

Porcupine Caribou Herd



SUMMARY OF INDICATORS 2019

Presentation to:

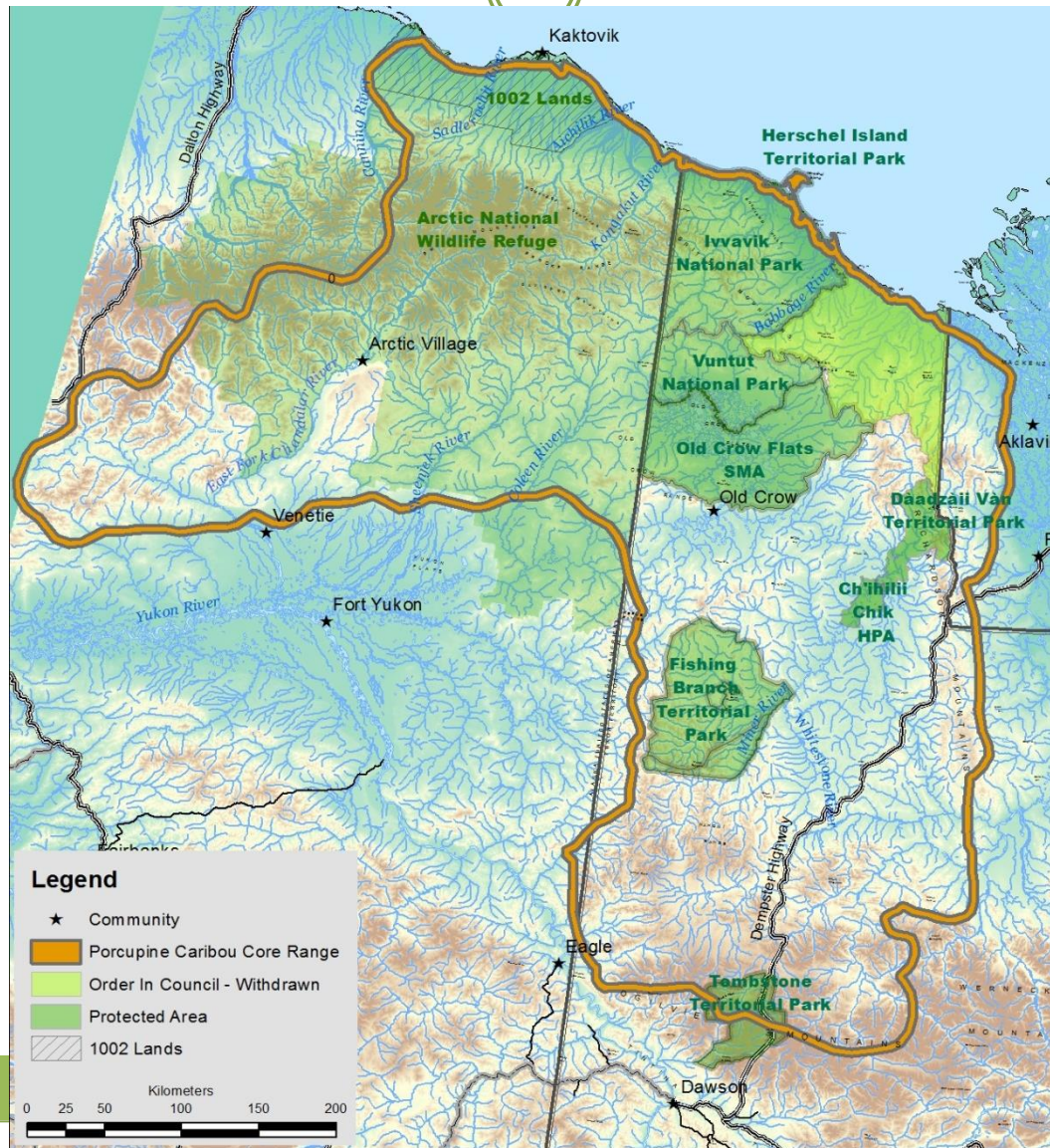
Annual Harvest Meeting

Inuvik, NT

February 12-13, 2019

By: Porcupine Caribou Technical Committee

Range of Porcupine Caribou Herd





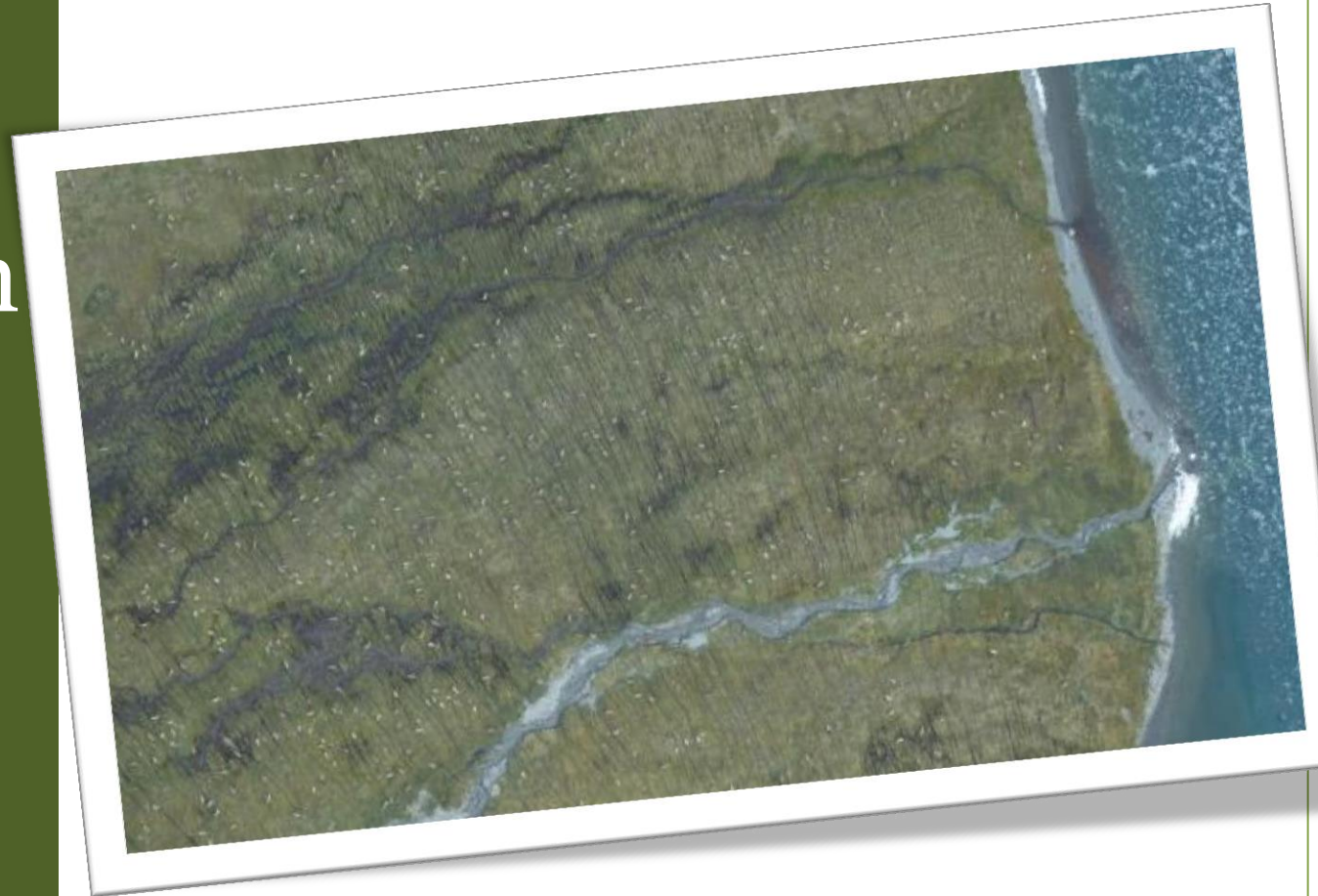
Population

Harvest

Body

Condition

Habitat



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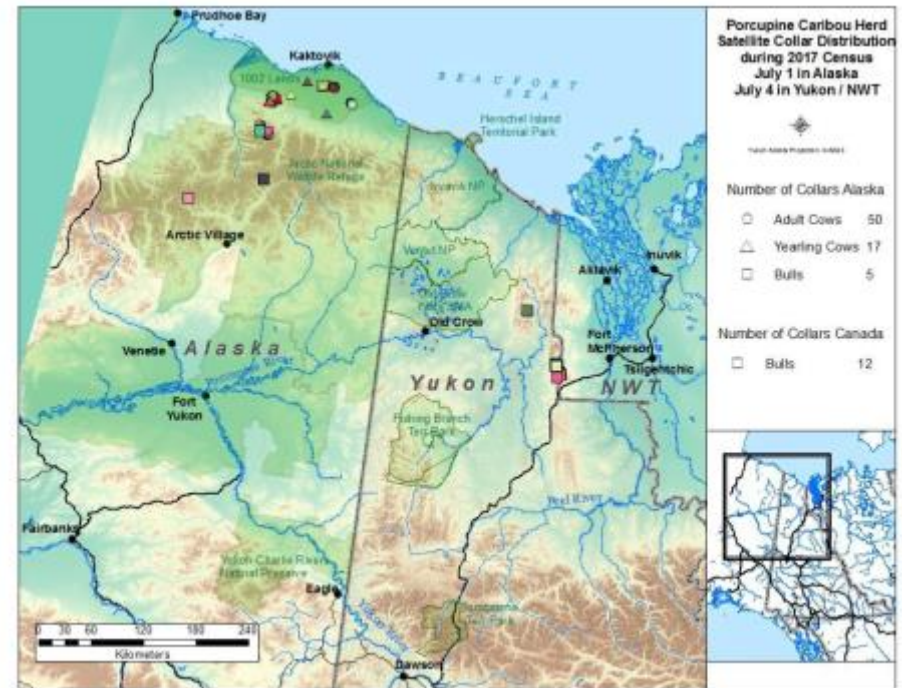
Overview

Population Size

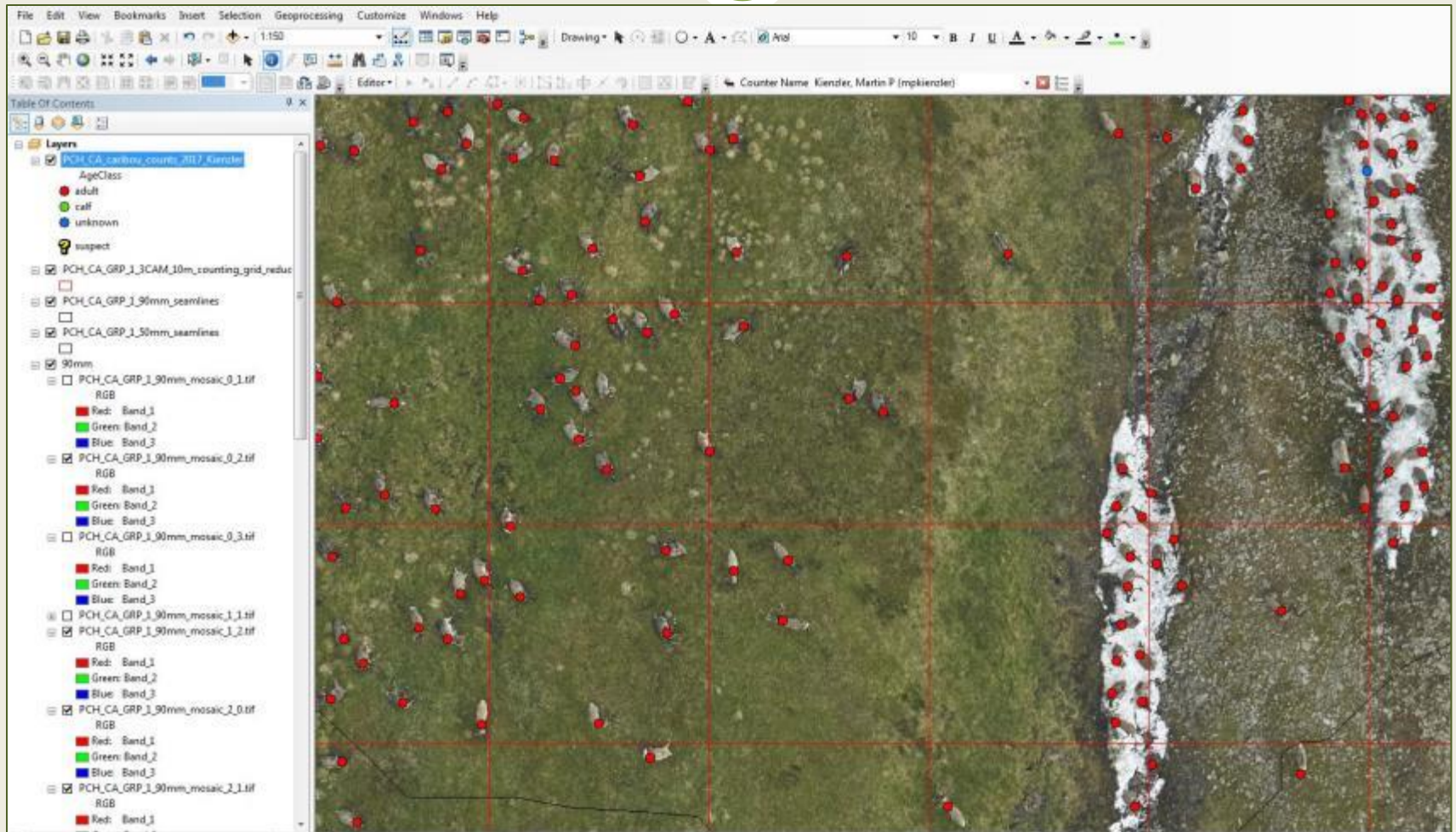
Methods

- Count caribou using a photocensus
- Last completed in 2017
 - *July 1st, 2017 Alaska*
 - *July 4th, 2017 Yukon*
 - *Photo-direct technique and digital photography*
- Population estimates scheduled every 2-3 years (2019)

Results



Population Size

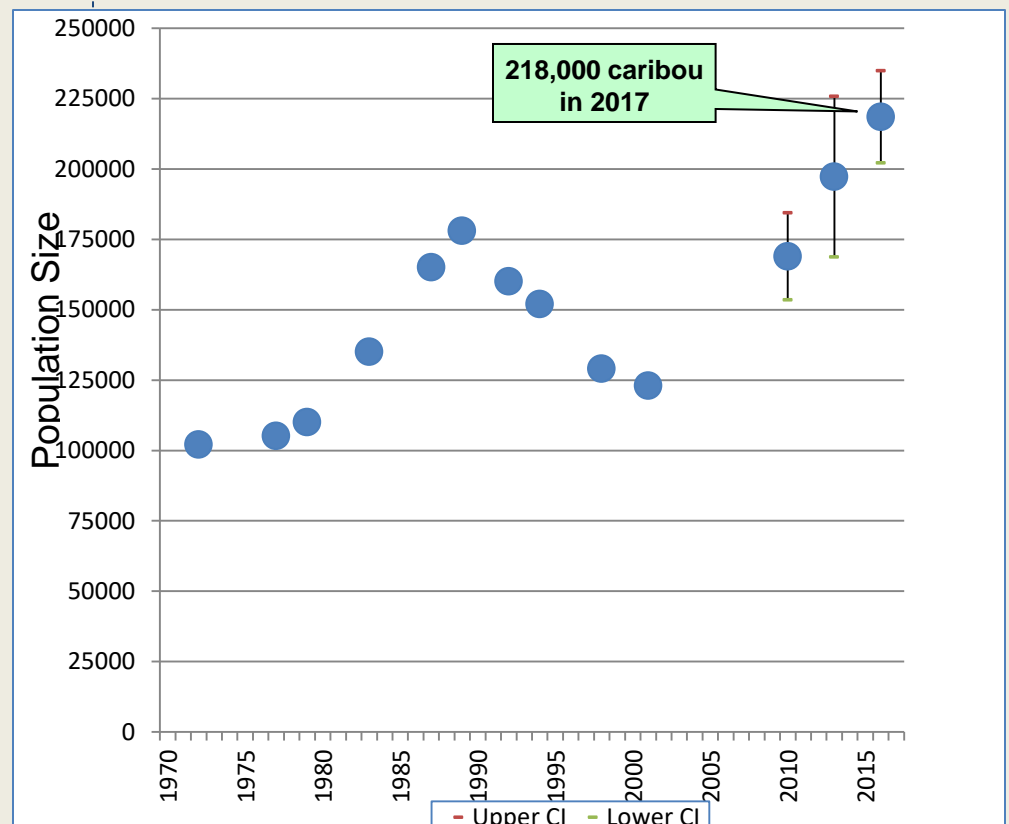


Population Size

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

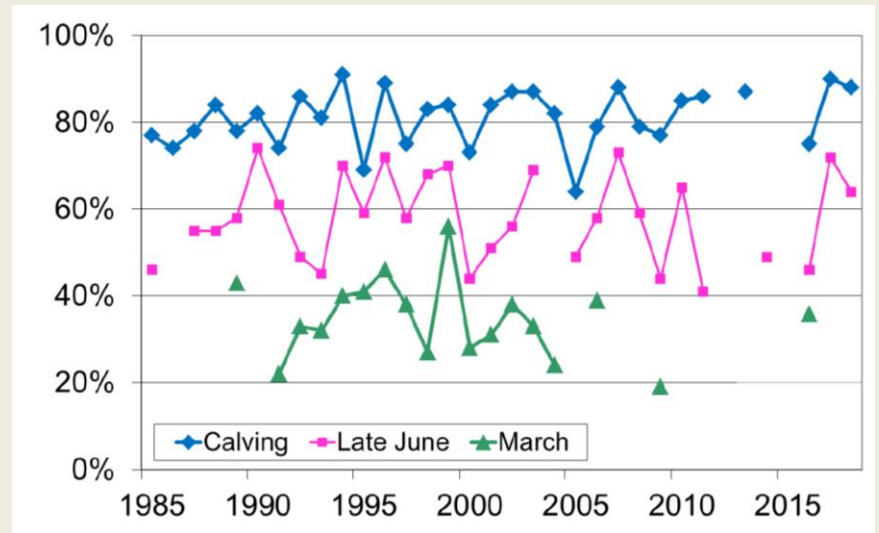


Calf Birth Rate and Survival

Methods

- Classify pregnancy on calving grounds (2018)
 - *88% of females pregnant*
 - *Long term average of 82%*
- Check to see how many calves survive after 1 month
 - *88% of those calves survived*
 - *Long term average is 86%*
 - *After 1 month: 64 calves per 100 cows*

Results



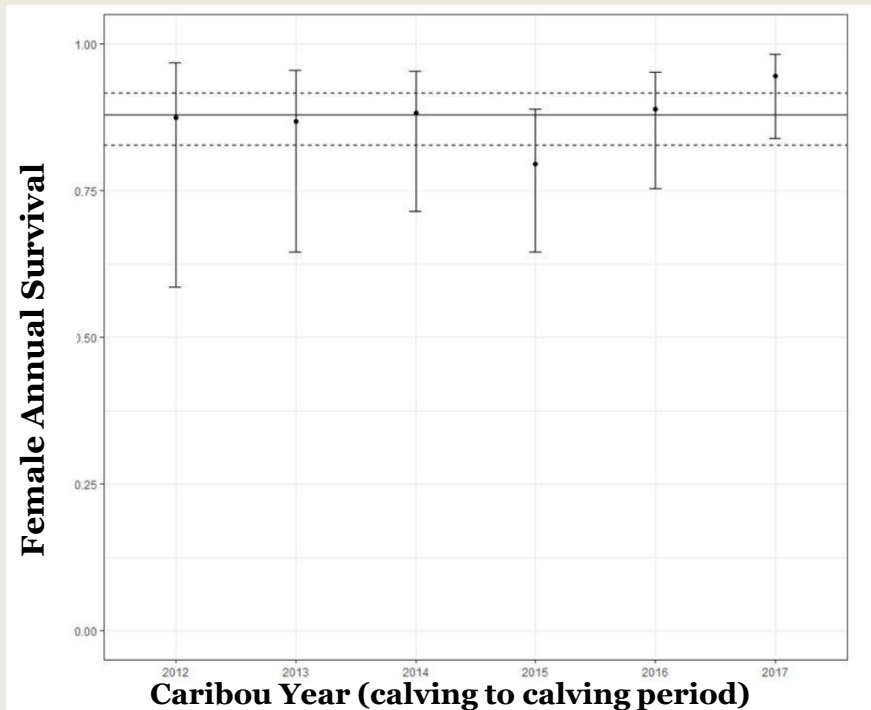
Adult Female Survival

Methods

- Percentage of females that survive each year
 - *Last completed in 2017*
 - *95.4% of adult females survived (83.9%-98.2%)*
 - *Survival is estimated using GPS collar data*
 - *From 2012-2017, survival ranged from 79.6%-94.5%*

Results

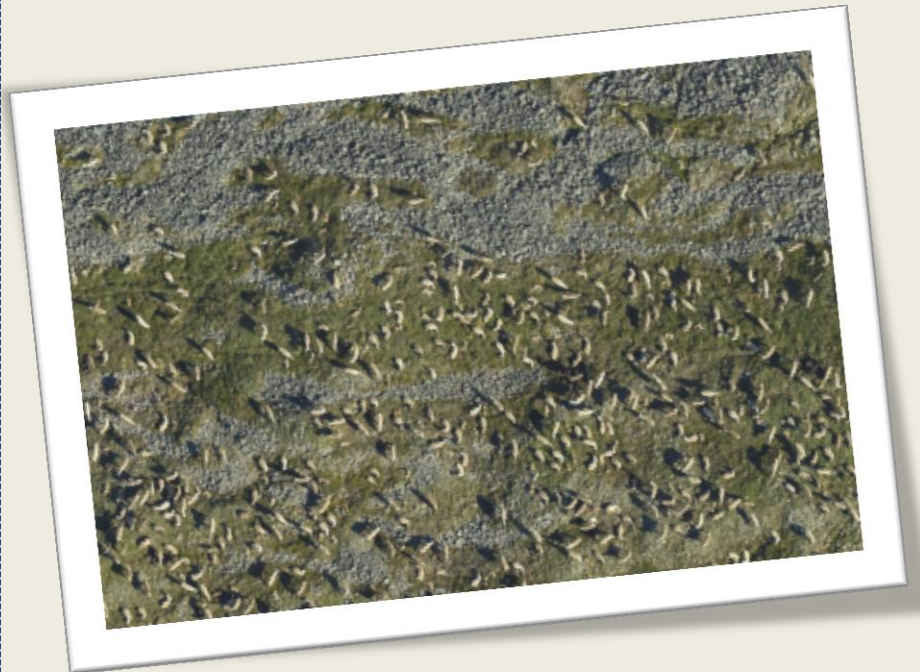
Annual Survival of Adult Female Porcupine Caribou
(Error bars are 95% confidence limits)



Population Roll Up



- Herd at the highest recorded population size
- High adult female survival
- Calf-cow ratio higher than average
 - Pregnancy rate higher than average
 - Calf survival average



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Population

Harvest

Body
Condition

Habitat



Peter Mather

Overview

Harvest Monitoring



Methods

1. Interview based sampling survey of user groups
 - Harvest estimates, sex ratio of harvest
 - Review these later today



Population

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Overview

Caribou Body Condition



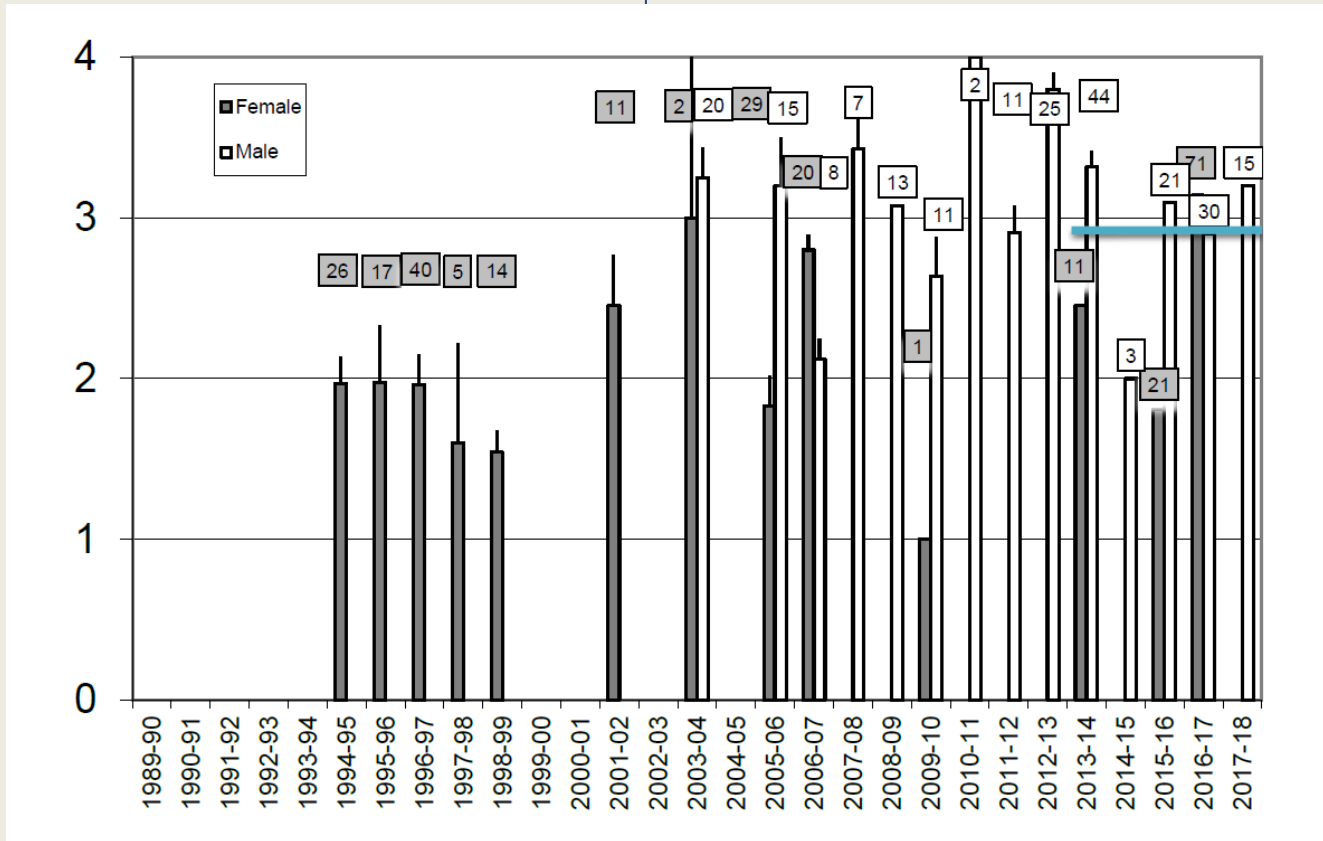
Methods

- How healthy individual caribou are by measuring back fat and rating animals
 - *Fall and winter 2017-2018 hunter samples submitted (Old Crow and NWT)*
 - *15 bulls sampled for back fat*

Results

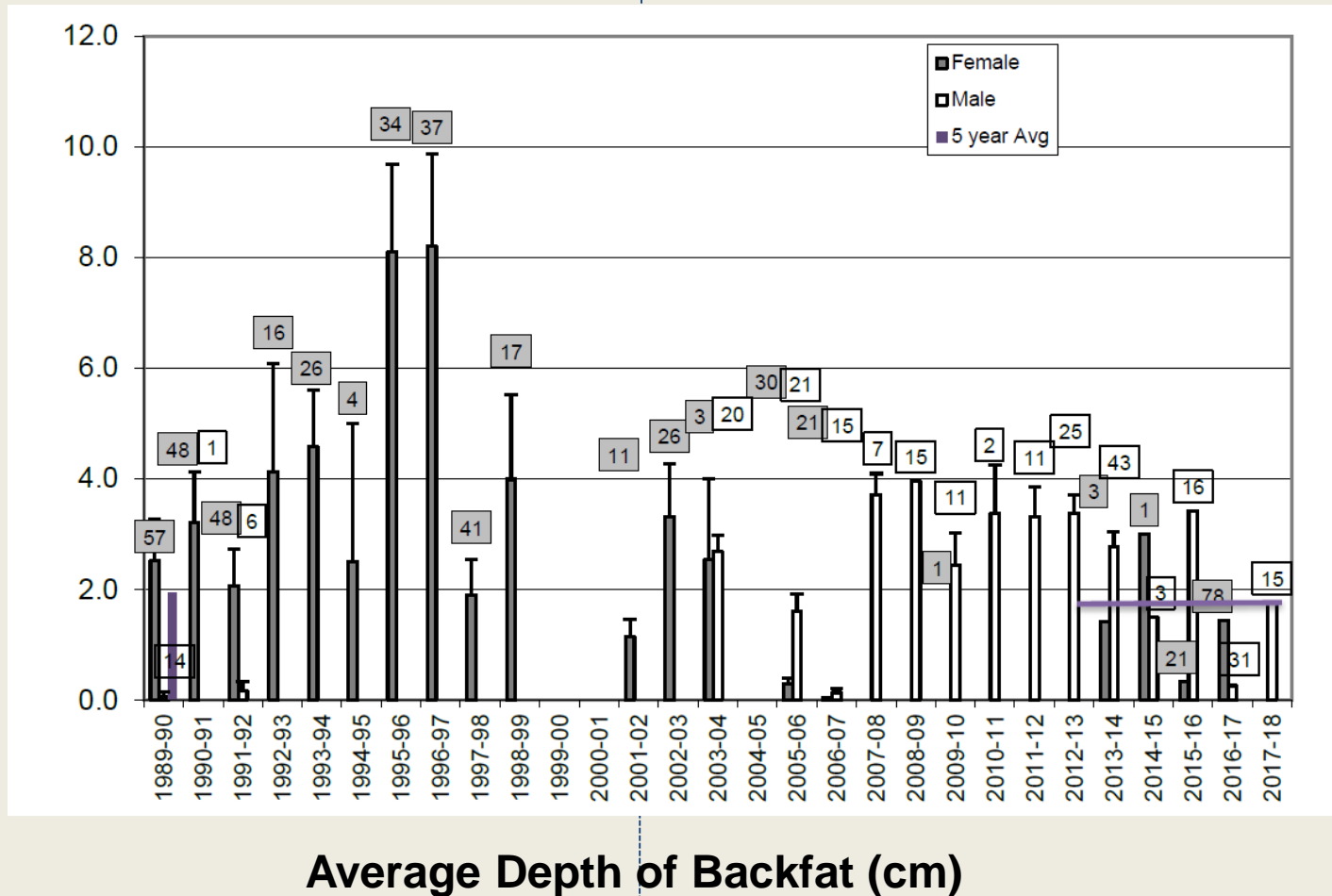
- Generally – very good shape for time of year
- Average score of 3.2/4 which is above the five year average (2.9/4)

Caribou Body Condition



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

Caribou Body Condition





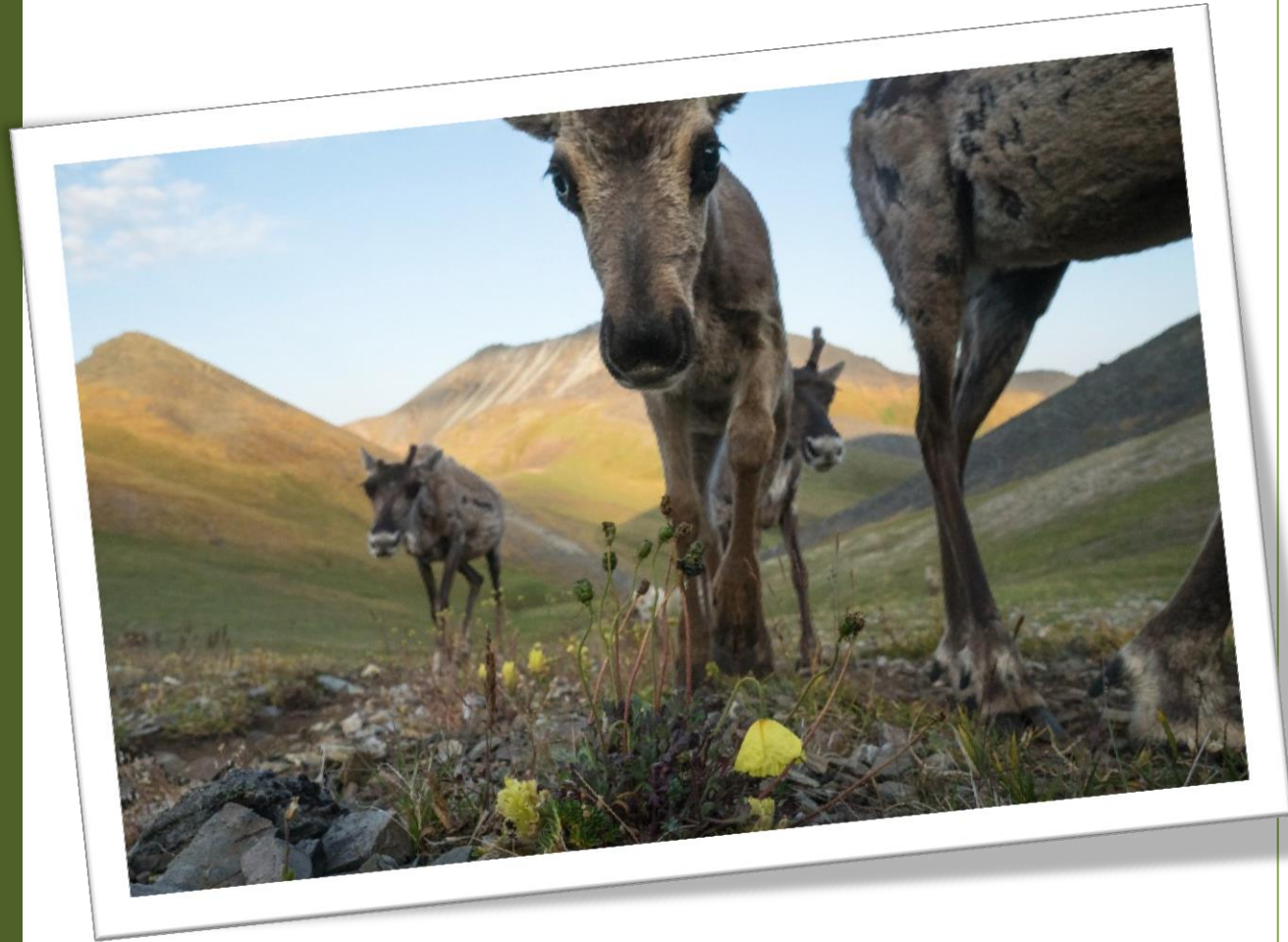
Population

Harvest

Body

Condition

Habitat



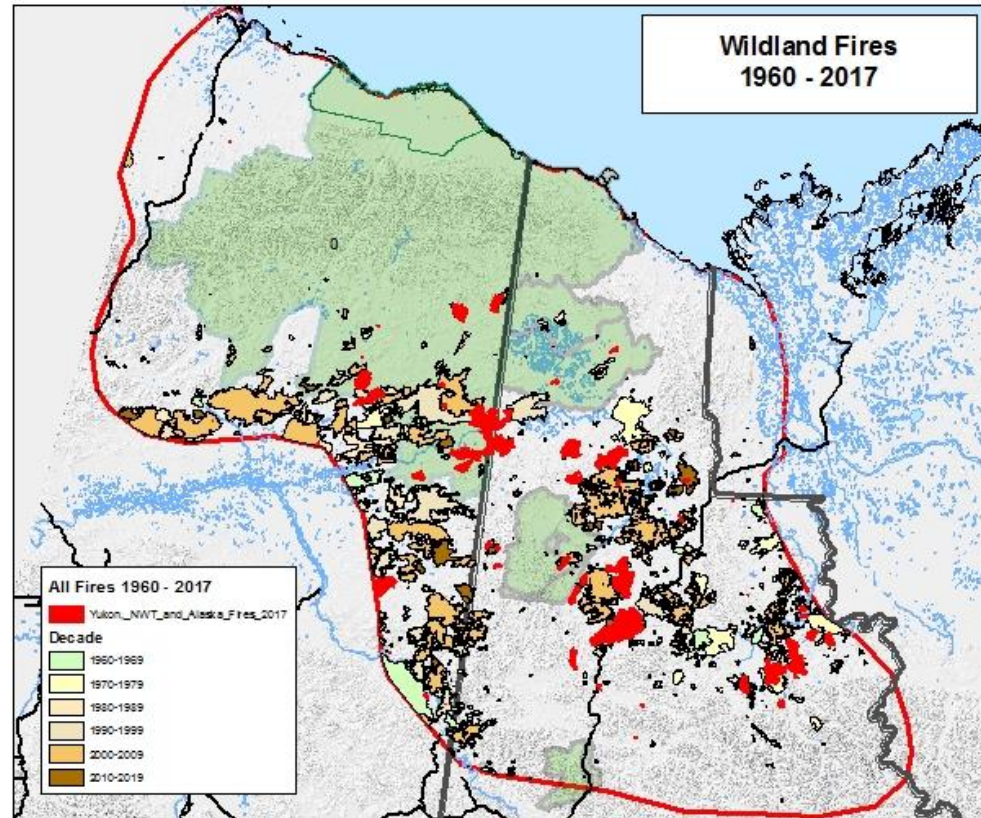
Overview

Wildland Fires

Methods

- Amount of PCH range burned as an index of range condition
- 1960—2017
- Fires in red are new as of 2017
- 2018 data not yet available however no significant fires noted

Results

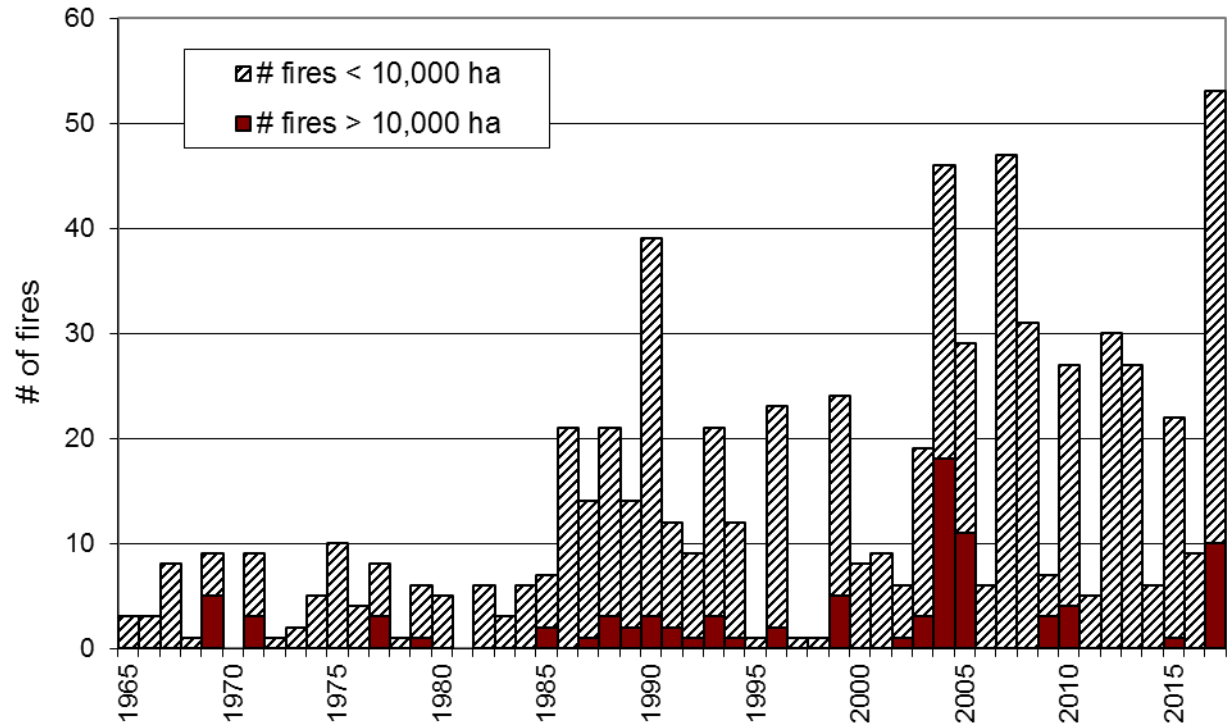




In 2016 there were 9 fires in Alaska, and no fires within the YT and NWT portion of the PCH range

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

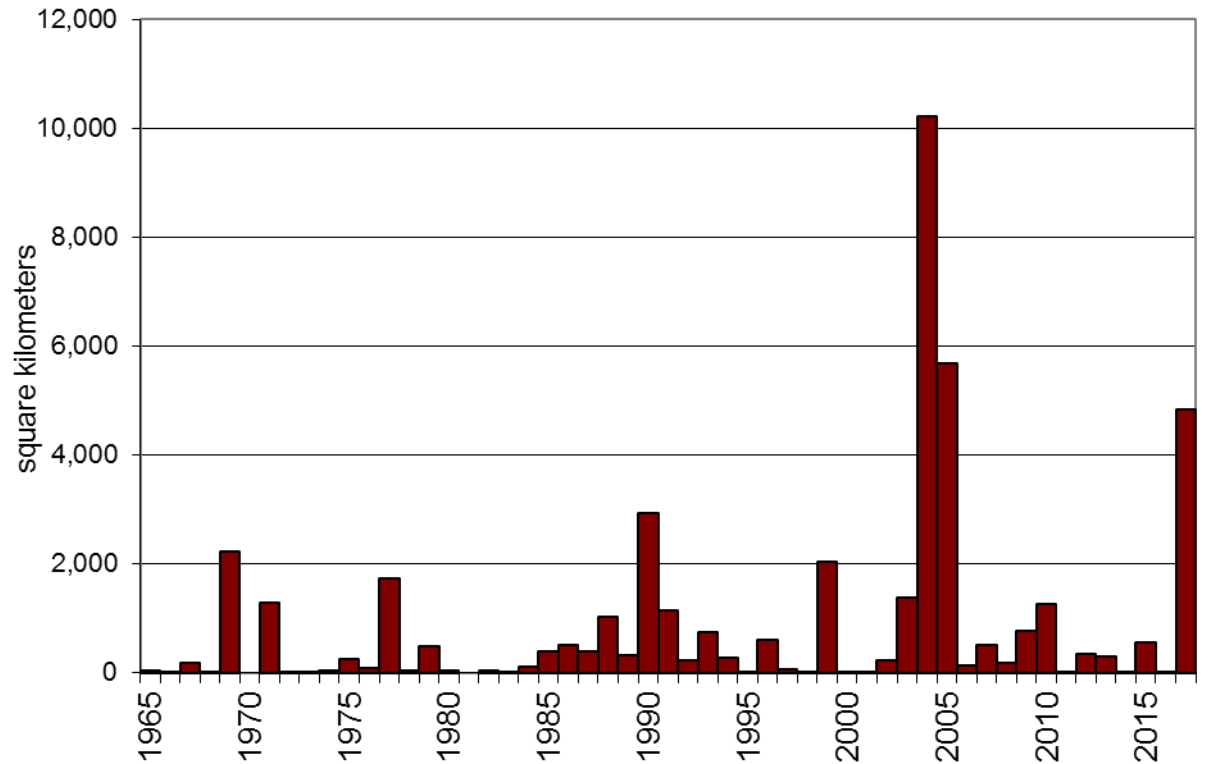


A fraction of the area burned in the previous 5 years

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

Snow Conditions

Methods

- Index of winter conditions
- Measurements of depth and snow density measured at 17 permanent locations
- 1977-2018

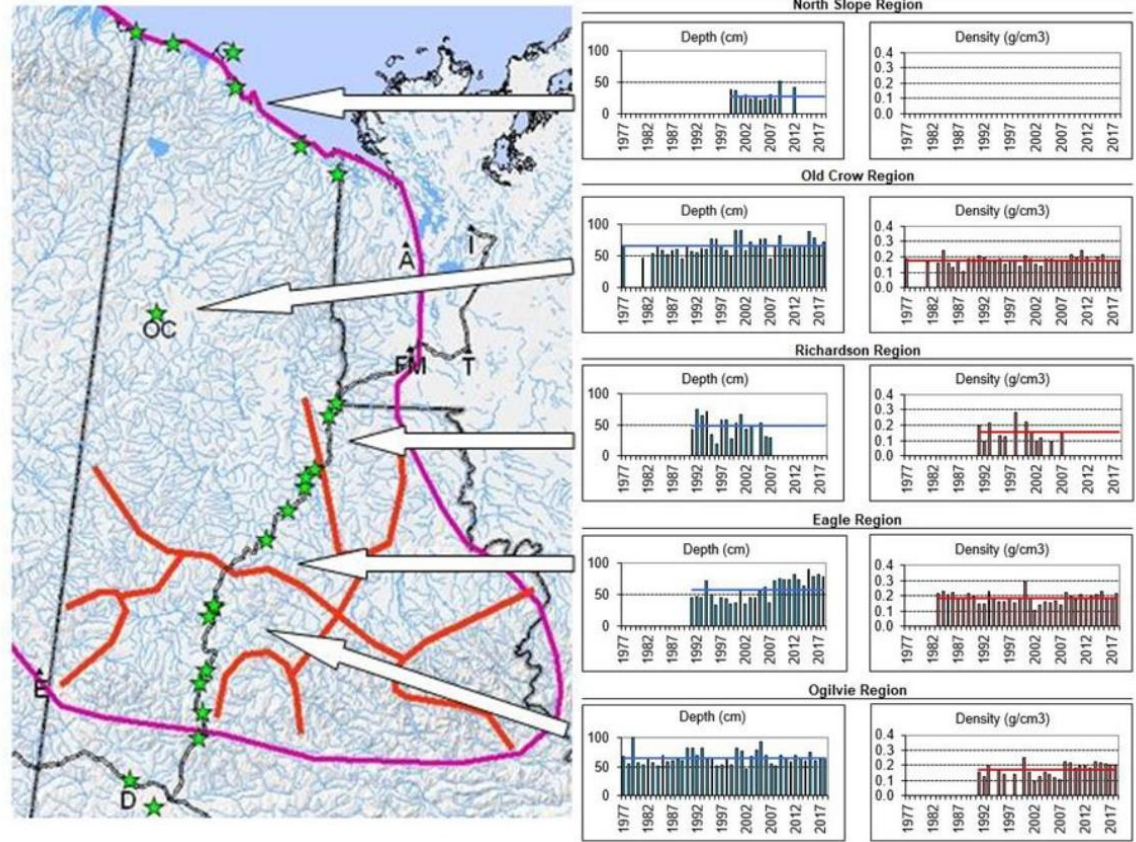


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No trends or large changes from long term averages

Old Crow and Ogilvie = average snow depth and density

Eagle River drainage = increasing trend towards a deep snowpack over the last decade

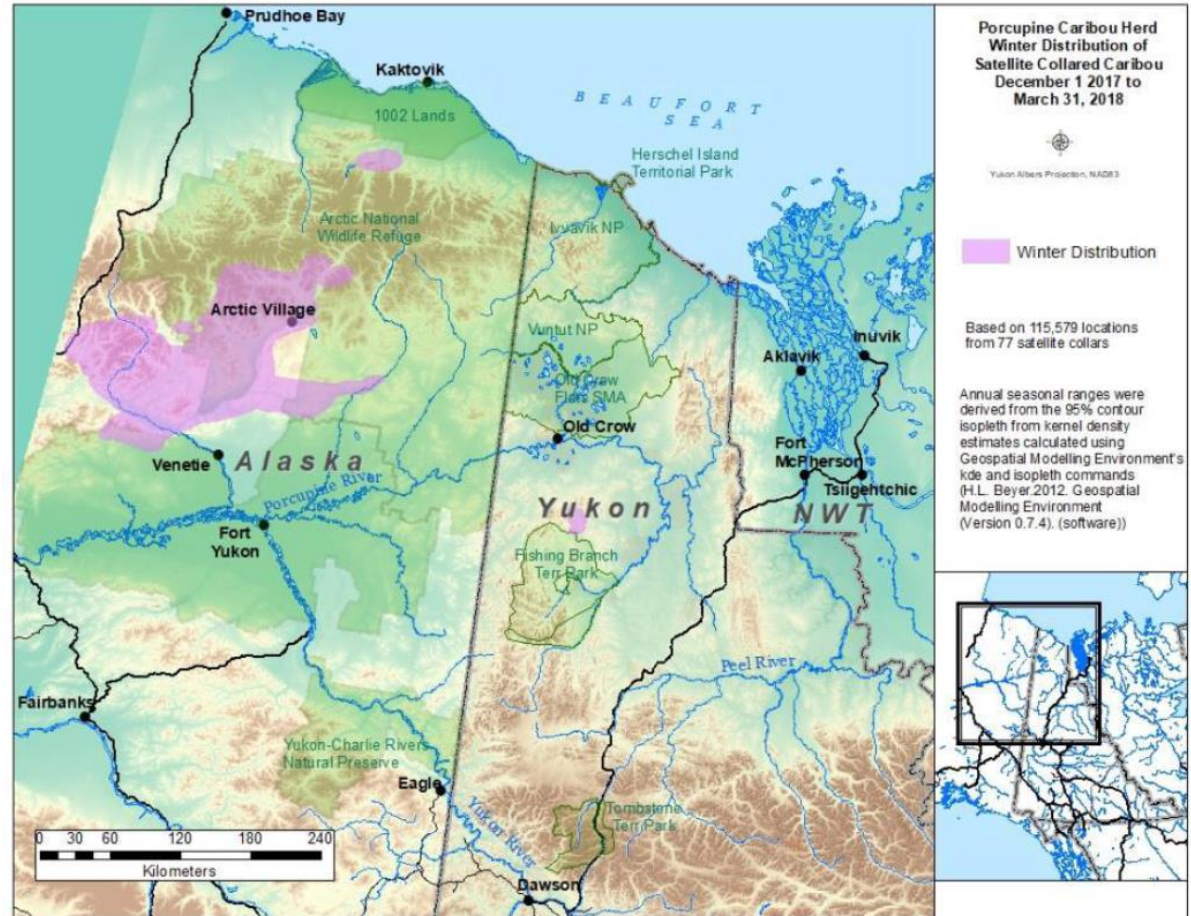


Snow Conditions



Winter distribution
in Alaska between
Arctic Village and
the Dalton Highway

Snow depth and
density was above
average in the Eagle
Region, but near
average in the
Ogilvie and Old
Crow regions



Snow Conditions

Habitat Roll Up



- Habitat did not change much over the year
- Snow conditions average in most places except for the Eagle Region



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Questions?



Peter Mather

Indicator Table - Nov. 2018



Indicator	Value	Average	Notes	Assessment and Year Represented
Population size and trend				
Population size	2018 = no data, no scheduled census	--	Successful photosurvey in 2017 found 218,457 (95% CI = 202-106 - 234,808) caribou. A population estimate is scheduled every 2-3 years.	Highest measured population size (2017)
Population trend	2018 = no data, no scheduled census	$\lambda = 1.037$ (2010-2017)	Declined by 55,000 caribou between 1989 and 2001. Recovered to 169,000 by 2010 and continued to increase to 218,457 in 2017. Annual growth rate almost identical to growth phase from 1972-1989.	Increasing (2017)
Adult cow survival	2018 = no data 2017 = 95.4% (95% CI = 83.9-98.2%)	87.9% (2012-2017)	Survival analysis also completed for adult males (2015-2017) and yearling females (2017).	Higher than Average (2017)
Calf birth rate (Parturition rate)	≥ 4 yr olds = 0.88	0.84 (5-yr average)	29-year average = 0.81	Higher than average (2018)
	3-year olds = 0.70 (3 yr average) 2016 = 0.78 2017 = 1.00 2018 = 0.33	0.59 (3-year running average 2015-2017)	Used 3-year average due to small sample sizes. Compared to other herds in Alaska, 3-yr old parturition for PCH has been good and similar to other growing populations.	Higher than average (2018)
Post-calving survival	2018 = 0.88	0.86	Long-term average. Includes ≥ 3 year old adult cows	Higher than average (2018)
Late June calf:cow ratio	2018 = 0.64	0.58	Long-term average. Includes ≥ 3 year old adult cows	Higher than average (2018)

Indicator Table - Nov. 2018



March calf:cow ratio	2018 = no data	--	17-year average = 0.35. Surveys in March 2017 were 0.35.	
Bull Ratio	2018 = no data	--	Next survey scheduled to coincide with photosurvey year	
Peak of calving	2018 = June 6, 2018	4 June	Poor weather early in surveys may have biased date, calf survival still above average.	Later than average (2018)
Body condition				
Average backfat	Female: --; Male: 1.8 cm	1.9 cm	Small sample size of 15 males. Acquired samples late season.	Average (Fall 2017)
Hunter assessment	Female: --; Male: 3.2	2.9	Small sample size of 15 males. Acquired samples late season.	Slightly above average (Fall 2017)
Condition of caribou	Male: Good for that time of year	N/A		Average (Fall/Winter 2017)
Habitat and other considerations				
Snow conditions winter (2017-18)	<u>Snow Depth</u> Eagle = 79.0 cm Ogilvie = 63.7 cm Old Crow = 72.0 cm North Slope = no data Richardson = no data	<u>Depth</u> 78.7 cm 64.9 cm 74.8 cm no data no data	Eagle Region appears to have an increasing trend towards a deep snowpack over the last decade. Snow density increasing in Ogilvie Region. Late spring snow (1-2 feet) on the coastal plain in May-June, 2018. Foothills and British Mountains blown clear.	Above average snow depth and density in Eagle region (2017-18)
	<u>Snow Density</u> Eagle = g/cm ³ Ogilvie = g/cm ³ Old Crow = g/cm ³ Richardson = no data North Slope = no data	<u>Density</u> 0.20 g/cm ³ 0.21 g/cm ³ 0.19 g/cm ³ no data no data		Average snow depth and density in Ogilvie and Old Crow regions (2017-18)

Indicator Table - Nov. 2018



Wildland fires	2018 = data not yet available however no significant fires noted 2017 = 4,837.5 km ²	1,147.3 km ²	Total of 17% of range affected by fires since 1960. Third highest area burned since 2004 and 2005. Important "Horseshoe" area burned in winter range.	Well above average (2017)
Linear disturbance and human development	2017-18 = No major increases	N/A	Oil and gas lease sales and winter seismic testing (2019) proposed for 1002 lands in Alaska.	No increases (2017-18)