

Porcupine Caribou Herd



SUMMARY OF INDICATORS

2017

Presentation to:

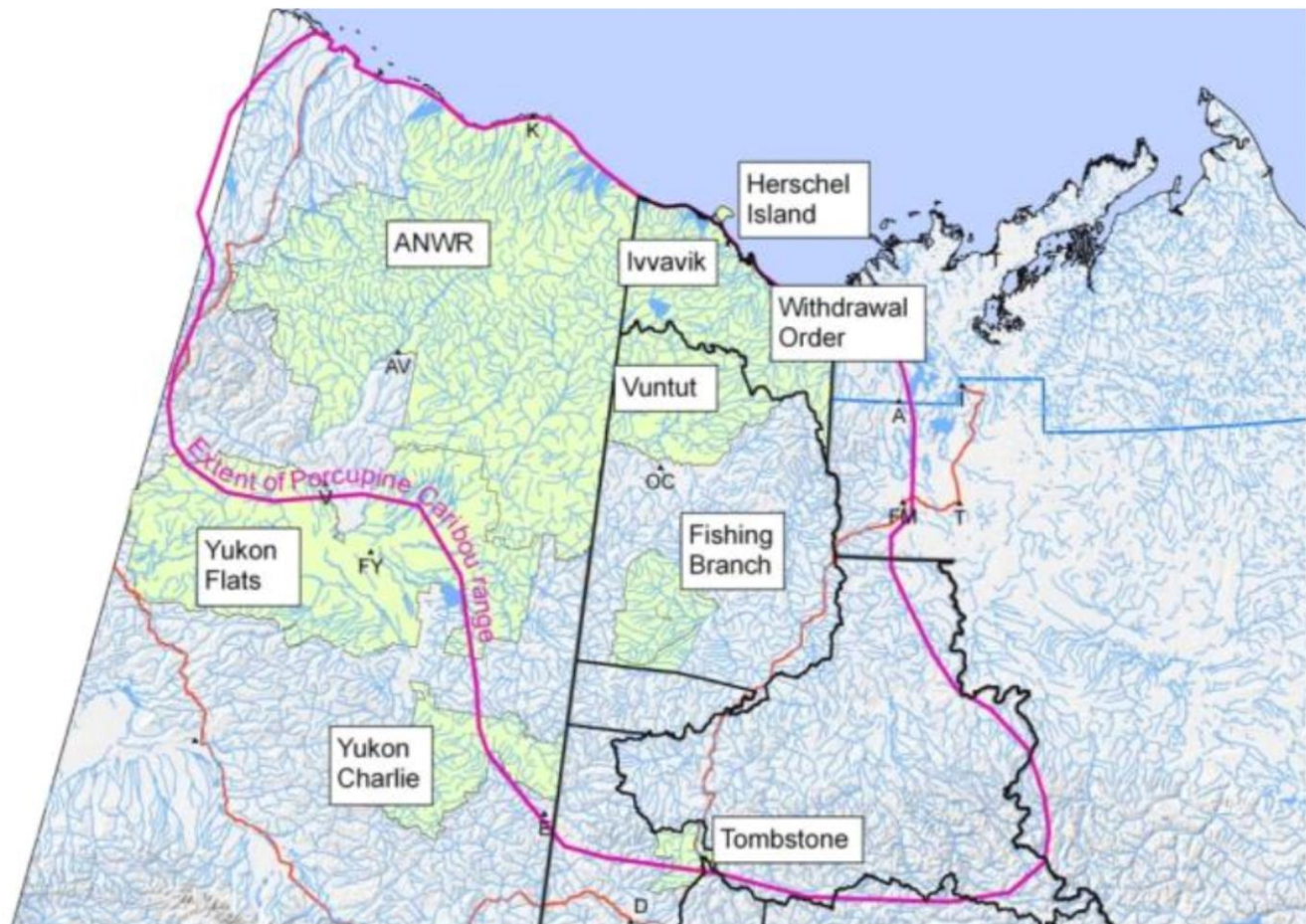
Annual Harvest Meeting

Dawson City, Yukon

13 -14, February, 2018

By: Porcupine Caribou Technical Committee

Range of Porcupine Caribou Herd



Kaktovik

BEAUFORT
(ARCTIC)

Porcupine, Hart, Fortymile Nelchina Caribou Herds & Muskox Satellite Locations

May 30 to June 1, 2016



Herschel Island
Territorial Park

Herschel

MACKENZIE
BAY

Nelson

Vuntut
National Park

Old Gray Flats
Special Management Area

Rampart House

Old Crow

PCH Satellite Collars (65)

- Lotek Iridium COWS (42)
- ◆ ATS Iridium COWS (4)
- Globalstar BULLS (19)

Fortymile Satellite Collars (85)

- Lotek Iridium COWS (59)
- ◆ Telonics Argos COWS (7)
- Lotek Iridium BULLS (19)

Nelchina Satellite Collars

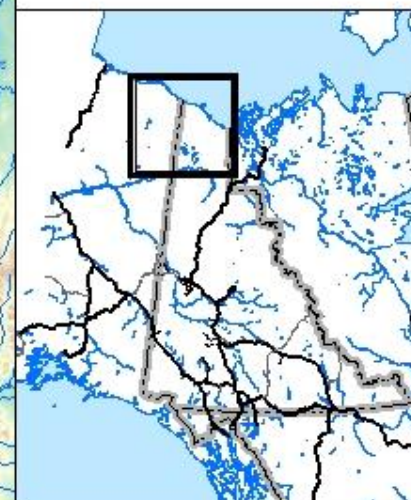
- ▲ Telonics Argos COWS (50)

HRCH Satellite Collars

- Lotek Globalstar COWS (23)

North Slope Muskox (8)

- Lotek Iridium COWS



Porcupine and Fortymile Caribou Herd Satellite Locations

June 30 to July 2, 2016



PCH Satellite Collars (61)

- Lotek Iridium COWS (39)
- ◆ ATS Iridium COWS (3)
- Globalstar BULLS (19)

Fortymile Satellite Collars (85)

- Lotek Iridium COWS (58)
- ◆ Telonics Argos COWS (7)
- Lotek Iridium BULLS (19)

Nelchina Satellite Collars

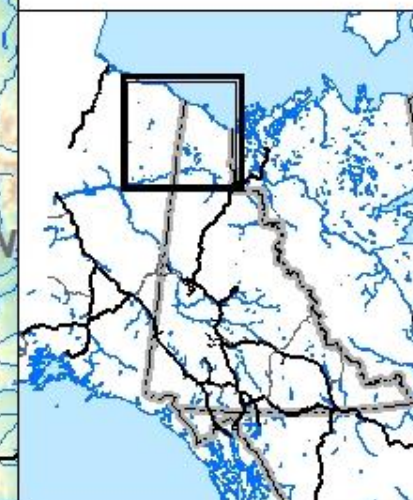
- ▲ Telonics Argos COWS (50)

HRCH Satellite Collars

- Lotek Globalstar COWS (23)

North Slope Muskox (8)

- Lotek Iridium COWS



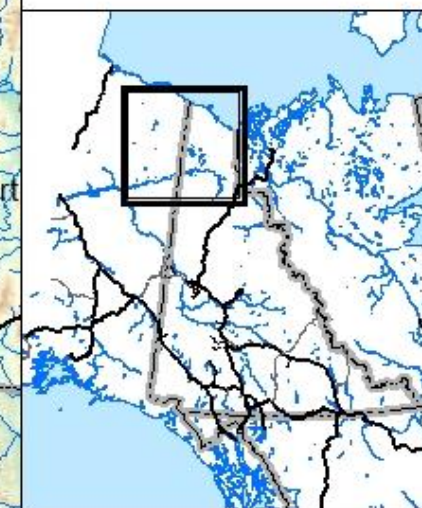
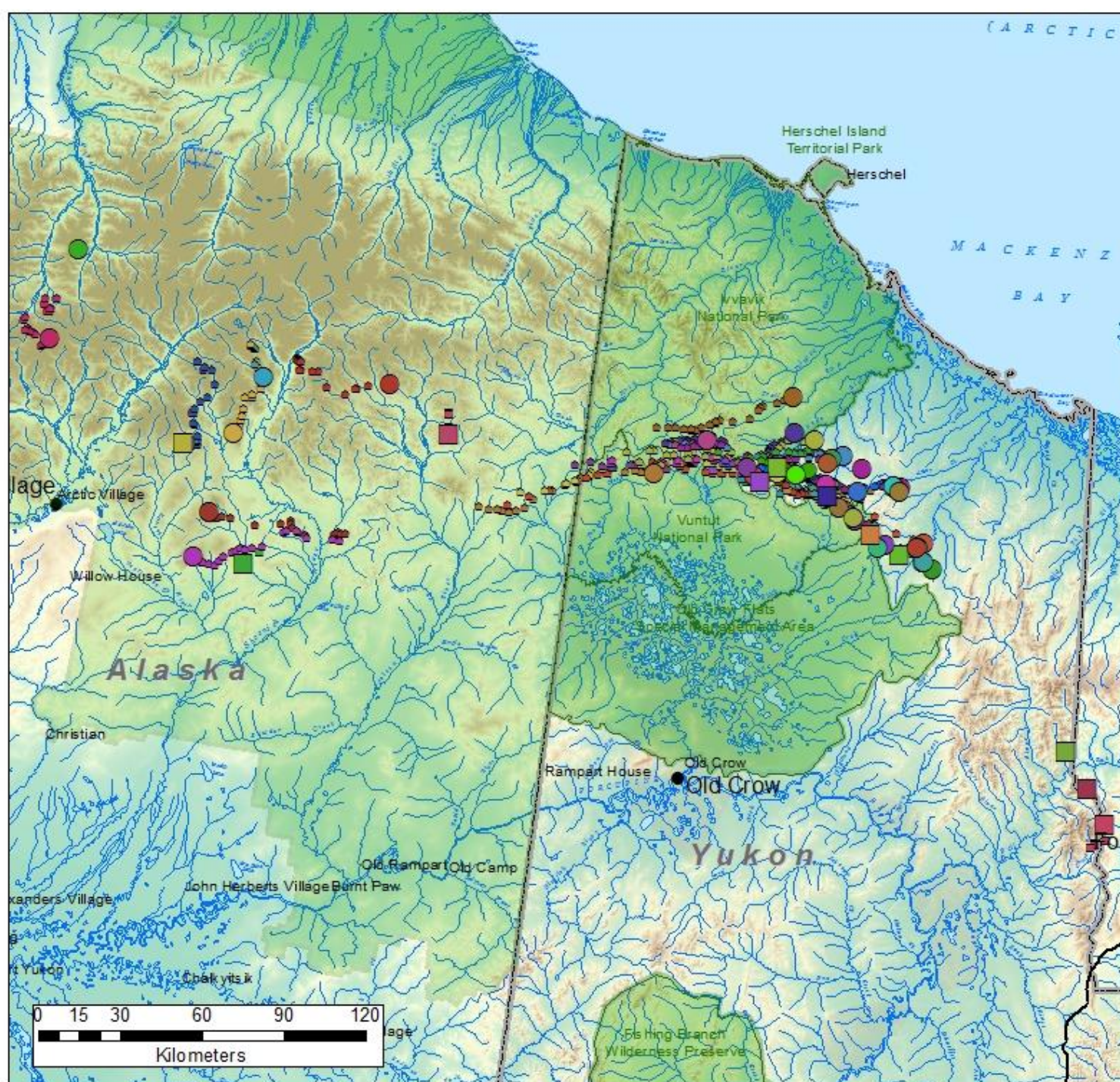
Porcupine Caribou Herd Satellite Locations

July 19 to 21, 2016

PCH Satellite Collars (63)

- Lotek Iridium COWS (41)
- ◆ ATS Iridium COWS (3)
- Globalstar BULLS (19)

Date/Local	Bull	Cow	Grand Total
19-Jul-16	2	4	6
20-Jul-16	9	33	42
21-Jul-16		2	2
Grand Total	11	39	50



Porcupine, Hart, Fortymile
Nelchina Caribou Herds &
Muskox Satellite Locations

August 25 to September 1, 2016

North Slope Muskox

- Lotek Iridium COWS (7)

HRCH Satellite Collars

- Lotek Globalstar COWS (29)

PCH Satellite Collars (63)

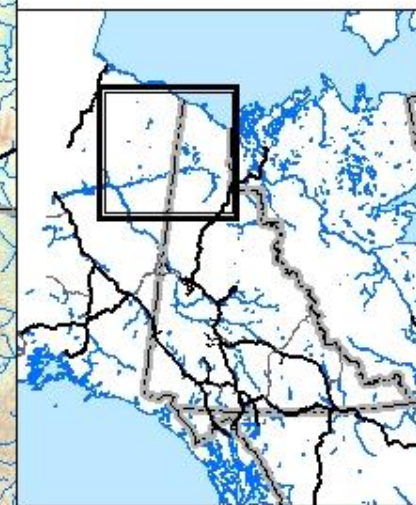
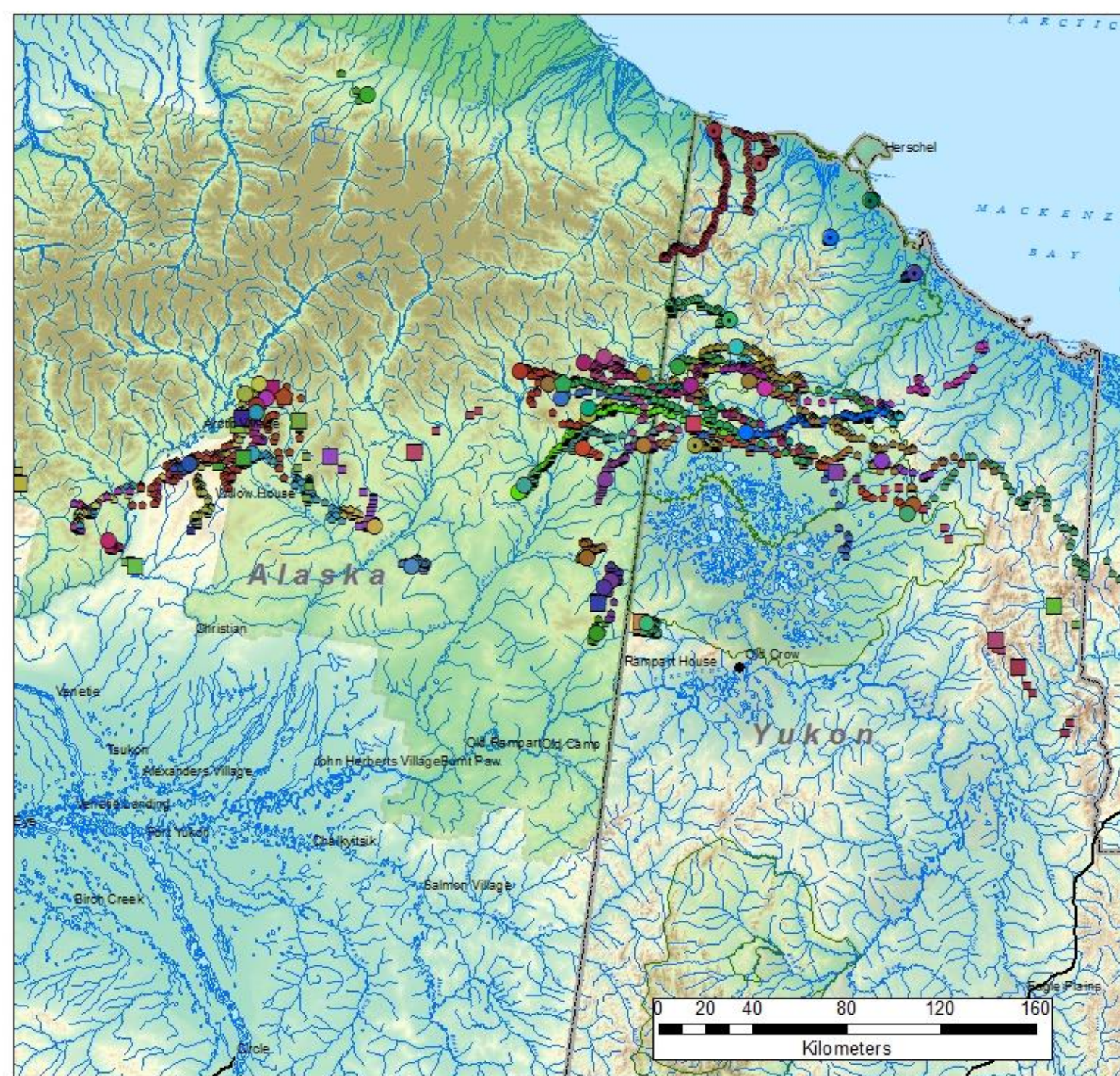
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Nelchina Satellite Collars

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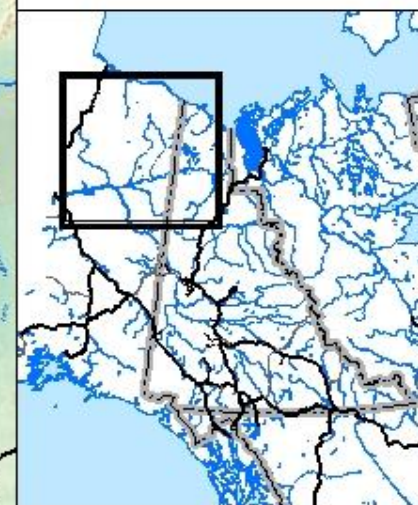
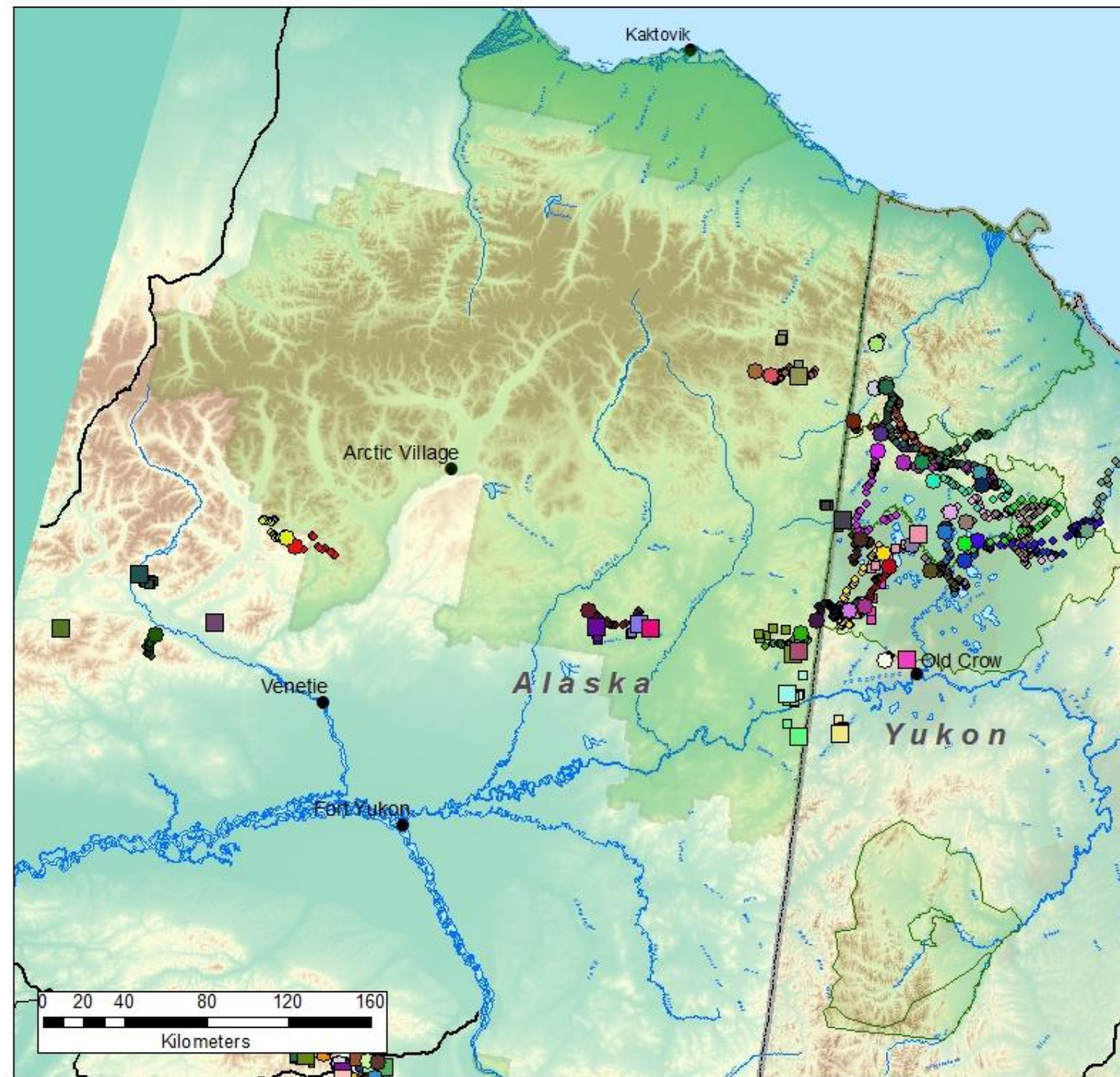
Porcupine Caribou Herd Satellite Collar Distribution

November 8 to 13, 2016



Yukon Albers Projection, NAD83

- Cows n=37
- Bulls n=15



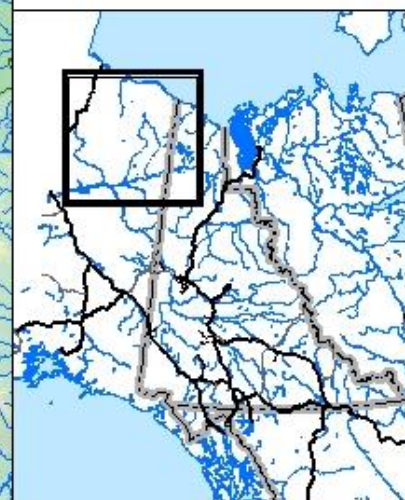
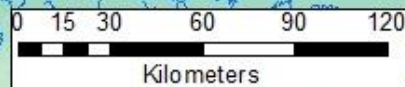
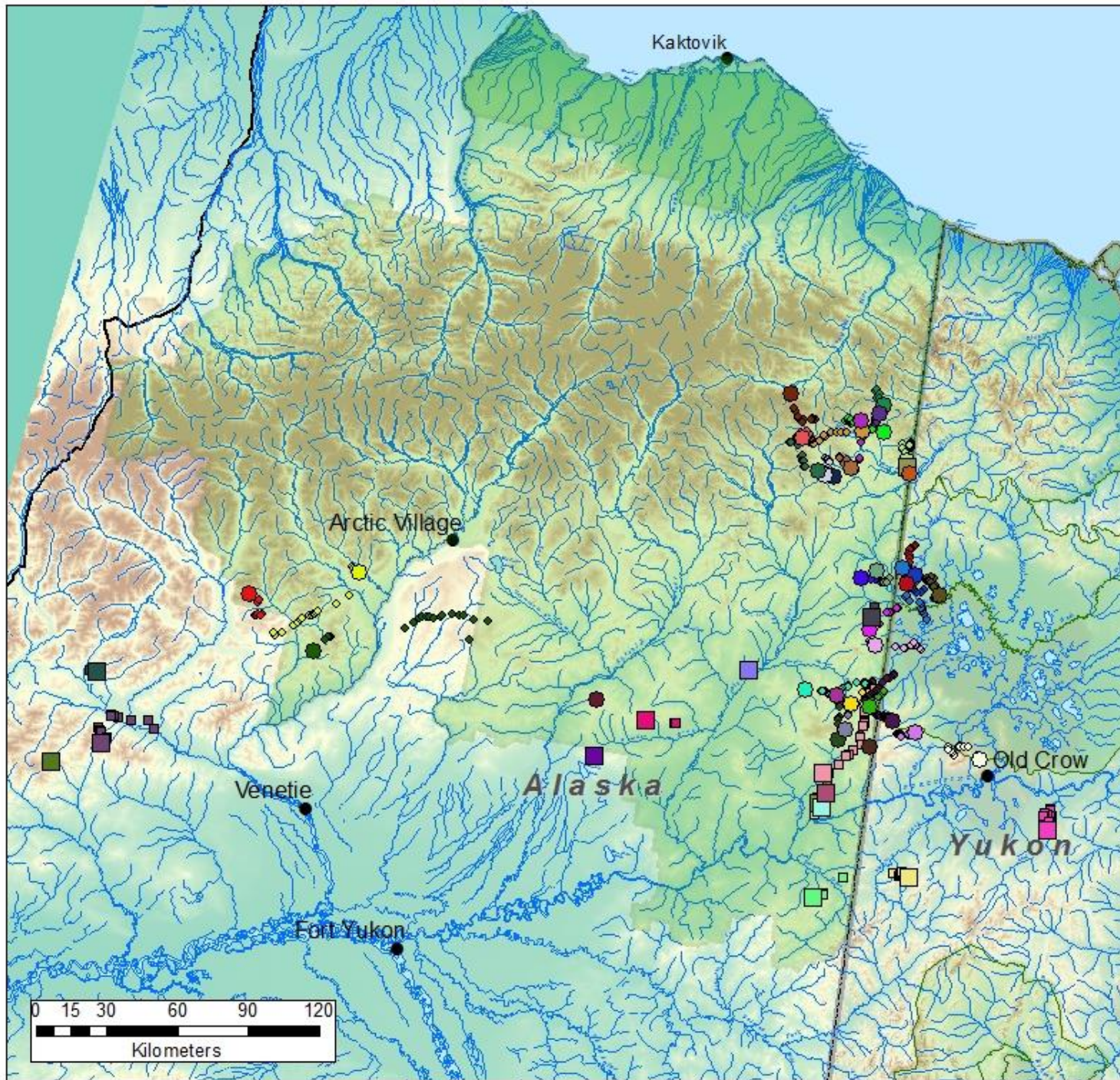
Porcupine Caribou Herd Satellite Collar Distribution

November 30 to
December 7, 2016



Yukon Albers Projection, NAD83

- Cows (37)
- Bulls (15)



Porcupine Caribou Herd Satellite Collar Distribution

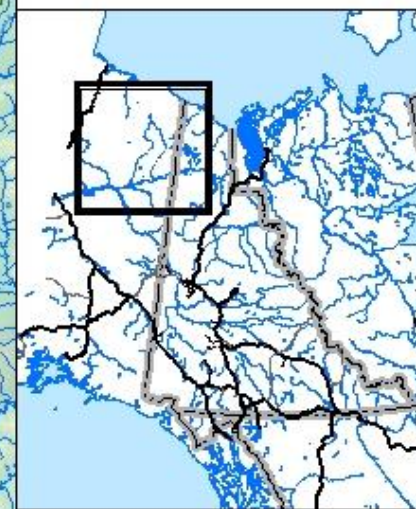
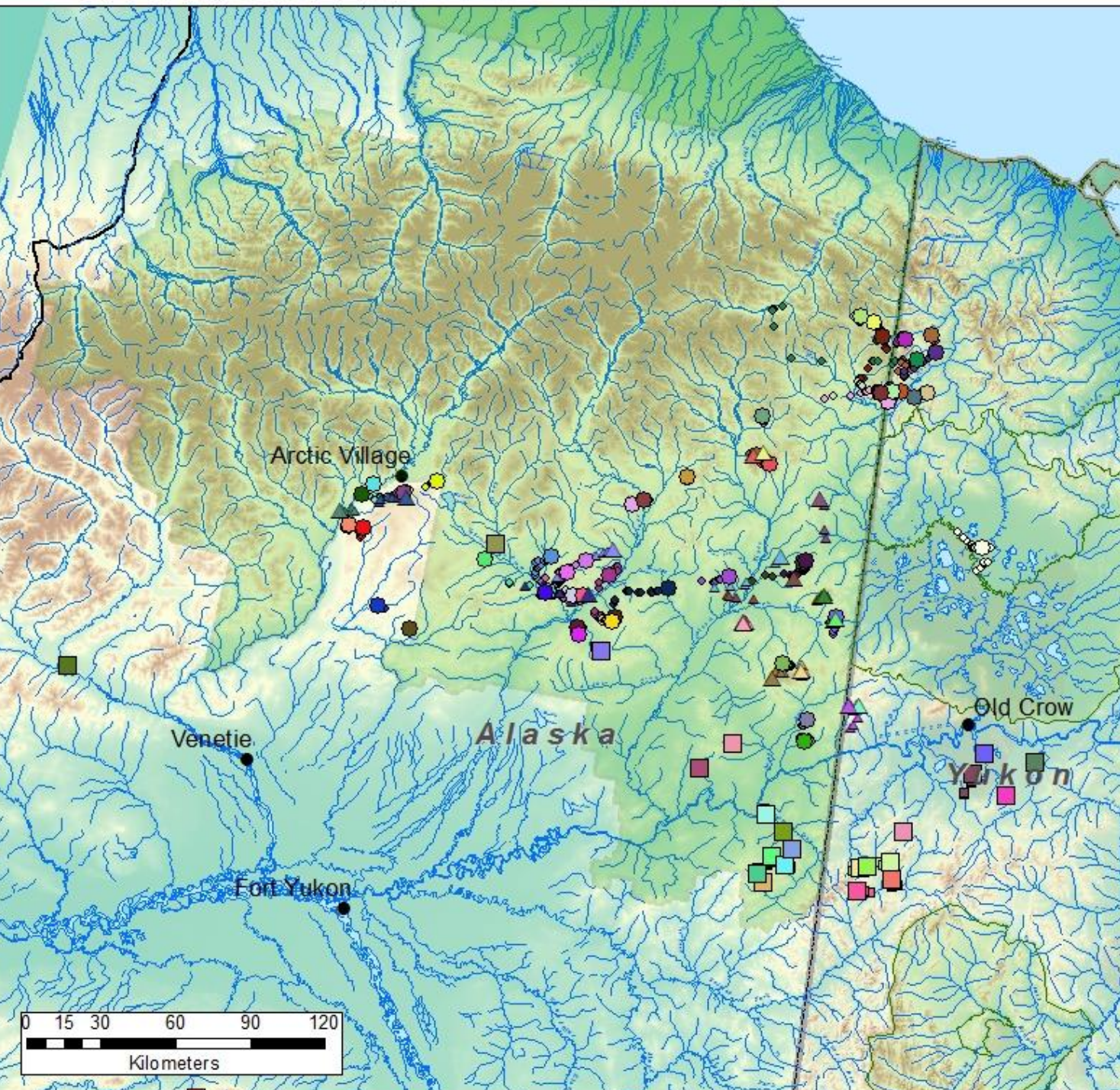
March 27 to April 3, 2017



Yukon Albers Projection, NAD83

PCH Sat Collars (97)

- Adult Cows (55)
- △ Yearling Cows (18)
- Bulls (24)



Porcupine Caribou Herd Satellite Collar Distribution

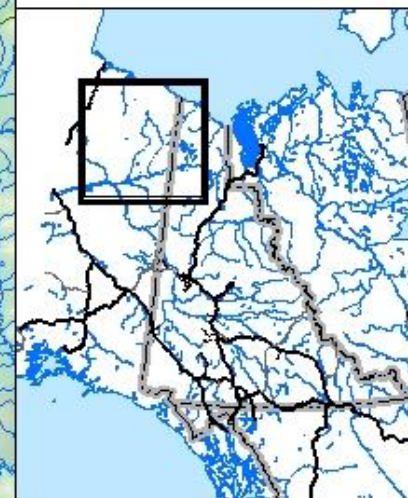
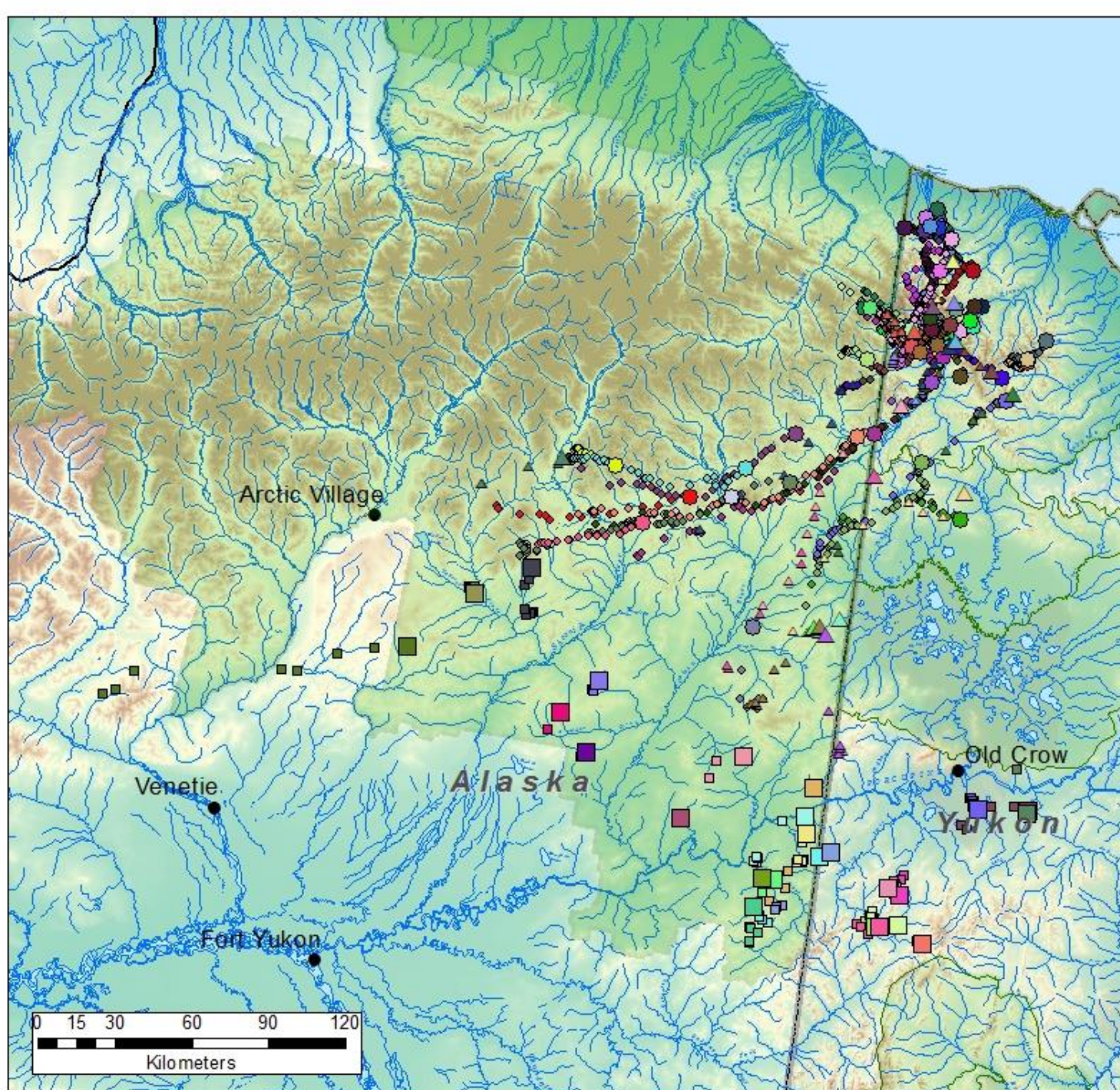
May 1 to 8, 2017



Yukon Albers Projection, NAD83

PCH Sat Collars (97)

- Adult Cows (55)
- △ Yearling Cows (18)
- Bulls (24)



Porcupine Caribou Herd Satellite Collar Distribution

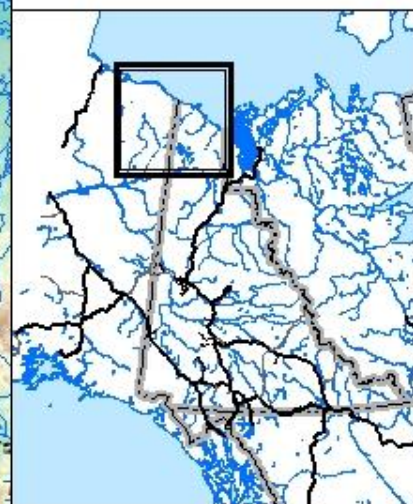
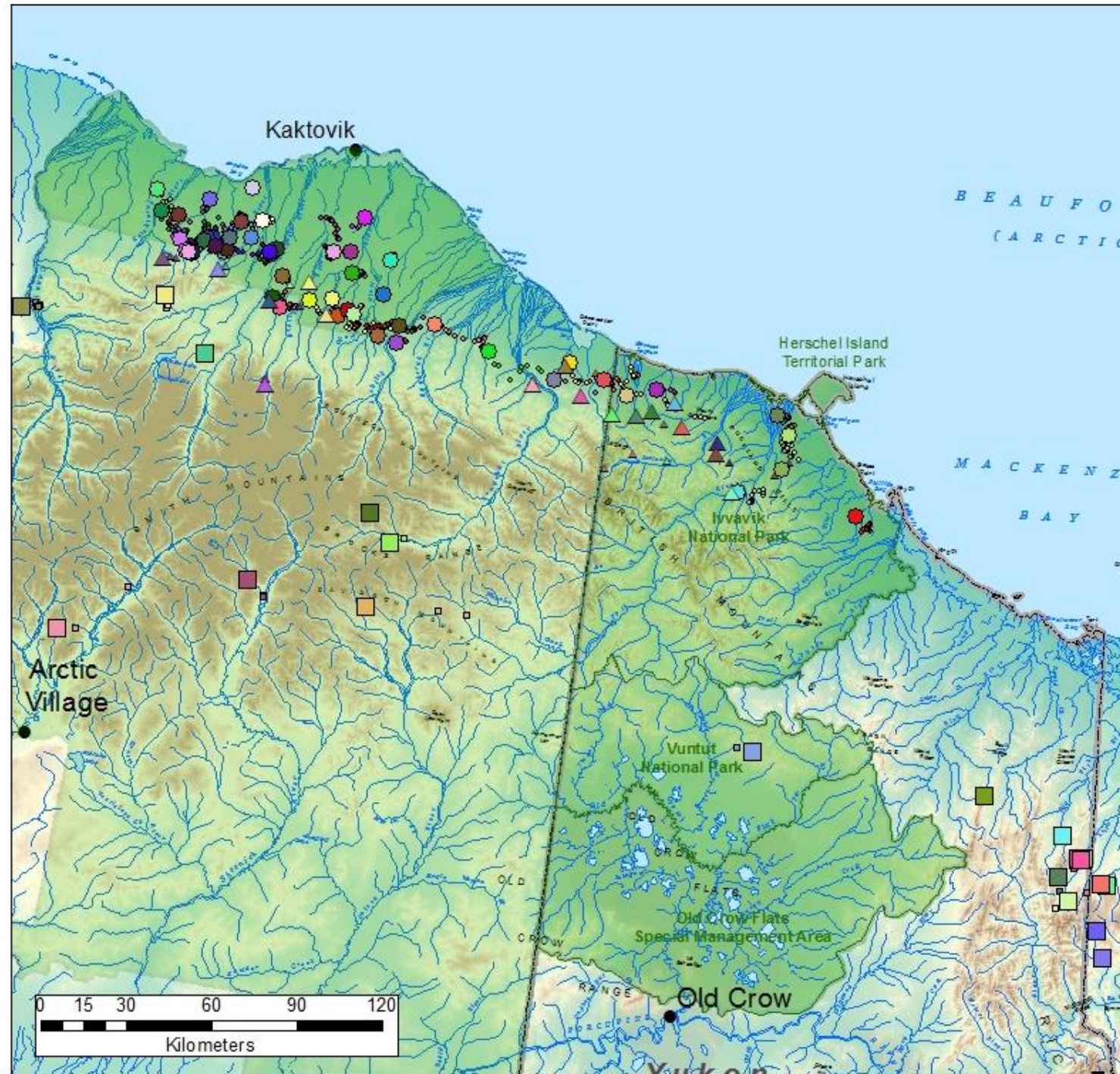
June 1 to 3, 2017



Yukon Albers Projection, NAD83

PCH Sat Collars (97)

- Adult Cows (55)
- △ Yearling Cows (18)
- Bulls (24)
- ATS Cow



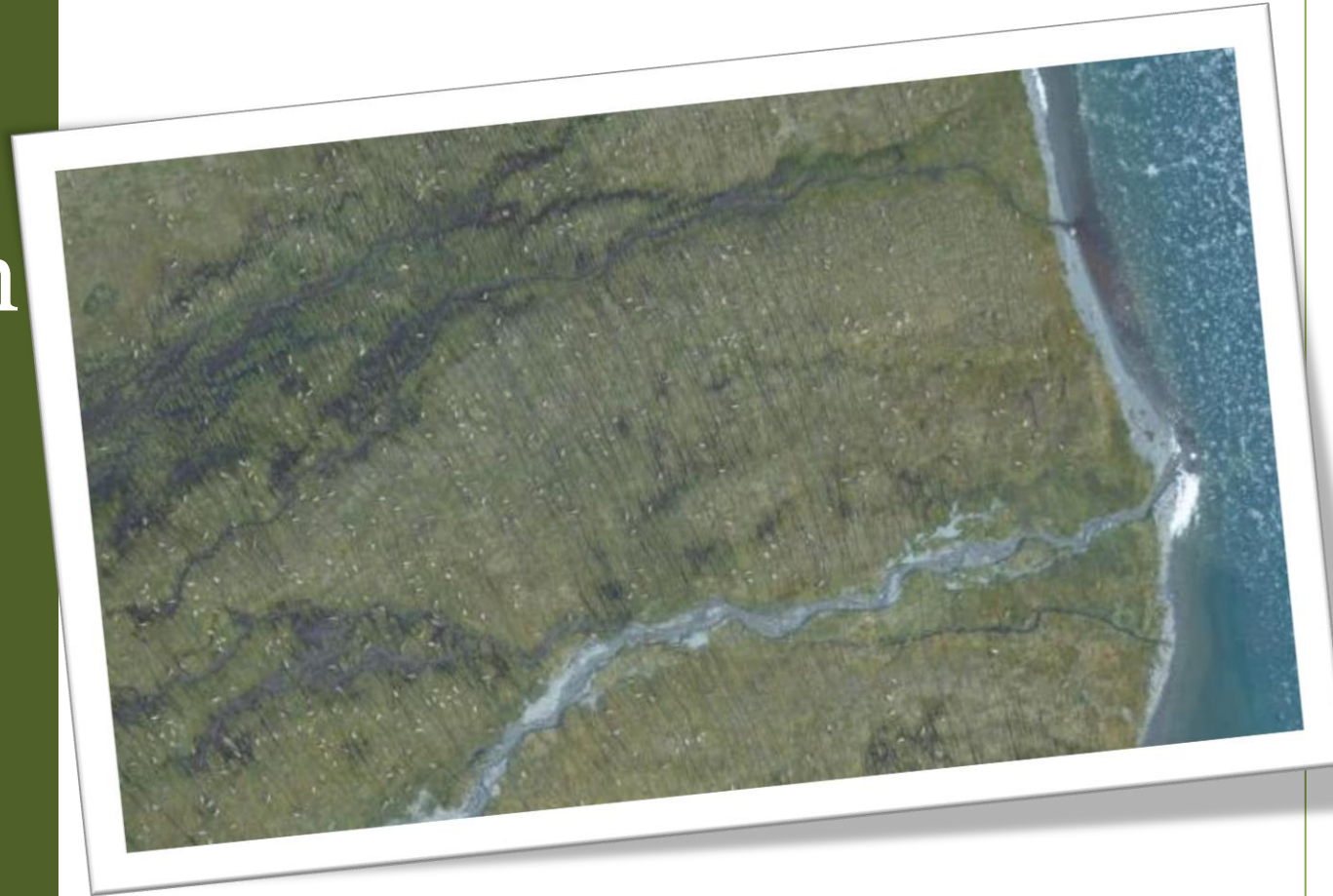


Population

Harvest

Body
Condition

Habitat



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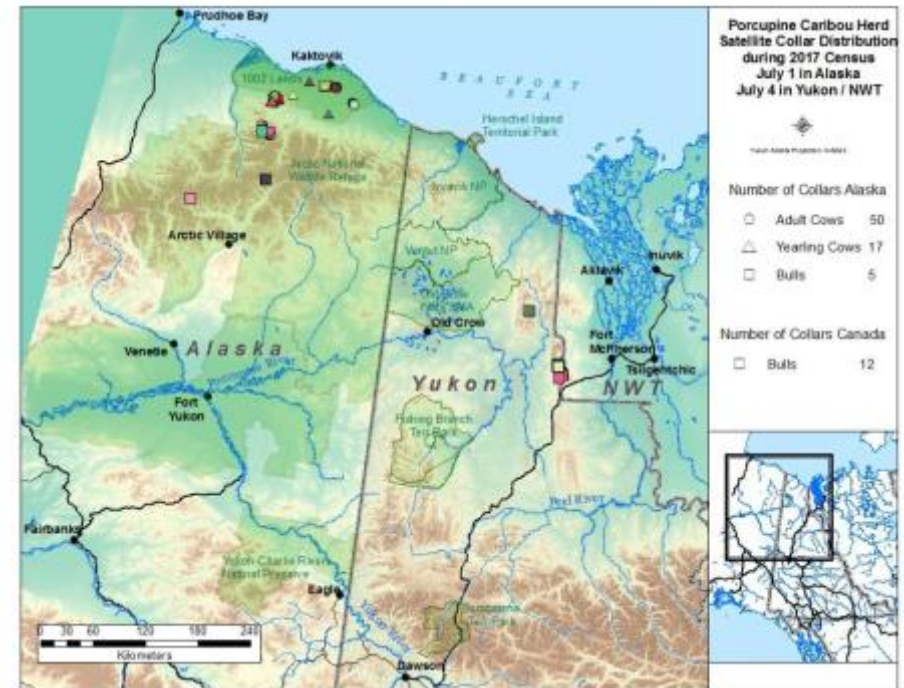
Overview

Population Size

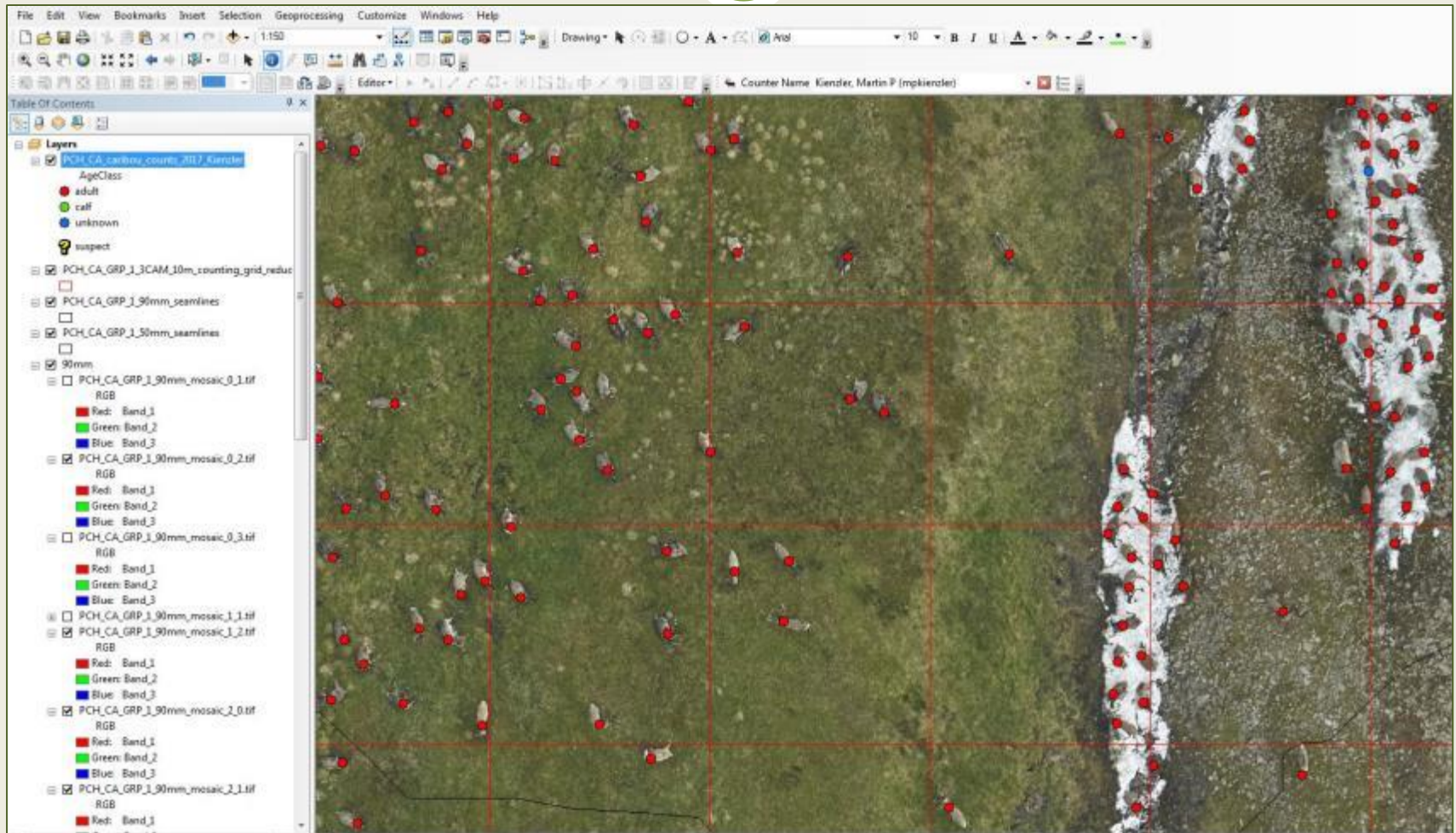
Methods

- Count caribou using a photocensus
 - *July 1st, 2017 Alaska*
 - *July 4th, 2017 Yukon*
 - *Photo-direct technique and digital photography*

Results



Population Size

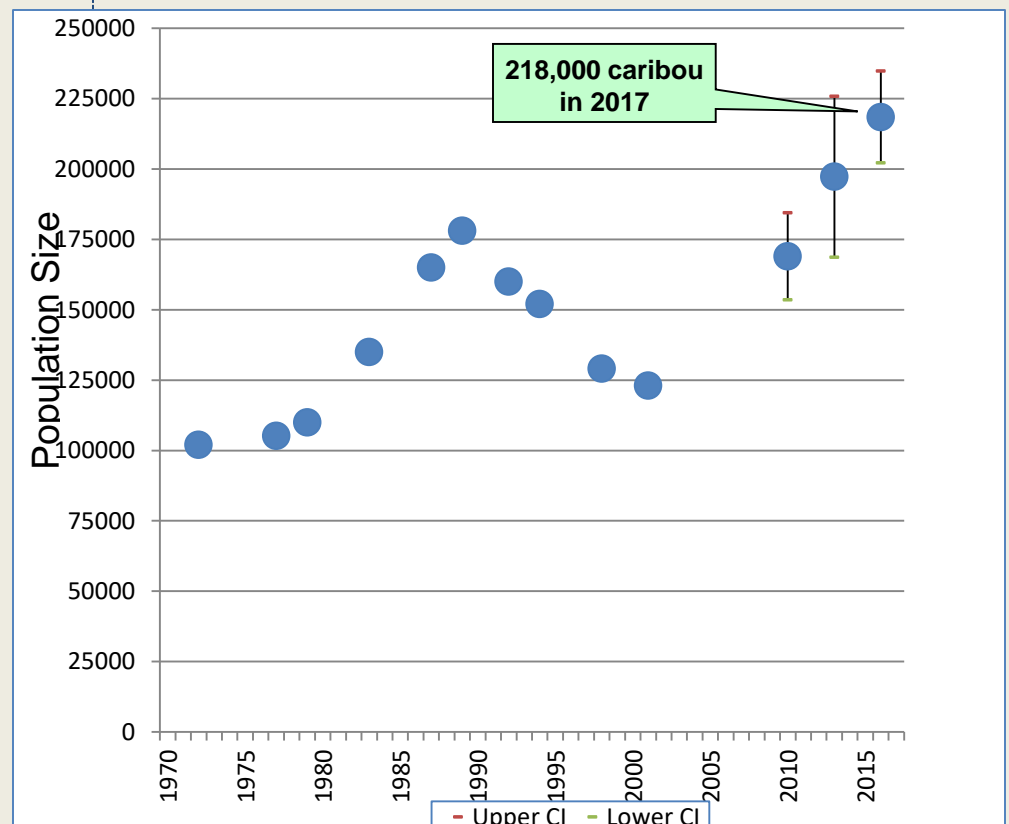


Population Size

Methods

- 218,457 caribou (202,106 - 234,808)
- Minimum count = 197,894 caribou
- Increasing ($\lambda=1.35$) similar to growth rate between 1972-1989.

Results

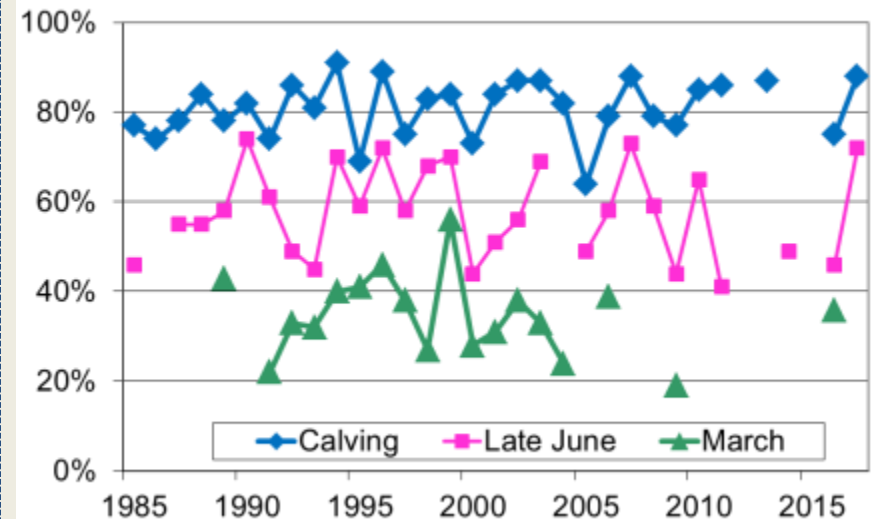


Calf Birth Rate and Survival

Methods

- Classify pregnancy on calving grounds
 - *88% of females pregnant*
 - *100% evidence of pregnancy*
- Check to see how many calves survive after 1 month
 - *90% calves survived*
 - *After 1 month: 72 calves per 100 cows*

Results

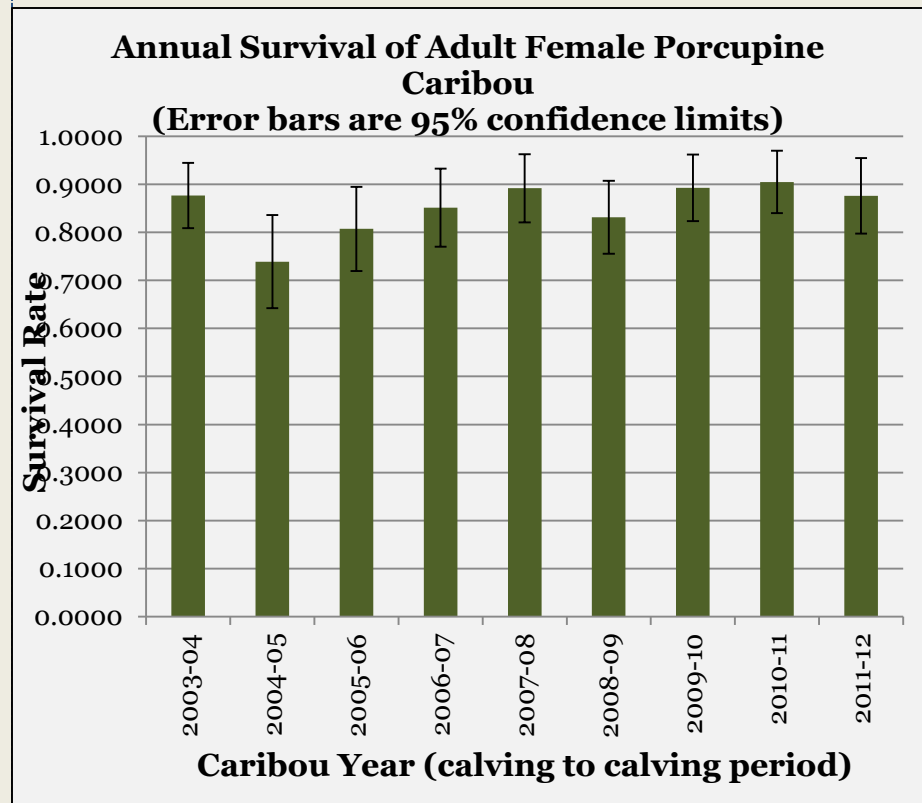


Adult Female Survival

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 to date indicate survival in the 85%+ range*

Results

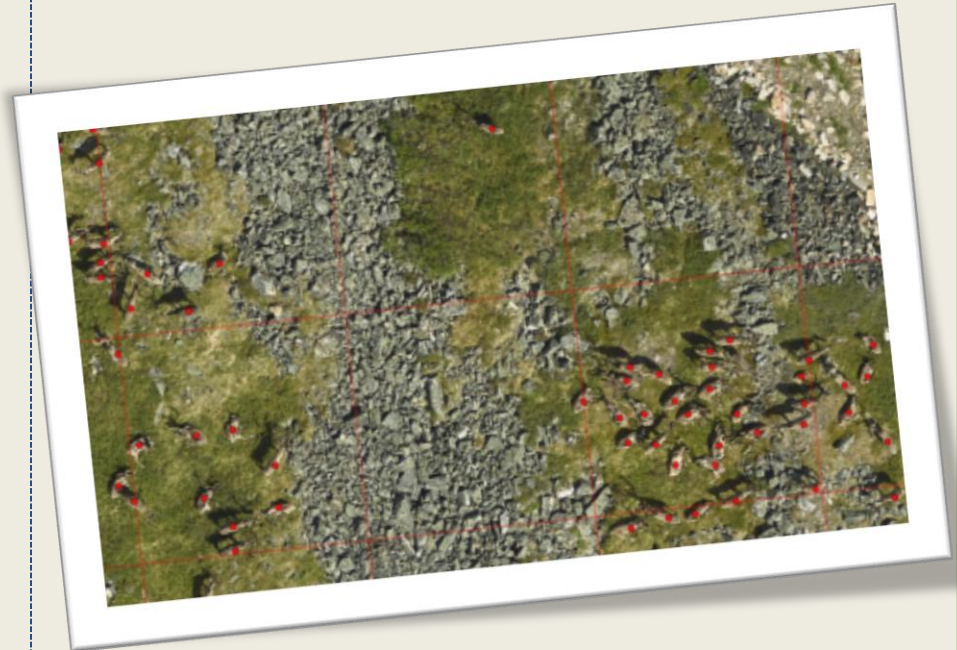


Adult Sex Ratio

Methods

- Determine the ratio of bulls to cows in the fall
 - *Attempted October 2017*
 - *Unsuccessful due to poor weather*
 - *Herd in Alaska*
- 2010 = 57:100 (Bull:Cow)

Results



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Composition Count

Methods

- Determine the ratio of calves to cows in March
 - *March 2017*
 - *Classify 200 caribou around each collar*
 - *Herd in Alaska*
- 2017 = 35.8 calves: 100 COWS

Results

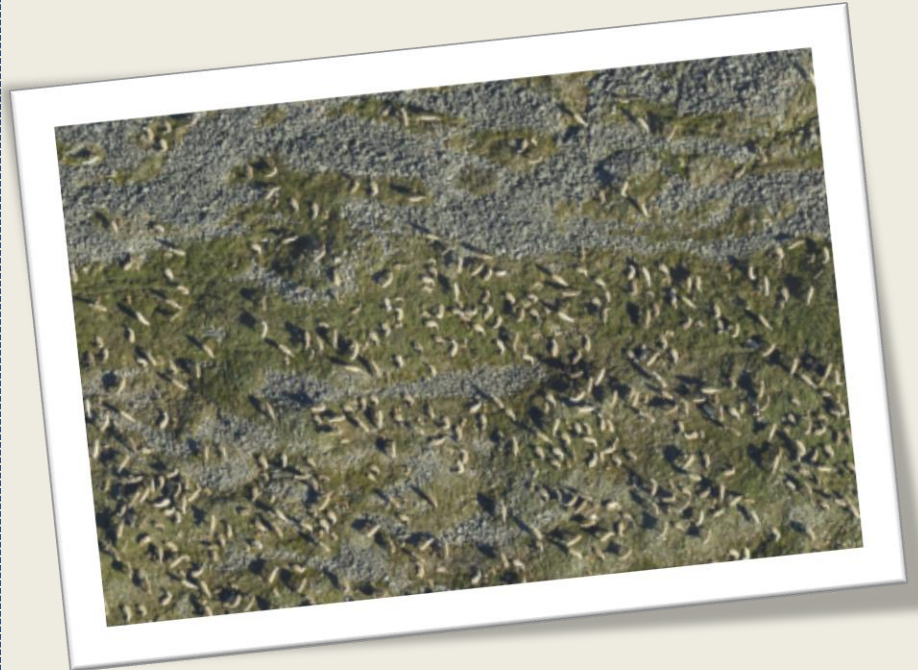


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Population Roll Up



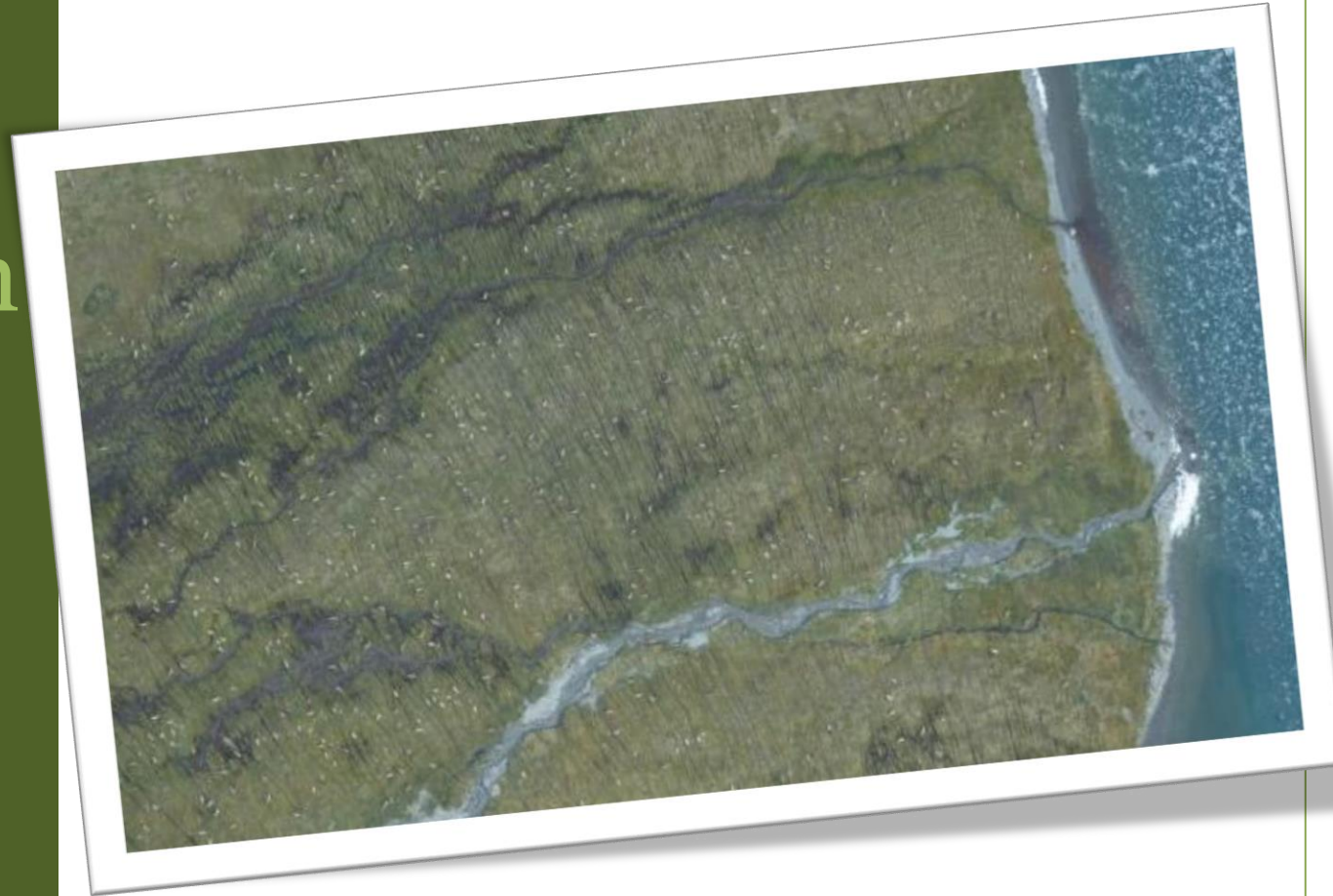
- Herd increasing, highest recorded point
- Pregnancy rate higher than average
- Calf survival higher than average
- March calf-cow ratio average



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Population
Harvest
Body
Condition
Habitat



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Overview

Harvest Monitoring

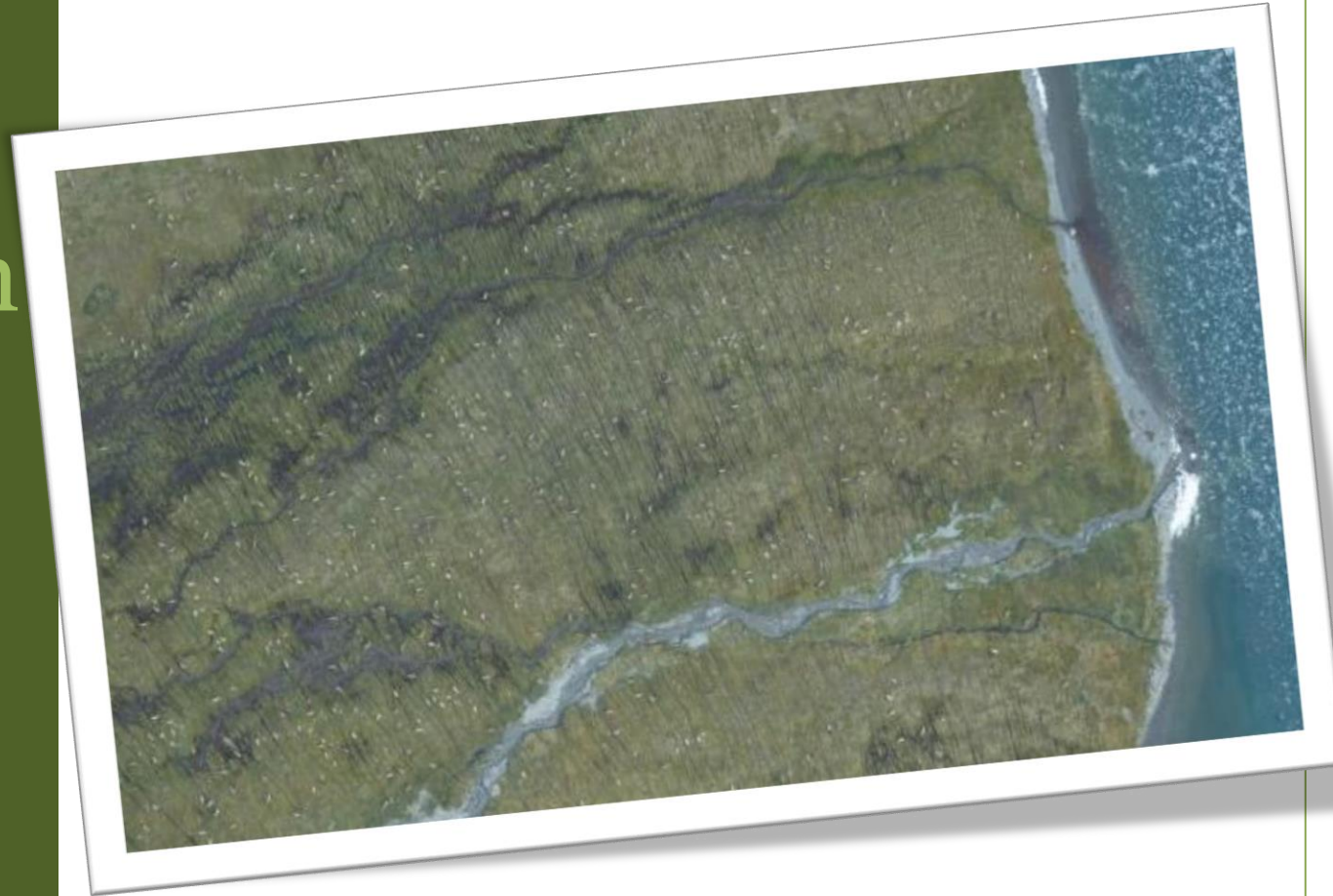


Methods

1. Interview based sampling survey of user groups
 - Harvest estimates, sex ratio of harvest
 - Rob Florkiewicz (YTG) present harvest results



Population
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Habitat



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Overview

Caribou Body Condition



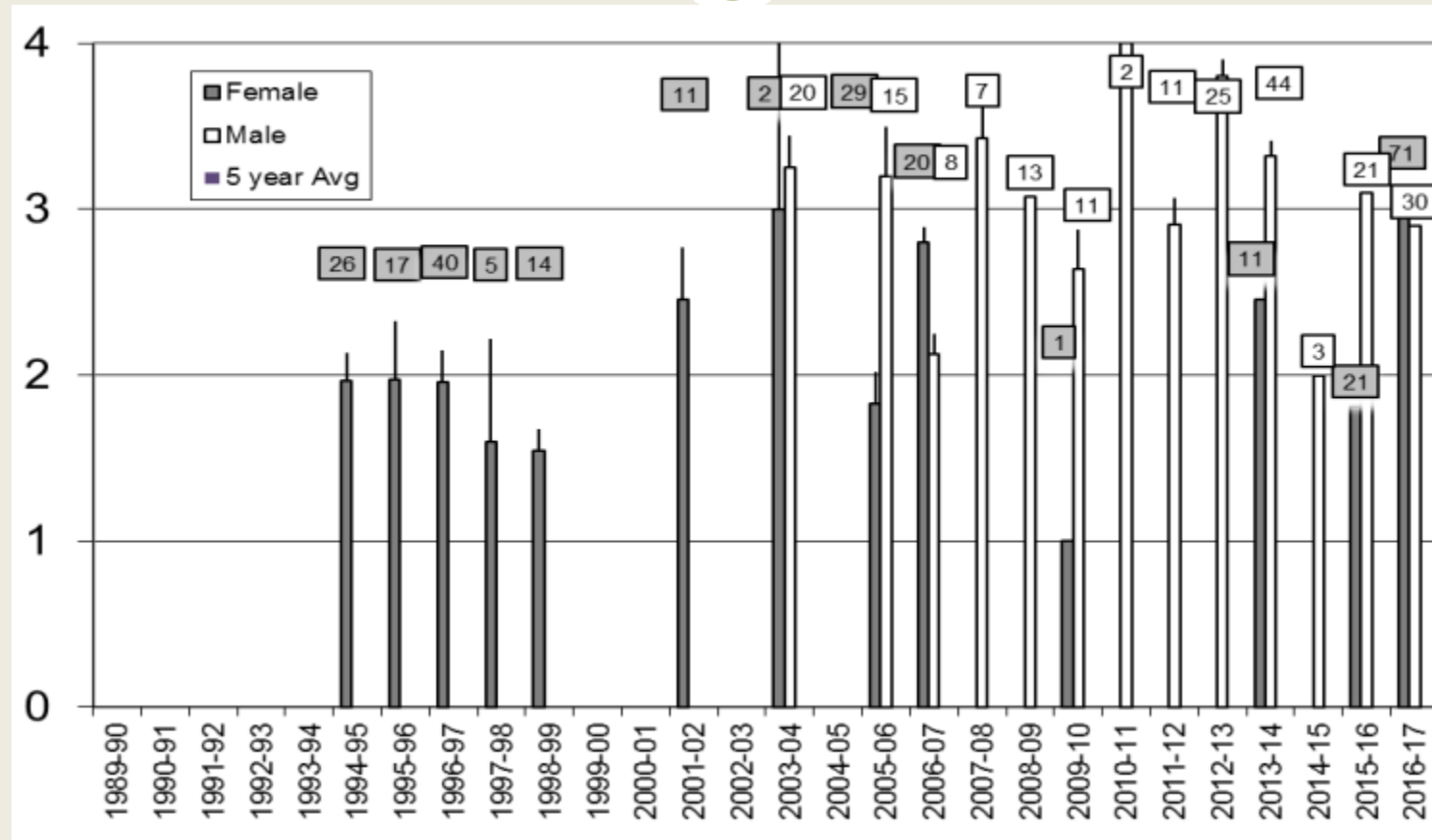
Methods

- How healthy individual caribou are by measuring back fat and rating animals
 - *Fall and winter 2016-2017 hunter samples submitted (Old Crow and NWT)*
 - *78 cows and 31 bulls sampled for backfat*

Results

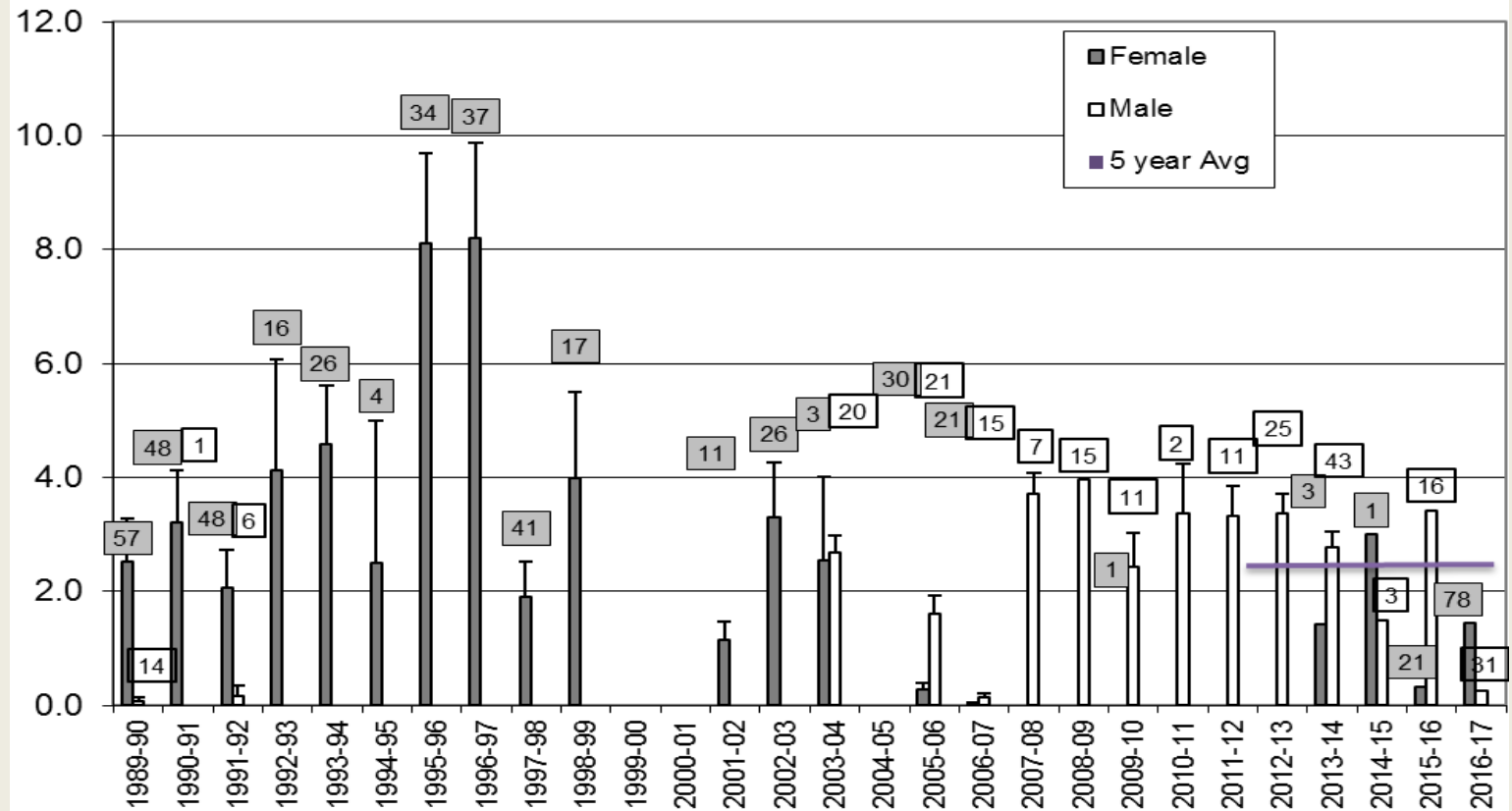
- Generally – very good shape for time of year
- Cows - body condition above average, backfat below average
- Bulls – body condition and backfat below average

Caribou Body Condition



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

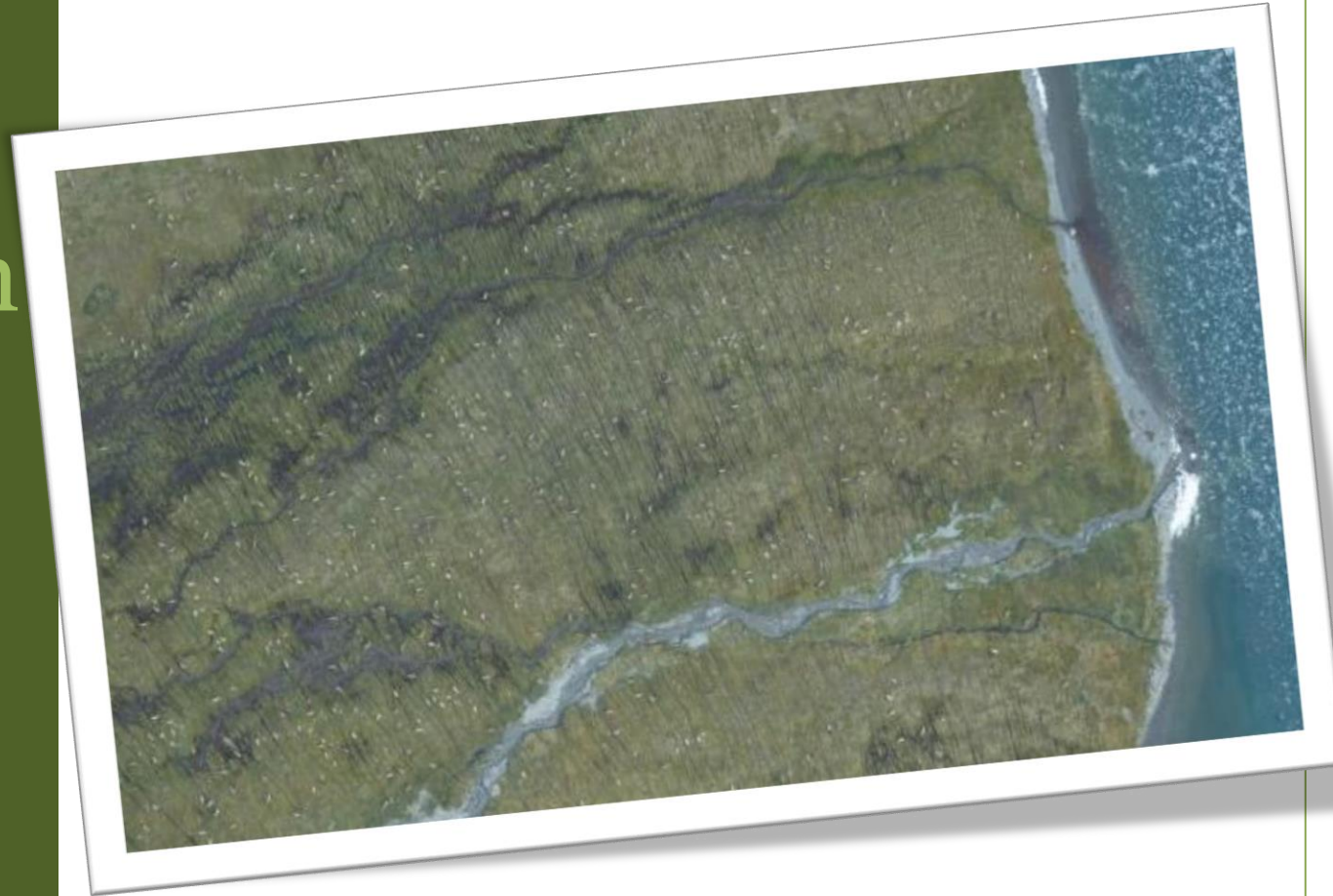
Caribou Body Condition



Average Depth of Backfat (cm)



Population
Harvest
Body
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Habitat



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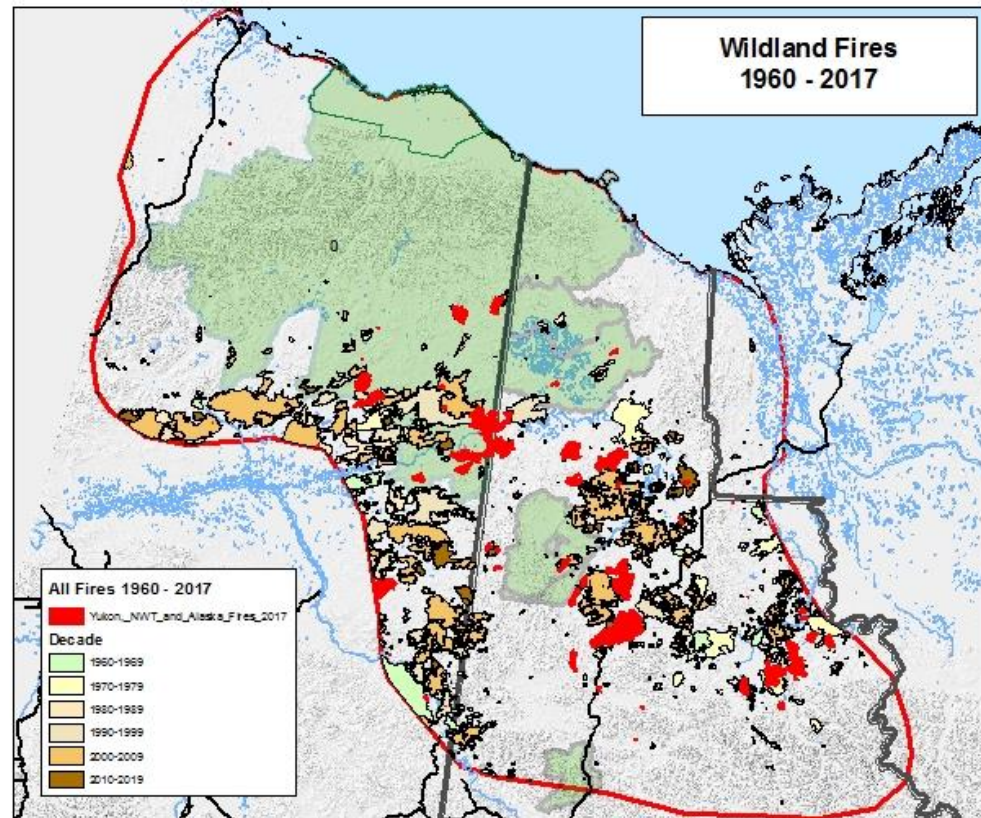
Overview

Wildland Fires

Methods

- Amount of PCH range burned as an index of range condition
- 1960—2017
- Fires in red are new as of 2017

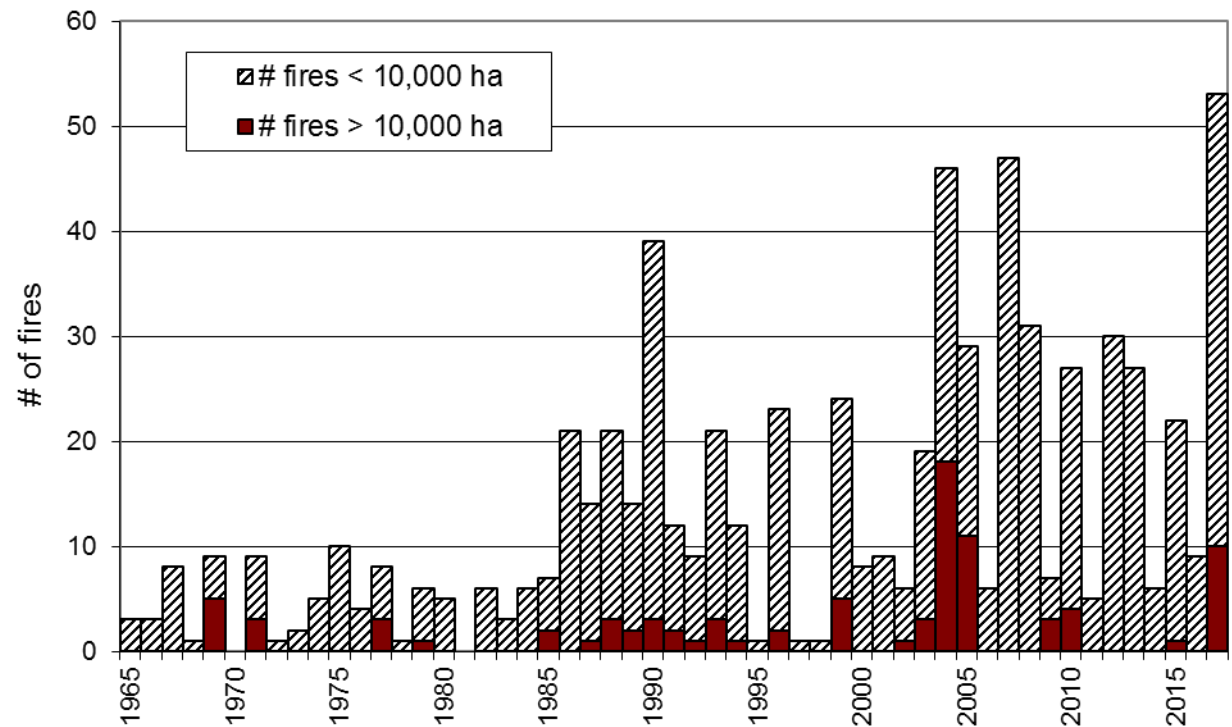
Results



In 2016 there were 9 fires in Alaska, and no fires within the YT and NWT portion of the PCH range.

In 2017, 53 fires burned in AK and YT.

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



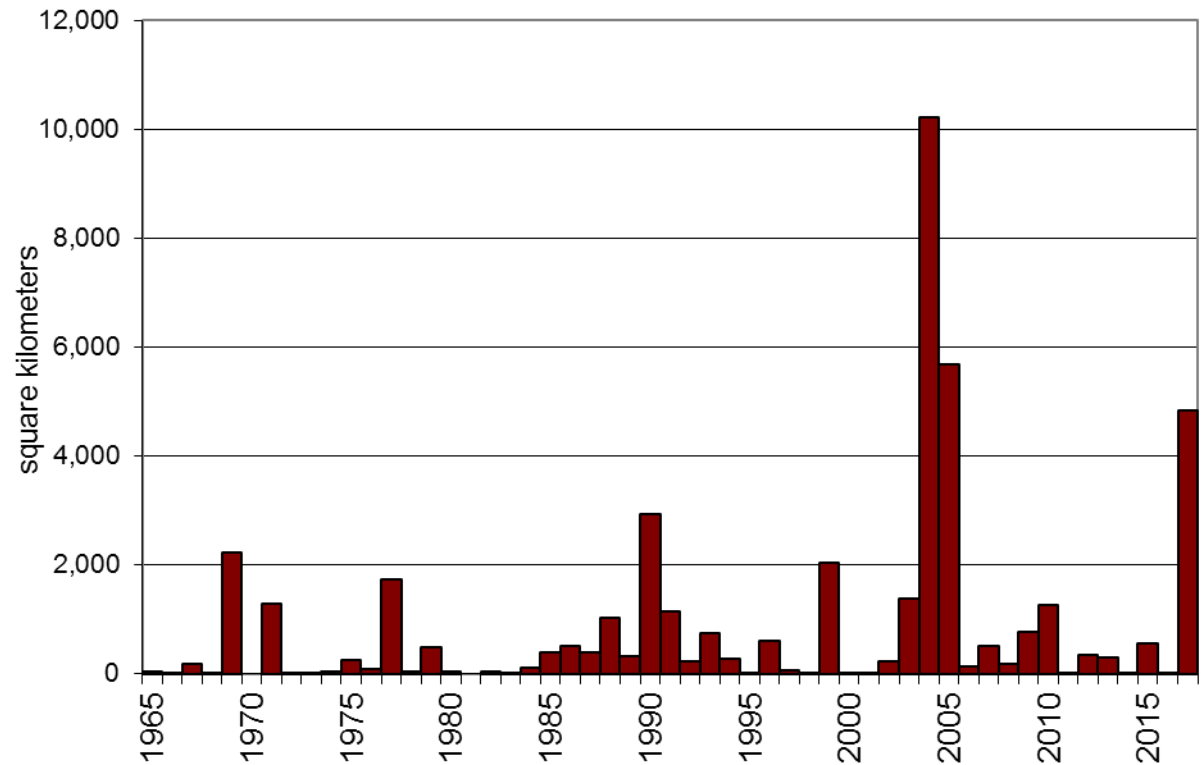
Wildland fires in PCH Range

A fraction of the area burned in the previous 5 years.

Total area burned is roughly 17% of herd's total annual range since 1960.

2017 saw an additional 2% of the range burn that had not been burned since 1960.

Total area of PCH range burned, by year

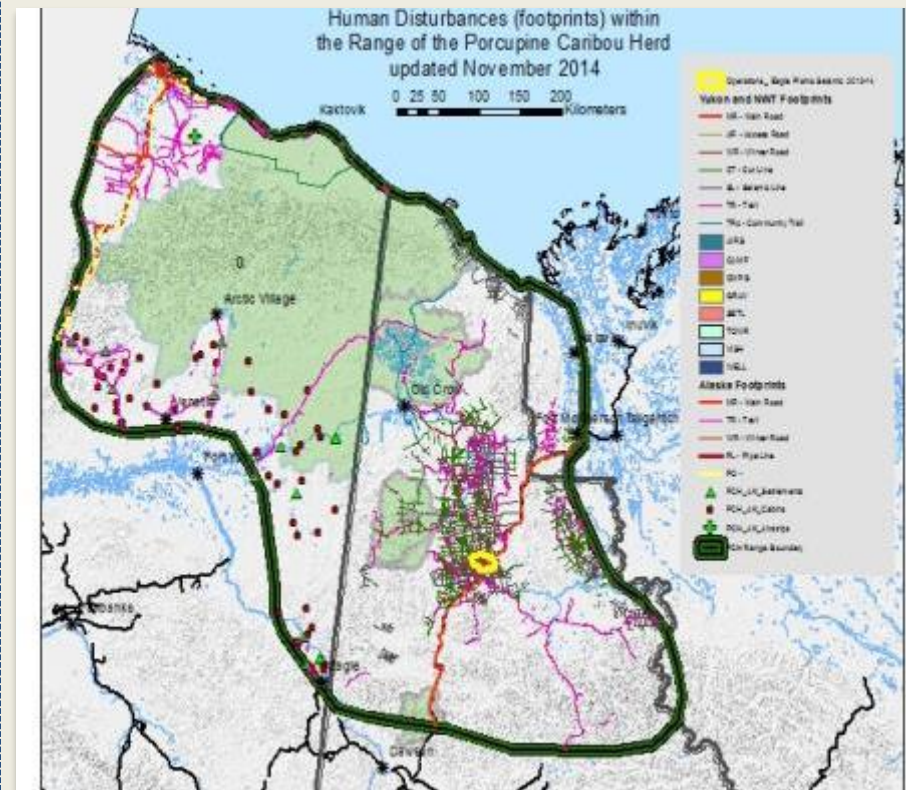


Wildland fires in PCH Range

Human Disturbance and Footprint

Methods

- Measured total linear footprint for each disturbance type
- No appreciable change in linear footprint in 2016/2017



Snow Conditions

Methods

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

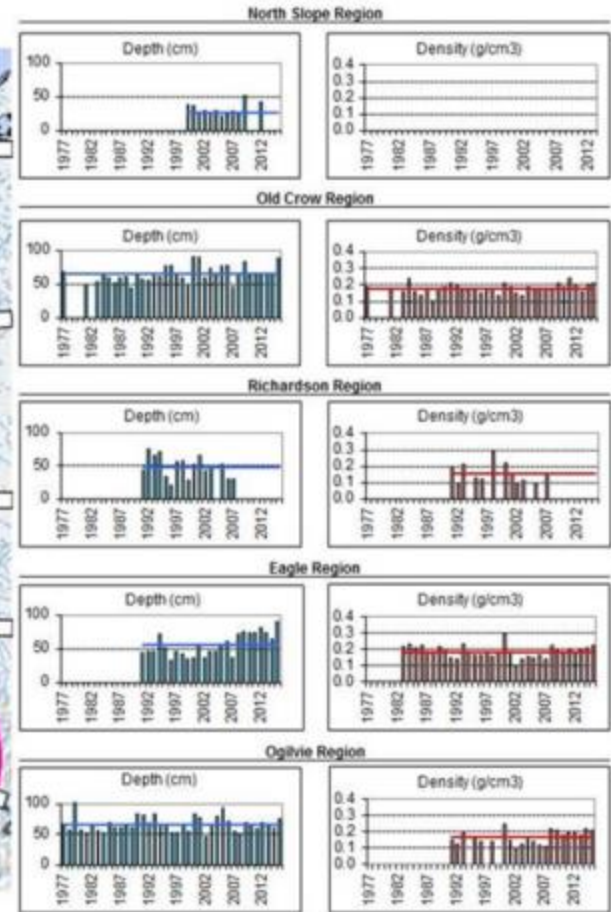


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No trends or large changes from long term averages

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

Eagle River drainage = above average snow depth, average density



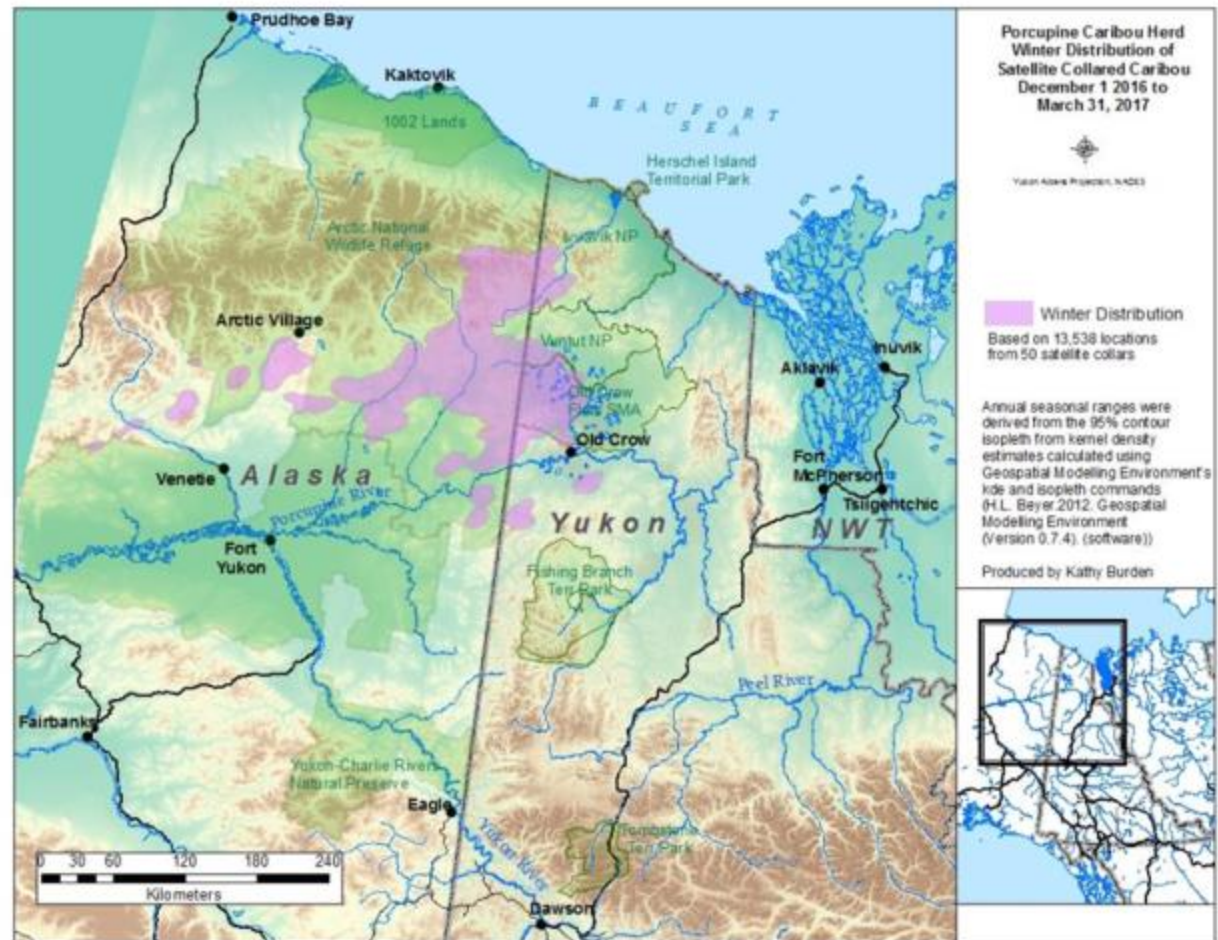
Snow Conditions

Winter distribution
northwest of Old
Crow and
northeastern
Alaska

Almost no snow in
early winter in Old
Crow Range

Further west
average snow
conditions

No ice layers
encountered



Habitat Roll Up



- Habitat did not change much over the year with the exception of fires in the winter range
- Snow conditions average where caribou spent most of the early and late winter



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Questions?



Peter Mather

Indicator Table - Nov. 2016



Indicator	Value	5 year average	Notes	Assessment and Year Represented
Population size and trend				
Population size	2017 = 218,457 (202,106-234,808)	--	New digital cameras used in <u>photocensus</u> . Highest population count since surveys began in 1972.	Higher than average (2017)
Population trend	2017 = increasing	--	Declined by 55,000 caribou between 1989 and 2001. Recovered to 169,000 by 2010 and continued to increase to 197,000 in 2013. Increasing at $\lambda = 1.35$ similar to growth rate between 1972-1989.	Increasing (2017)
Adult cow survival	2017 = no data	0.879	The last estimated survival rate (2011-12) was relatively high and was indicative of a growing population at that time. Results from new analysis expected early 2018.	No assessment (2017)
Calf birth rate	2017 = 0.88	0.83	29-year average = 0.81	Higher than average (2017)
Late June <u>calf:cow</u> ratio	2017 = 0.72	0.56	27-year average = 0.58	Higher than average (2017)
March <u>calf:cow</u> ratio	2017 = 35.8	--	17-year average = 0.35.	Average (2017, 2016 birth year)
Bull Ratio	2017 = no data	--	Attempted, poor weather. Next survey scheduled for 2018.	No assessment (2017)
Peak of calving	2017 = June 3, 2017	1 June		(Average 2017)

Indicator Table - Nov. 2016



Body condition				
Average <u>backfat</u>	F: 1.4 cm; M: 0.3 cm	2.6 cm	Caribou were generally not available to hunters in Old Crow in September but returned and were available in November. Caribou were available to hunters from the NWT delta communities September thru December on the north coast and in the Richardson Mountains.	Below average overall but good shape for time of year (Fall 2016)
Hunter assessment	F: 3.1 M: 2.9	2.9	Most samples were collected in November and December, few in September. <u>Hunters</u> assessment was based on condition for the time of year.	Higher than average (Fall 2016)
Condition of caribou	Good	N/A		Average (Fall 2016)
Habitat and other considerations				
Snow conditions winter (2015-16)	<u>Snow Depth</u> Eagle = 82.0 cm Ogilvie = 63.0 cm Old Crow = 68.0 cm North Slope = no data Richardson = no data <u>Snow Density</u> Eagle = 0.19 g/cm ³ Ogilvie = 0.20 g/cm ³ Old Crow = 0.18 g/cm ³ Richardson = no data North Slope = no data	<u>Depth</u> 77.5 cm 65.3 cm 73.5 cm no data no data <u>Density</u> 0.20 g/cm ³ 0.20 g/cm ³ 0.19 g/cm ³ 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 region (2016-17) Slightly below average snow depth in Ogilvie and Old Crow regions (2016-17) Average snow density in all areas (2016-17)
Wildland fires	2017 = data not yet available 2016 = 17.37 km ²	251 km ²	No fires in Yukon or NWT part of range. Very small fires in Alaska. Total of 15% of range affected by fires since 1960. 5 year average continues to decrease.	Well below average (2016)

Indicator Table - Nov. 2016



Linear disturbance and human development	2016-17 = No major increases	N/A	Seismic project completed in 2013-14 south of Eagle Plains created the following: 2124 km new seismic lines and 228 km new access roads.	No additional increases in 2016-17.
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