

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

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The Wildlife Study Plans will provide baseline data for assessments of potential Project impacts.



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.

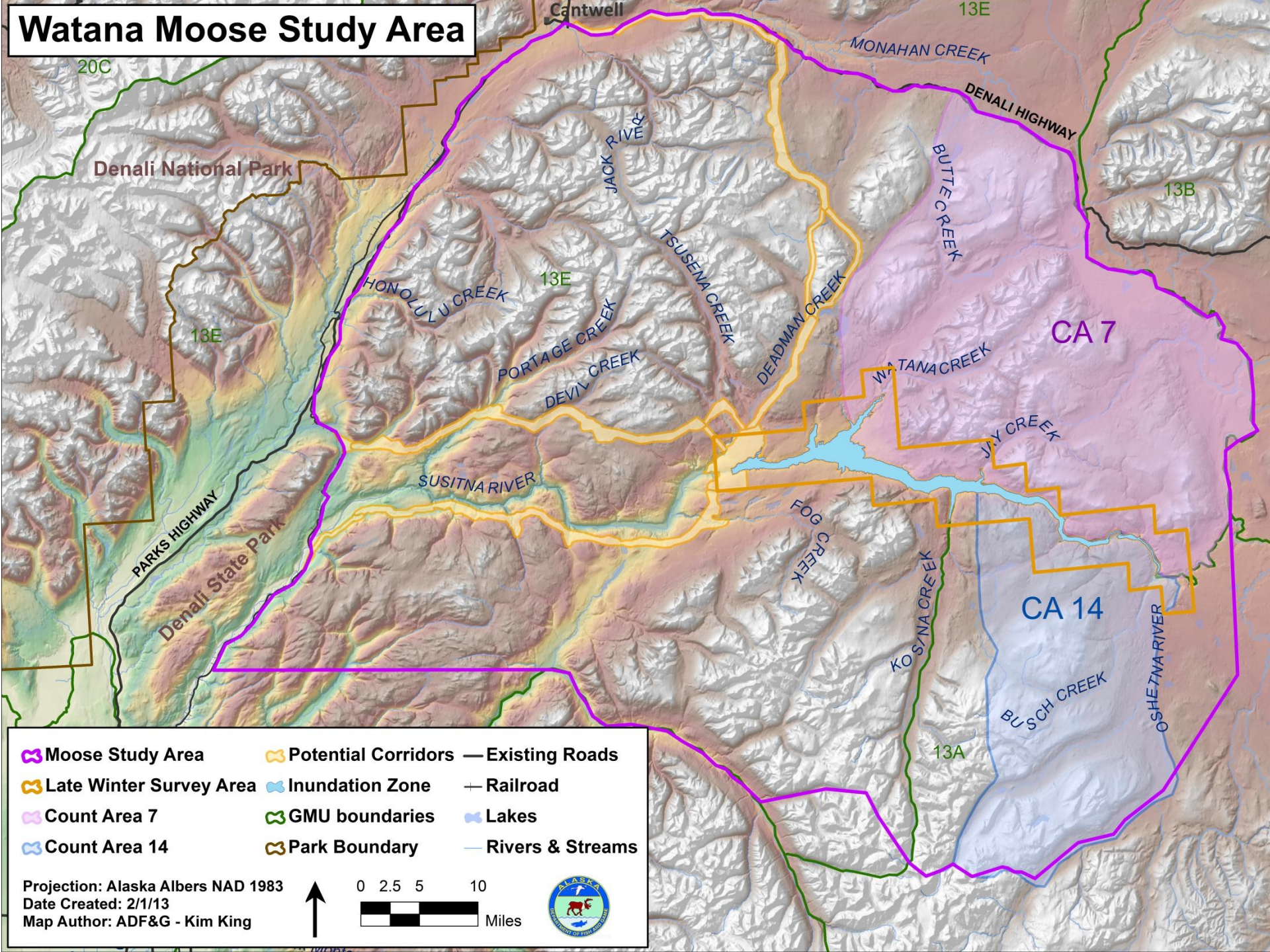
This study involves:

- 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
-  Existing Roads
-  Late Winter Survey Area
-  Inundation Zone
-  Railroad
-  Count Area 7
-  GMU boundaries
-  Lakes
-  Count Area 14
-  Park Boundary
-  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.



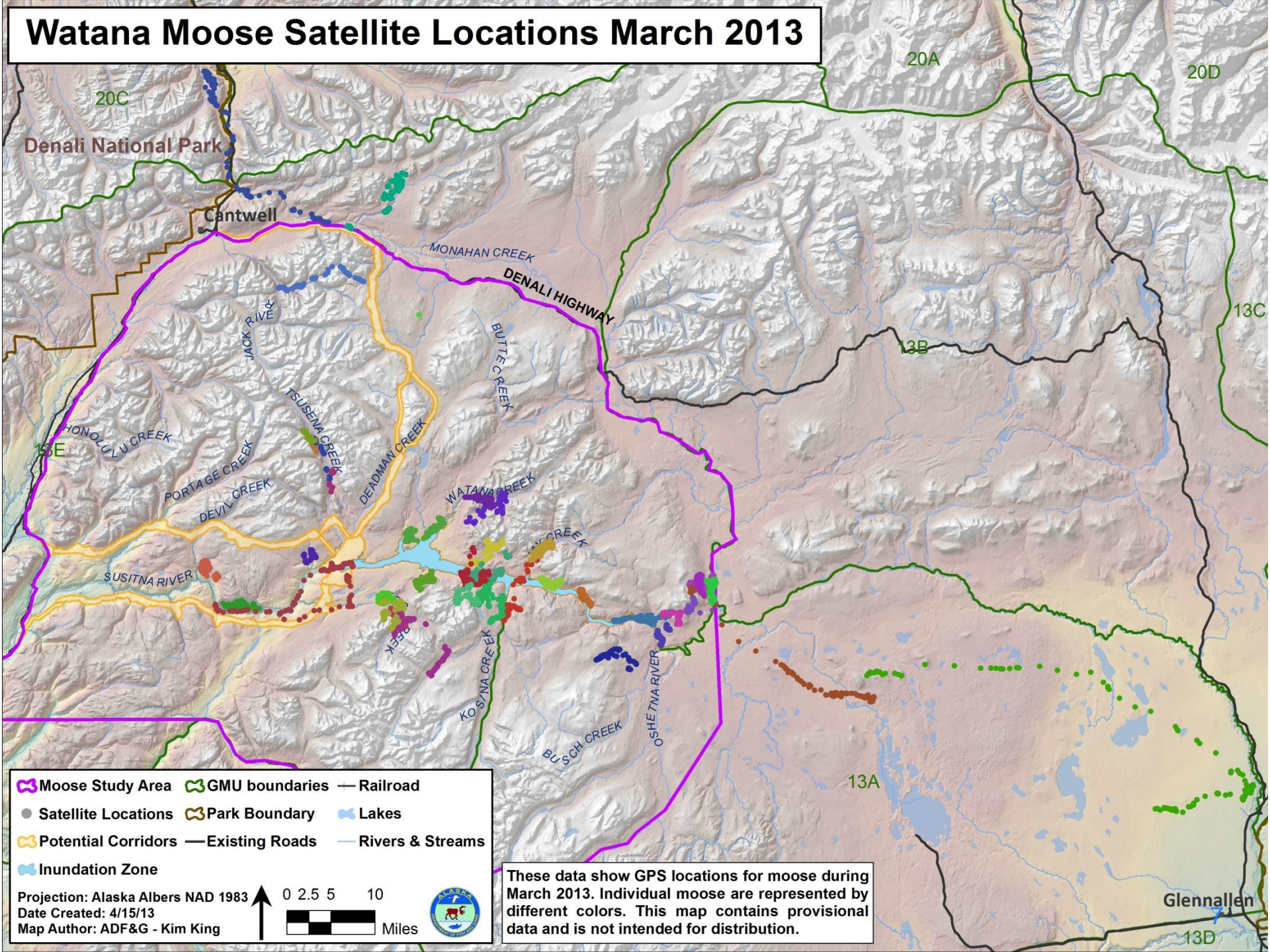
Photo by Kim King ADF&G



Photo by Kim King ADF&G

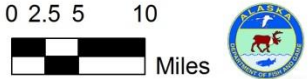
Collar Type	Sex	Oct 2012	Mar 2013	Total
VHF	Bulls	3	17	20
	Cows	7	33	40
GPS	Bulls	14	0	14
	Cows	26	0	26
TOTAL		50	50	100

Watana Moose Satellite Locations March 2013



- ⬭ Moose Study Area
- ⬭ GMU boundaries
- Railroad
- Satellite Locations
- ⬭ Park Boundary
- ⬭ Lakes
- ⬭ Potential Corridors
- Existing Roads
- Rivers & Streams
- ⬭ Inundation Zone

Projection: Alaska Albers NAD 1983
 Date Created: 4/15/13
 Map Author: ADF&G - Kim King



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

Glennallen

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

Watana Moose GSPE Stratification

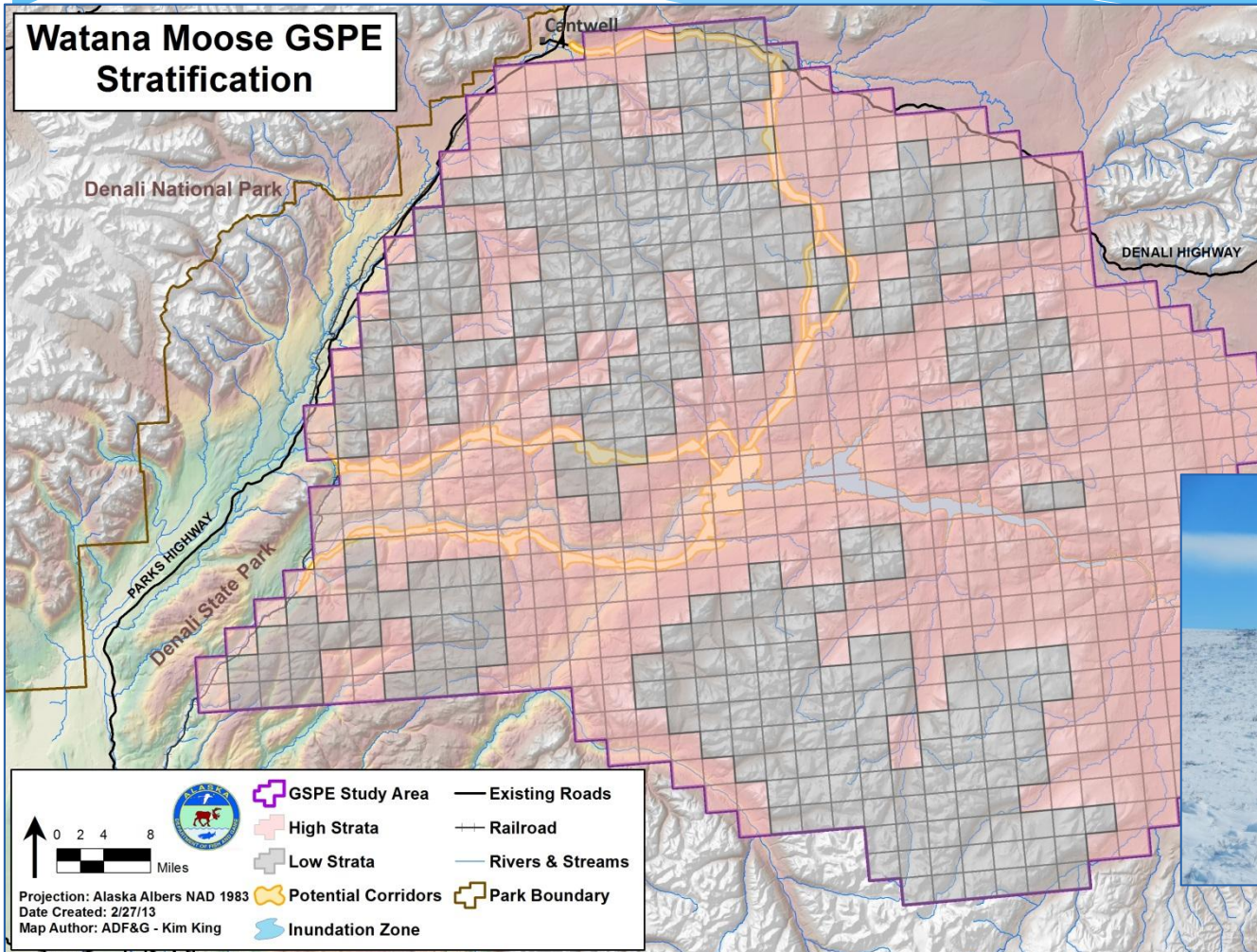


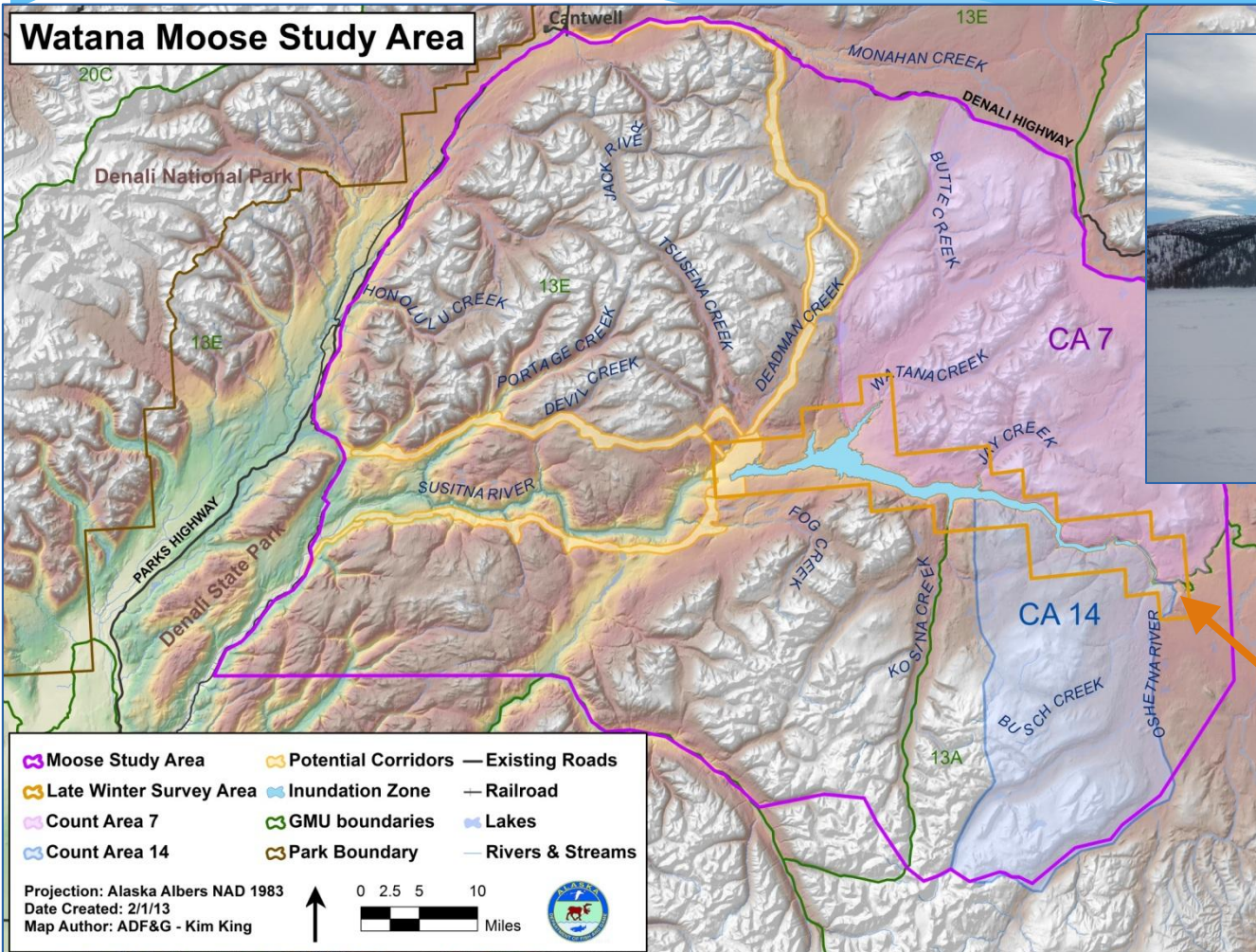
Photo by Kim King ADF&G

ADF&G conducted moose twinning surveys in May to assess productivity and calf survival.

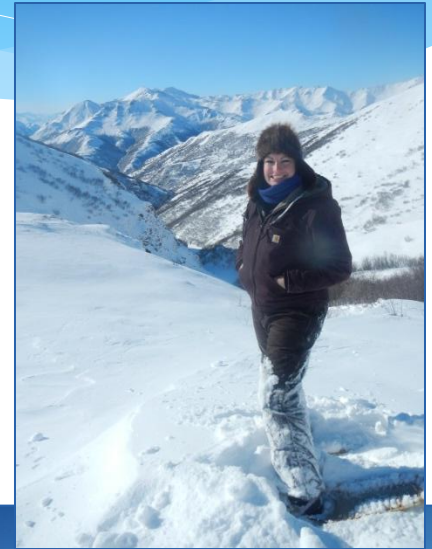
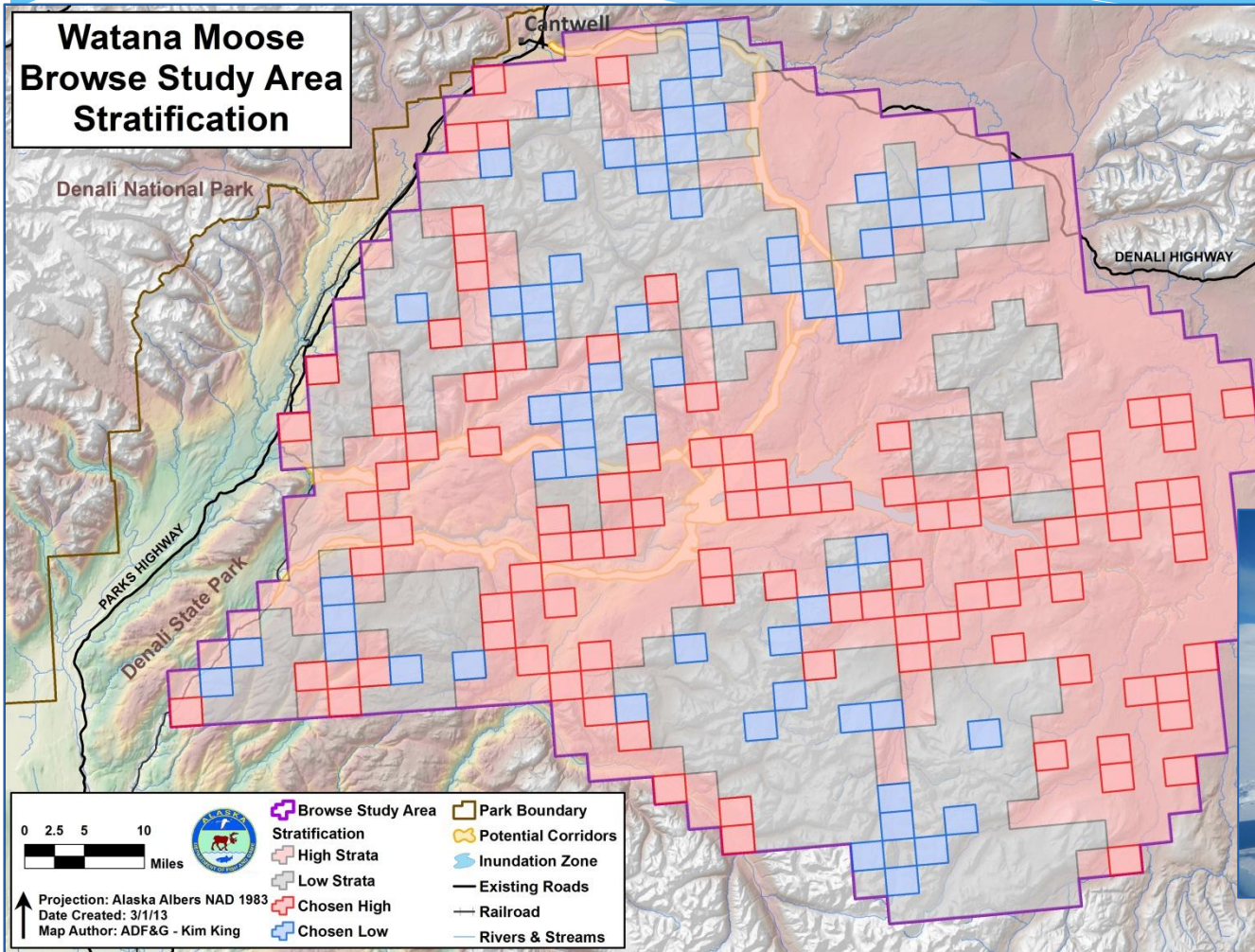


Also weighed calves during captures

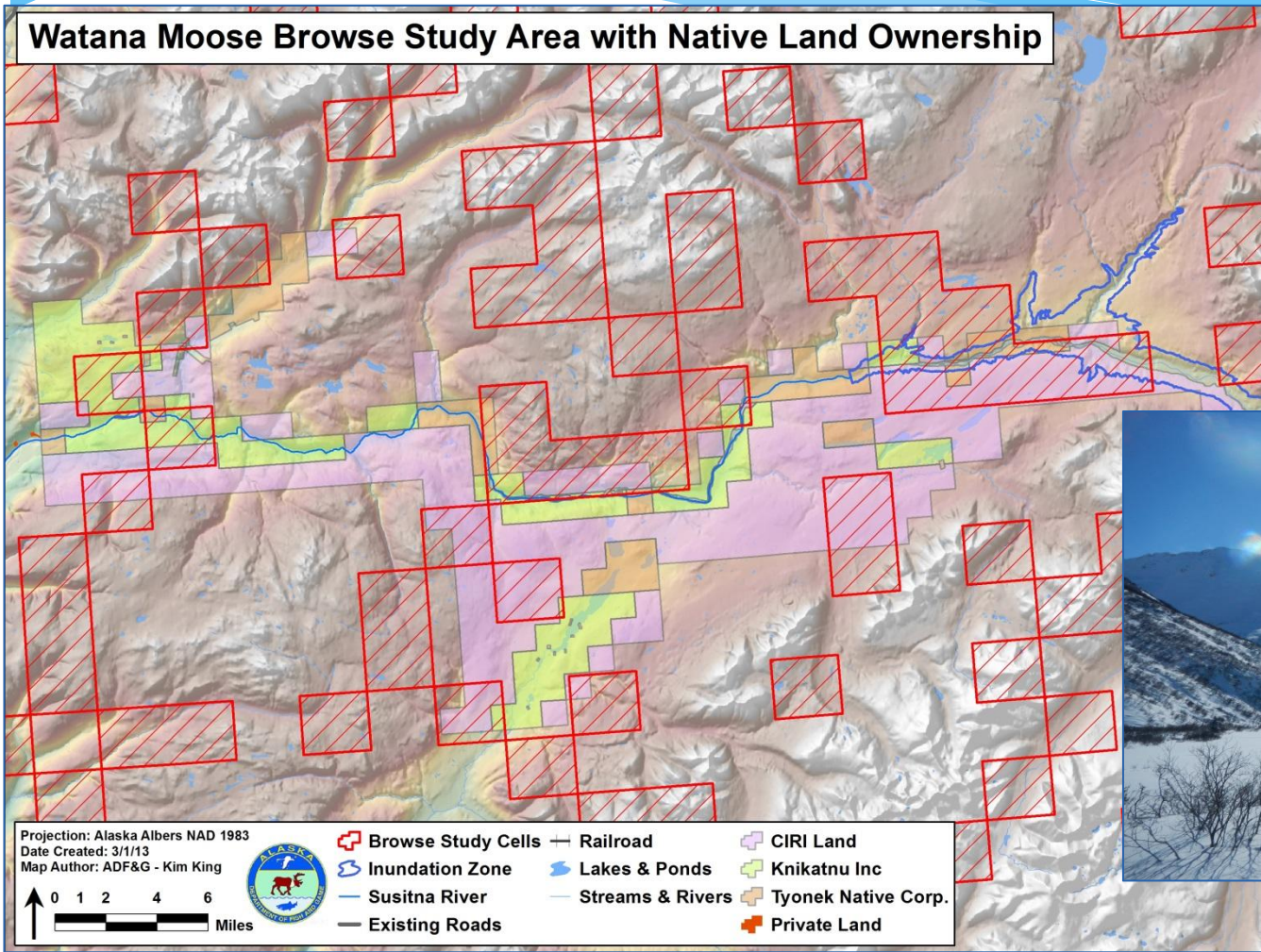
ADF&G conducted late winter surveys in the proposed inundation zone March 2012 and 2013.



Browse Surveys in March will be used to calculate the % biomass consumed by moose in the Project vicinity.



We were unable to obtain land-access permission for browse surveys on ANSCA corporation lands this year, but hope to obtain it by next March.



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



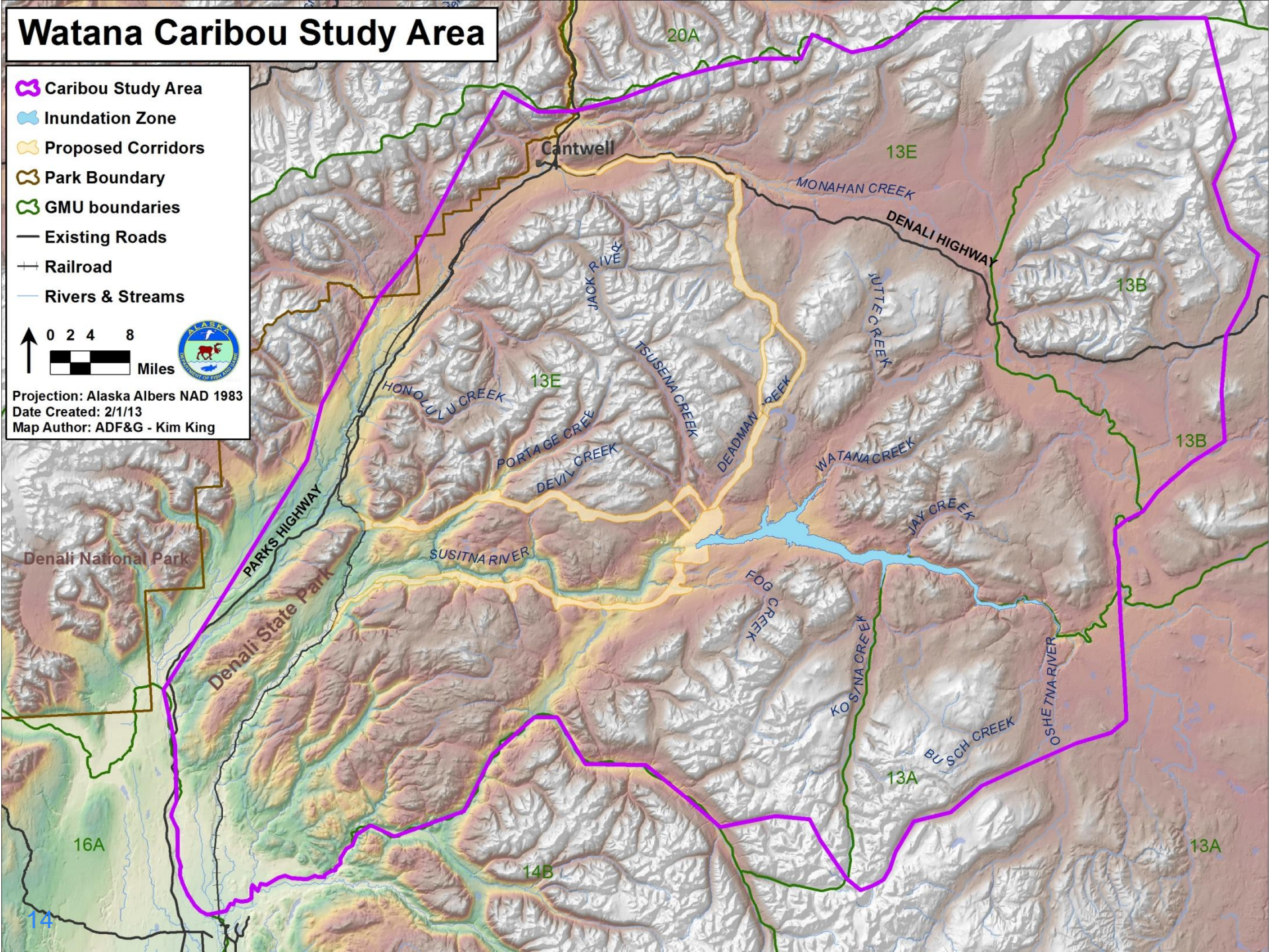
Watana Caribou Study Area

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

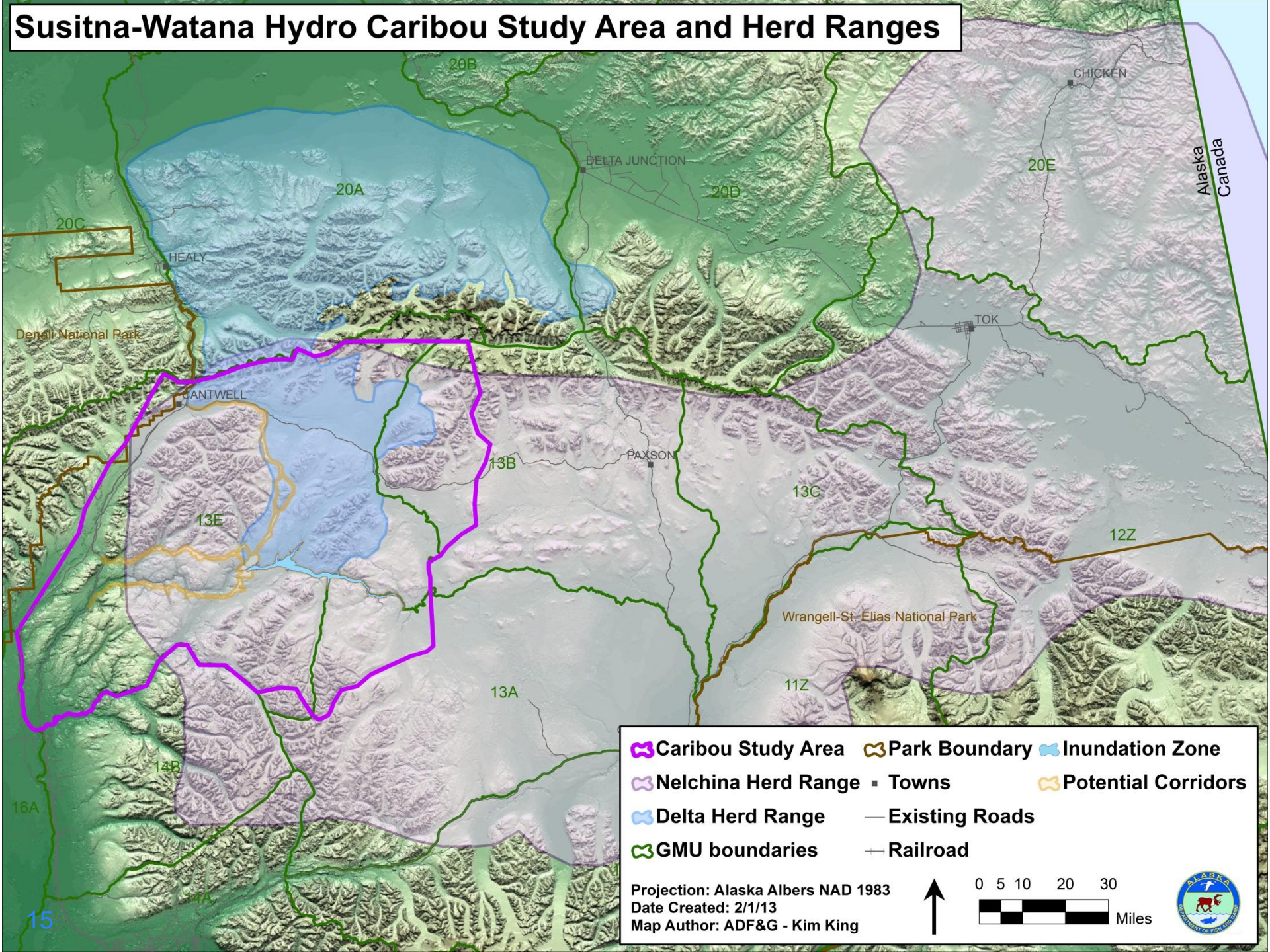
0 2 4 8 Miles



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



Susitna-Watana Hydro Caribou Study Area and Herd Ranges



Caribou Study Area	Park Boundary	Inundation Zone
Nelchina Herd Range	Towns	Potential Corridors
Delta Herd Range	Existing Roads	Railroad
GMU boundaries		

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

0 5 10 20 30
 Miles

Caribou Captures 2012

Collar Type	Sex	Apr 2012	Oct 2012	Total
VHF	Bulls	15	15	30
GPS	Bulls	8	10	18
	Cows	0	42	42
TOTAL		23	67	90



Bull Collar Re-Deployment April 2013

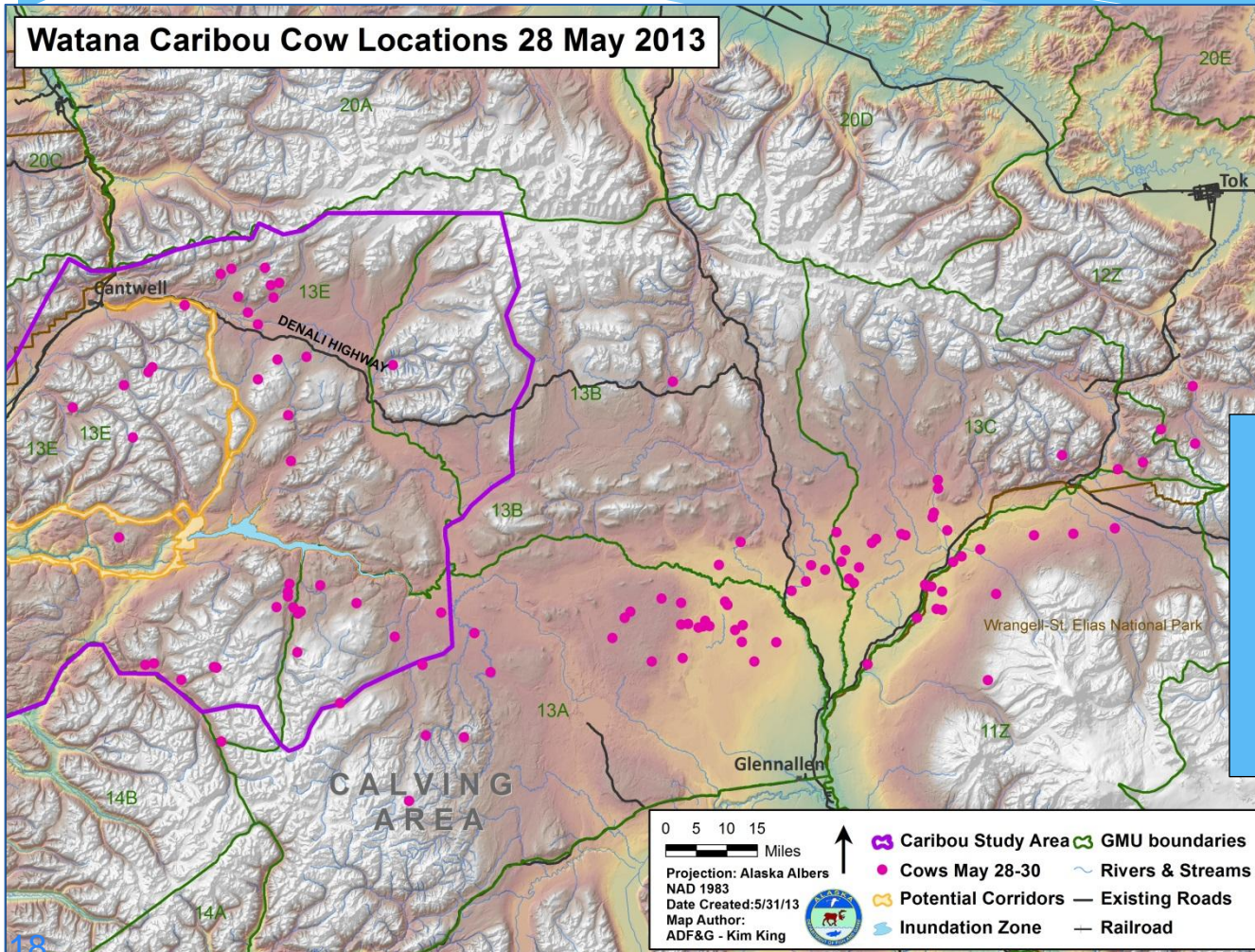
Collar Type	Herd/Sex	Goal	Current Dist	New Captures
VHF	Western Bulls	10	9	1
	Eastern Bulls	20	7	8
Satellite	Western Bulls	6	1	4
	Eastern Bulls	12	6	5
TOTAL		48	23	18

Caribou Radiotracking Flights December 2012 - May 2013

Dates	Season	# Caribou Collared	Total Located	# in Study Area	# in Rest of Range	Flight Area/Plan
Dec 7-14	winter	224	110	18	92	herd range
Jan 10-18	winter	223	32	16	16	GMU 13 west
Feb 12	winter	218	32	15	17	GMU 13 west
Mar 14-15	winter	216	92	11	81	herd range
Apr 11-12	winter	216	19	11	8	study area + south
May 7	spring	182 cows	26	19	7	study & calving areas (cows only)
May 14-15	spring	224	30	26	4	study & calving areas (cows and bulls)
May 20-21	spring	182 cows	97	32	65	herd range (cows only)
May 25-26	calving	182 cows	57	35	22	study & calving areas (cows only)
May 28-30	calving	182 cows	112	40	72	herd range (cows only)

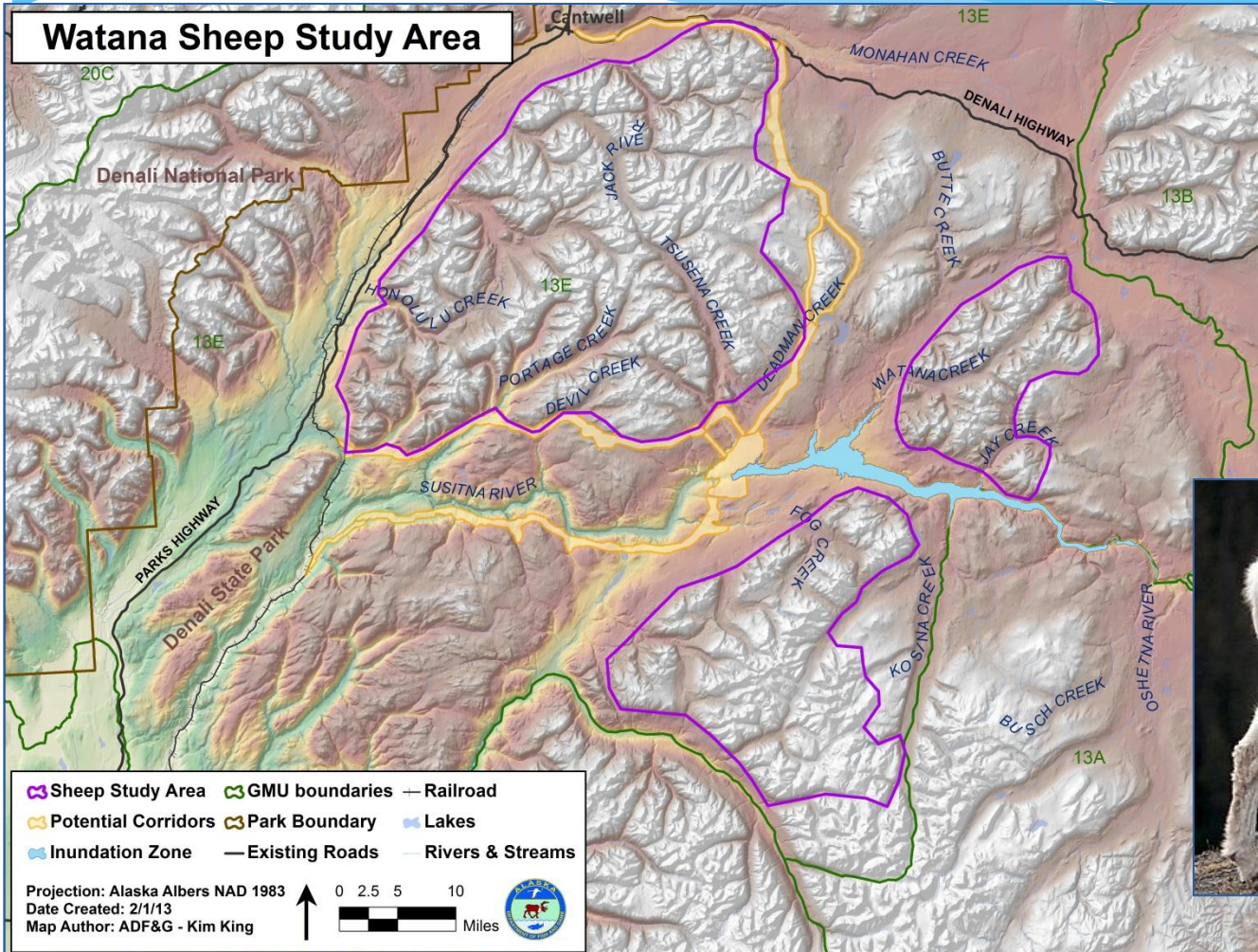
Due to late snow melt, the NCH spring migration to the traditional calving area has been delayed.

Watana Caribou Cow Locations 28 May 2013



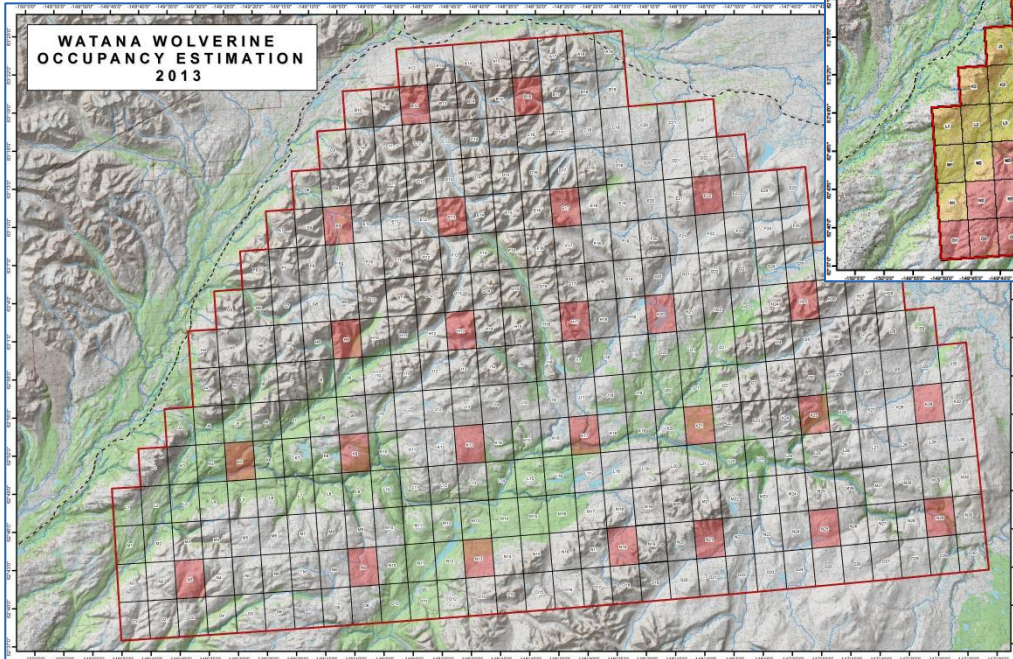
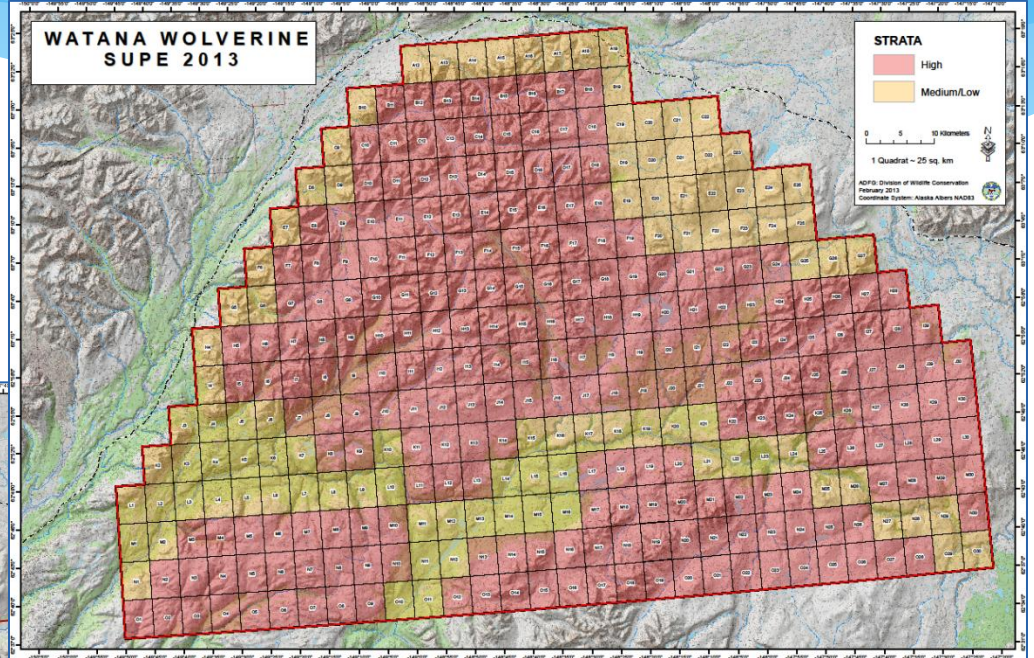
Peak calving typically occurs in the calving area May 25-30

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



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

SUPE Grid →



← OM Grid

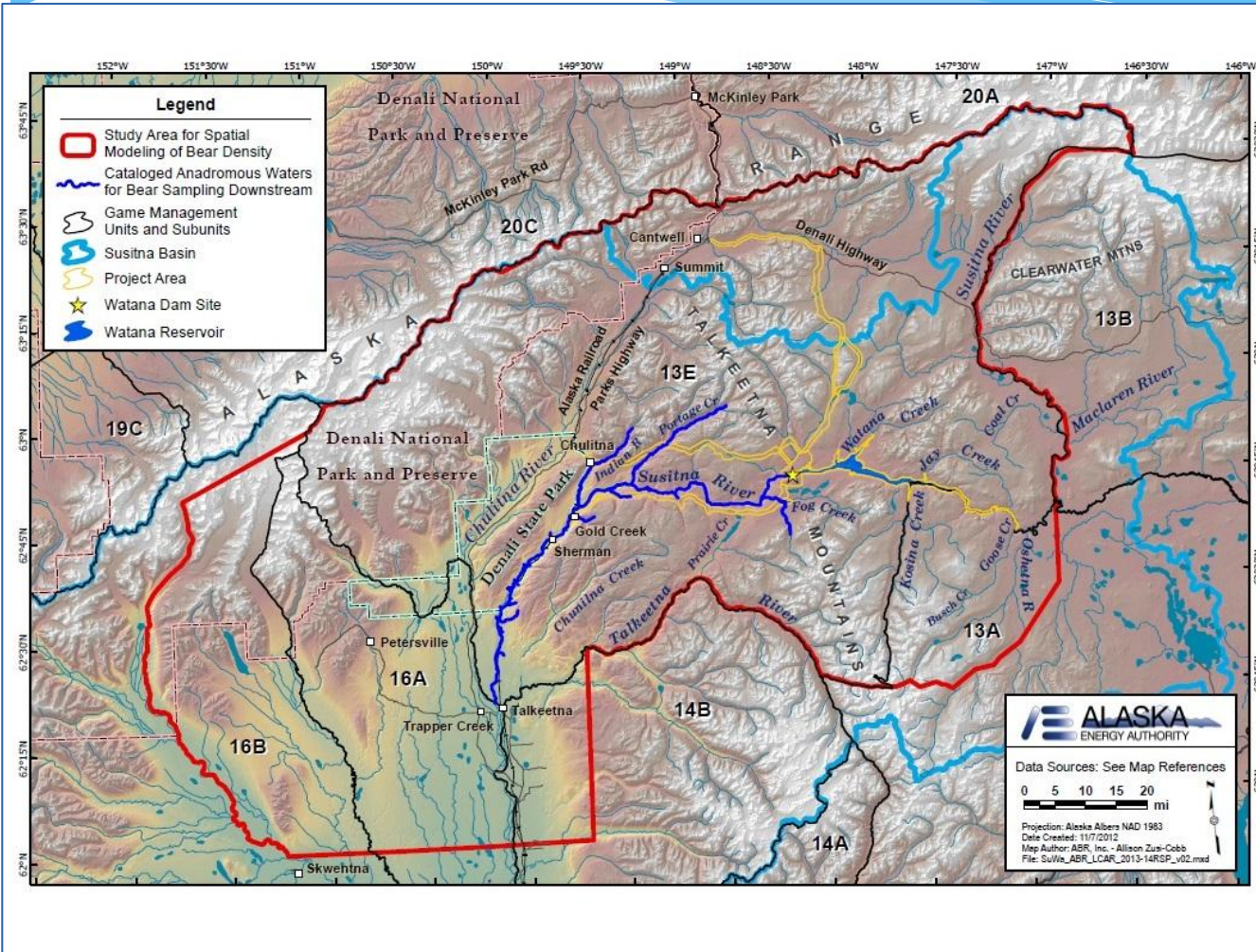
Initial Draft Results of Wolverine Occupancy Modeling (OM).

- Survey Dates: April 11 & 15 2013
- Tracks in 23/25 Sample Units
(18/20 high, 5/5 Low)
- Uncorrected Occupancy .92
- Density estimate 5.5 wolverines/1000km²

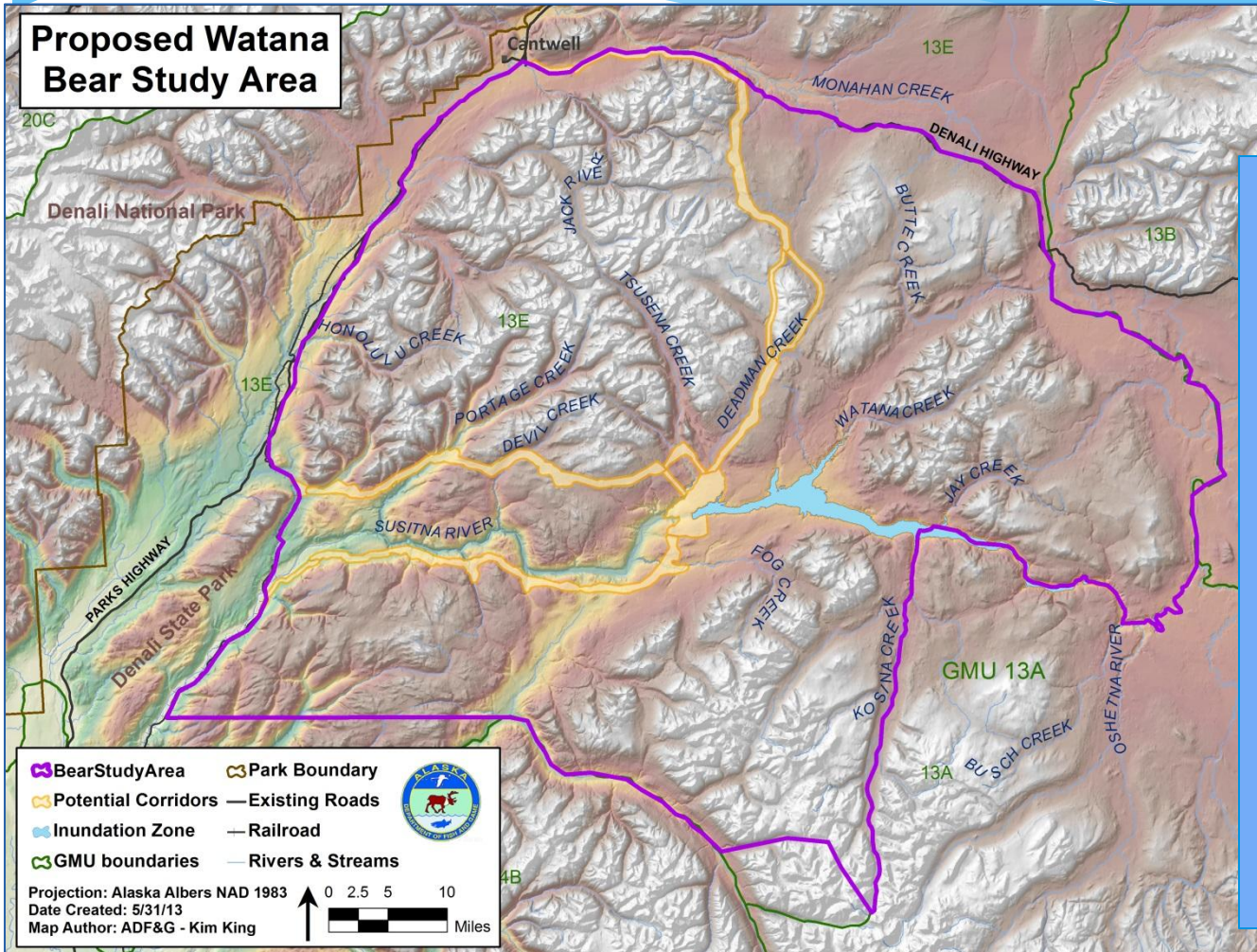
Optimal conditions like this developed late in 2013.



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



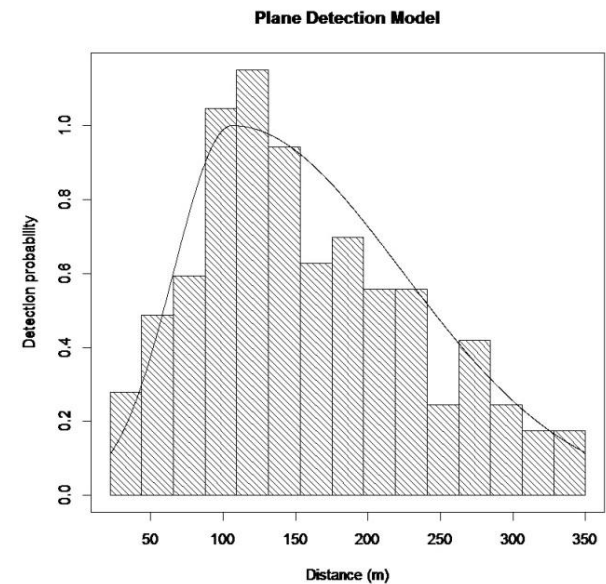
ADF&G is preparing transect segmented database for spatial modeling of bear populations.



GIS data preparation for spatial modeling is taking more time than anticipated.

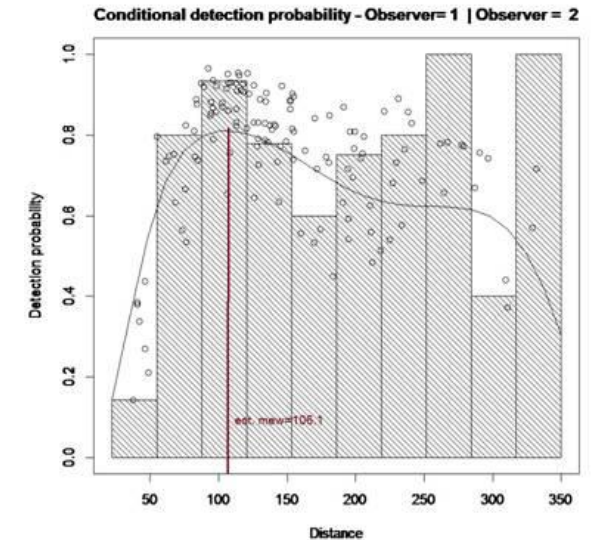
Propose using moose study area minus 13A

Have fit two-piece normal distance model to the black bear data set.



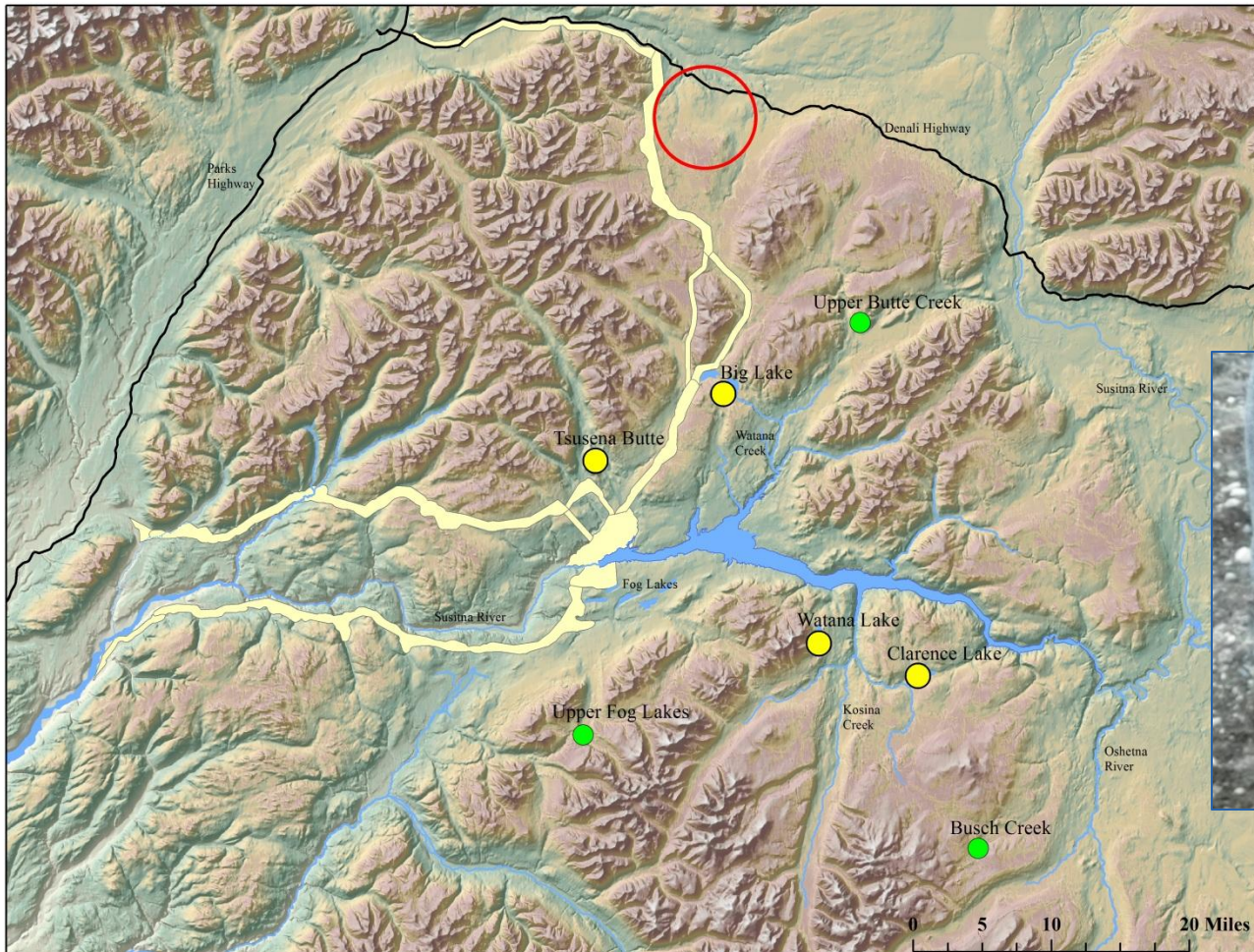
Example only: 16B data

Logistic model corrects for imperfect detection at peak detection.



Example only: 16B data

Expected to deploy one hundred twenty ptarmigan radio collars in May 2013.



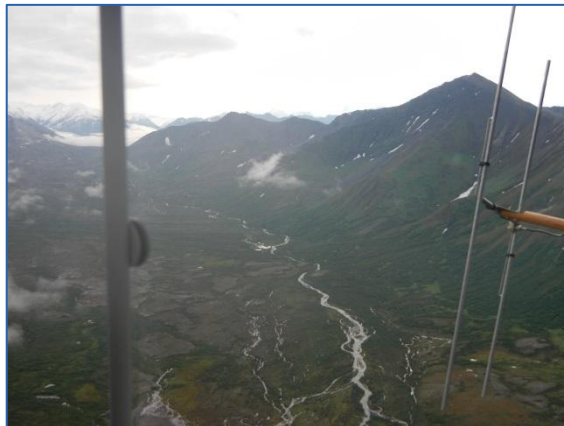
Extended winter weather delayed deployment of collars

Crews set back twice between 11 & 19 May due to significant snowfall.

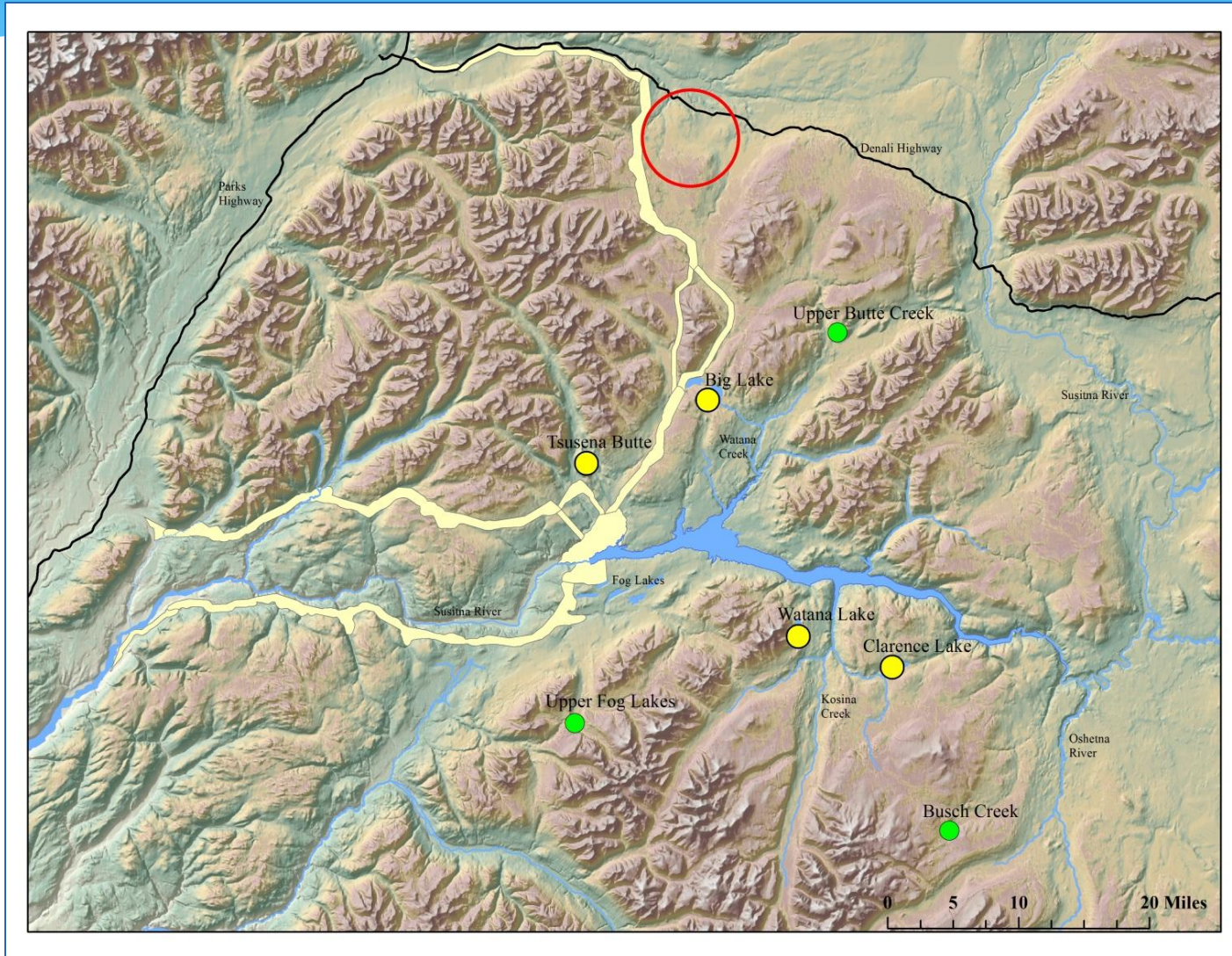


Through 28 May, two crews deployed 29 radio collars.

Relocation flights will begin in August 2013 and aerial transects will begin in October.

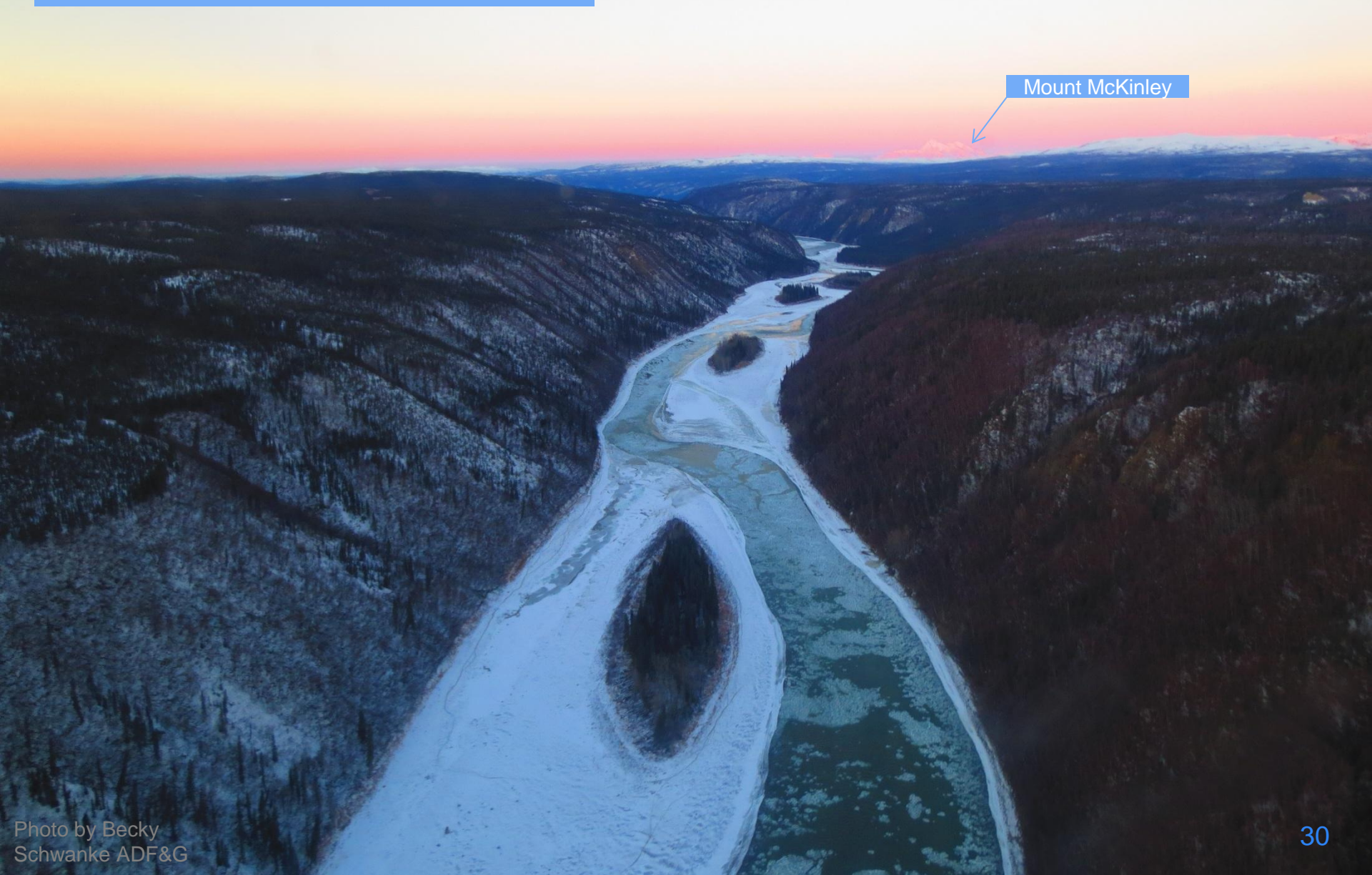


Planning a capture effort in early August at Upper Fog and Watana Lakes.



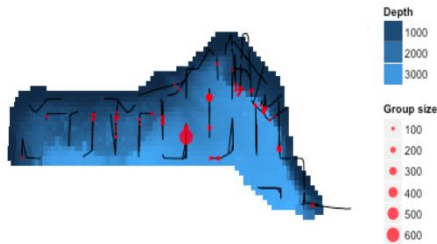
Looking downstream from the proposed dam site

Mount McKinley

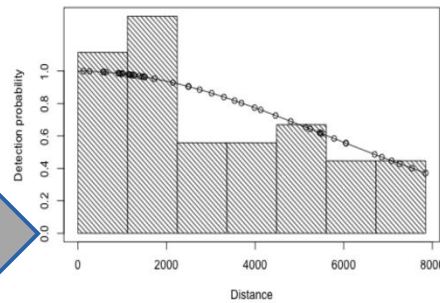


Spatial-line transect modeling will be used to estimate bear populations in the Project vicinity from ADF&G 2000-2004 data.

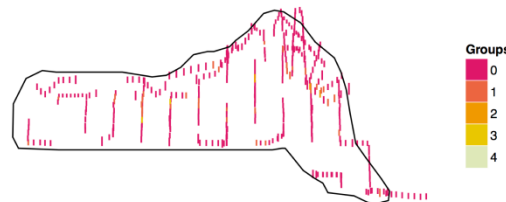
Collect spatially referenced data



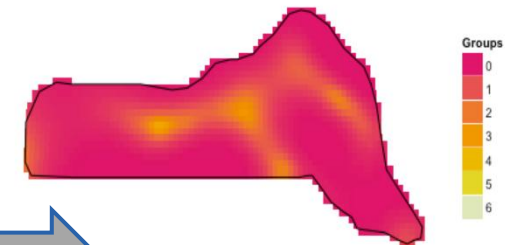
Fit detection function



Aggregate to segments



Fit spatial model



Spatial density surface estimation from distance sampling surveys
David L. Miller, Len Thomas, Laura Marshall