration areas were identified.

- **The mercury analysis objectives and methods have been consolidated under Study 5.7** (Mercury Assessment and Potential for Bioaccumulation). (ISR Part C, Section 7.1.2)

# Steps to Complete Study 10.14

## (ISR Part D, Section 8)

The study team will conduct the remaining sampling to fulfill the Study Plan objectives:

- Raptor nest occupancy and productivity surveys, including woodland raptor surveys.
- Spring and fall migration surveys along potential power transmission routes.
- Sightability assessment of raptor nesting surveys.
- Delineation of Bald and Golden eagle nesting habitats.

# Licensing Participants' Comments and Proposed Modifications to Study 10.14?

- Agencies
- CIRWG members and Ahtna
- Public