

Susitna-Watana
Hydroelectric Project
Terrestrial Wildlife Resources
ADF&G Project Updates
November 2013

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ADF&G is involved in six of the Terrestrial Wildlife Studies in the Susitna-Watana Project vicinity.

- **Moose**
- **Caribou**
- **Dall's Sheep**
- **Wolverines**
- **Large Carnivores***
- **Ptarmigan**



ADF&G is monitoring the distribution, abundance, productivity, and survival of **moose** in the Project vicinity.

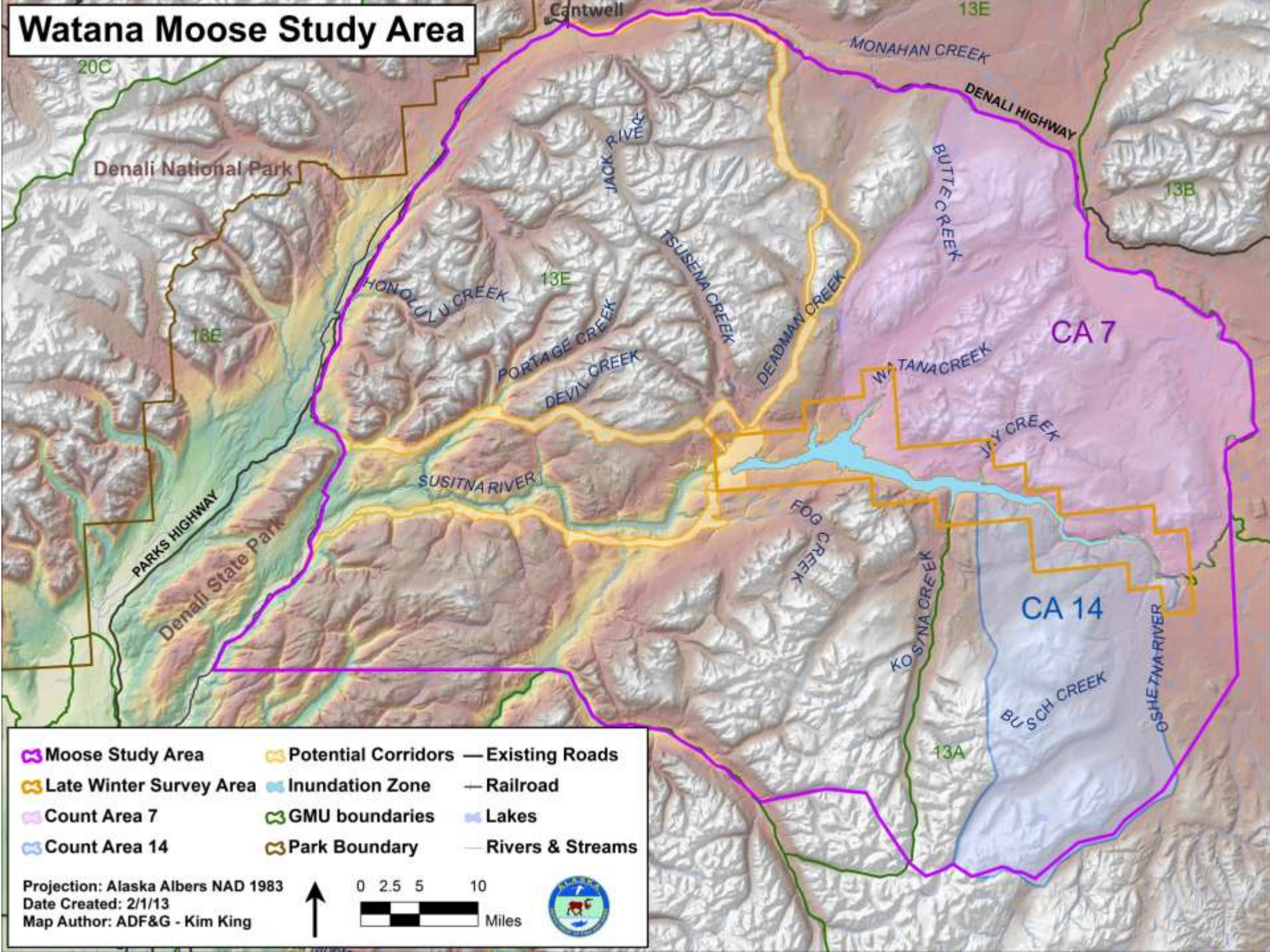
This study involves:

- Monitoring ARGOS Satellite-linked GPS collars
- Monthly Telemetry of VHF Radio collars
- A GeoSpatial Population Estimation (GSPE) Survey
- Traditional Count Area Surveys
- Late Winter Inundation Surveys
- Twinning/Calving Surveys
- Browse Surveys



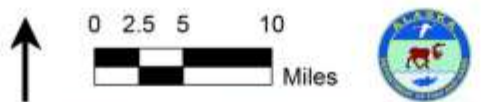
Photo by Kim King ADF&G

Watana Moose Study Area



- ▭ Moose Study Area
- ▭ Potential Corridors
- ▭ Late Winter Survey Area
- ▭ Inundation Zone
- ▭ Count Area 7
- ▭ Count Area 14
- ▭ GMU boundaries
- ▭ Park Boundary
- Existing Roads
- Railroad
- ▭ Lakes
- Rivers & Streams

Projection: Alaska Albers NAD 1983
 Date Created: 2/1/13
 Map Author: ADF&G - Kim King



100 Moose VHF and GPS collars have been deployed in the study area.



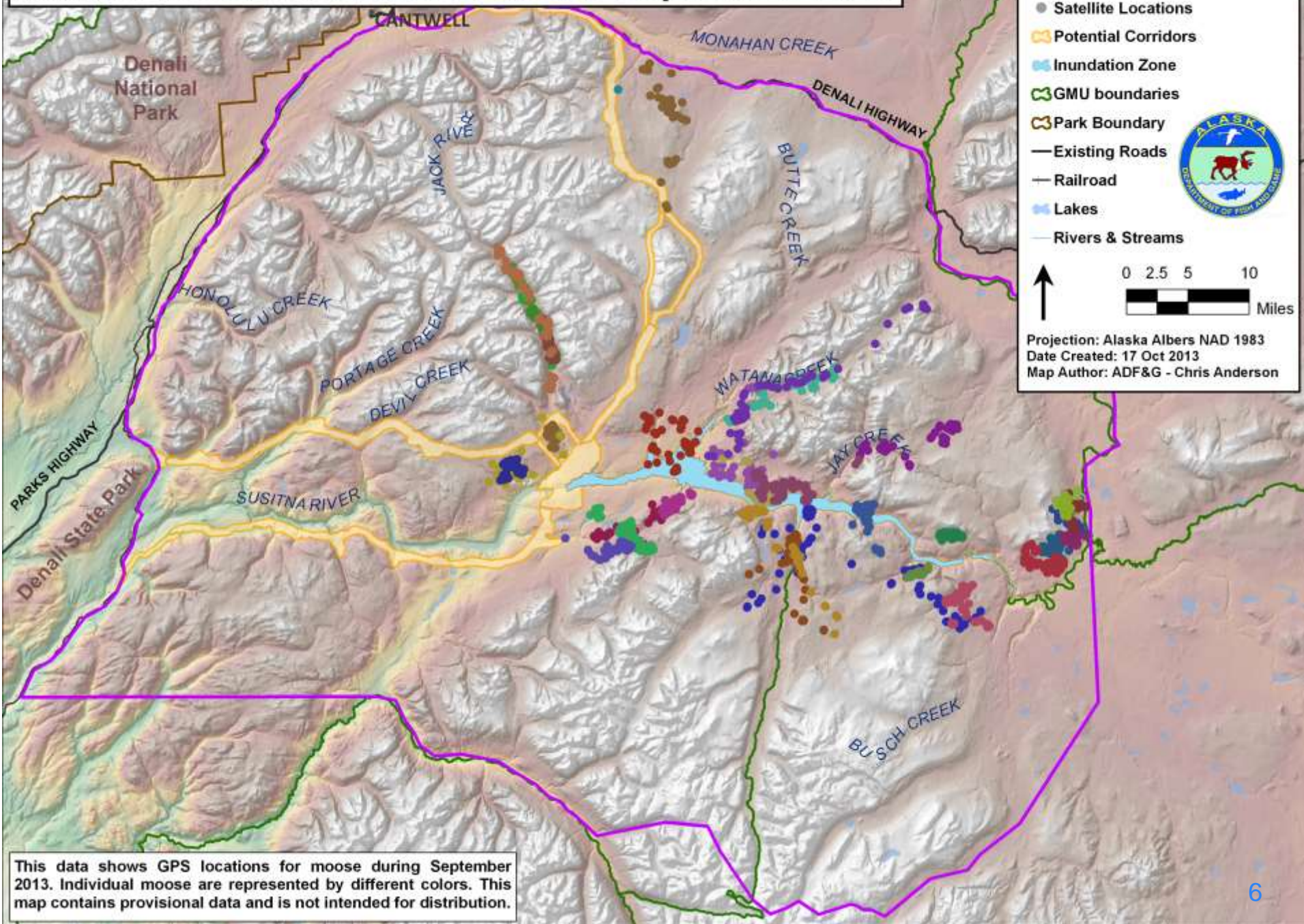
Photo by Kim King ADF&G



Photo by Kim Jones ADF&G

| Collar Type | Sex | Oct 2012 | Mar 2013 | Total |
|-------------|-------|----------|----------|-------|
| VHF | Bulls | 3 | 17 | 20 |
| | Cows | 7 | 33 | 40 |
| GPS | Bulls | 14 | 0 | 14 |
| | Cows | 26 | 0 | 26 |
| TOTAL | | 50 | 50 | 100 |

Watana Moose Satellite Locations September 2013



This data shows GPS locations for moose during September 2013. Individual moose are represented by different colors. This map contains provisional data and is not intended for distribution.

A moose GeoSpatial Population Estimation Survey is planned for November 2013 or March 2014.

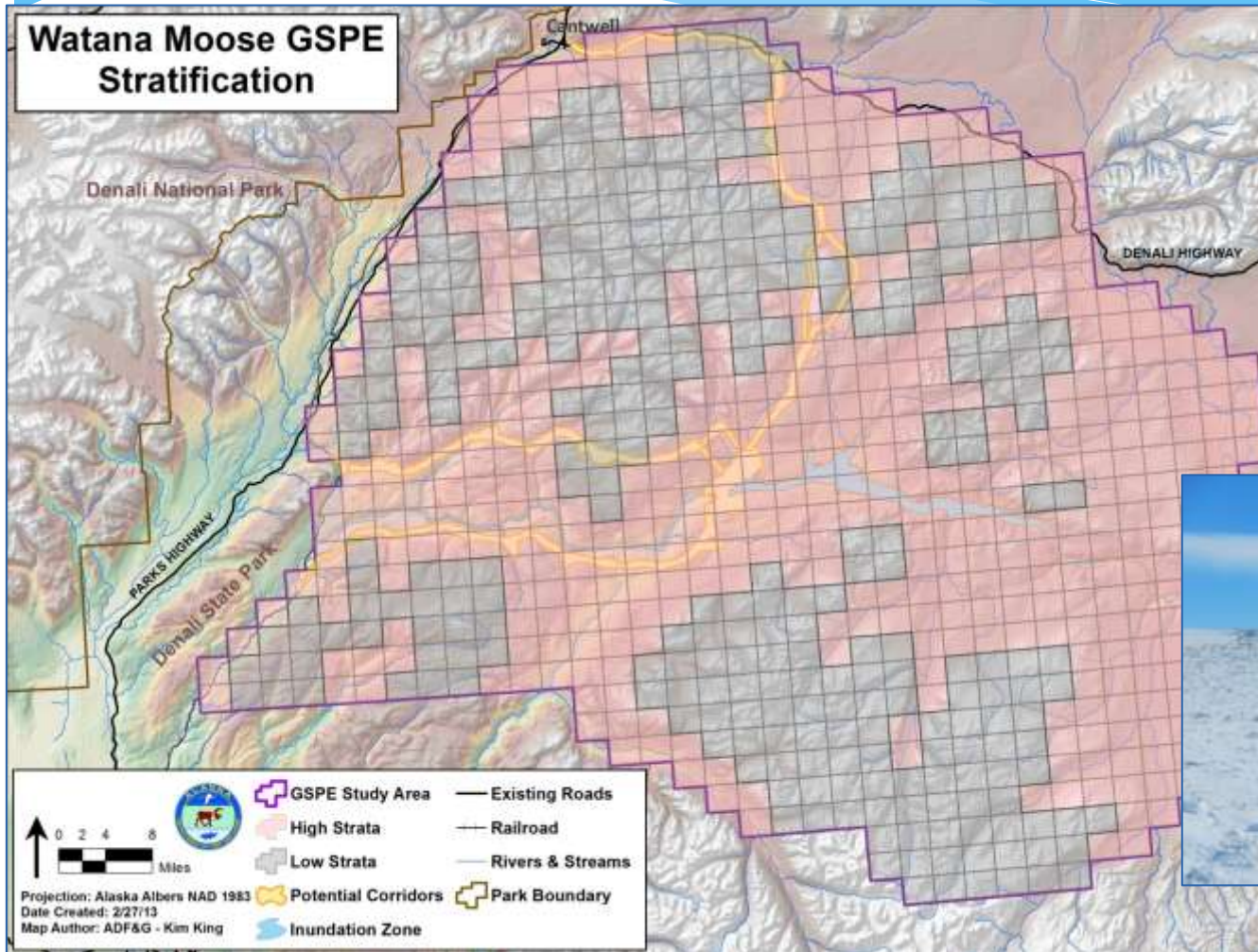
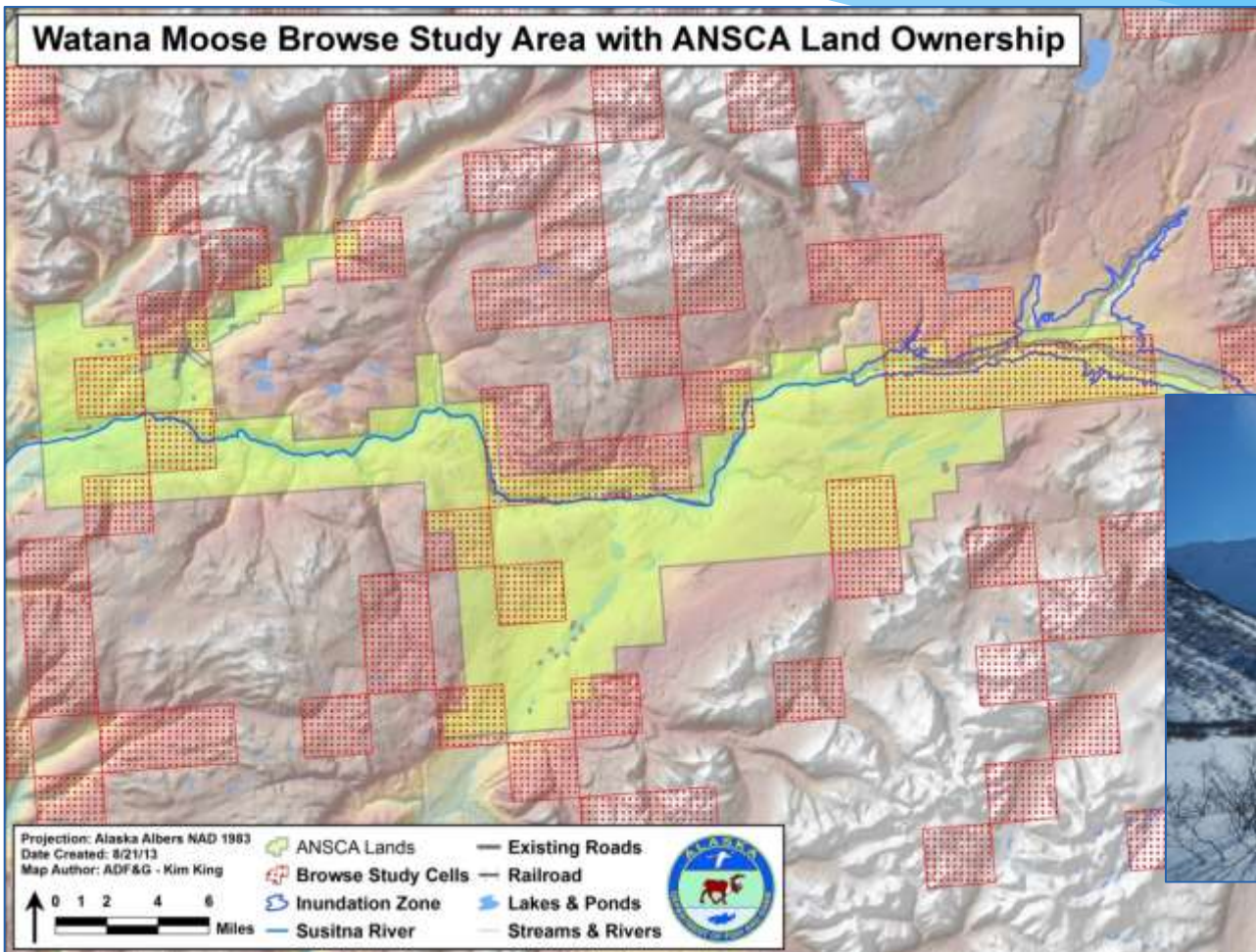


Photo by Kim Jones ADF&G

We were able to work around land access issues for the 2013 Browse Surveys but are hoping to obtain land-access permission for the March 2014 Browse Surveys.



ADF&G plans for **Moose** in 2014:

- Regular Telemetry of VHF Radio collars
- Monitoring ARGOS Satellite-linked GPS collars
- A GeoSpatial Population Estimation (GSPE) Survey
- Traditional Count Area Surveys
- Late Winter Inundation Survey
- Twinning/Calving Survey
- Browse Survey
- Retrieve GPS Collars for data



ADF&G is monitoring the distribution, abundance, movements, and productivity of Nelchina and Delta **caribou** in the Project vicinity.

This study involves:

- Monthly Telemetry of VHF Radio collars
- Monitoring ARGOS Satellite-linked GPS collars
- Calving Surveys



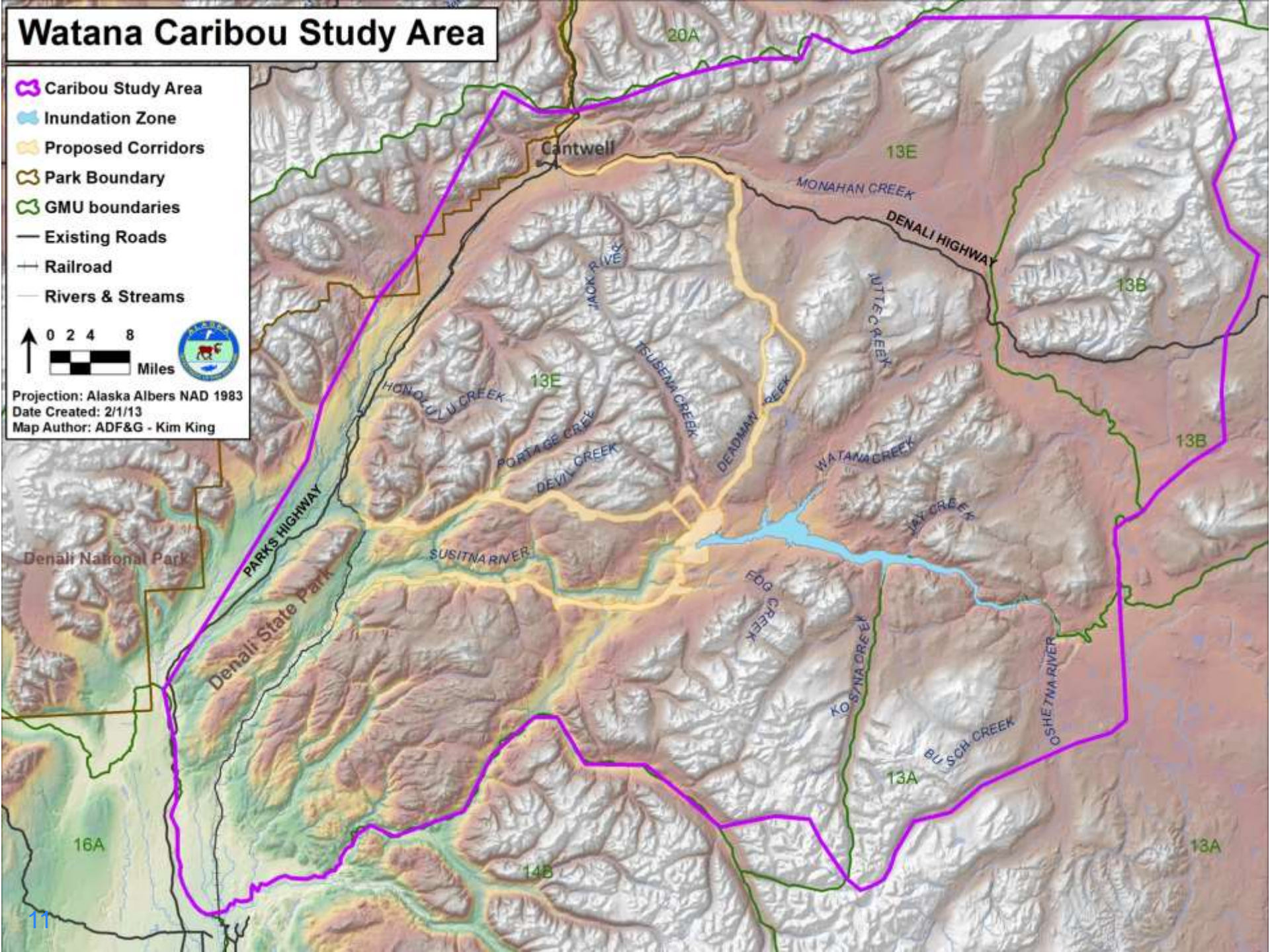
Watana Caribou Study Area

-  Caribou Study Area
-  Inundation Zone
-  Proposed Corridors
-  Park Boundary
-  GMU boundaries
-  Existing Roads
-  Railroad
-  Rivers & Streams

0 2 4 8 Miles



Projection: Alaska Albers NAD 1983
Date Created: 2/1/13
Map Author: ADF&G - Kim King

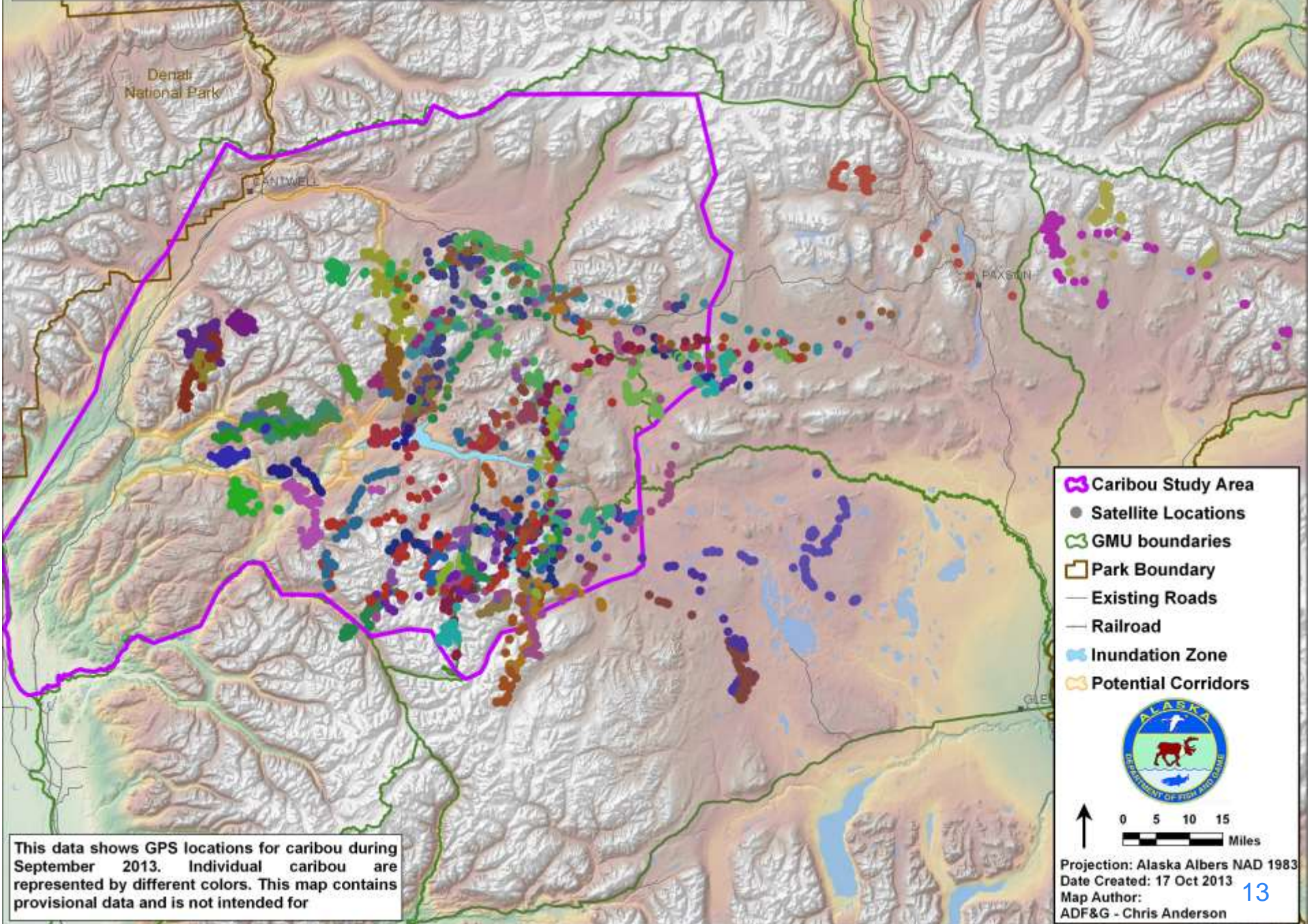


Caribou Captures 2012-2013

| Collar Type | Sex | Apr 2012 | Oct 2012 | Apr 2013 | Oct 2013 | Total |
|--------------|-------|-----------|-----------|-----------|-----------|------------|
| VHF | Bulls | 15 | 15 | 9 | 1 | 40 |
| | Cows | 0 | 0 | 0 | 4 | 4 |
| GPS | Bulls | 8 | 10 | 9 | 2 | 29 |
| | Cows | 0 | 42 | 1 | 5 | 48 |
| TOTAL | | 23 | 67 | 19 | 12 | 121 |



Watana Caribou Satellite Locations September 2013



This data shows GPS locations for caribou during September 2013. Individual caribou are represented by different colors. This map contains provisional data and is not intended for

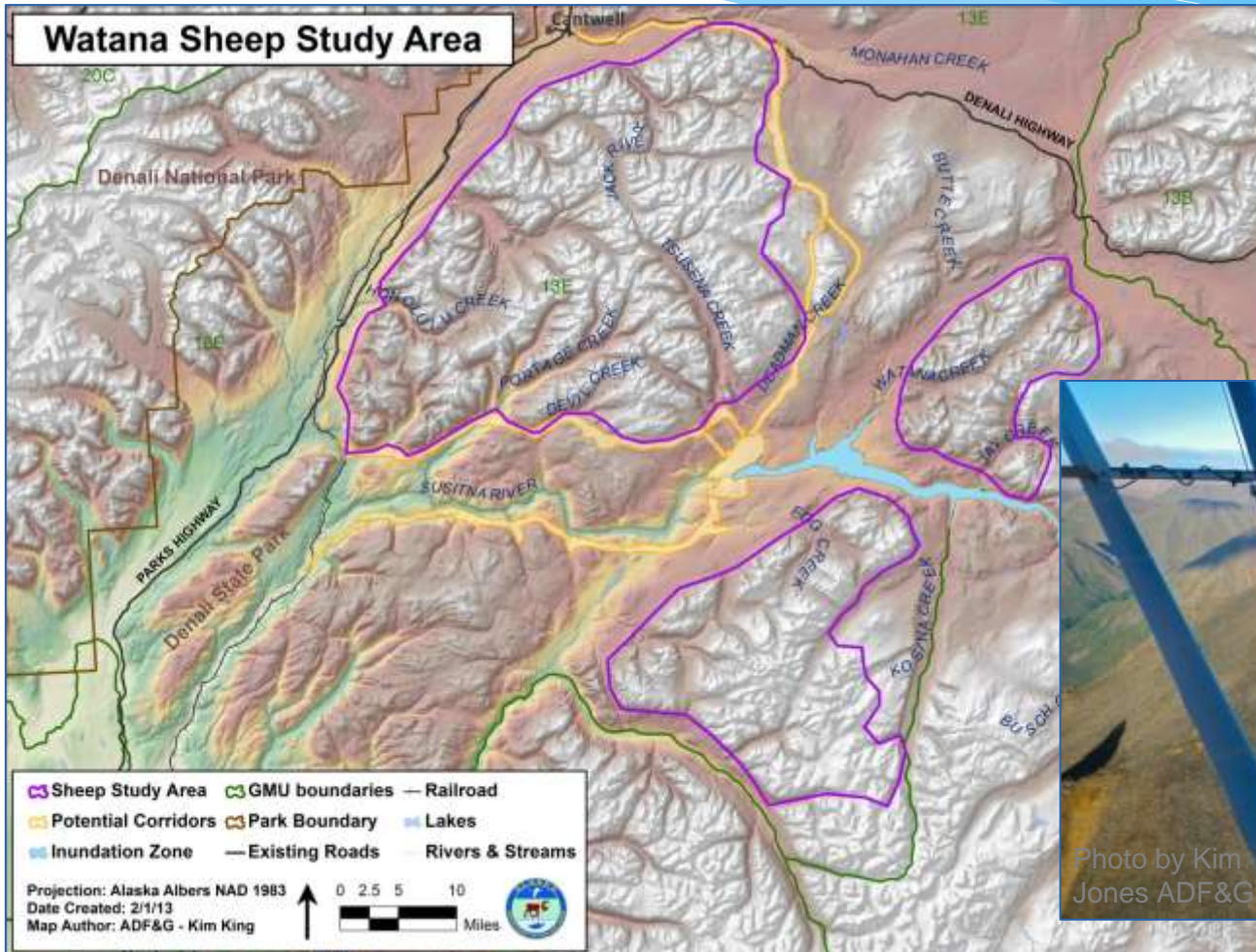
Projection: Alaska Albers NAD 1983
Date Created: 17 Oct 2013
Map Author: ADF&G - Chris Anderson

ADF&G plans for **Caribou** in 2014:

- Regular Telemetry of VHF Radio collars
- Monitoring ARGOS Satellite-linked GPS collars
- Calving Surveys
- Retrieve GPS Collars



ADF&G flew a survey of all suitable **Dall's Sheep** habitat in the Project vicinity this summer.

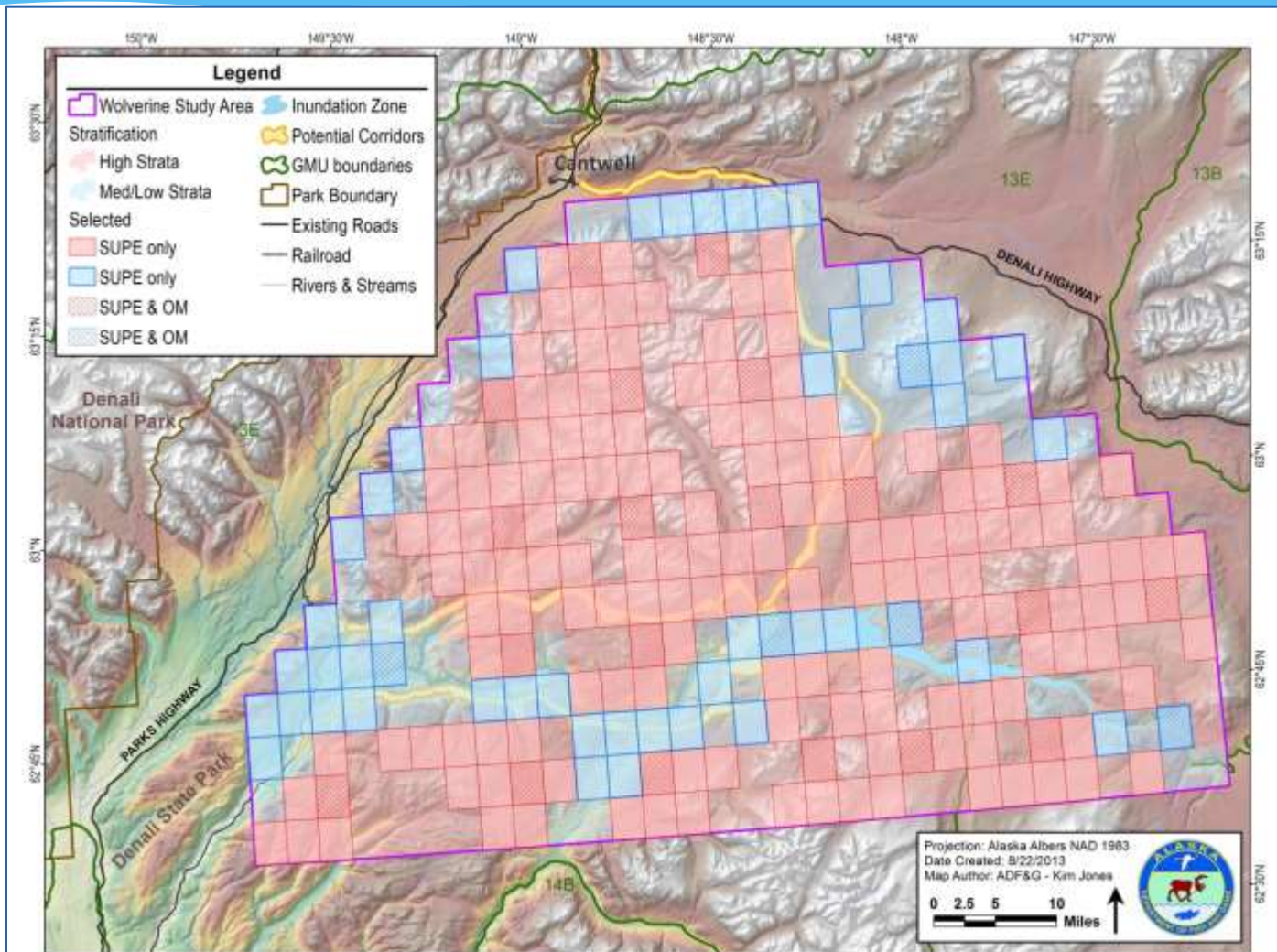


ADF&G plans for **Sheep** in 2014:

- Survey of sheep habitat in study area in June or July



ADF&G conducted Occupancy Modeling (OM) on **wolverines** in 2013. We expect to do both Sample Unit Probability Estimator (SUPE) and OM in 2014

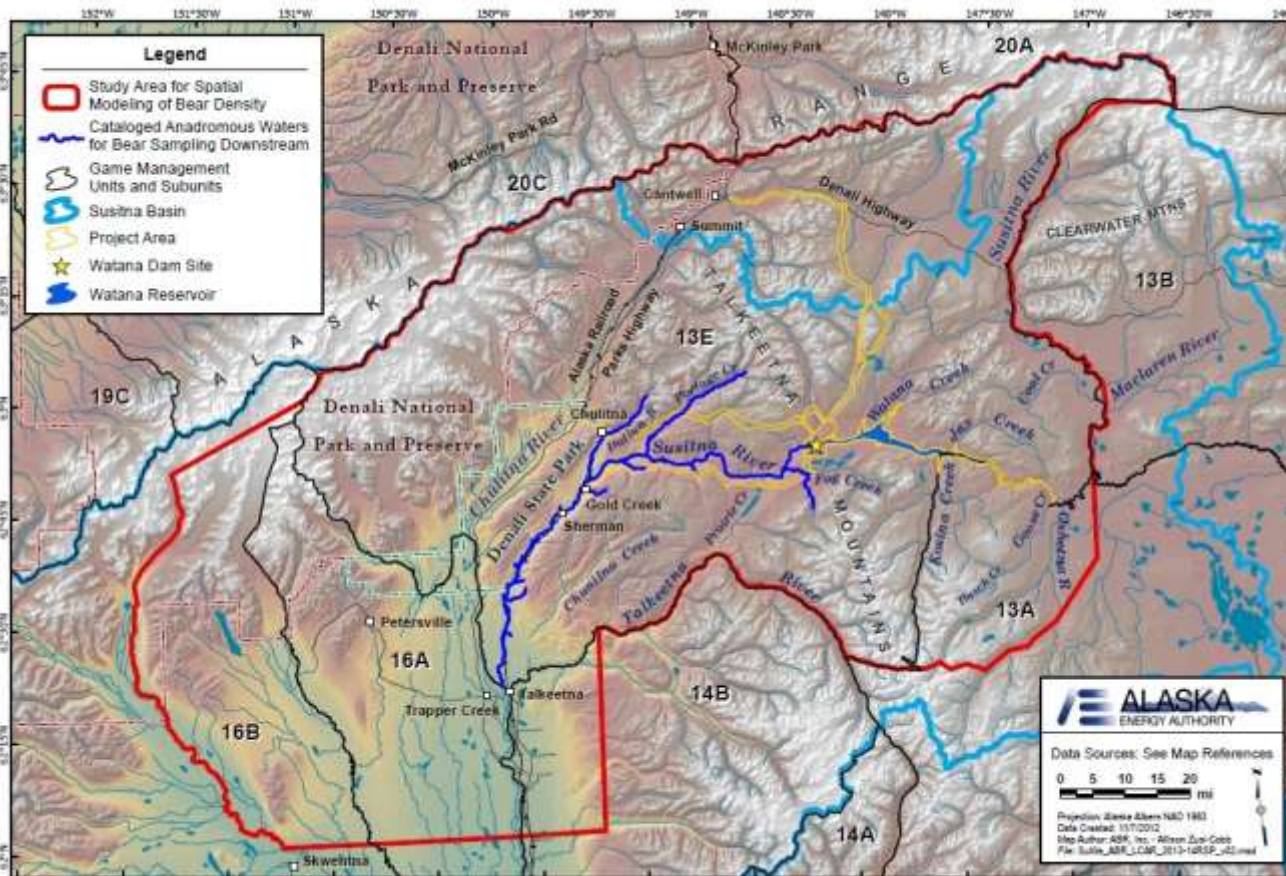


ADFG plans for **Wolverine** in 2014:

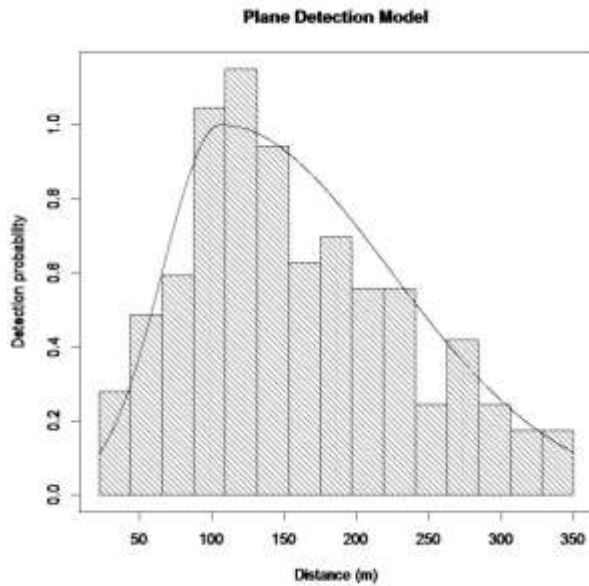
- Conduct late winter SUPE and Occupancy Modeling as weather conditions allow



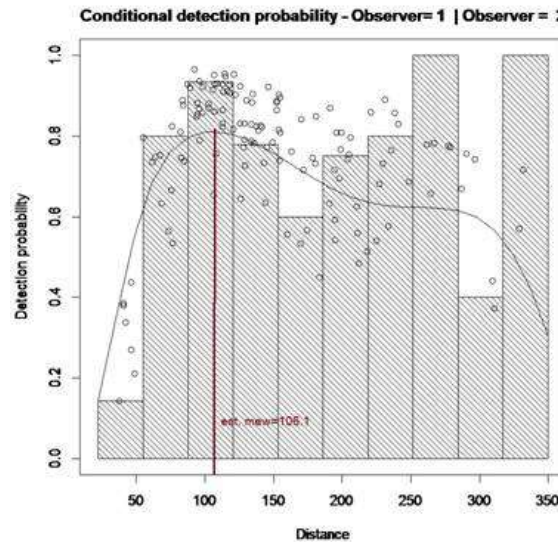
ADFG has **black and brown bear** distance sampling data available for GMU 16, and parts of GMU 13 from ADF&G 2000-2004 data.



Have used models to obtain overall population density estimate for **black bear**.



Example only: 16B data



Example only: 16B data



Have used models to obtain overall population density estimate for **brown bear**.



ADFG plans for Large Carnivores (**Black and Brown Bears**) in 2014:

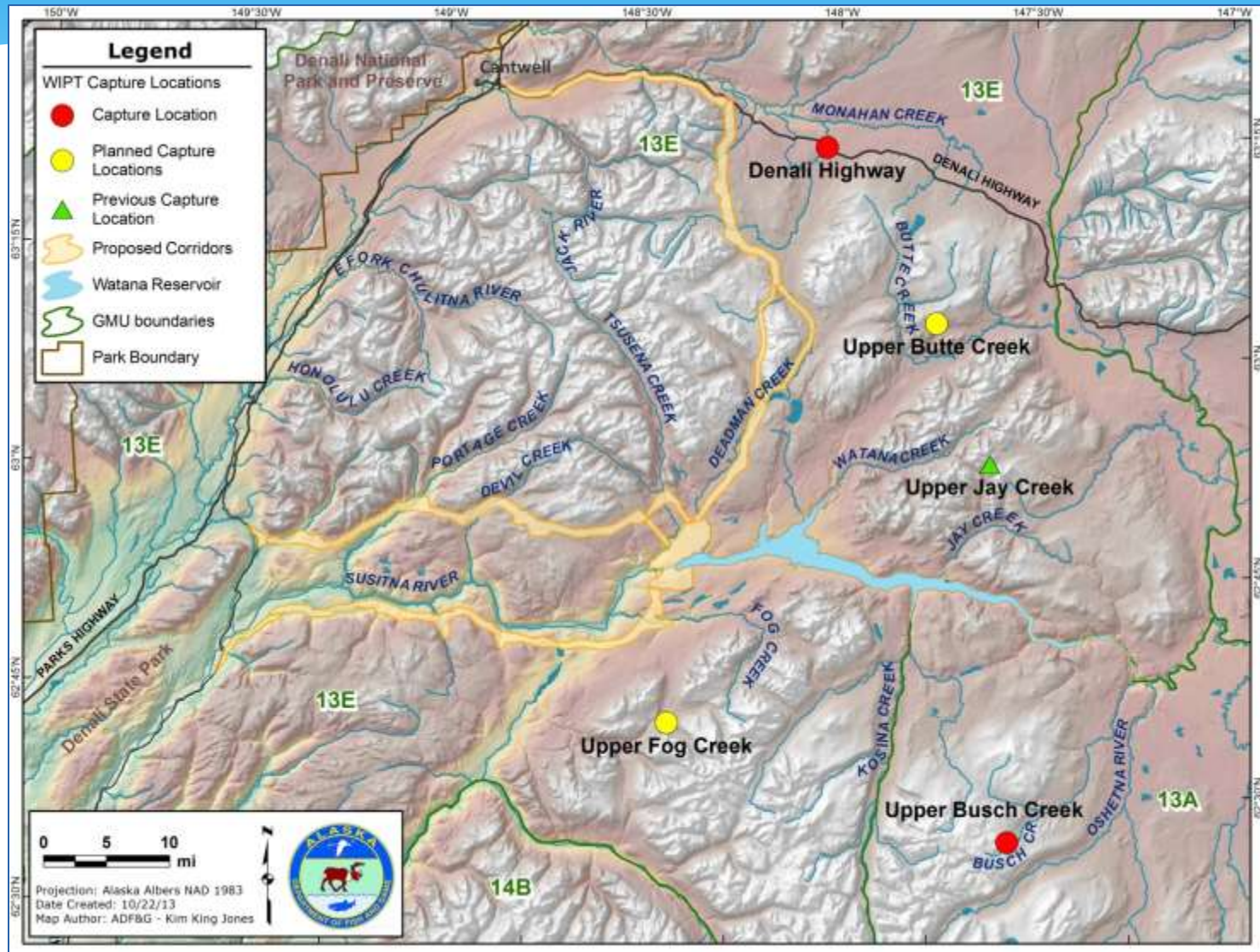
- Continue analysis and modeling bear populations spatially.



The **ptarmigan** study has varied from the study plan in the following instances:

- Used fewer captures locations than planned
- Deployed fewer collars than planned
- Did not complete March 2013 transect flight
- Moved September transect flight to mid-November to mid-December

Ptarmigan were captured at the Denali Highway and Upper Busch Creek locations in 2013.



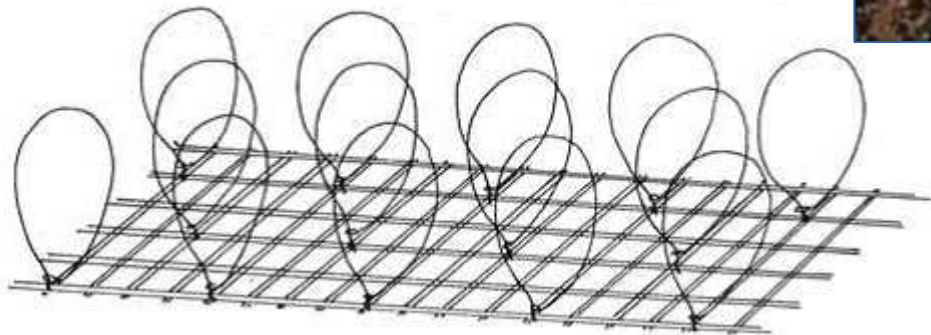
41 ptarmigan collars have been deployed and hoping to deploy additional collars later this year.

Ptarmigan Captures 2013

| Capture Location | Age/Sex | May 2013 | August 2013 | Total |
|-------------------|-------------|-----------|-------------|-----------|
| Upper Busch Creek | Adult Cocks | 12 | - | 22 |
| | Adult Hens | - | 1 | |
| | Juveniles | - | 9 | |
| Denali Highway | Adult Cocks | 10 | 2 | 19 |
| | Adult Hens | 7 | - | |
| | Juveniles | - | - | |
| TOTAL | | 29 | 12 | 41 |



Noose Carpets were shown to be a successful capture method.



Noose Carpets

Relocation telemetry flights took place in August and September 2013 and plan to conduct 6-12 surveys annually.



ADFG plans for Willow Ptarmigan in 2014:

- Conduct monthly aerial telemetry surveys
- Conduct aerial transect survey flights in March and November/December depending on snow conditions
- Capture and collar additional birds in winter 2013-2014 and spring 2014
- Recapture and re-collar existing collared birds
- Analyze survival, occupancy, and abundance data from first year

Looking downstream from
the proposed dam site

Mount McKinley

