

# Porcupine Caribou Herd



## **SUMMARY OF INDICATORS**

Presentation to:

Annual Harvest Meeting

Inuvik, Northwest Territories

14 -15, February, 2017

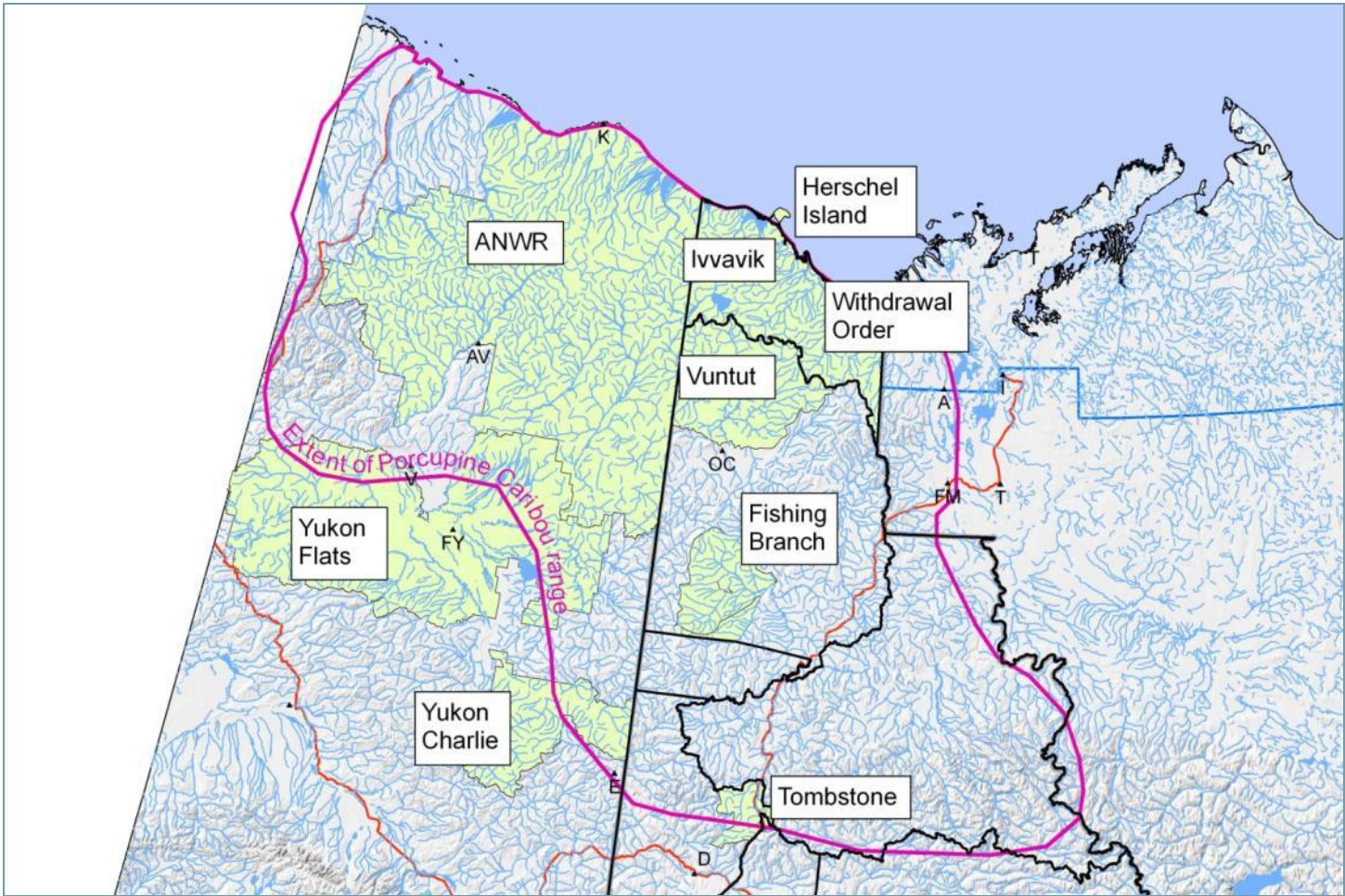
By: Porcupine Caribou Technical Committee

# Who does it?



- Porcupine Caribou Technical Committee  
(Agreement between Gov'ts of Canada and USA - 1987)
  - GNWT
  - Environment Canada
  - Parks Canada
  - Environment Yukon
  - Alaska Department of Fish & Game
  - US Fish & Wildlife Service
  - \* PCMB and GRRB are Tenured Observers

# Range of Porcupine Caribou Herd





Distribution

Population

Harvest

Body

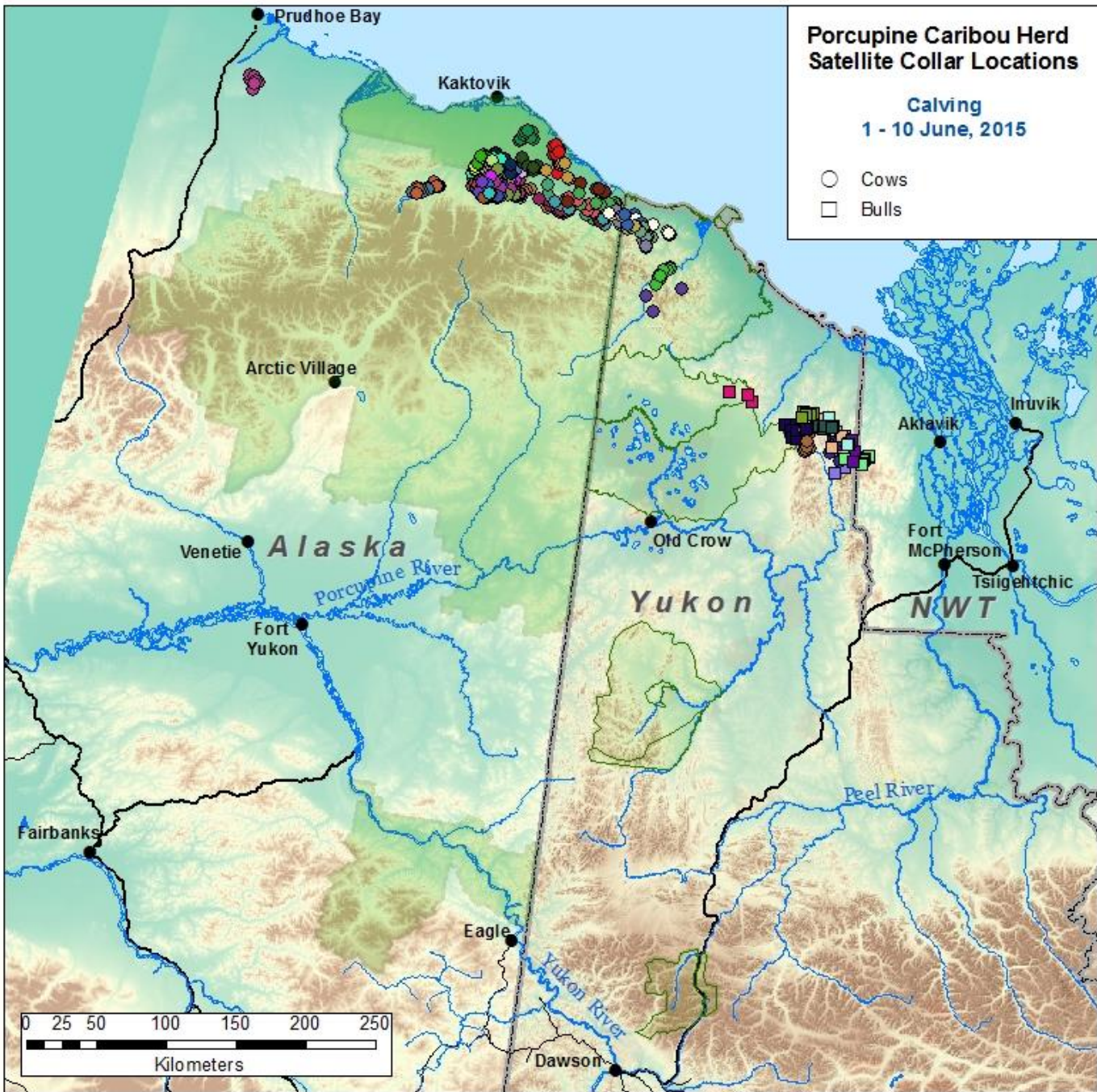
Condition

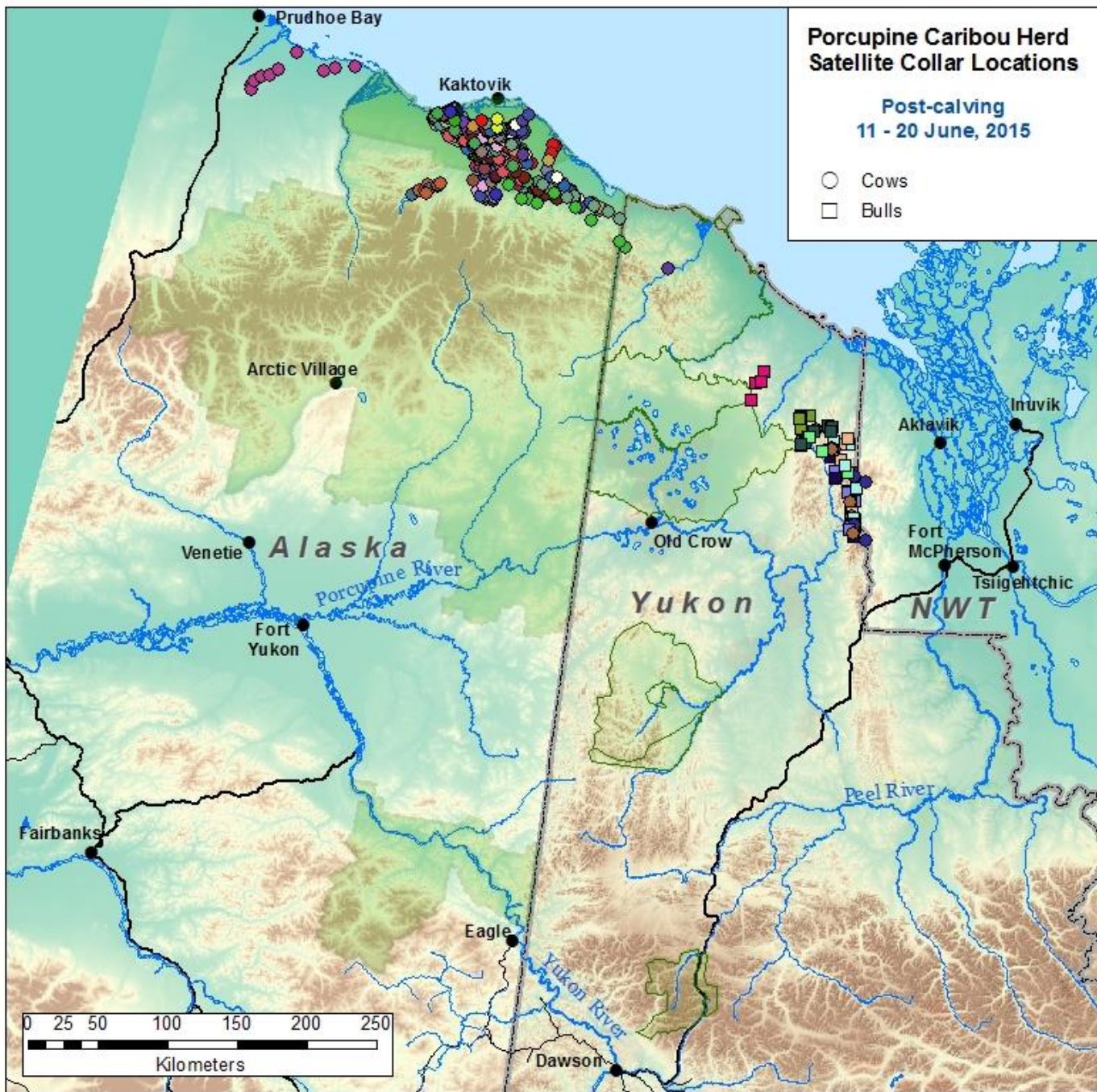
Habitat

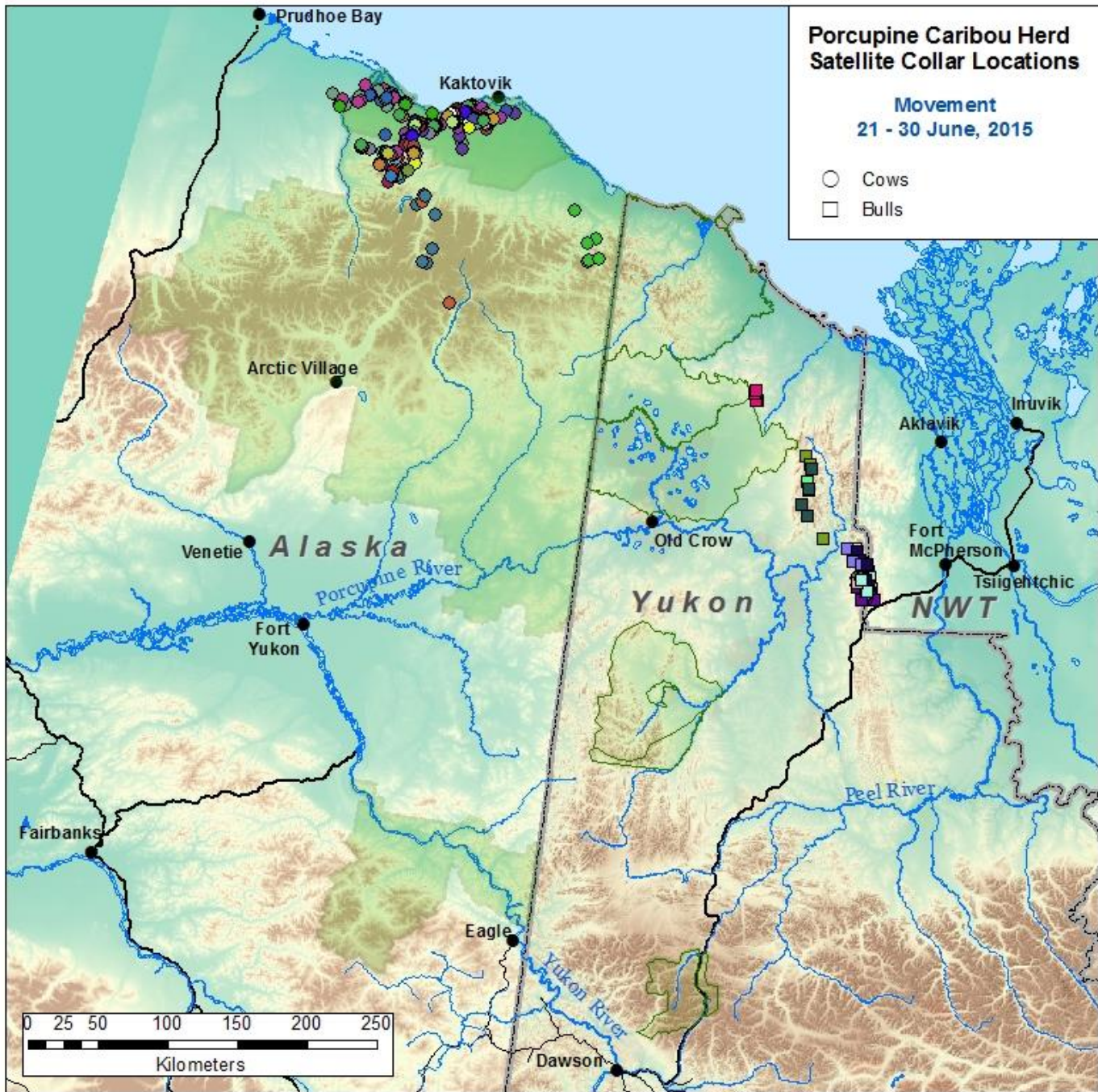


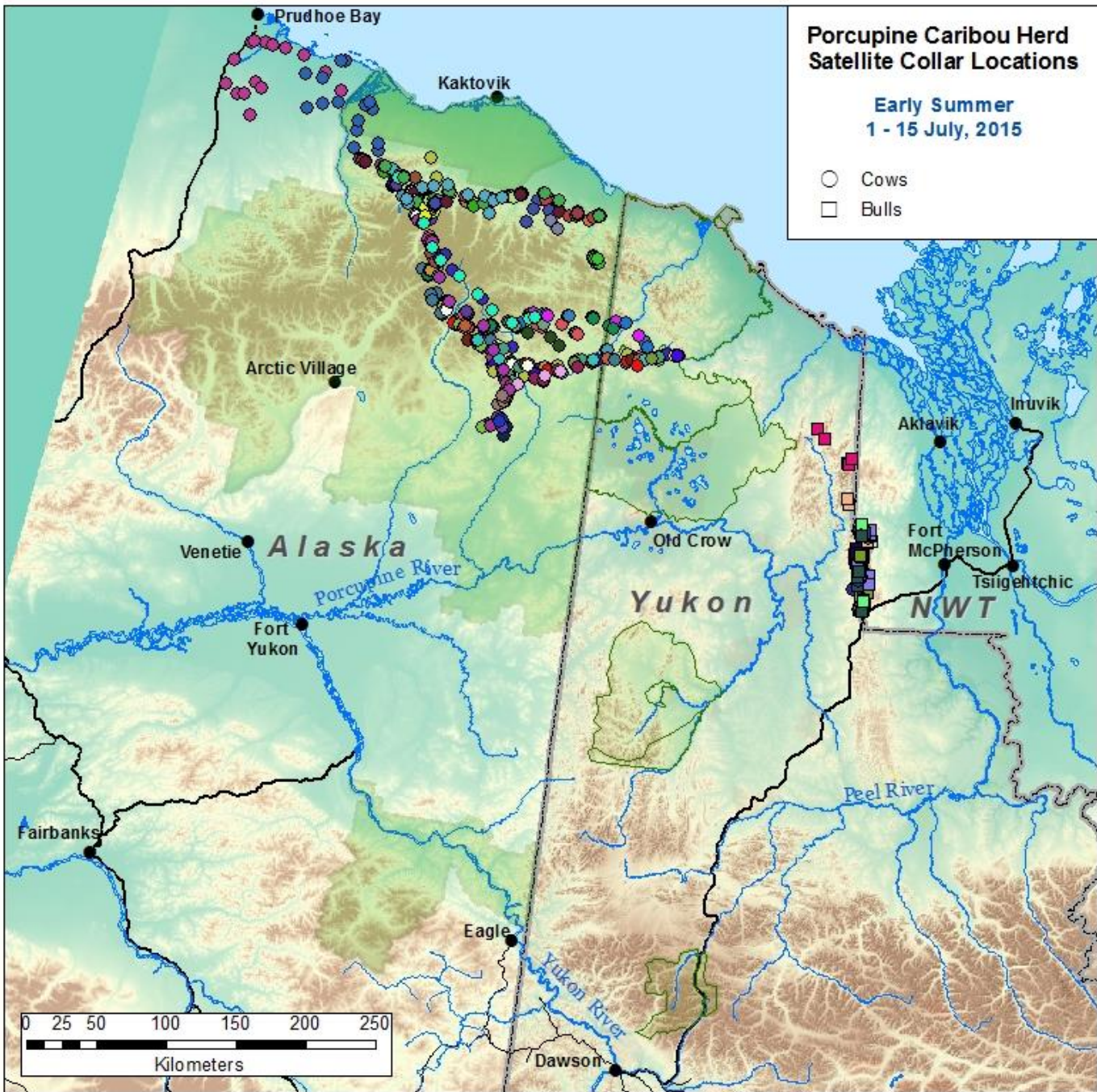
## Overview

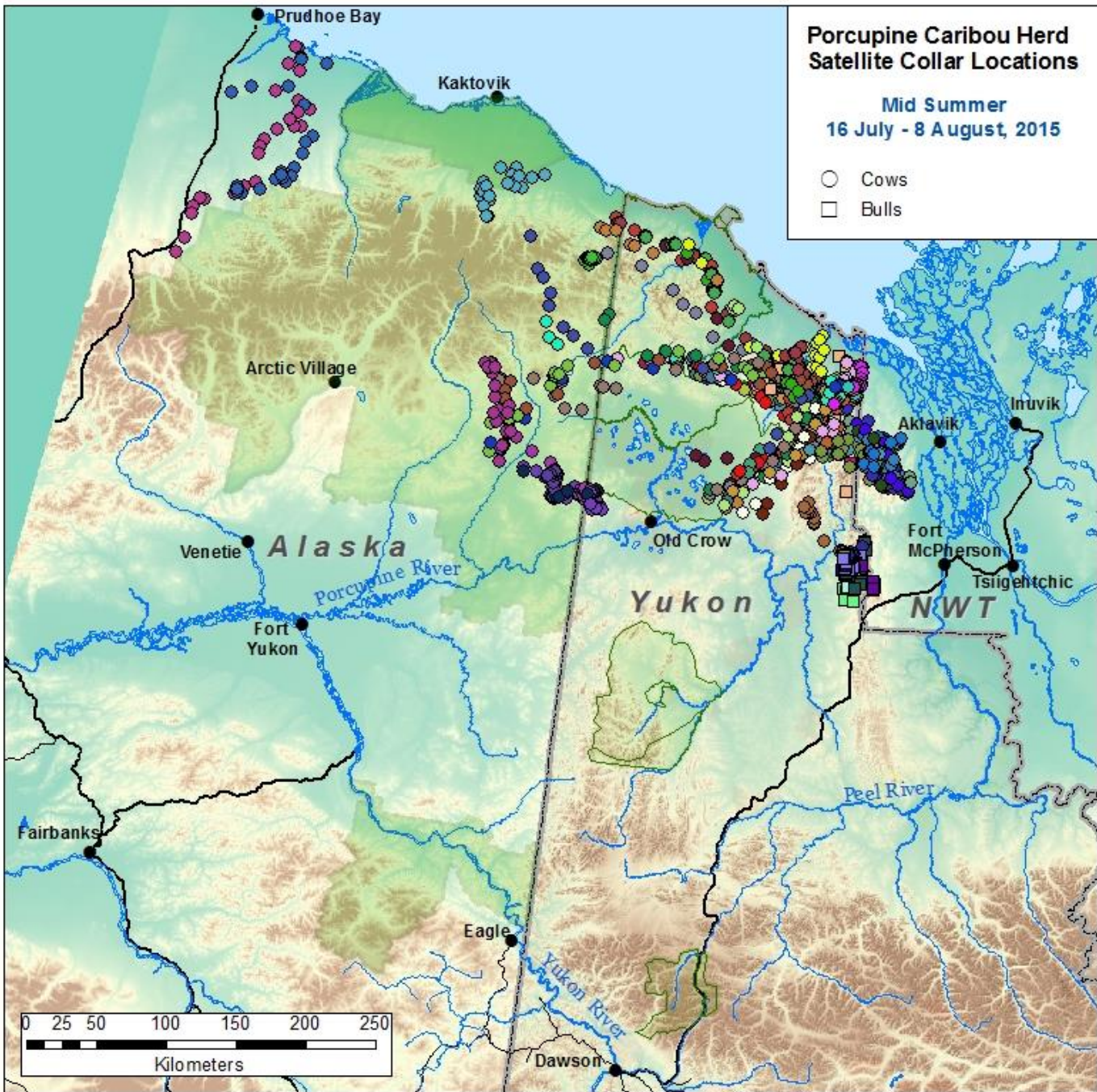
*Yukon Environment*

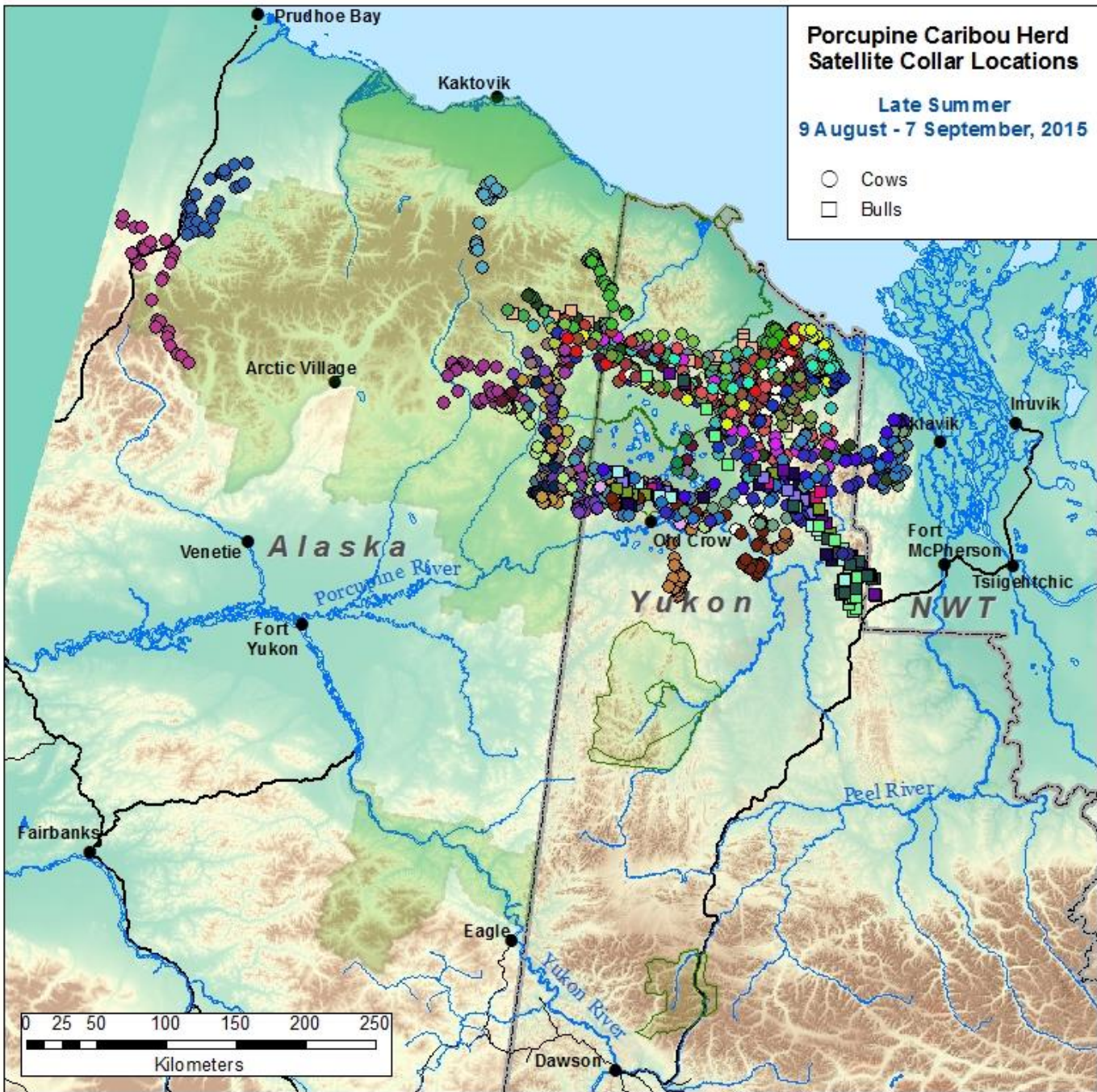


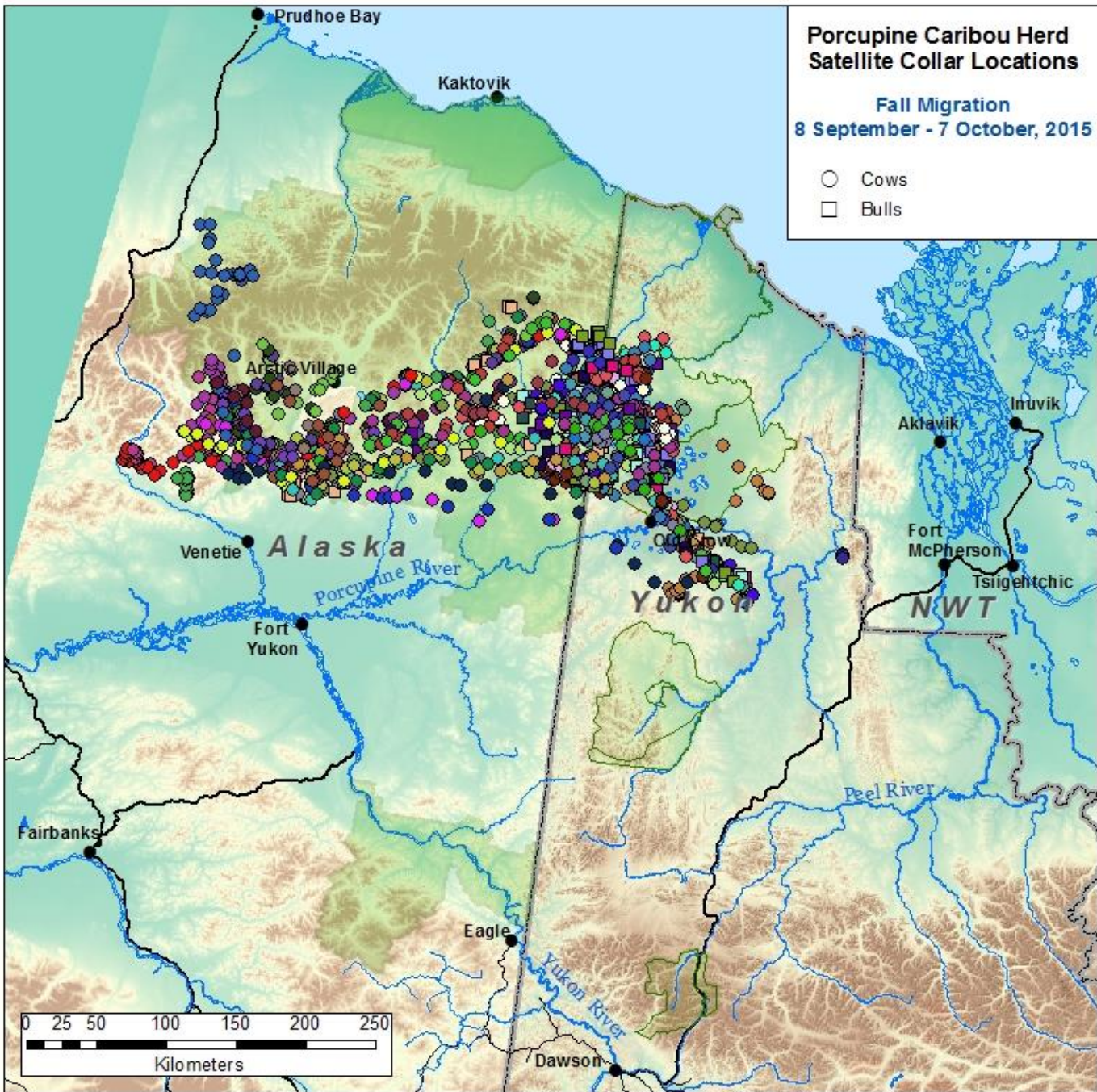


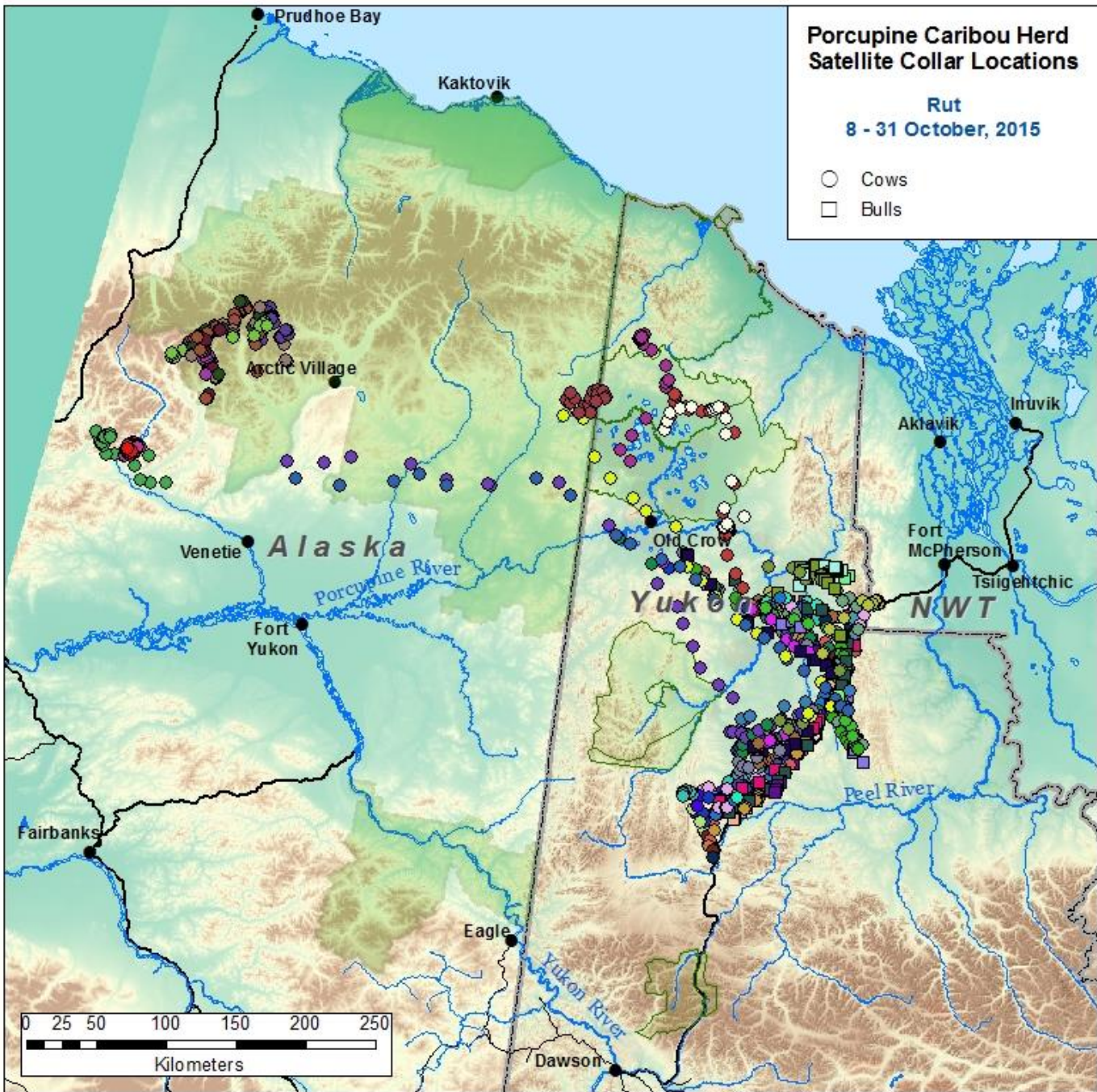


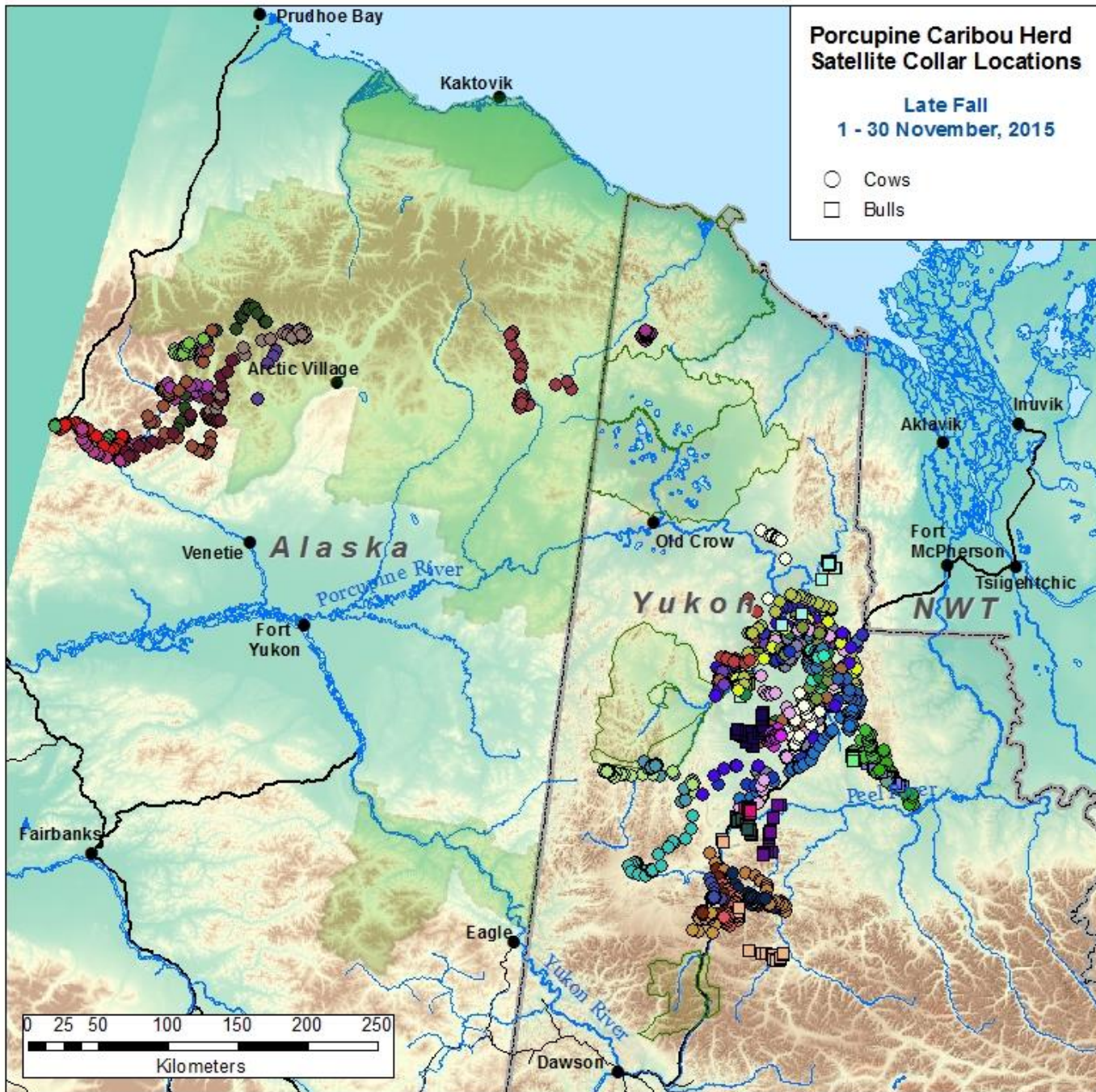


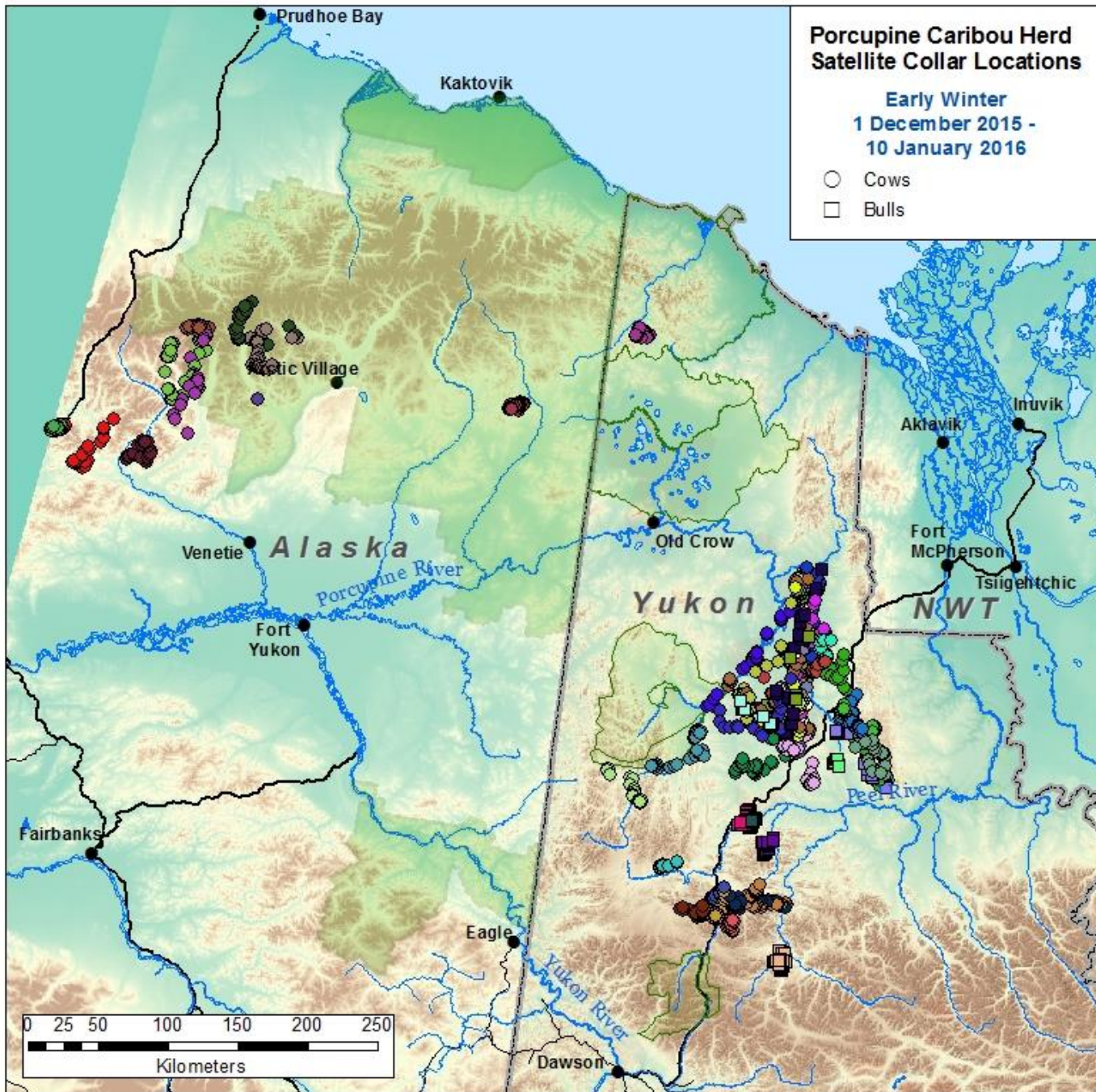


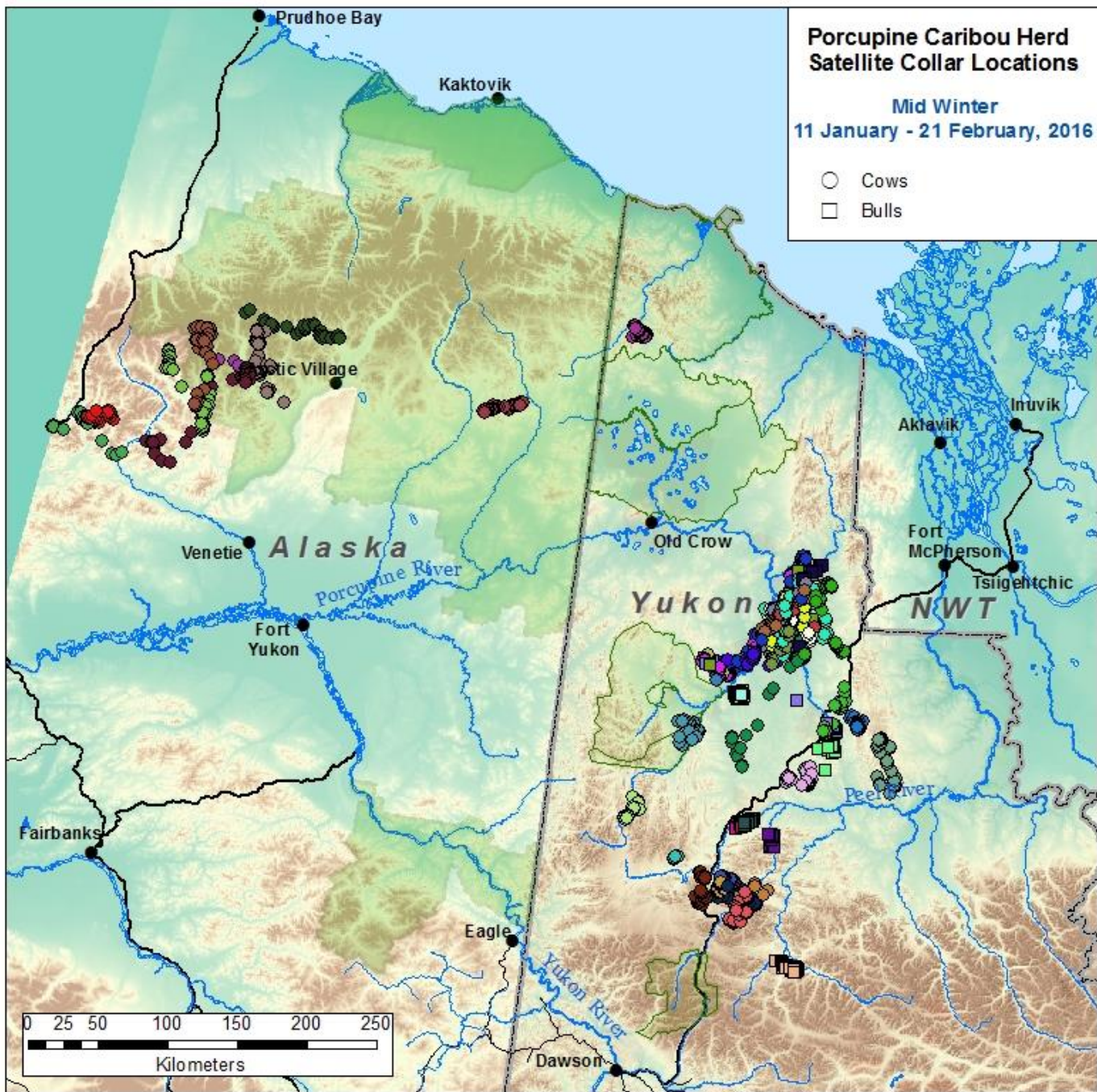


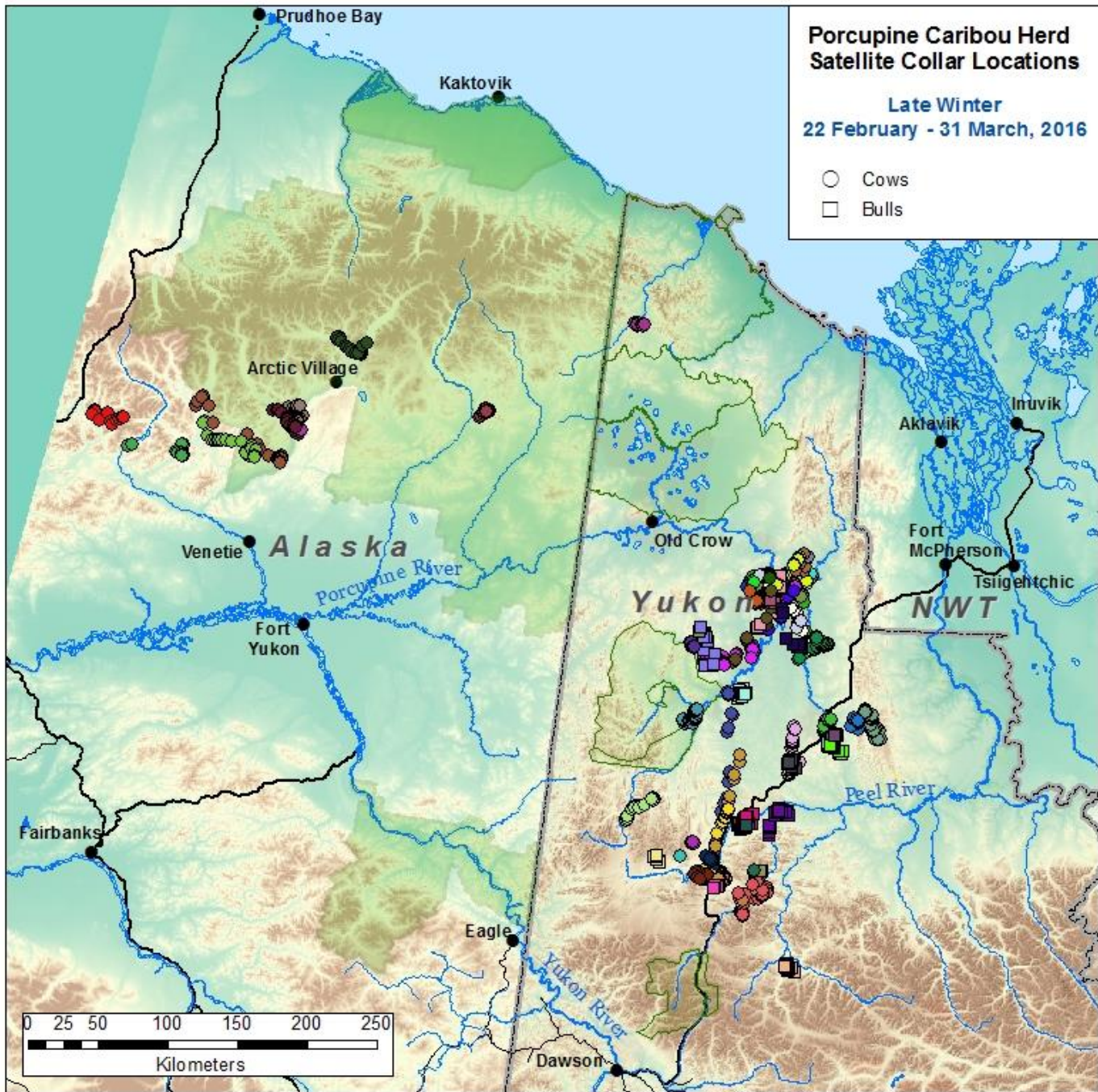


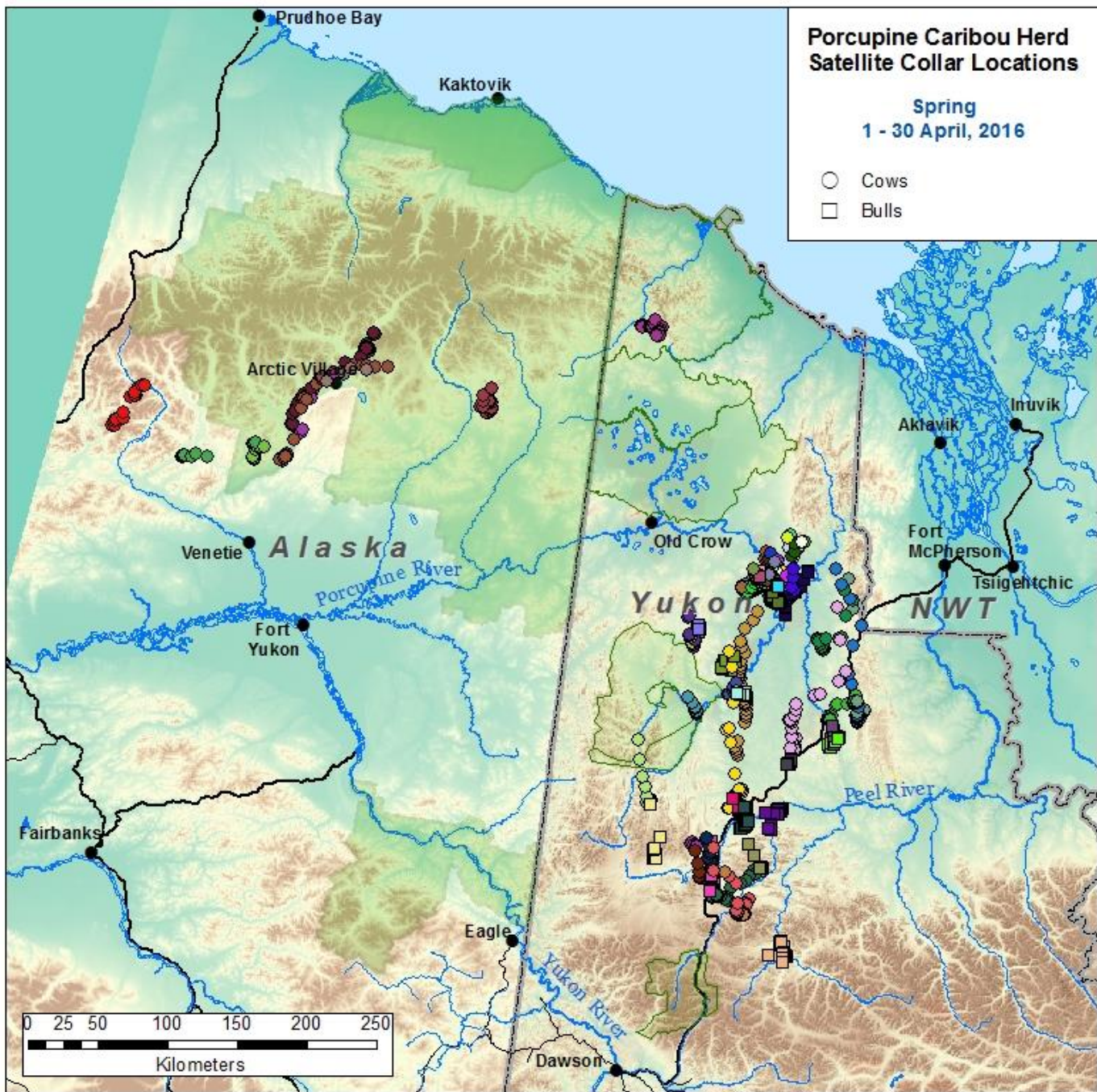


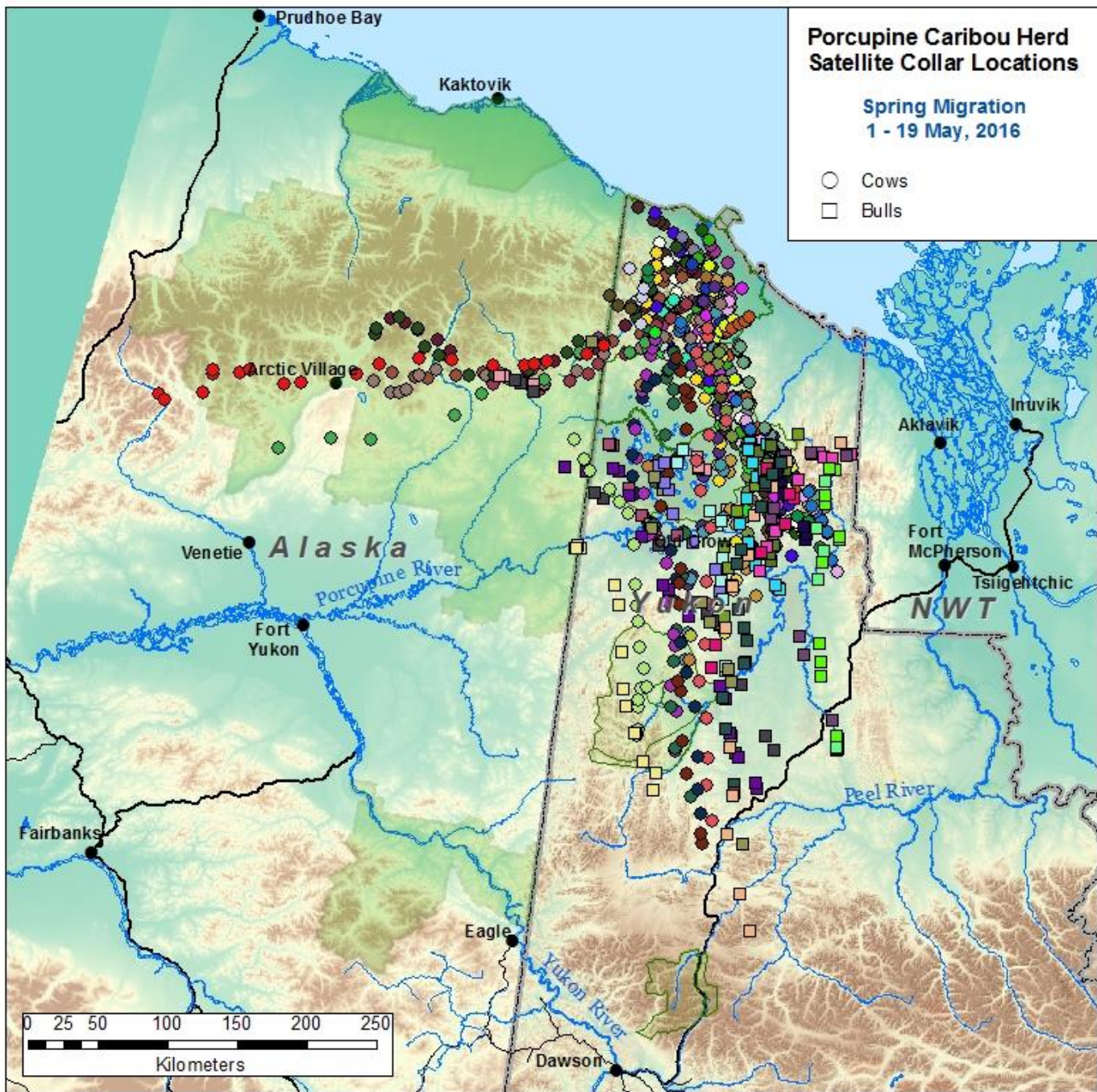


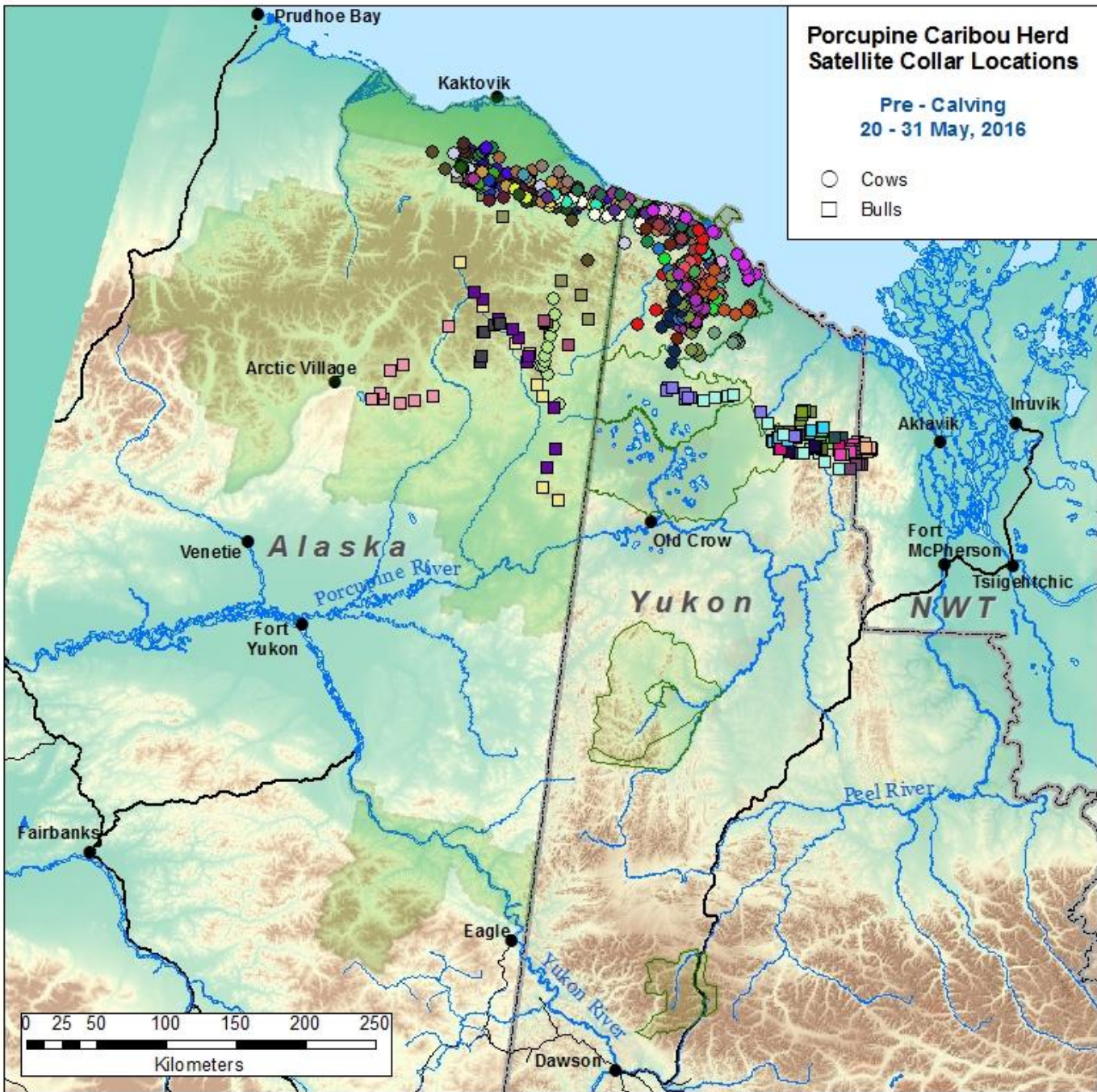


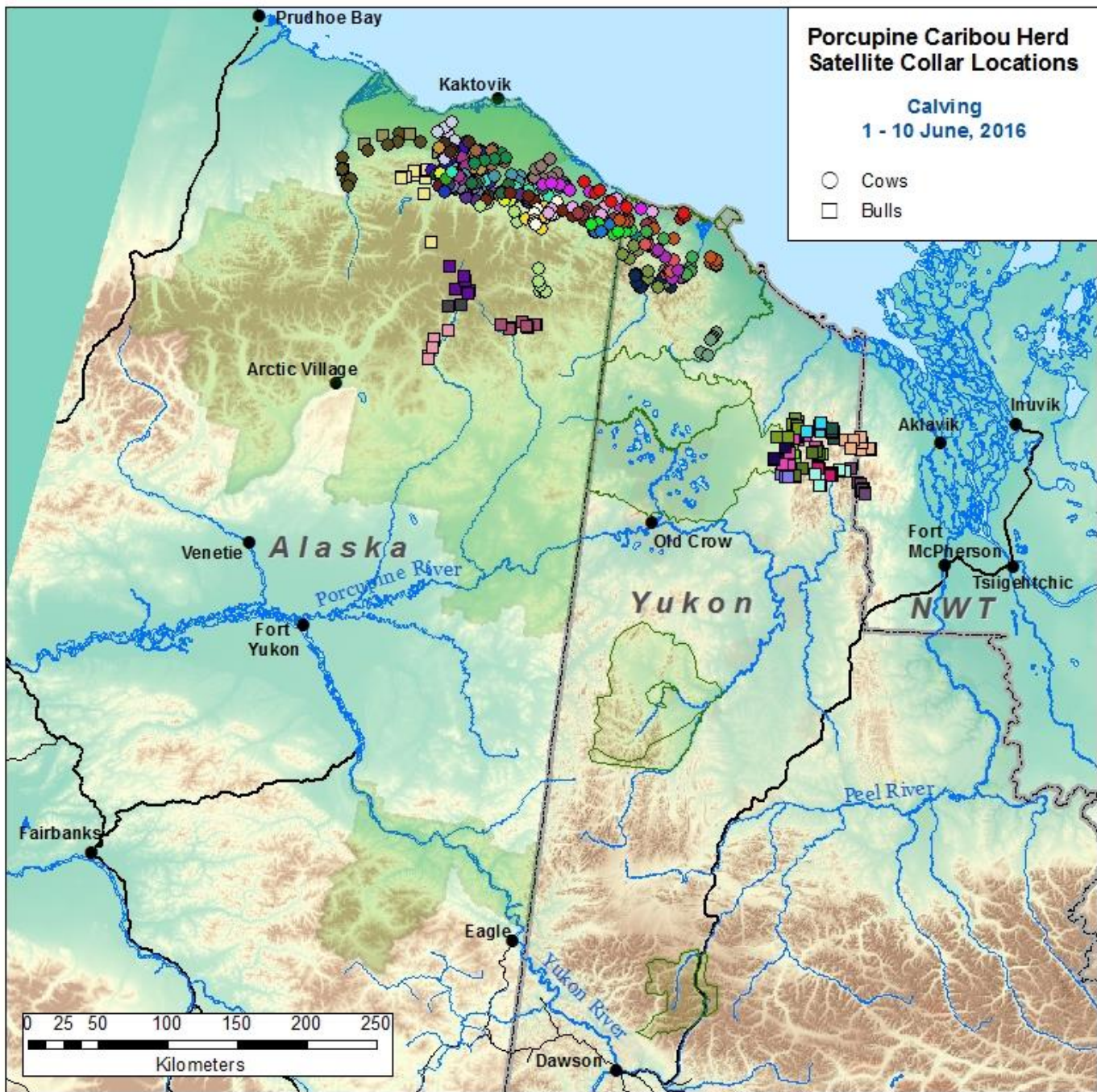














Distribution

Population

Harvest

Body

Condition

Habitat



## Overview

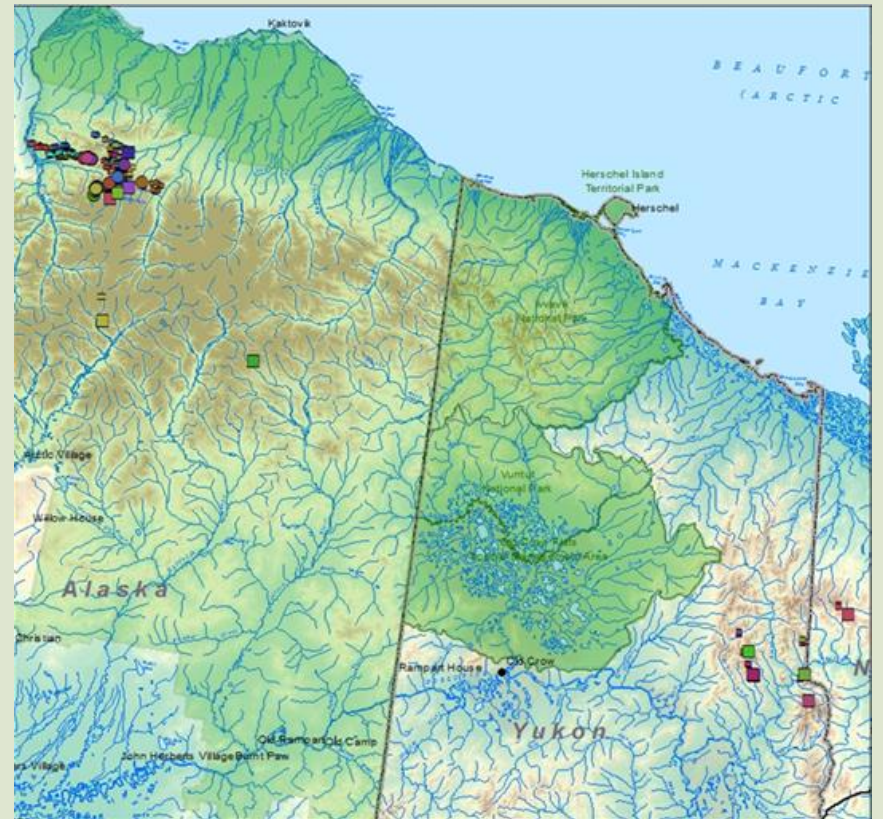
*Yukon Environment*

# Population Size

## Methods

- Count caribou using a photocensus
  - *Attempted July 2-3<sup>rd</sup>, 2016*
  - *Unsuccessful due to poor lighting conditions*

## Results

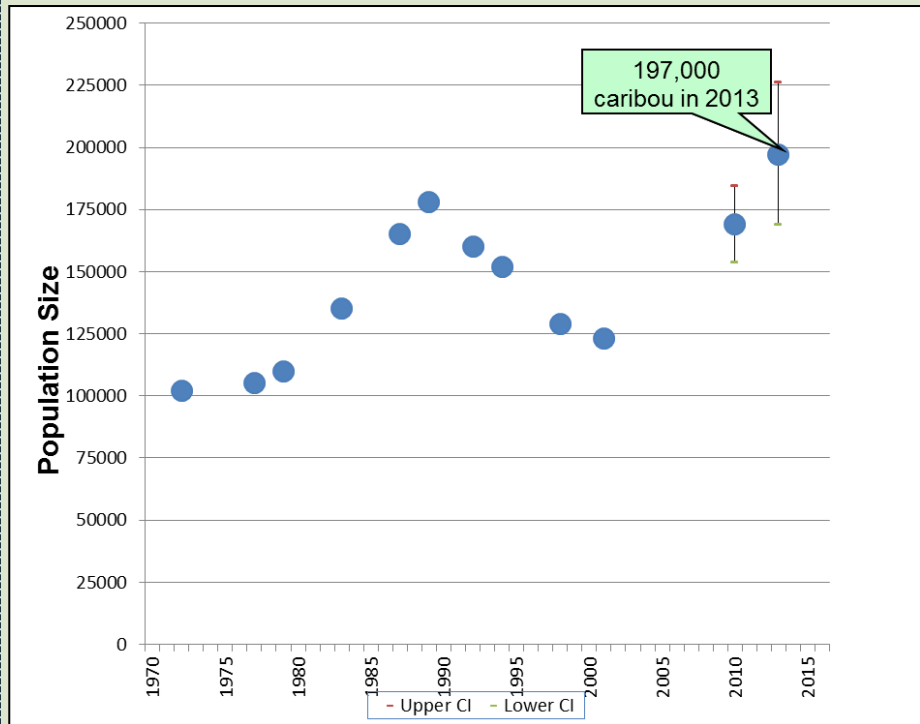


# Population Size

## Methods

- Last completed in 2013
- 197,228 caribou (168,667-225,789)
- Increasing trend

## Results

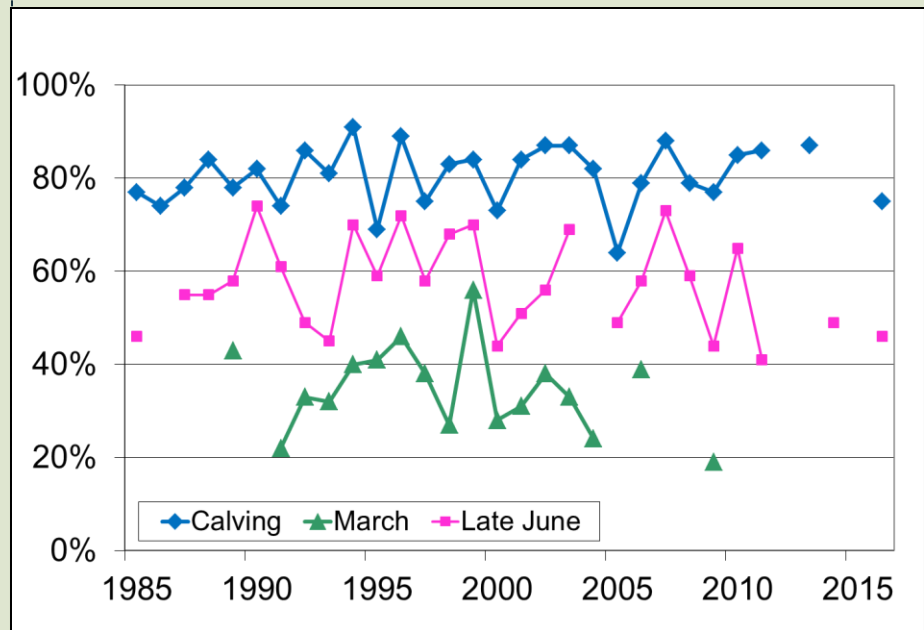


# Calf Birth Rate and Survival

## Methods

- Classify pregnancy on calving grounds
  - *75% of females pregnant*
- Check to see how many calves survive after 1 month
  - *61% calves survived*
  - *After 1 month: 46 calves per 100 cows*

## Results

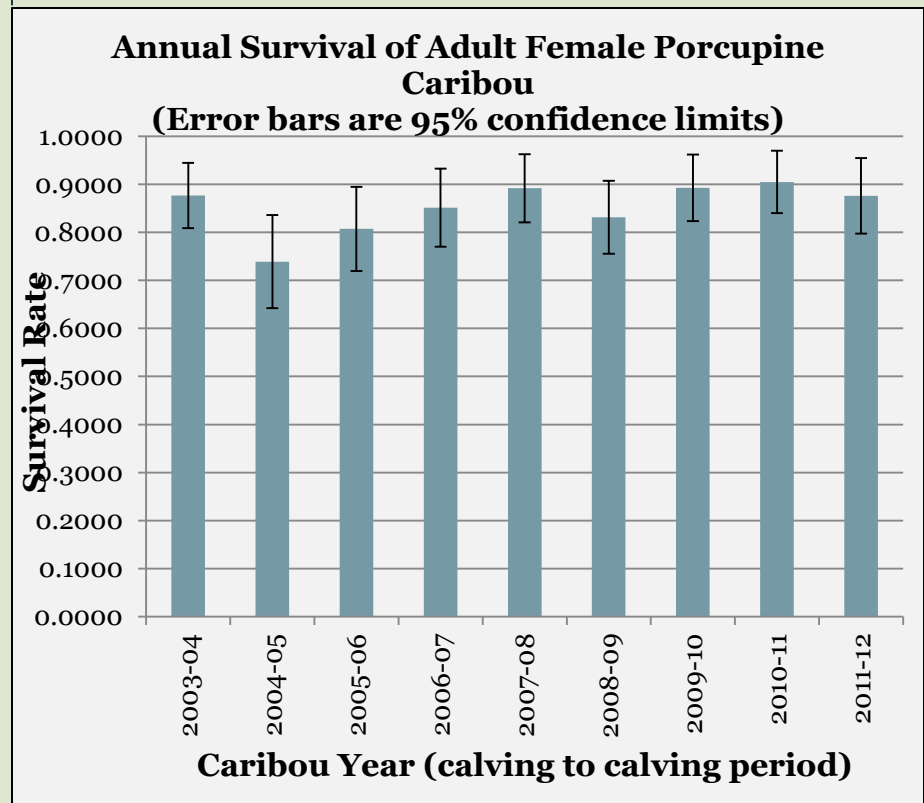


# Adult Female Survival

## Methods

- Percentage of females that survive each year
  - *Last completed 2012*
  - *Priority for the PCTC to assess using satellite GPS collars (ADF&G lead)*

## Results



# Adult Female and Calf Abundance



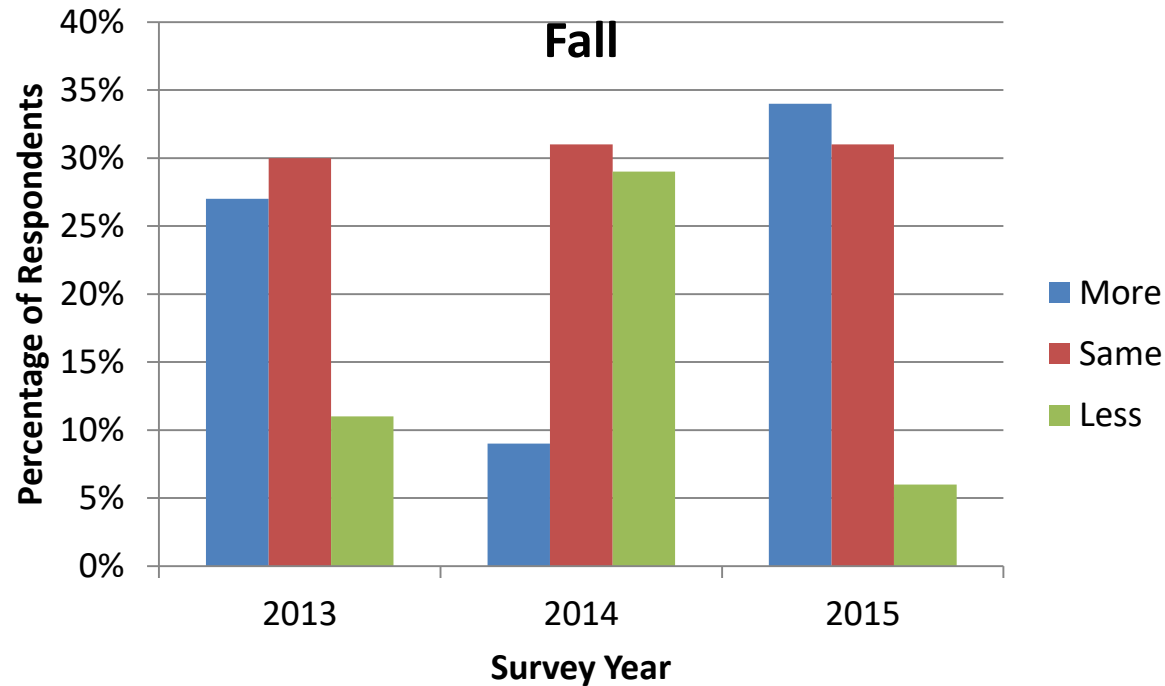
## Methods

- ABEKC interviews
- “In your observations for each season, were there more, equal or fewer adult female caribou over the last year than usual”?
- Interviews from 130 respondents in 2015

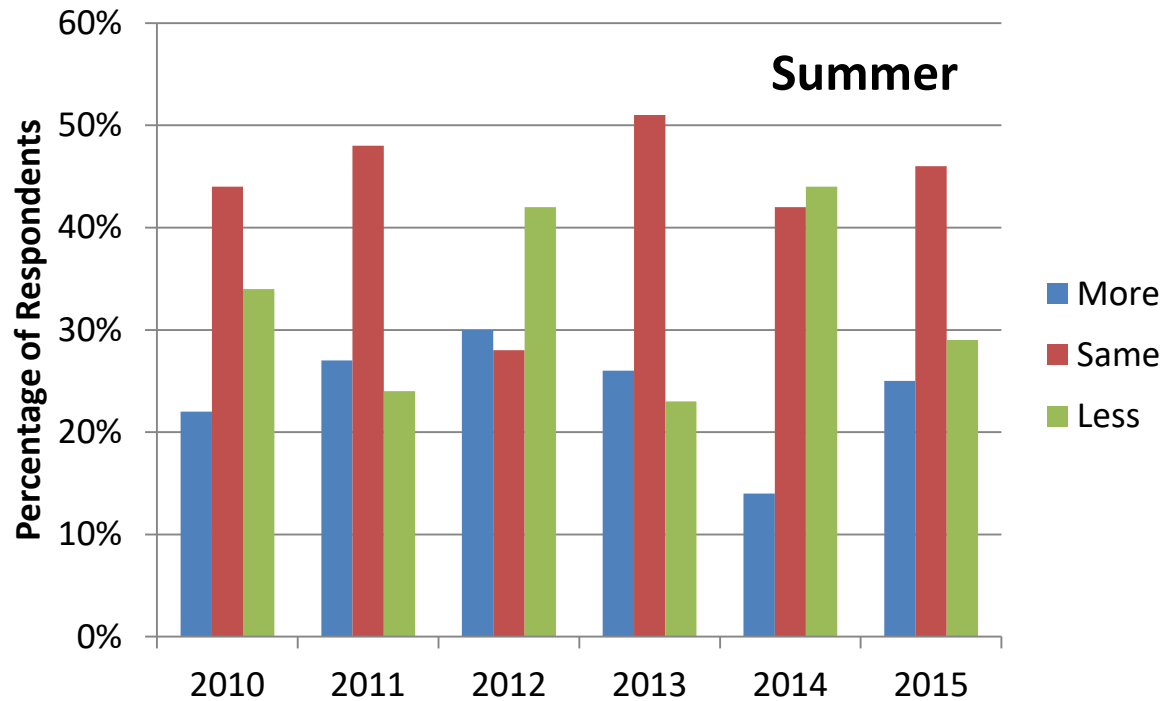
## Results

- Average for 2015
  - Adult females – “same”
  - Calves – “same”

# Adult Female Abundance (ABEKC)



# Calf Abundance (ABEKC)



# Adult Sex Ratio



## Methods

- Determine the ratio of bulls to cows in the fall
  - *Scheduled for October 2017*
- 2010 = 57:100 (Bull:Cow)



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# Population Roll Up



- No census in 2016
- Population trend was increasing in 2013
- Pregnancy rate below average
- Calf survival slightly below average



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Distribution  
Population  
Harvest  
Body  
Condition  
Habitat



## Overview

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# Harvest Monitoring



## Methods

1. ABEKC interviews
  - “Were your needs met for caribou this year”?
2. Interview based sampling survey of user groups
  - Harvest estimates, sex ratio of harvest
  - Rob Florkiewicz presenting

## Results

- ABEKC interviews - 2015
  - Majority (79%) met their needs
  - Higher than average (65%)
  - Increasing trend since 2010



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# Caribou Body Condition



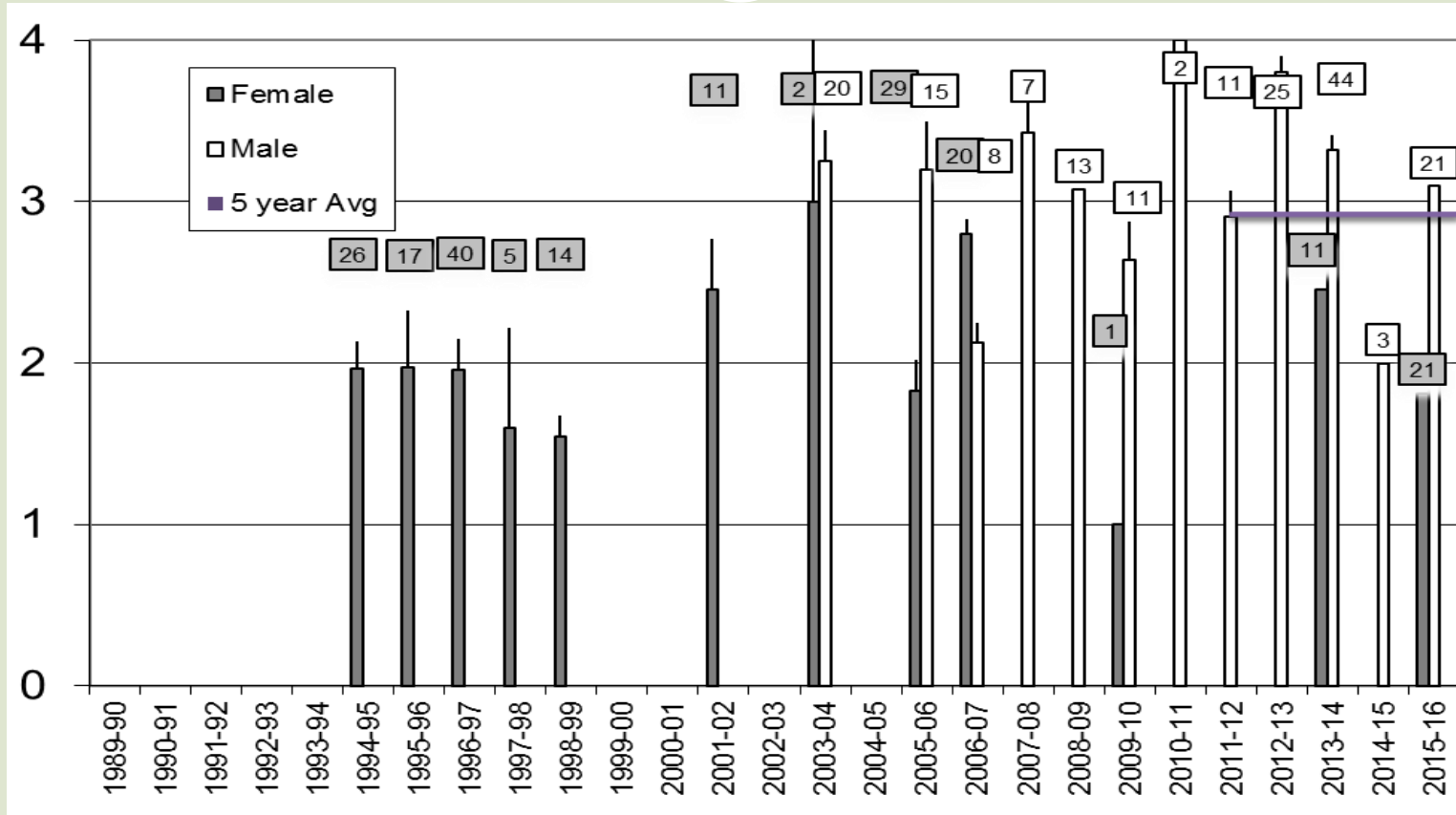
## Methods

- How healthy individual caribou are by measuring back fat
  - *Fall and winter 2015-2016 hunter samples submitted (Old Crow and NWT)*
  - *21 cows and 21 bulls sampled*

## Results

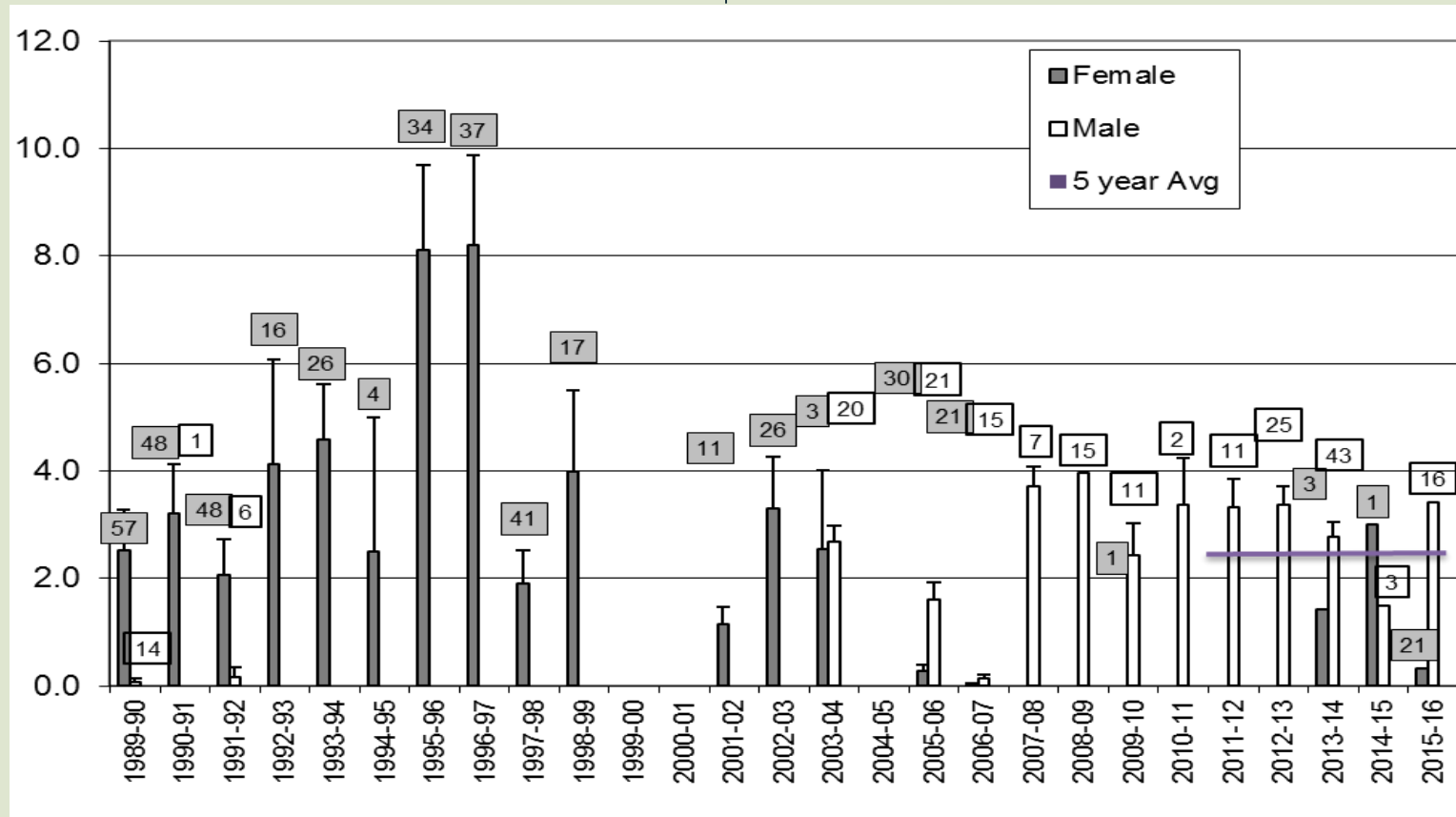
- Cows - body condition and backfat below average
- Bulls – body condition and backfat above average

# Caribou Body Condition



**Average condition of harvested caribou**  
**1=poor, 2=fair 3=good 4=very good**

# Caribou Body Condition



**Average Depth of Backfat (cm)**

# Caribou Body Condition



## Methods

- ABEKC interviews
- “What was the condition of caribou you observed in each season”?
- Index for entire herd
- Interviews from 35-87 respondents depending on season in 2015

## Results

- 2015 - Most often in “good” condition in all seasons



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## Overview

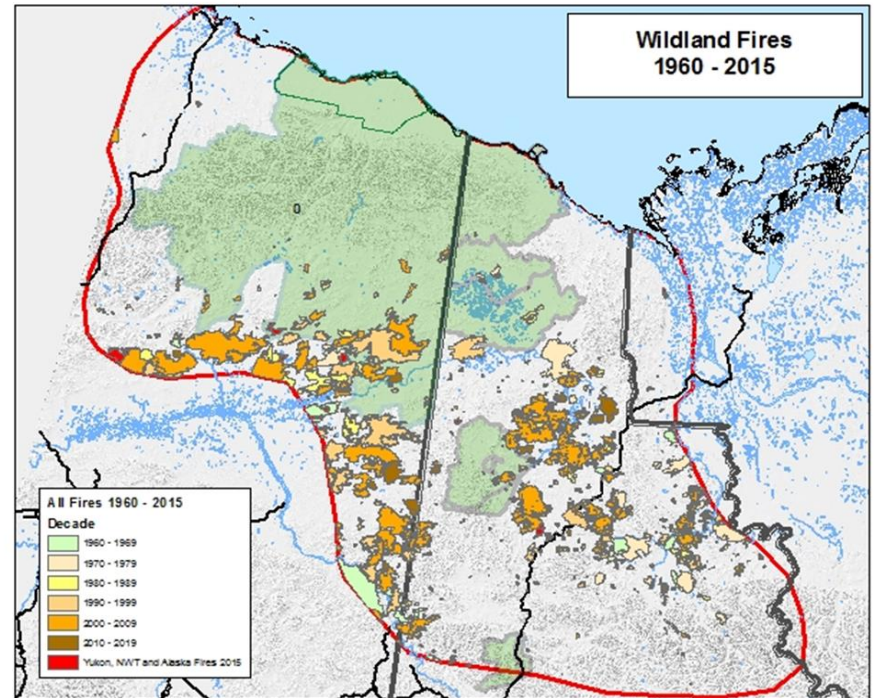
*Yukon Environment*

# Wildland Fires

## Methods

- Amount of PCH range burned as an index of range condition
- 1960—2015

## Results

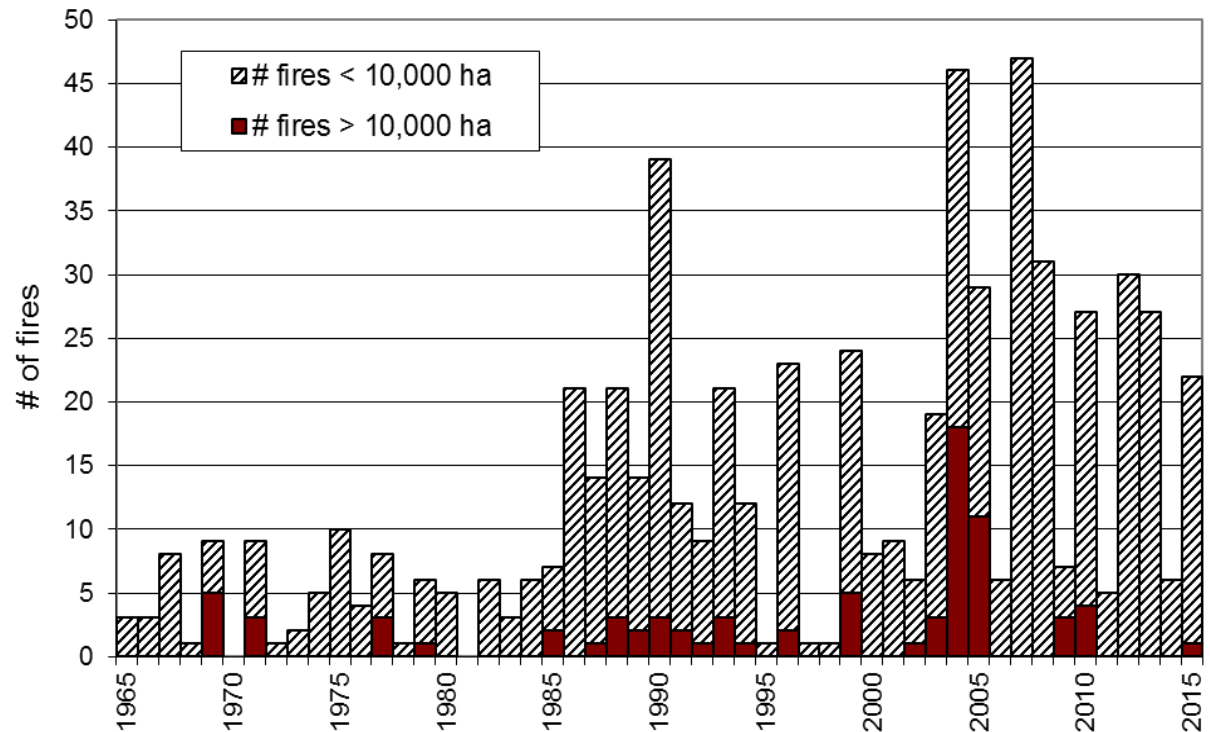




In 2015 there were 6 fires in the Yukon, 12 fires in Alaska, and 4 fires within the NWT portion of the PCH range.

The largest fire was ~67 km<sup>2</sup> in the Yukon.

Total number of fires and number of large fires (greater than 10,000 hectares) in PCH range, by year

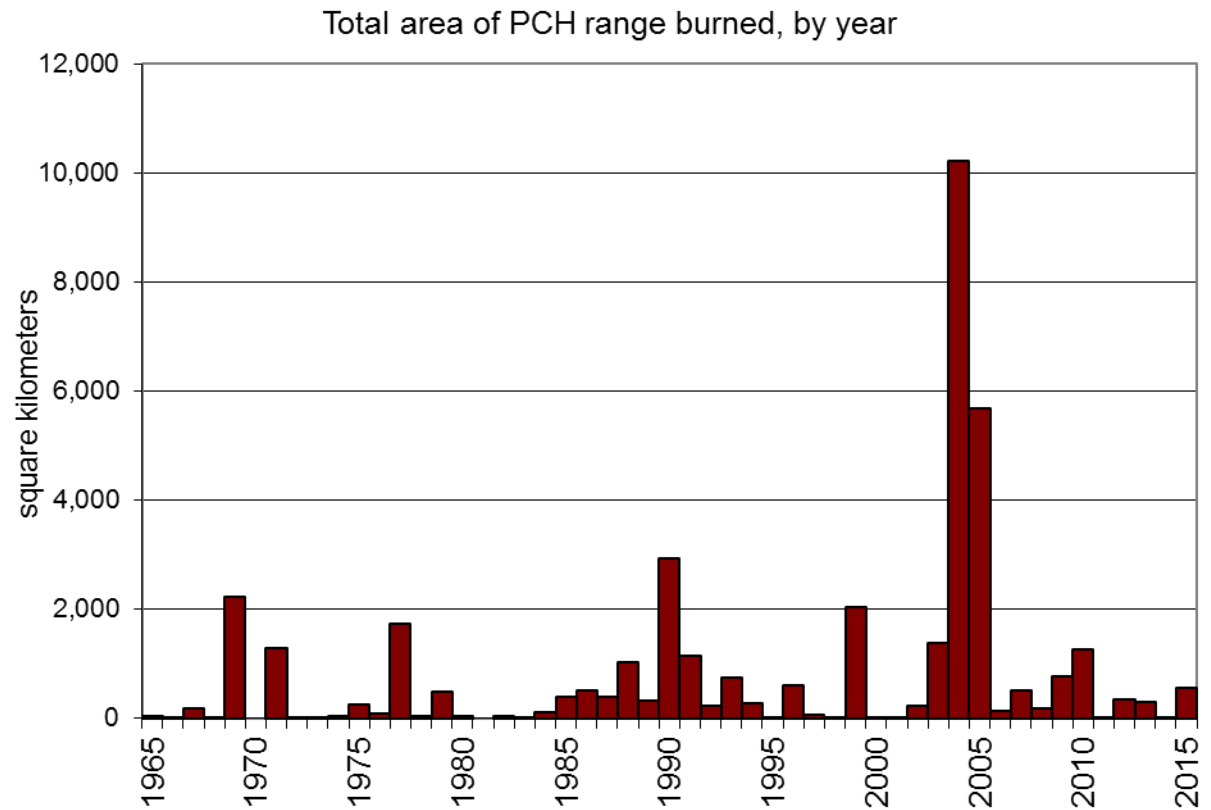


## Wildland fires in PCH Range



Twice the 5 year average compared to the previous 5 years.

Total area burned is roughly 15% of herd's total annual range since 1960.

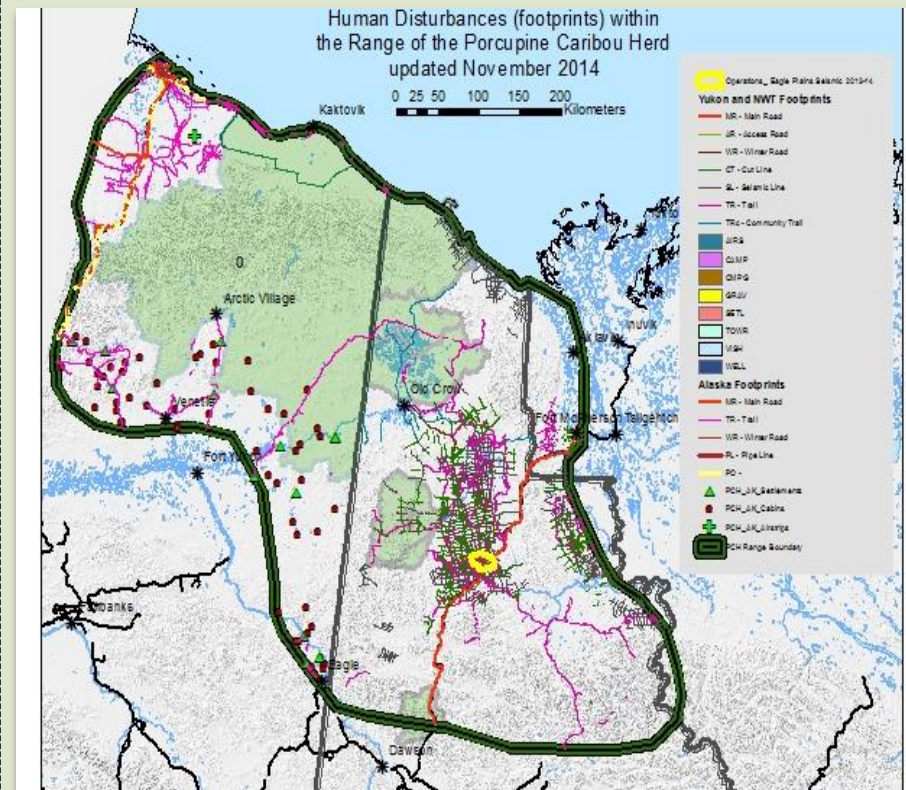


# Wildland fires in PCH Range

# Human Disturbance and Footprint

## Methods

- Measured total linear footprint for each disturbance type
- No appreciable change in linear footprint in 2015/2016



# Snow Conditions



## Methods

- Index of snow depth and hardness
- Measurements of depth and snow density measured at 17 permanent locations
- 1977-2016

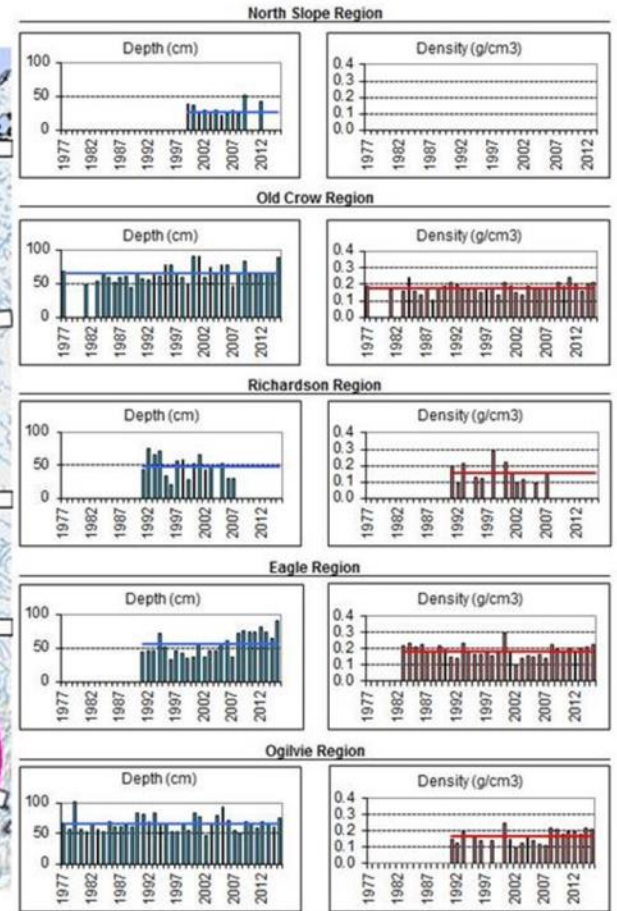
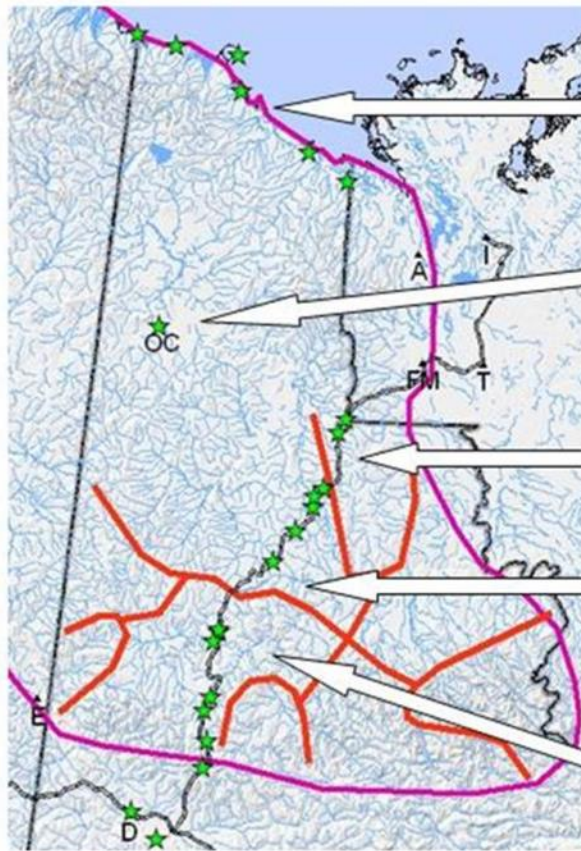


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No trends or large changes from long term averages

Peel River drainage = slightly below average snow depth, average density

Porcupine River drainage = above average snow depth, average density



# Snow Conditions

# Extreme Weather Events



## Methods

- ABEKC interviews
- Asked to identify months when they observed unusual, extreme or rare weather-related events
- Interviews from 130 respondents for 2015

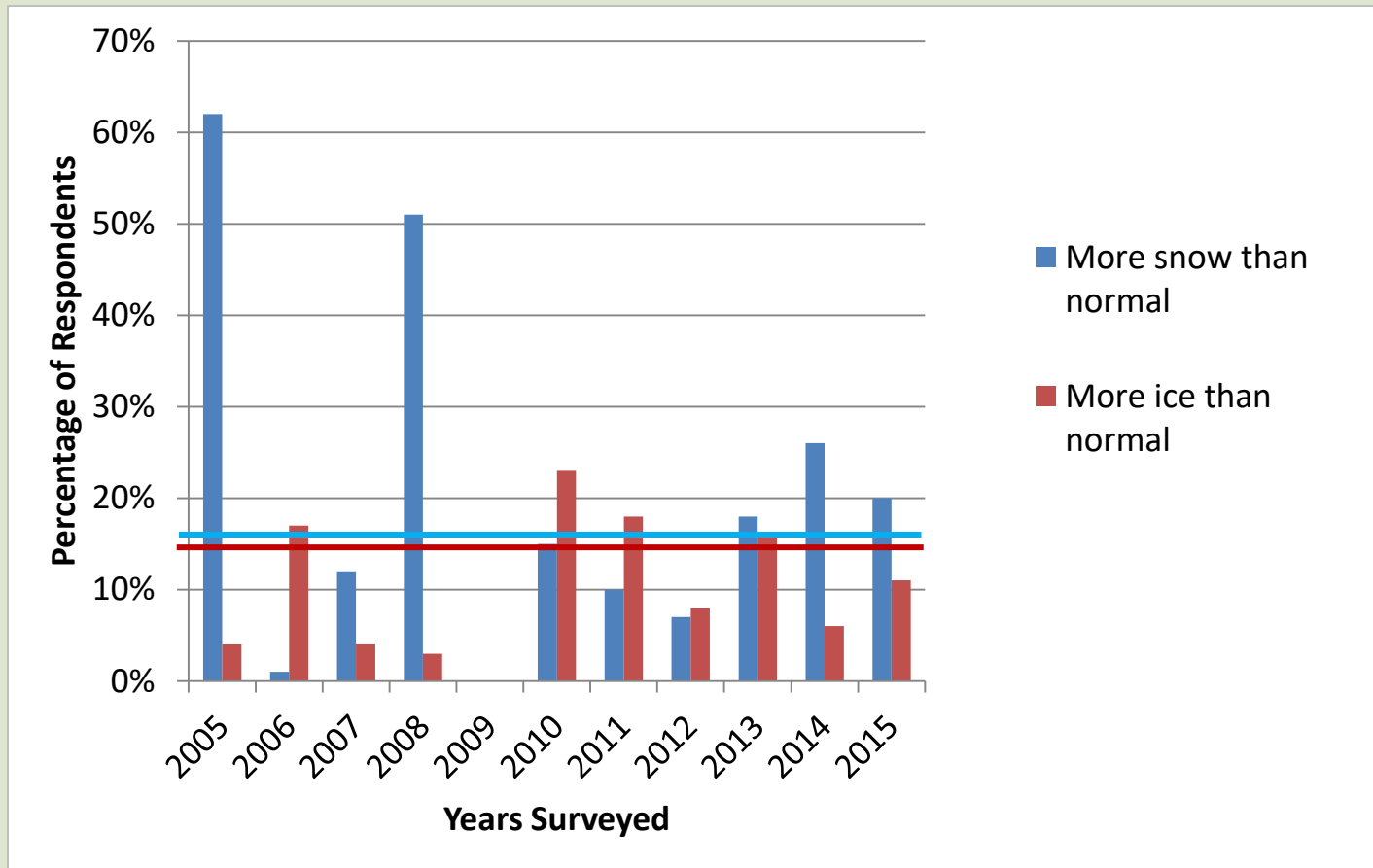
## Results

- Early winter - 2014
  - Above average “more snow”
  - Slightly below average “more icing events”
- Late winter - 2015
  - Above average “more snow”
  - Above average “more icing events”

# Extreme Weather Events



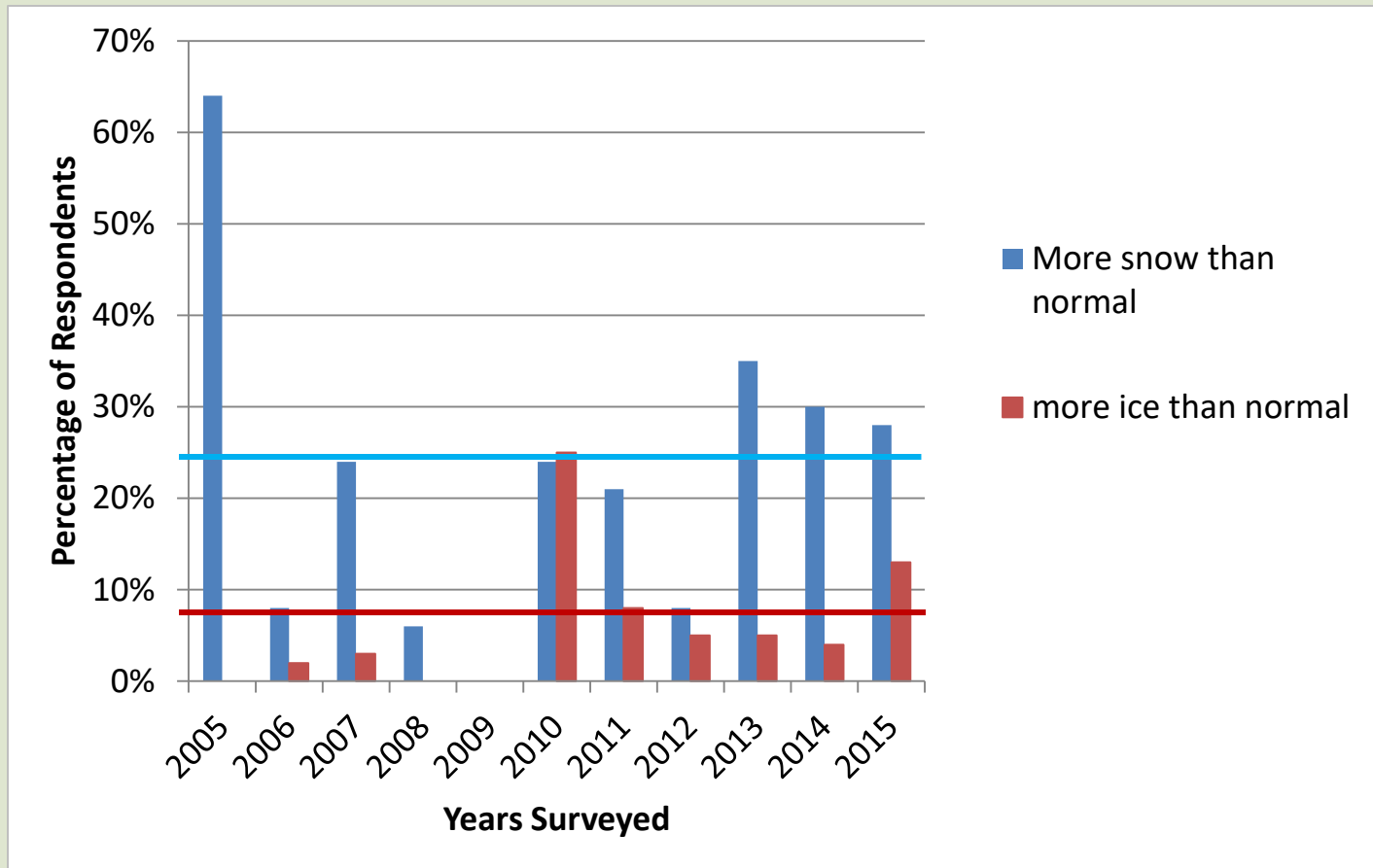
## Early Winter 2014



# Extreme Weather Events



## Late Winter 2015



# Habitat Roll Up



- Habitat did not change much over the year
- Snow conditions above average where caribou spent most of the early and late winter



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# Interpretation



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# Science and TK assessments



Indicator	Scientific (2015)	Traditional Knowledge (2015)
Population trend	No data	No data
Adult cow survival	No data	More than usual in winter (average) Fewer than usual in spring (slightly higher than average) Similar in summer (slightly higher than average) More than usual in Fall (higher than average)
Late June calf:cow ratio	No data	Equal calves in summer (above average)
March calf:cow ratio	No data	Equal calves in winter (average)
Total harvest	No data at time of report	Hunters needs met for caribou
Snow conditions winter	Significantly deeper than average snow depth in Eagle and Old Crow regions, above average snow depth in Ogilvie No deviation from long term average No icing event data collected	Above average snow in fall and winter Below average icing events in fall and above average in winter
Condition of caribou	Higher than average backfat (Fall 2015) Higher than average hunter assessment (Fall 2015)	Most often good in across all seasons

# Indicator Table - Nov. 2016

Indicator	Value	5 or 3 year average	Notes	Assessment and Year Represented
<b>Population size and trend</b>				
Population size	2016 = no data	--	Attempted, poor light conditions for photo. Last census in 2013 (197,000).	No assessment (2016)
Population trend	2016 = unknown	--	Declined by 55,000 caribou between 1989 and 2001. Recovered to 169,000 by 2010 and continued to increase to 197,000 in 2013.	No assessment (2016)
Adult cow survival	2016 = no new data	0.879	Small differences in the annual survival of adult cows is key in determining the population trend for the herd. The last estimated survival rate (2011-12) was relatively high and was indicative of a growing population at that time. No new data has been collected since this last estimate.	No assessment (2016)
Calf birth rate	2016 = 0.75	0.81	29-year average = 0.81	Below average (2016)
Late June calf:cow ratio	2016 = 0.46	0.48	27-year average = 0.57	Below average (2016)
March calf:cow ratio	2016 = no data	--	17-year average = 0.35. Last successful survey 2010 (2009 birth year). Surveys attempted from 1989-2012.	No assessment (2016)
Bull Ratio	2016 = no data	--	Next survey scheduled for 2017.	No assessment (2016)
Peak of calving	2016 = June 1	1 June	Surveys occurred on June 3-4th so peak was estimated from size and mobility of calves	Average (2016)

# Indicator Table - Nov. 2016



Body condition				
Average backfat	F: 0.3 cm; M: 3.4 cm	2.6 cm	Caribou were available to hunters in Old Crow from mid-August thru late September and again late October thru late winter. Caribou were available on the Dempster Highway from mid-October thru late winter. Roughly equal number of bulls and cows evaluated; though harvested at different time periods. As expected, caribou harvested in September were in much better shape than in October.	Higher than average (Fall 2015)
Hunter assessment	F: 1.8 M: 3.1	2.9	Roughly equal number of bulls and cows evaluated, harvested at different time periods; as expected, caribou harvested in September were in much better shape than in October	Higher than average (Fall 2015)
Condition of caribou	Generally good	N/A		Good (2015-16)
Habitat and other considerations				
Snow conditions winter (2015-16)	<u>Snow Depth</u> Eagle = 78.3 cm Ogilvie = 61.3 cm Old Crow = 79.0 cm North Slope = no data Richardson = no data  <u>Snow Density</u> Eagle = 0.18 g/cm <sup>3</sup> Ogilvie = 0.21 g/cm <sup>3</sup> Old Crow = 0.18 g/cm <sup>3</sup> Richardson = no data North Slope = no data	<u>Depth</u> 77.4cm 66.6 cm 72.9 cm no data no data  <u>Density</u> 0.20 g/cm <sup>3</sup> 0.20 g/cm <sup>3</sup> 0.19 g/cm <sup>3</sup> no data no data	Spring precipitation, temperature and snowmelt appeared normal in most areas. Averages presented are for the length of record for each Region and are not 5 year averages.	Above average snow depth in Eagle and Old Crow regions (2015-16)  Slightly below average snow depth in Ogilvie (2015-16)  Average snow density in all areas (2015-16)

# Indicator Table - Nov. 2016

Wildland fires	2016 = data not yet available 2015 = 566.5 km <sup>2</sup>	252 km <sup>2</sup>	2004 and 2005 largest burned area ever. Total of 15% of range affected by fires since 1960	Slightly above 5 year average area burned in 2015; 5 year average continues to decrease.
Linear disturbance and human development	2015-16 = No major increases	N/A	Seismic project completed in 2013-14 south of Eagle Plains created the following:  2124 km new seismic lines 228 km new access roads	No additional increases in 2015-16 although proposals have been forwarded to build all season roads, conduct extended flow testing, and drill up to 20 additional wells at present.
<b>Traditional Knowledge (2015)</b>				
Hunters' needs met?	79% of hunters met needs	65%	"Were your households' needs met for caribou this year?" ABECK data available from 2000 to 2015.	Higher than average (2015)
Calf abundance	Winter = same, 37% Summer = same, 46%	<u>Winter</u> Same 37% <u>Summer</u> Same 43%	"Based on your observation for each season, where there more, equal or fewer calves over the last year than usual? ABEKC data available from 2010 to 2015.	Equal calves in winter (average) Equal calves in summer (above average)
Adult female abundance	Winter = more, 15% Spring = less, 20% Summer = same, 16% Fall = more, 34%	Winter 14% Spring 18% Summer 17% Fall 23%	"Based on your observation for each season, where there more, equal or fewer adult female caribou over the last year than usual? ABEKC data available 2013 to 2015	More than usual in winter (average) Fewer than usual in spring (slightly higher than average) Similar in summer (slightly higher than average) More than usual in Fall (higher than average)
Unusual, extreme and rare weather events	<u>Fall</u> More snow = 20% More ice = 6% <u>Winter</u> More snow = 28% More ice = 13%	<u>Fall</u> Snow = 15% Ice = 14% <u>Winter</u> Snow = 24% Ice = 7%	"What month did you observe any of the following unusual, extreme or rare weather related events?" ABEKS data available from 2005 to 2015.	<u>Fall (2015)</u> Snow = above average Ice = below average <u>Winter (2015)</u> Snow = above average Ice = above average
Observed body condition by season	Good across all seasons	Good	"What was the overall condition of caribou you observed in each season over the past year?" Borderlands data available from 2000 to 2015.	Good but more animals in fair and poor condition in summer and fall may warrant further investigation (2015).