Porcupine Caribou Herd

SUMMARY OF INDICATORS

Presentation to PCMB - Annual Harvest Meeting
by Porcupine Caribou Technical Committee
11 Feb 2015, Inuvik, NWT

Background

Population

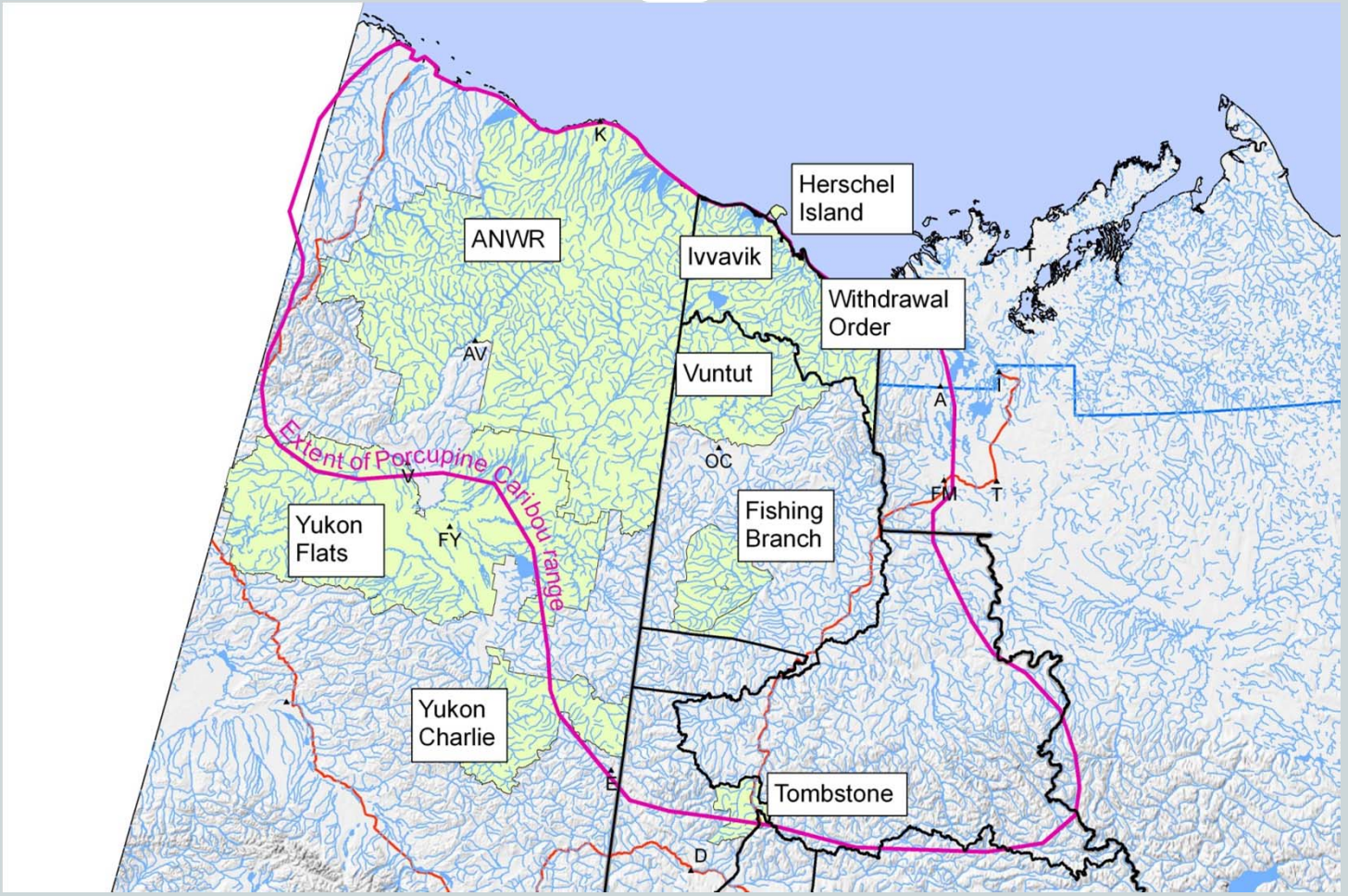
Harvest

Caribou Body Condition

Habitat

Outline

Range of Porcupine Caribou Herd



PCH Co-management

- *Harvest Management Plan For PCH in Canada (2009) and Implementation Plan (2010)*
  - Outlines long-term framework for harvest management actions based on status of herd
  - Annual Harvest Meeting 2nd week in February to assess status of herd based on best available information
  - Porcupine Caribou Technical Committee presents current information about the herd
  - PCMB determines and recommend management actions
  - Parties implement PCMB recommendations

Background

Population

Harvest

Caribou Body Condition

Habitat

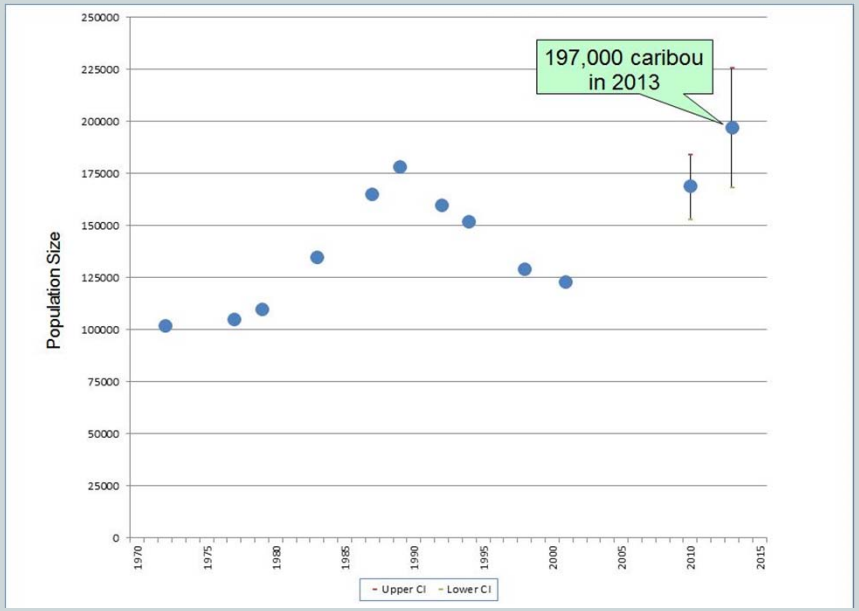
Outline

Population Size

Methods

- Photocensus not attempted in 2014
- Last completed in 2013
- 197,228 caribou
- Added 95% confidence limits (168,667-225,789) for census

Results



Population Size

Methods	Results
• Herd Estimator to be used in the absence of photocensus to guide PCMB recommendations • Estimate herd size and how uncertain we are using information from surveys	• No model available due to lack of harvest data • Harvest is an input for the model

Adult Female Survival

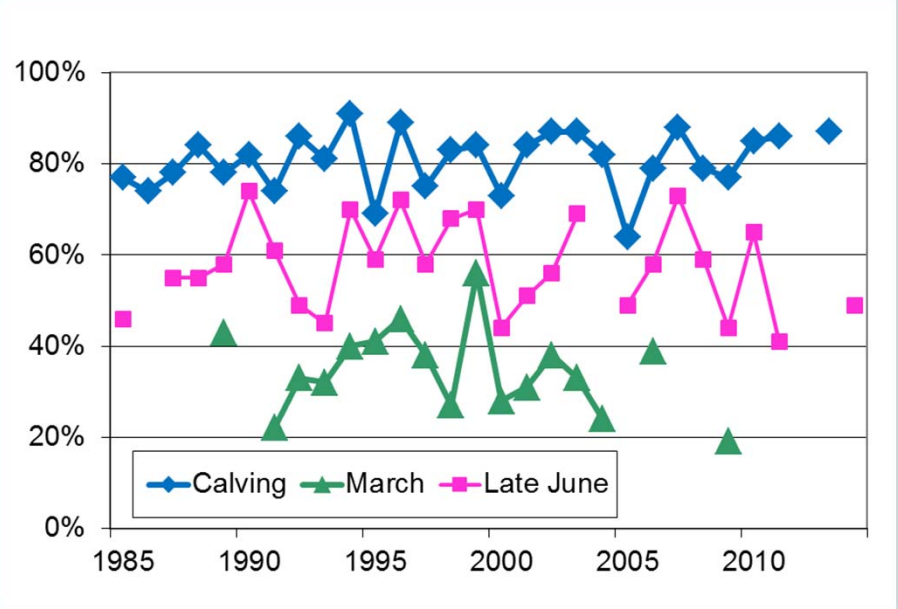
Methods	Results
• Percentage of females that survive each year • One of the most important rates for the herd • Last conducted 2003-2009	• No updates – PCTC assessing how to monitor continuously

Calf Birth Rate and Survival

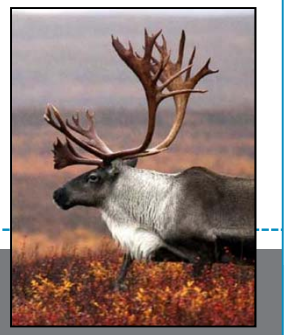
Methods

- Classify pregnancy on calving grounds
- Calving survey 2014 not successful
- Check to see how many calves after 1 month
- Post calving survey calf:cow ratio = 49%

Results



Adult Sex Ratio



Methods

- Locate collared adults during rut
- Classify approx 200 individuals adjacent to collar
- Classify into 3 bull classes, cows, YOY

Results

- 2010 = 57:100 (Bull:Cow)
- 2012, 2013 numbers not available due to weather and caribou movements
- Next survey 2016

Background

Population

Harvest

Caribou Body Condition

Habitat

Outline

Harvest Monitoring

- Data being collected in each community is nearing objectives
- PCH Harvest Database is now available to all communities
- Harvest is a key input into the “Herd Estimator” model
- Harvest estimate for 2013-14 will be presented later today

Harvest Monitoring

Methods	Results
• Hunters needs' met? • Arctic Borderlands Ecological Knowledge Coop • Interviews from 2012 and 2013	• Majority (69%) met needs for caribou in 2012-2013 • Slightly higher than 5-year average • Interviews for 2014 to be completed in Feb. 2015

Background

Population

Harvest

Caribou Body Condition

Habitat

Outline

Caribou Body Condition

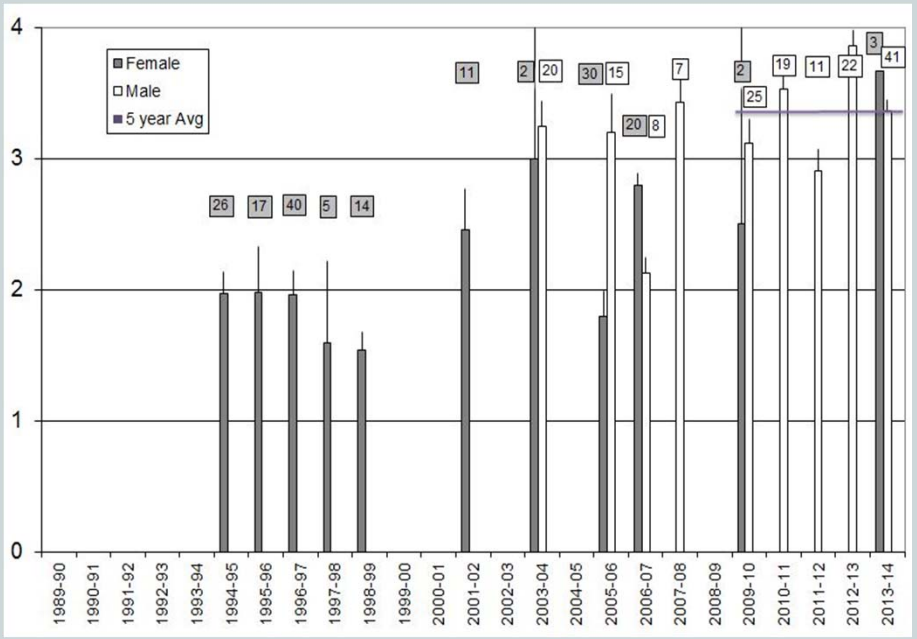
Methods

- How healthy individual caribou are
- Measure back fat
- Hunter samples and observations
- Conducted 1989 - current

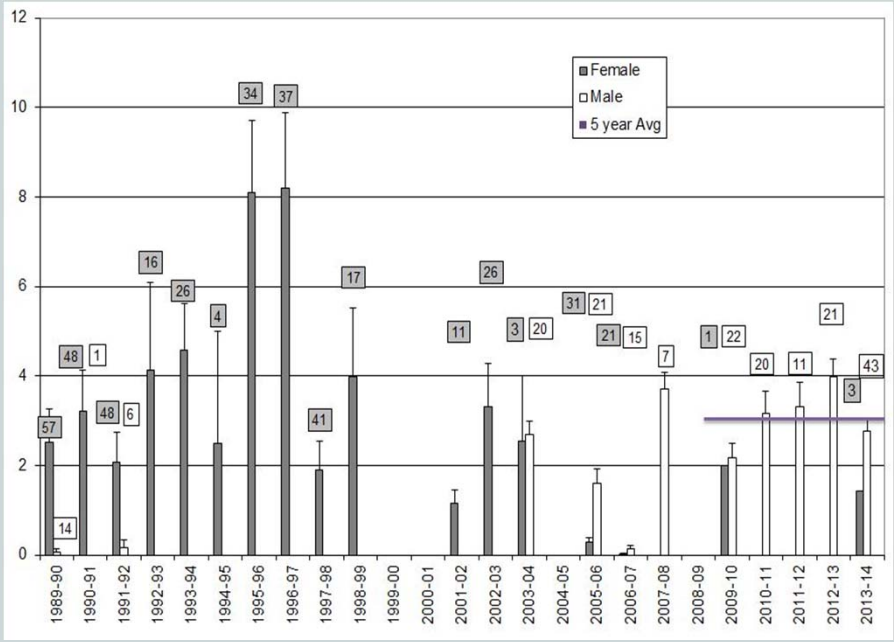
Results

- Overall condition is very good
- Index of mostly harvested males
- All animals reported are for fall and winter 2013-14

Caribou Body Condition



Average condition of harvested caribou



Average Depth of Backfat

Caribou Body Condition

Methods

- Arctic Borderlands Ecological Knowledge Coop
- Body condition and abnormalities
- Index for entire herd
- Interviews from 2012 and 2013

Results

- Most often in good condition across all seasons for 2012-13
- Fall caribou reported in best condition
- No trend in the number of abnormalities reported

Background

Population

Harvest

Caribou Body Condition

Habitat

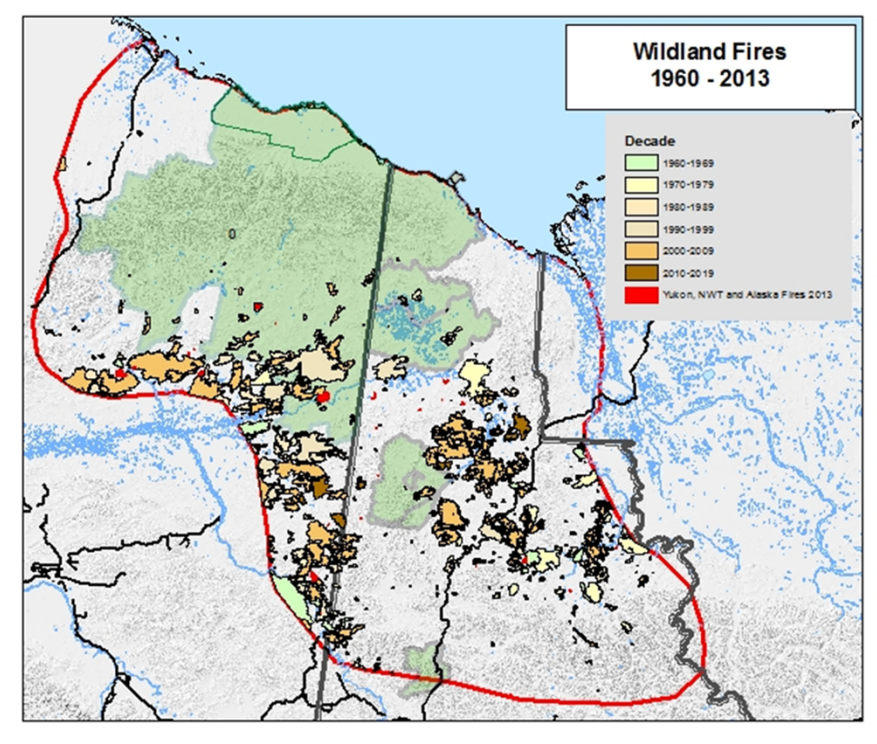
Outline

Wildland Fires

Methods

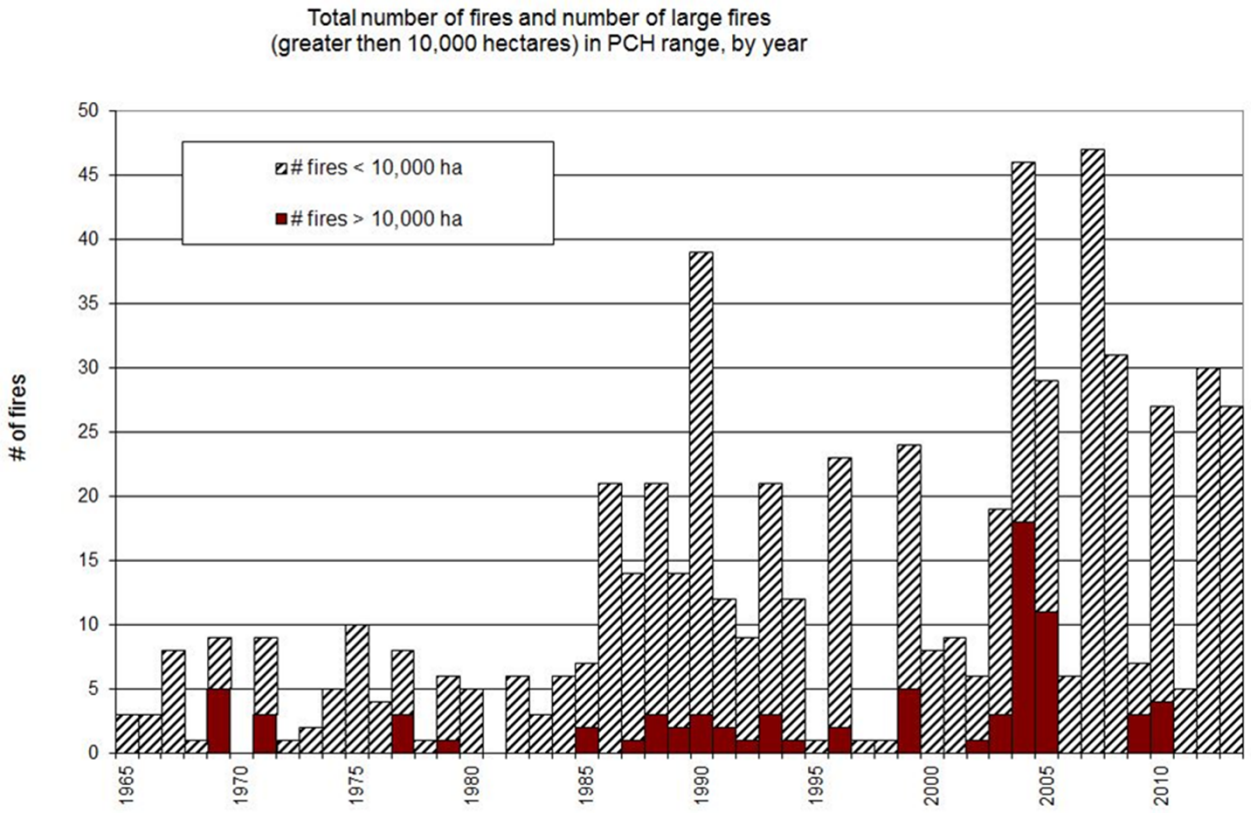
- Amount of PCH range burned as an index of range condition
- Historic fire perimeter data downloaded
- 1965—2013 summarized

Results



Twenty-seven fires in 2013, most of which were in Yukon (15) followed by Alaska (12) and NWT (0).

The largest fire was ~9500 ha in Alaska

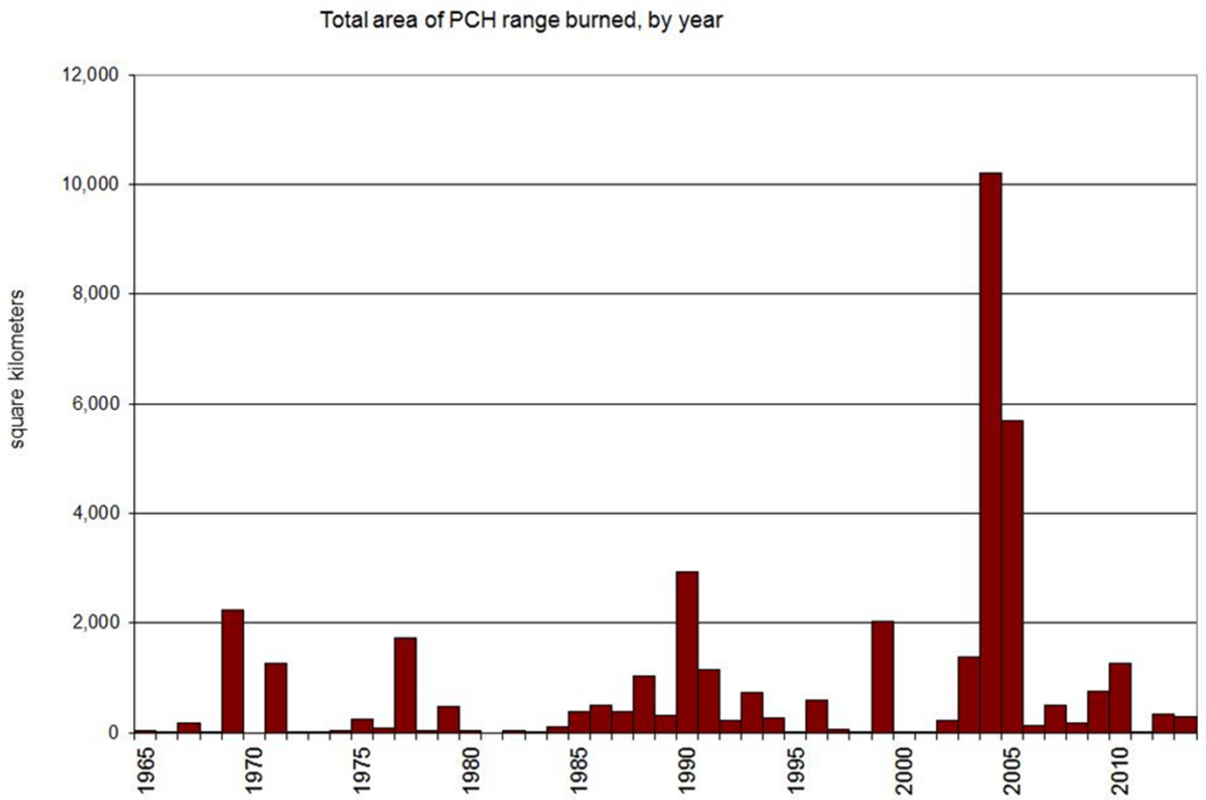


Wildland fires in PCH Range

Wildland fires in PCH Range

Lower than average area burned in previous 5 years

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

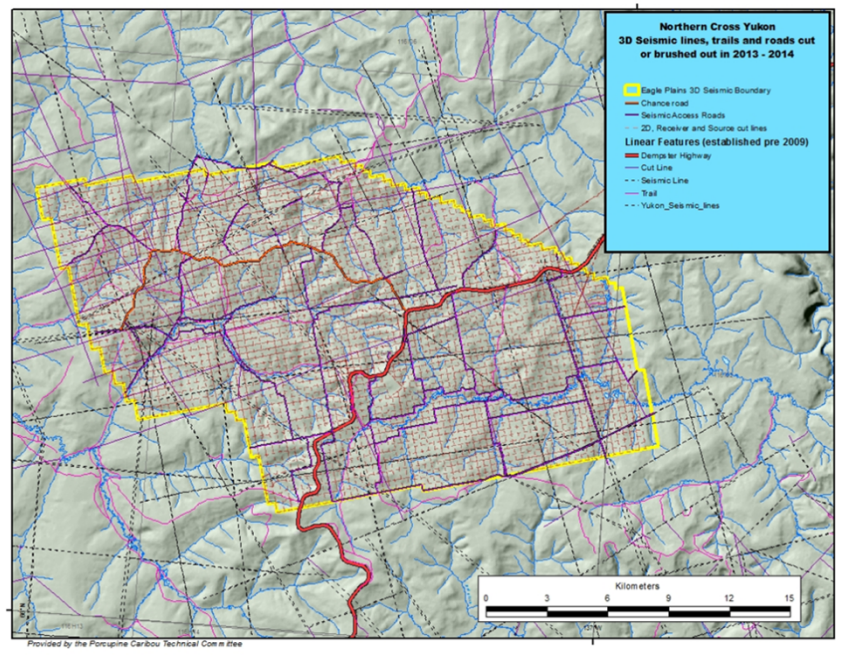


Human Disturbance and Footprint

Methods

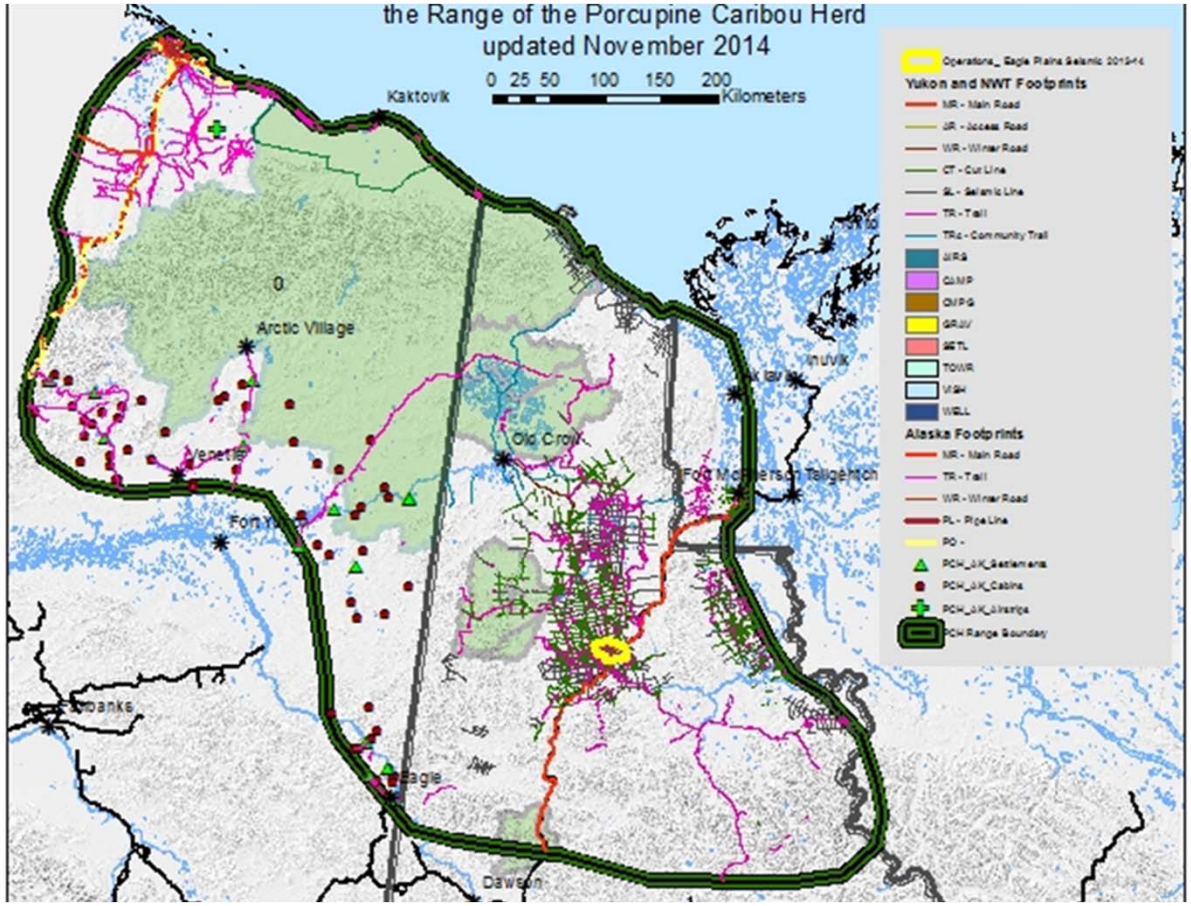
- Measured total linear footprint for each disturbance type

Results



Seismic lines = 5.35 km^2
(2124 km from 1.75-5 m)

Access roads = 228 km
(varied width 3-5 m)



Human Disturbance

Snow Conditions

Methods

- Index of snow depth and hardness
- Measurements of depth and snow density measured at 17 permanent locations
- 1977-2014

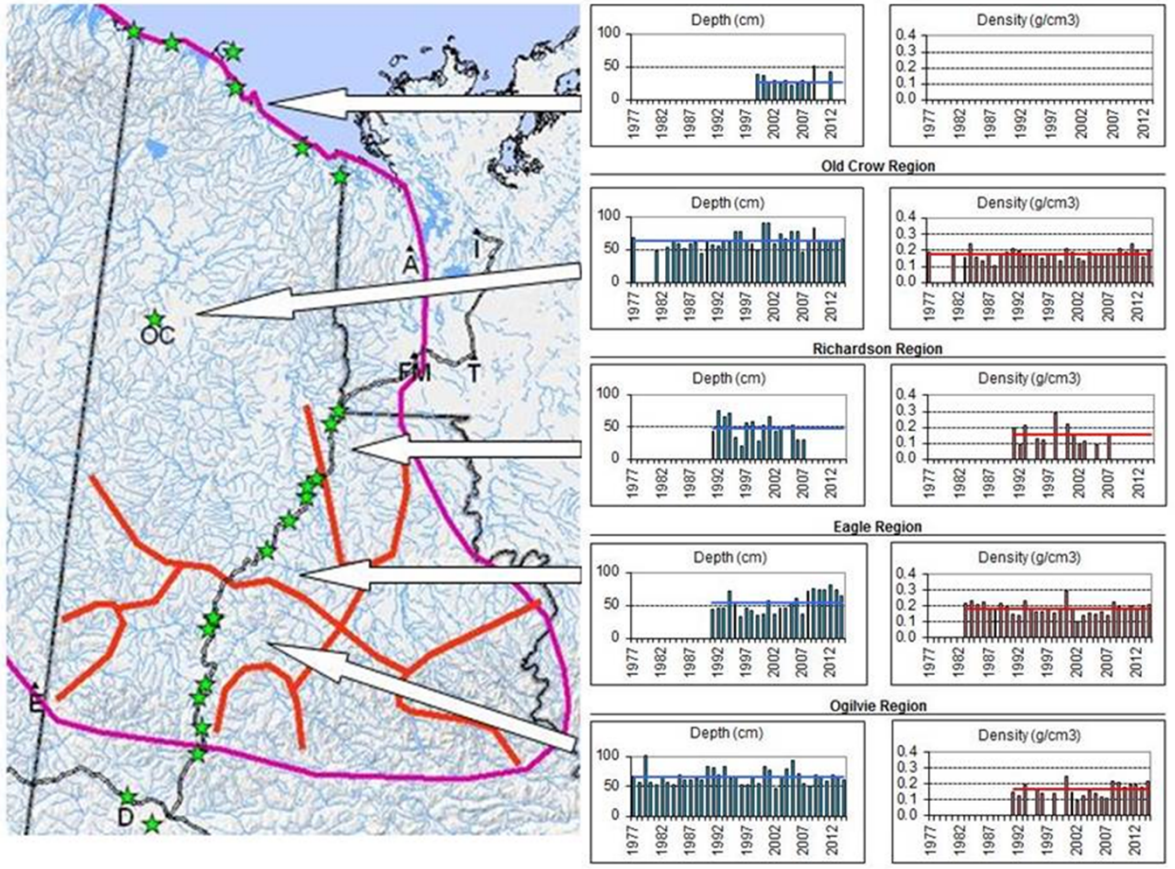
Results

No trends or large changes from long term averages

Ogilvie = depth slightly below average, density slightly above average

Eagle = slightly deeper snow than average, densities average, significant ice crusts March 2014

Old Crow = average depth and density



Snow Conditions

Extreme Weather Events

Methods

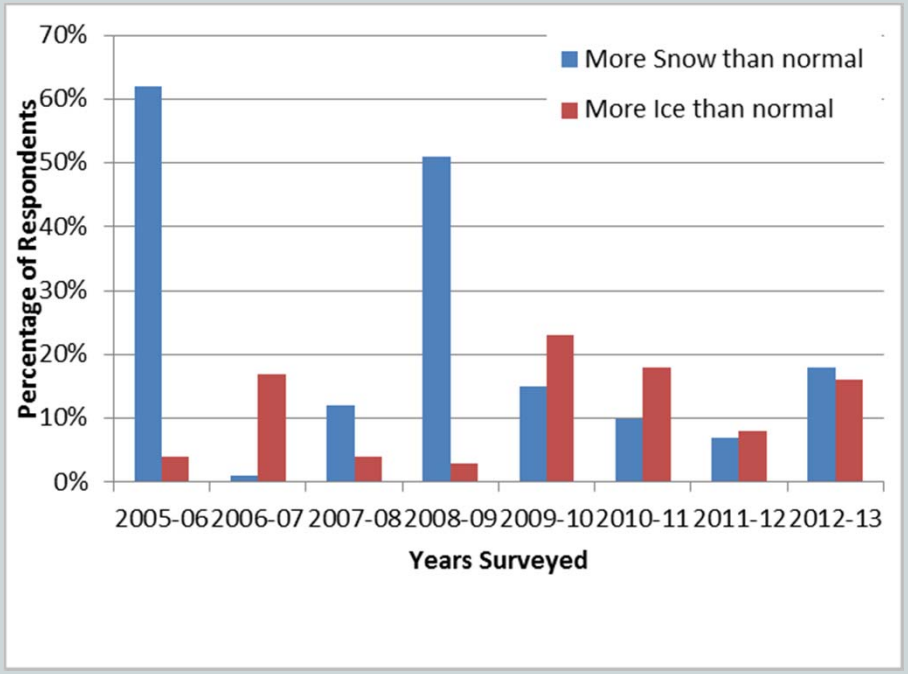
- Arctic Borderlands Ecological Knowledge Coop
- Record unusual or rare weather events (icing and snow)
- Interviews for 2012 and 2013

Results

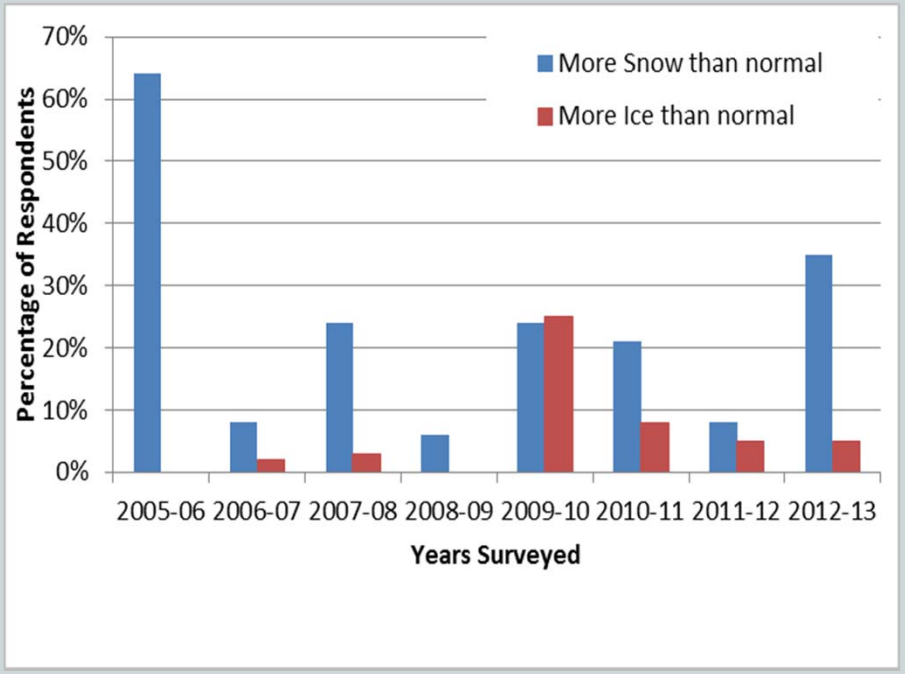
- Early winter
  - About or slightly below average snow levels
  - more icing events than average
- Late winter
  - Significantly more snow than average
  - fewer icing events than average

Extreme Weather Events

October - December



January - March



Questions?

Indicator Table - Nov. 2014

Indicator	Value	5 year average	Notes	Assessment and Year Represented
Population size and trend				
Population size	2014 = no data	--	Last census in 2013 (197,000).	
Estimated population	2014 = no data	--	The Herd Estimator requires caribou harvest data as a parameter in the model. Harvest data was not completed in time to be incorporated into the model.	
Population trend	2014 = no data	--	Declined by 55,000 caribou between 1989 and 2001. Recovered to 169,000 by 2010 and continued to increase to 197,000 in 2013.	
Adult cow survival	2014 = no data 2003 to 2006 study = 0.825 2011-12 = 0.879	0.879	Annual survival is quite variable but is a key variable in determining the population trend for the herd. This survival rate is relatively high and is indicative of a growing population.	
Calf birth rate	2014 = no data	0.838	24-year average = 0.81 No data due to adverse weather conditions	
Late June calf:cow ratio	2014 = 0.49	0.58	29-year average = 0.55	Lower than average (2014)
Calf survival to 9 months	2014 = no data	0.36 (13 years)	Exceeded survival target of 0.30. Missing 2005, 2007 to 2011 due to overlap with other herds.	
Bull Ratio	2014 = no data	--	Cancelled in 2013 due to caribou mixing with Central Arctic Herd. Poor results in 2012. Next survey scheduled for 2016	

Indicator Table - Nov. 2014

Peak of calving	2014 = no data	1 June	No data due to adverse weather conditions. Average is within normal range	
Harvest				
Total harvest (2011/12)	---	---	Not available in time for report	TBA (2013-4))
% females in harvest	---	---	Not available in time for report	TBA (2013-14)
Hunters' needs met?	2012-13 = 69%of hunters met needs	65%	Borderlands data available from 1996-97 to 2012-13.	Slightly decreasing trend since 2006-07 but higher than 5 year average
Body condition				
Average backfat	F: 1.4 cm M: 2.77 cm	F: no data M: 3.1 cm	Fall 2013, mostly males. Data from only 3 females. 5 year averages reported for males only. Most animals reported for 2013-14 are from the fall with a smaller # from early or mid-winter. August samples were omitted for consistency with past data.	About average (Fall 2013)
Hunter assessment	F: 3.7 M: 3.4	F: no data M: 3.4	Fall 2013 mostly males. 5 yr. averages males only	Average (2013-14)
Condition of caribou	2013 = Very Good	N/A	Note: rating used by YG from Very good, good, fair, and poor.	Very Good (2013)
Observed body condition by season	2012-13 = Good in all seasons	Good	Borderlands data available from 2000-01 to 2012-13.	Good (2012-13)
Health (abnormalities)	No clear trends variable	N/A	Borderlands data available from 2009-10 to 2011-12.	No apparent trend (2012-13)

Indicator Table - Nov. 2014

Habitat and other considerations				
Snow conditions winter 2013-14	<u>Snow Depth</u> Eagle = 64.3 cm Ogilvie = 60.7 cm Old Crow = 66.0 cm North Slope = no data Richardson = no data <u>Snow Density</u> Eagle = 0.21 g/cm^3 Ogilvie = 0.22 g/cm^3 Old Crow = 0.20 g/cm^3 Richardson = no data North Slope = no data	<u>Depth</u> 54 cm 65.8 cm 64.4 cm no data no data <u>Density</u> 0.19 g/cm^3 0.17 g/cm^3 0.18 g/cm^3 0.16 g/cm^3 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. Anecdotally, a significant ice crust was noted in the Eagle Plains area in March and a light ice crust noted in the area between the Dempster Highway and the Miner River.	Slightly deeper than average snow depth in Eagle region, average in Old Crow, slightly below average in Ogilvie (2013-14) Slightly higher than average snow density in Old Crow (2013-14)
Wildland fires	2014 data not yet available 2013 = 301 km^2	539 km^2	2004 and 2005 largest burned area ever. Total of 15% of range affected by fires since 1960	Lower than average area burned (2013)
Linear disturbance and human development	2124 km new seismic lines 228 km new access roads	N/A	New seismic project started in 2013-14 by Northern Cross	Increasing 2013-14
Unusual, extreme and rare weather events	FALL More snow than normal = 18% More ice than normal = 16% WINTER More snow than normal = 35% More ice than normal = 5%	FALL Snow = 20% Ice = 14% WINTER Snow = 19% Ice = 11%	Borderlands data available from 2005-06 to 2012-13.	FALL (2012-13) Snow = slightly lower than average Ice = slightly higher than average WINTER (2012-13) Snow = much more than average Ice = less than average