

Porcupine Caribou Herd



SUMMARY OF INDICATORS

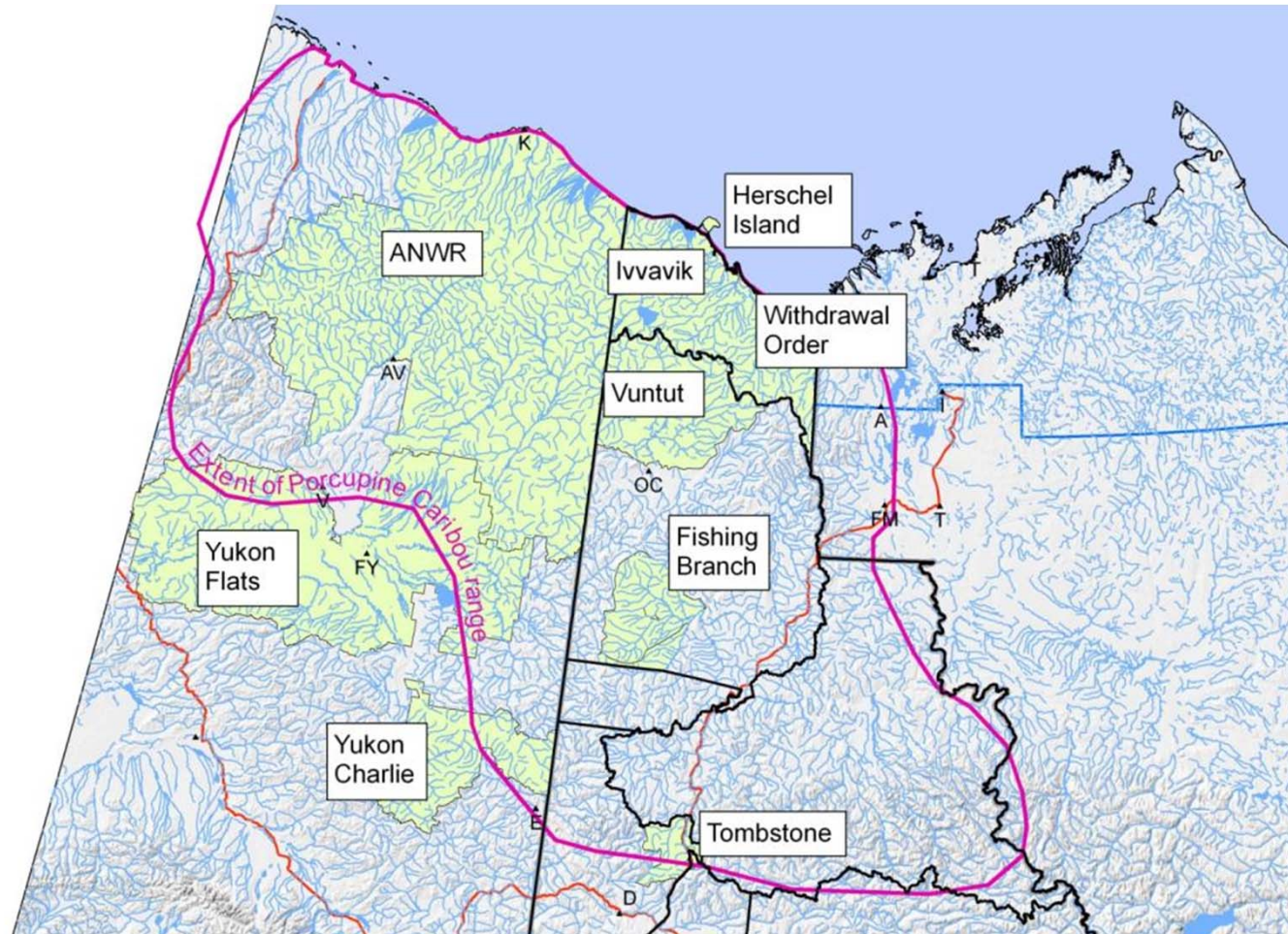
Presentation to:

Annual Harvest Meeting

By: Porcupine Caribou Technical Committee

8 February, 2016, Dawson, YT

Range of Porcupine Caribou Herd





Population

Harvest

Body

Condition

Habitat



Overview

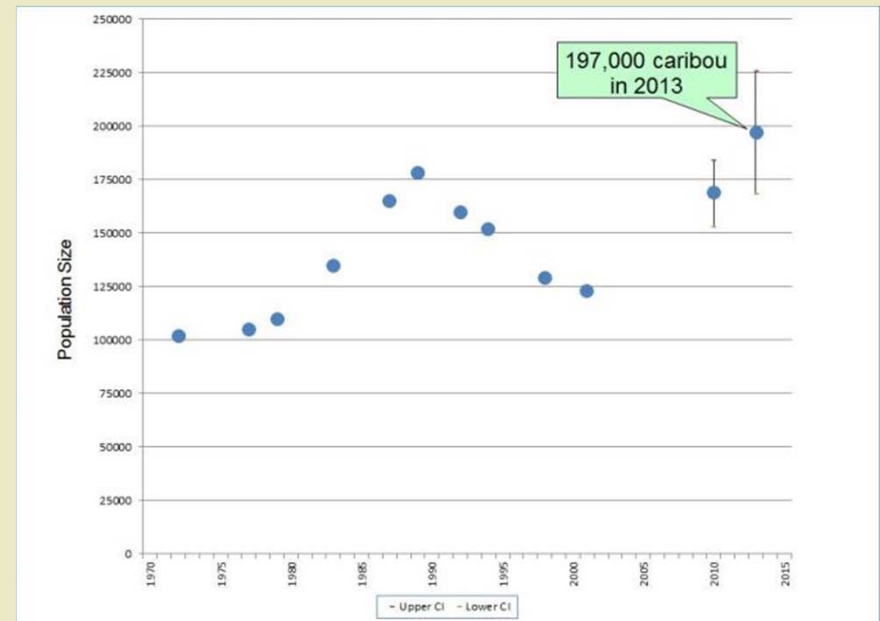
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Population Size

Methods

- Count caribou using a photocensus
 - *Overlap with Central Arctic Herd*
- Last completed in 2013
- 197,228 caribou (168,667-225,789)

Results

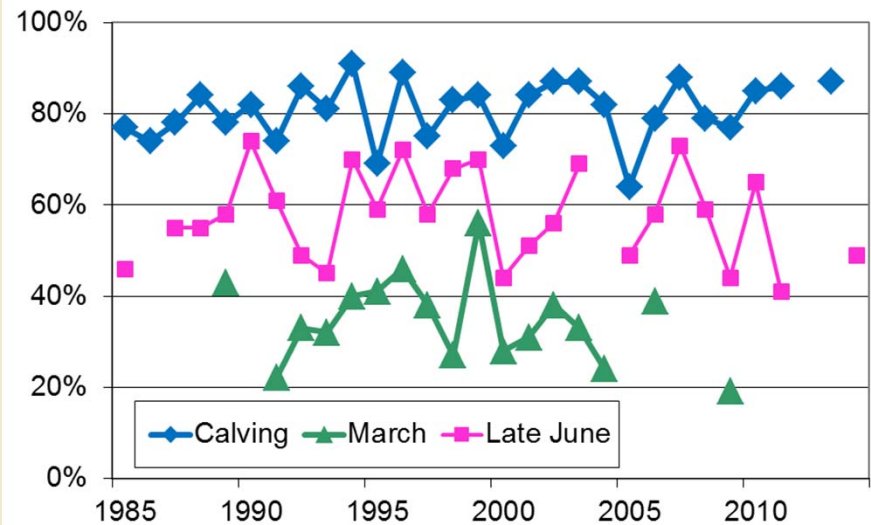


Calf Birth Rate and Survival

Methods

- Classify pregnancy on calving grounds
 - *Adverse weather conditions*
- Check to see how many calves survive after 1 month
 - *Caribou groups too aggregated*

Results

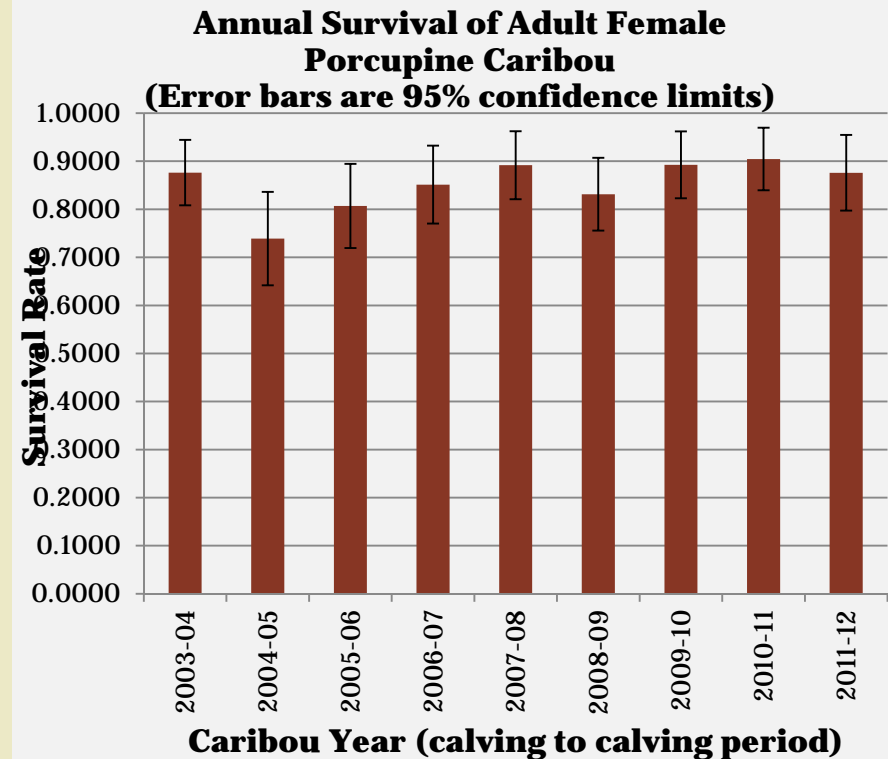


Adult Female Survival

Methods

- Percentage of females that survive each year
 - *Last completed 2012*
 - *PCTC assessing how to monitor continuously*

Results



Adult Female Abundance



Methods

- “In your observations for each season, were there more, equal or fewer adult female caribou over the last year than usual”?
- ABEKC
- Interviews from 2014

Results

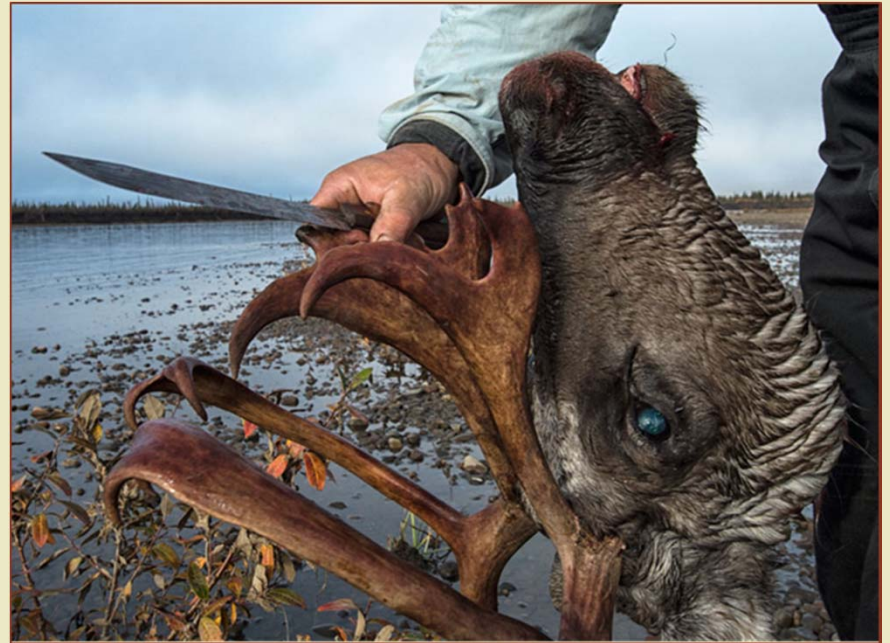
- In all seasons observed significantly “less” adult females than in 2013 and 2010.

Adult Sex Ratio

Methods

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

Results



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Population Roll Up

- No new data this year
- Population trend was increasing in 2013
- Calf recruitment was low in 2014



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Population
Harvest
Body
Condition
Habitat



Overview

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Harvest Monitoring



Methods

- “Were your needs met for caribou this year”?
- ABEKC
- Interviews from 2014

Results

- Majority (61%) did not meet their needs in 2014
- Last time 2001-02
- 67% went hunting but not successful because
 - *Lack of transportation, changing caribou migration routes, etc.*



Population
Harvest
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Overview

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Caribou Body Condition

Methods

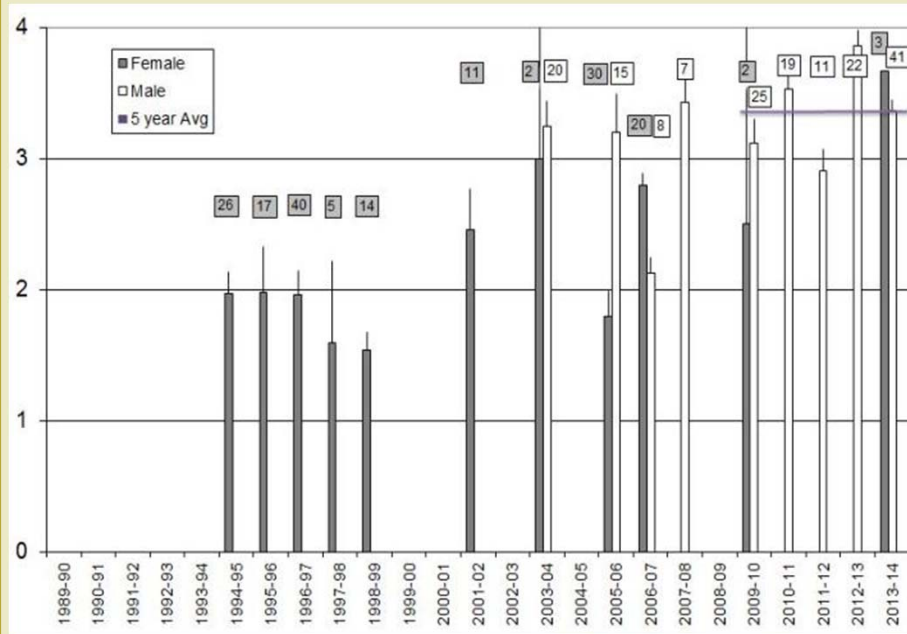
- How healthy individual caribou are by measuring back fat
 - *No hunter samples or observations obtained*

Results

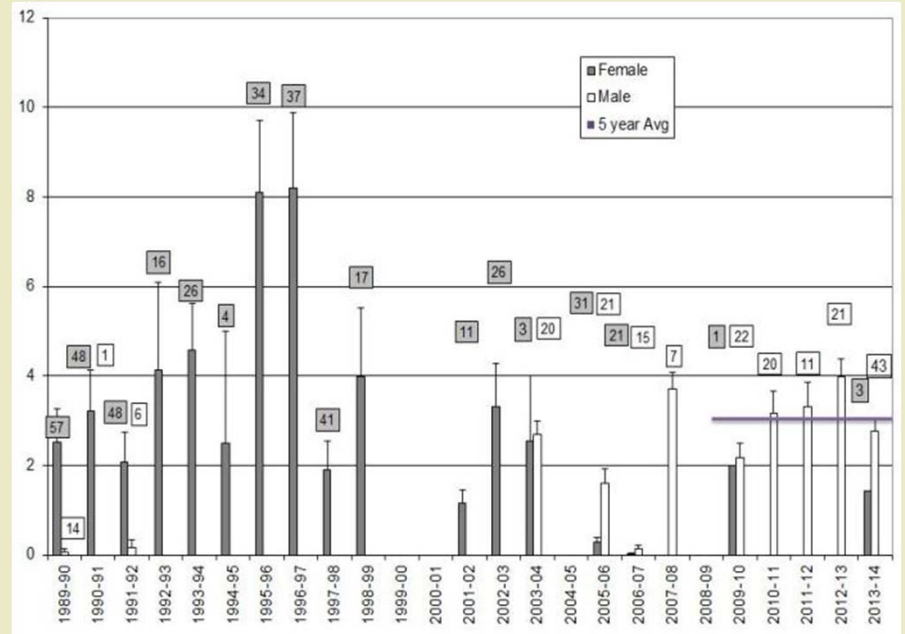


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Caribou Body Condition



Average condition of harvested caribou



Average Depth of Backfat

Caribou Body Condition



Methods

- “What was the condition of caribou you observed in each season”?
- ABEKC
- Index for entire herd
- Interviews from 2014

Results

- Most often in “good” condition across all seasons except:
 - *Caribou in “fair” condition in summer*



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Overview

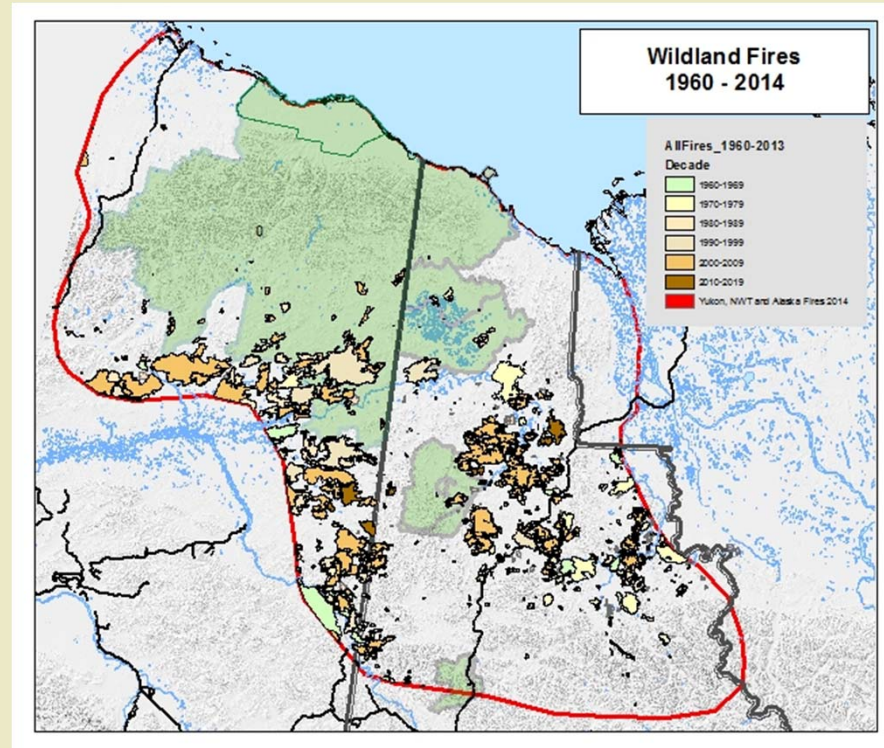
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Wildland Fires

Methods

- Amount of PCH range burned as an index of range condition
- 1965—2014

Results

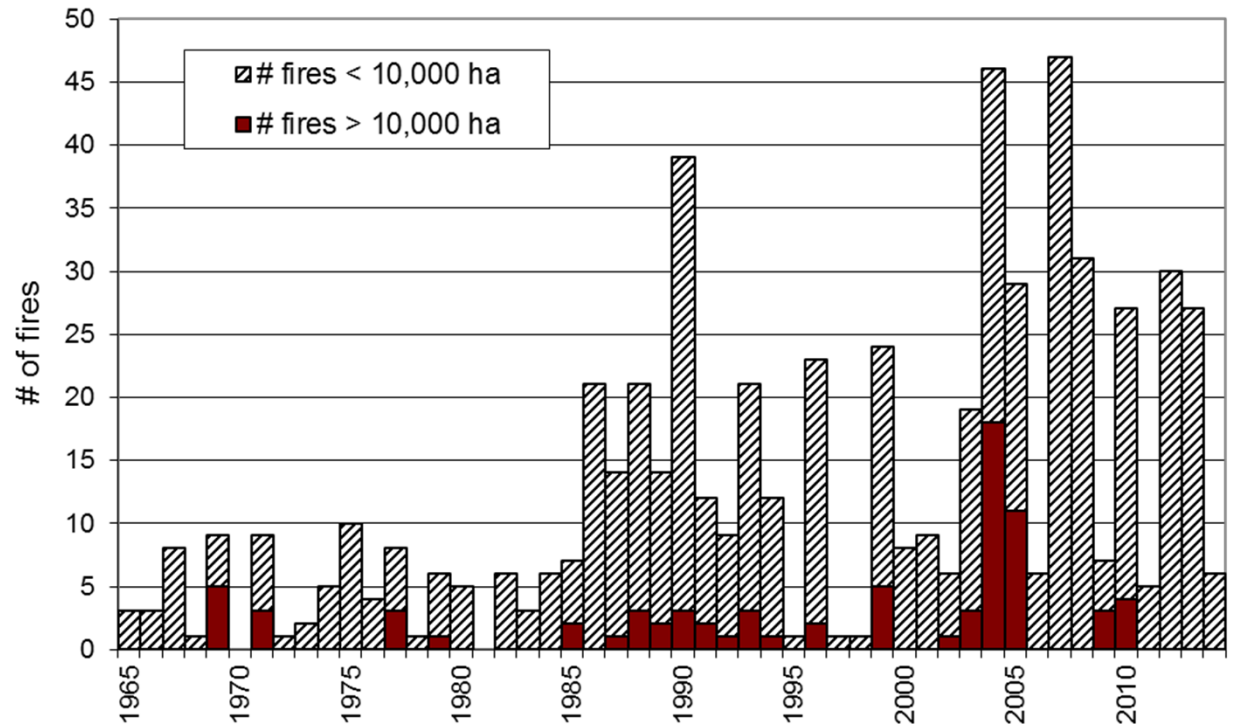




In 2014 there were 5 fires in the Yukon, no fires in Alaska, and 1 fire within the NWT portion of the PCH range.

The largest fire was ~19 km² in the Yukon.

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

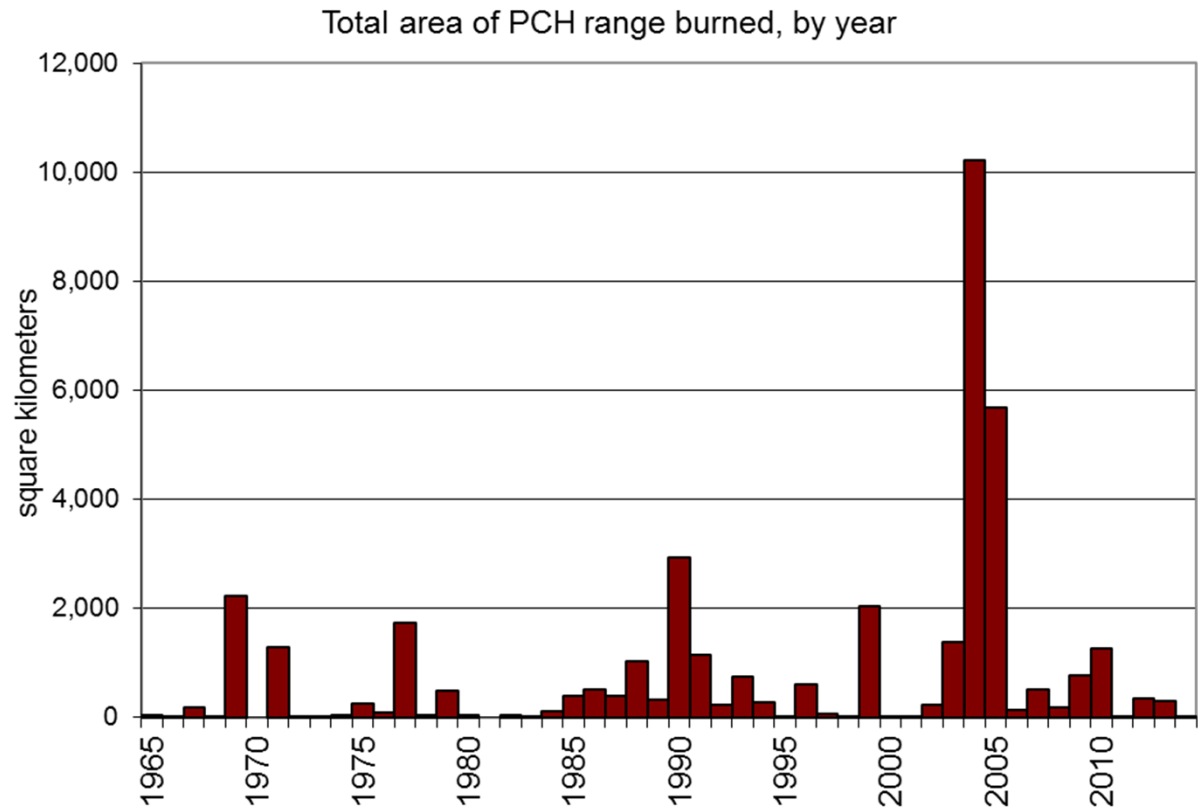


Wildland fires in PCH Range



Lower than average area burned in previous 5 years.

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

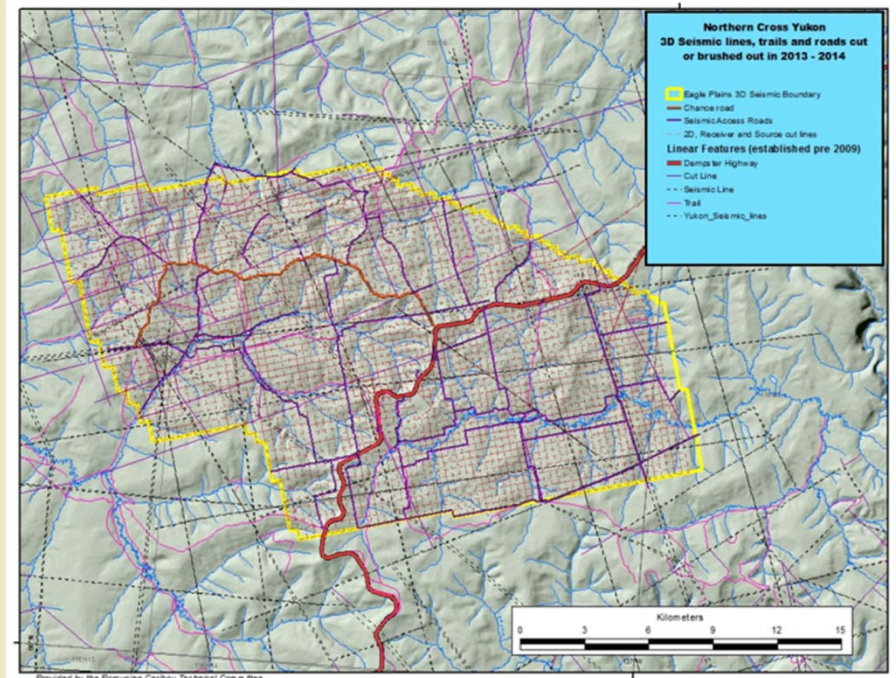


Wildland fires in PCH Range

Human Disturbance and Footprint

Methods

- Measured total linear footprint for each disturbance type

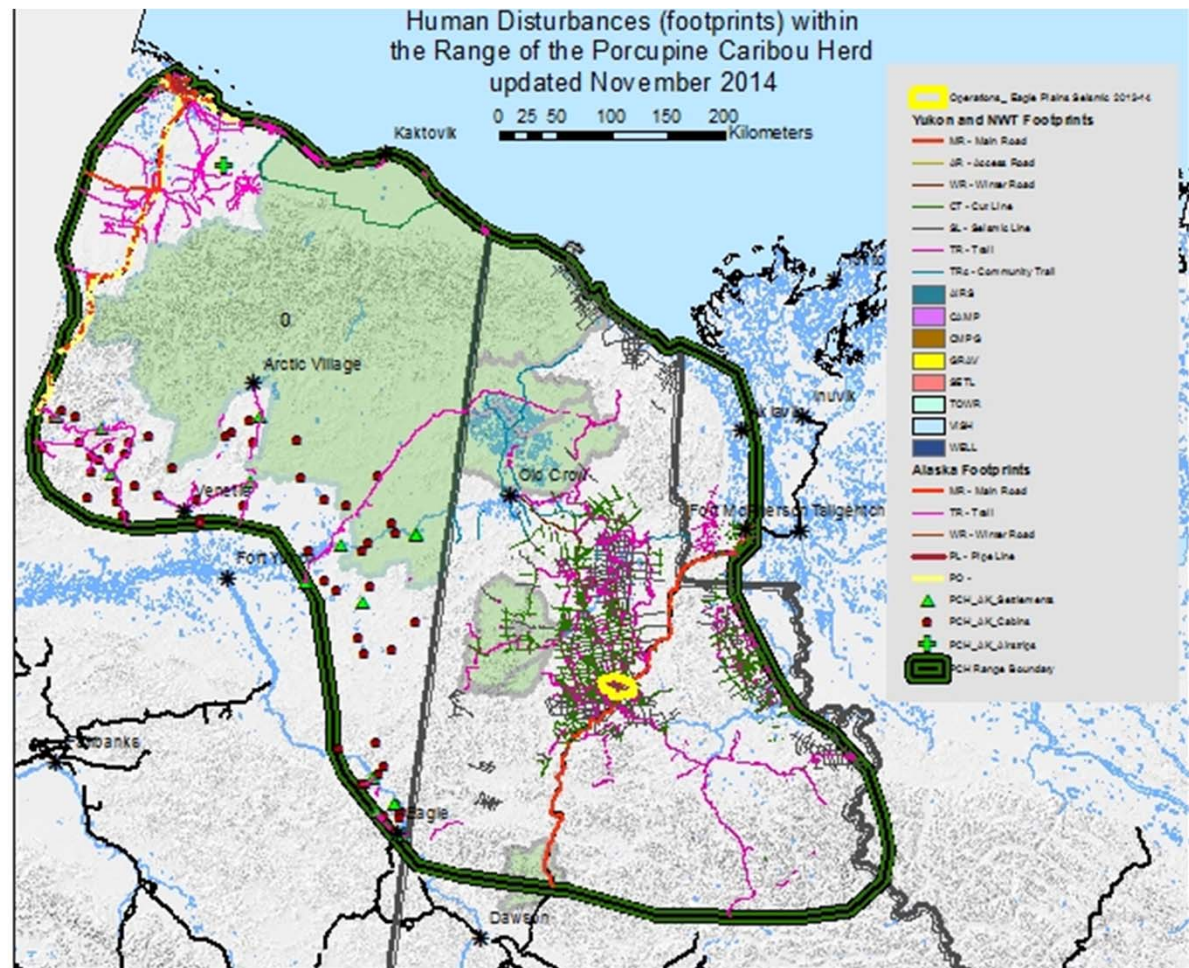




Seismic lines = 5.35 km² (2124 km from 1.75-5 m)

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

No detectable changes occurred in 2014-15.



Human Disturbance

Snow Conditions

Methods

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



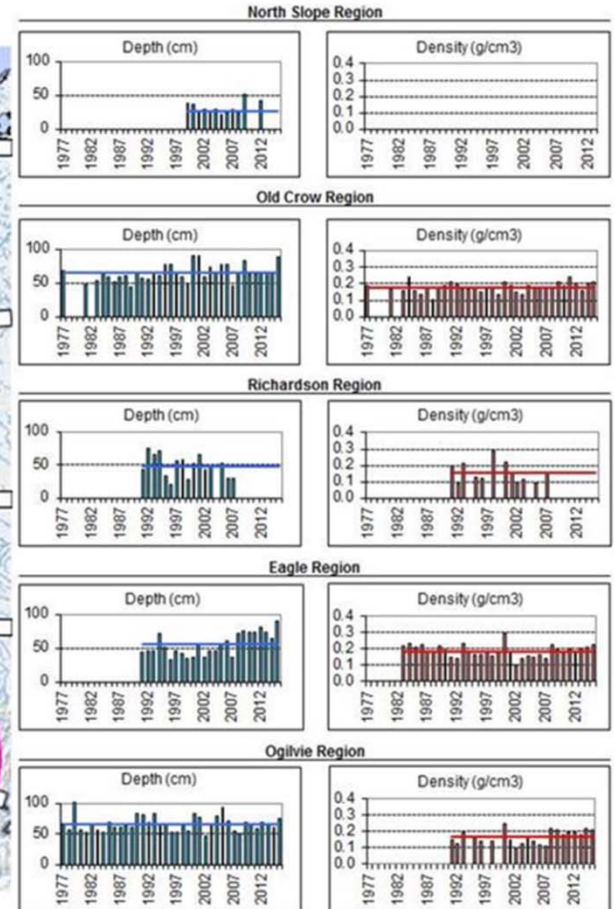
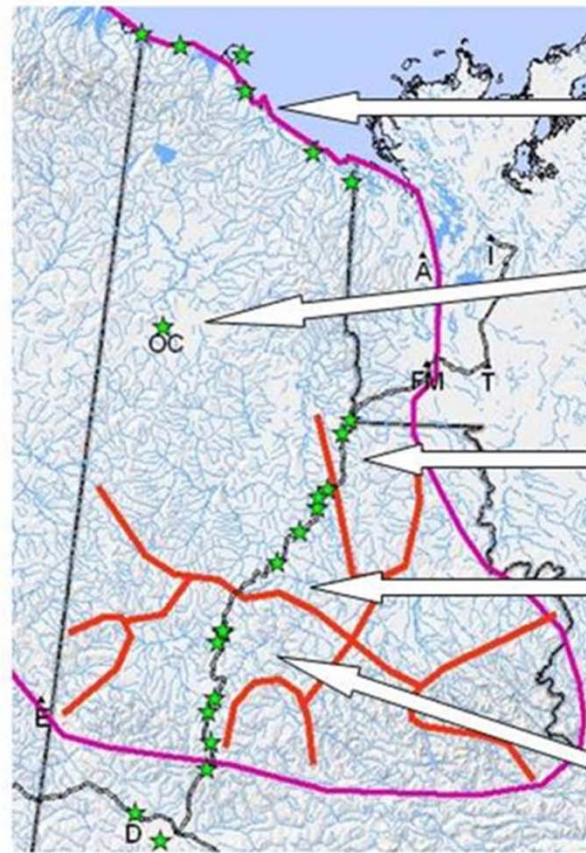
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No trends or large changes from long term averages

Peel River drainage = above average snow depth

Porcupine River drainage = well above average snow depth



Snow Conditions

Extreme Weather Events



Methods

- Asked to identify months when they observed unusual, extreme or rare weather-related events
- ABEKC
- Interviews for 2014

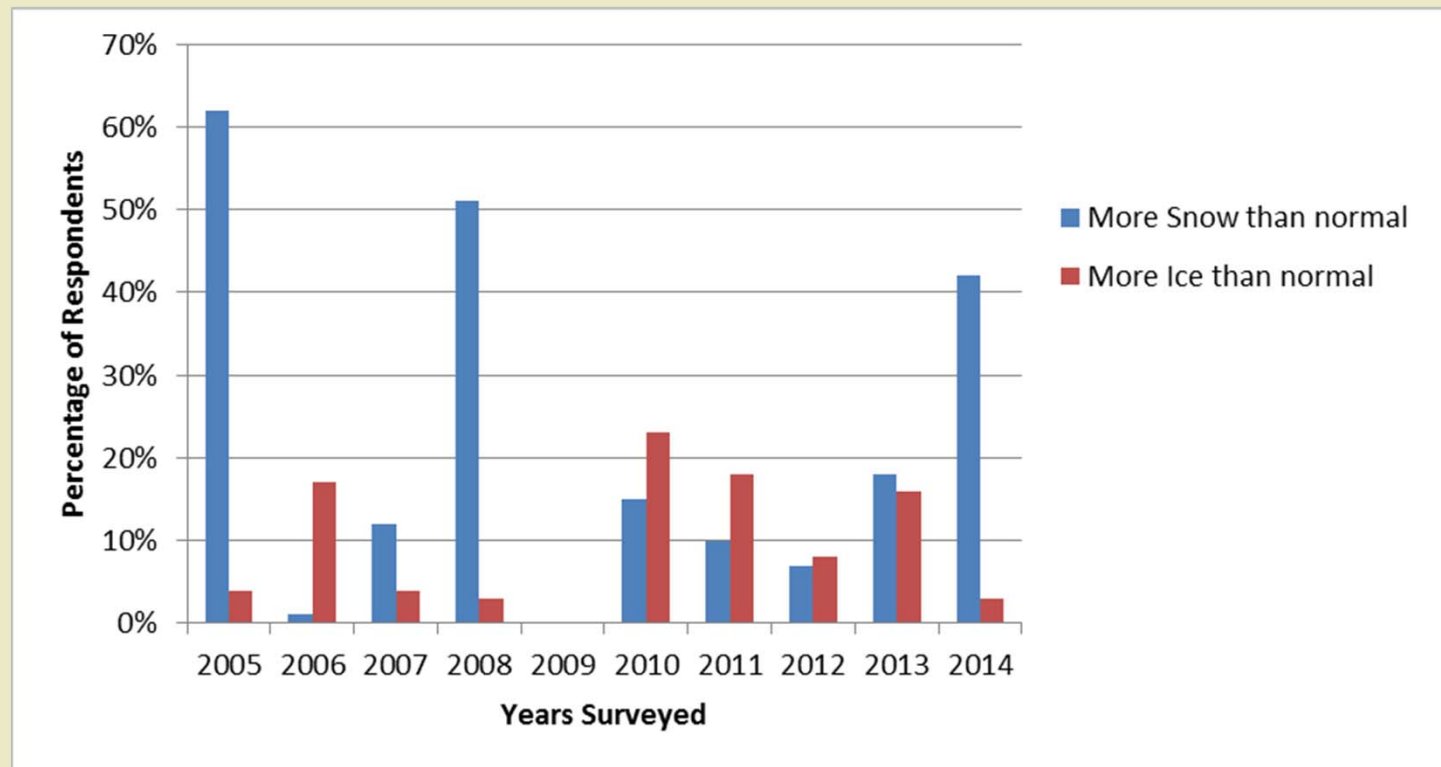
Results

- Early winter
 - More snow than normal
 - normal number of icing events
- Late winter
 - More snow than normal
 - More icing events than normal

Extreme Weather Events



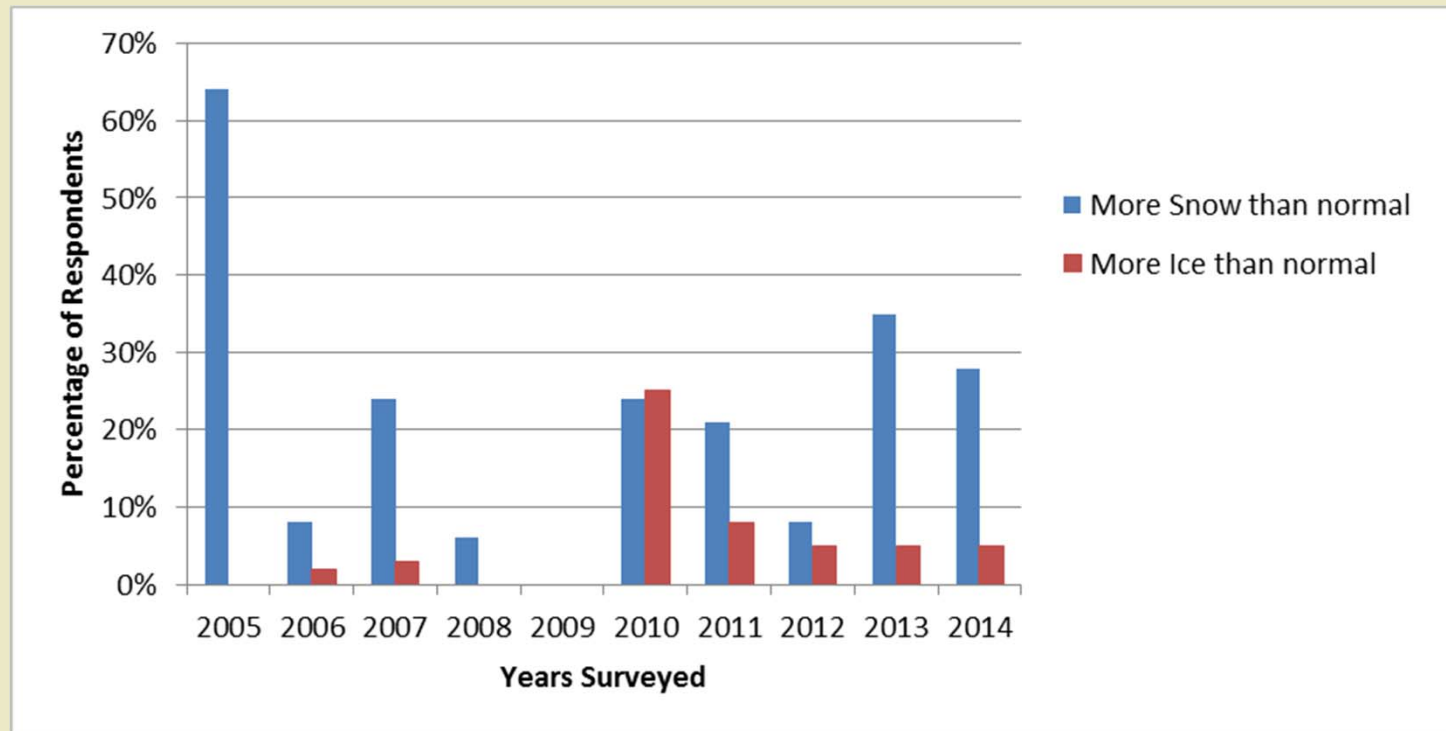
October - December



Extreme Weather Events



January - March



Habitat Roll Up



- Habitat did not change much over the year
- Snow conditions in the east deep, but caribou in the west where snow was moderate



Science and TK assessments



Indicator	Scientific (2015)	Traditional Knowledge (2014)
Population trend	No data	Reported fewer caribou, although result complicated by changing migration routes and distribution
Adult cow survival	No data	Significantly less adult females observed in all seasons compared to 2013 and 2010
Total harvest	No data at time of reporting	Hunters needs not met although complicated by other factors
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	More snow than normal in fall and winter, above 5 year average Average number of icing events
Condition of caribou	No data	Winter, spring, fall: good Summer: fair

Russell et al – ABEKC



“these results (2014) may indicate that the PCH is close to peaking in abundance again and within the next one or two population censuses results could indicate lower population estimates”.

“A number of these more recent climate trends (2014) are consistent with better habitat conditions within the range of the PCH. ”.

Questions?



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Indicator Table - Nov. 2014



Indicator	Value	5 year average	Notes	Assessment and Year Represented
Population size and trend				
Population size	2015 = no data	--	Last census in 2013 (197,000).	No assessment (2014-15)
Estimated population	2015 = 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.	No assessment (2014-15)
Population trend	2015 = 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.	No assessment (2014-15)
Adult cow survival	2015 = no 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 (2014-15)
Calf birth rate	2015 = no data	0.838	24-year average = 0.81 No data due to adverse weather conditions	No assessment (2014-15)
Late June calf:cow ratio	2015 = no data	0.58	29-year average = 0.55 Lower than average in 2014.	No assessment (2014-15)
Bull Ratio	2015 = no data	--	Cancelled in 2013 due to caribou mixing with Central Arctic Herd. Poor results in 2012. Next survey scheduled for 2017.	No assessment (2014-15)

Indicator Table - Nov. 2014



Peak of calving	2015 = no data	1 June	No data due to adverse weather conditions. Average is within normal range.	No assessment (2014-15)
Body condition				
Average backfat	No data	No data	Caribou were available to hunters in Old Crow during August and first week of September. No samples were collected during this time; 3 caribou were sampled along the Dempster Highway but not included in this report.	No assessment (2014-15)
Hunter assessment	No data	No data		No assessment (2014-15)
Condition of caribou	No data	No data		No assessment (2014-15)
Habitat and other considerations				
Snow conditions winter 2014 – 15	<p><u>Snow Depth</u> Eagle = 89.7 cm Ogilvie = 75.7 cm Old Crow = 89.0 cm North Slope = no data Richardson = no data</p> <p><u>Snow Density</u> Eagle = 0.23 g/cm³ Ogilvie = 0.21 g/cm³ Old Crow = 0.21 g/cm³ Richardson = no data North Slope = no data</p>	<p><u>Depth</u> 76.3cm 66.2 cm 69.7 cm no data no data</p> <p><u>Density</u> 0.21 g/cm³ 0.20 g/cm³ 0.20 g/cm³ no data no data</p>	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.	<p>Significantly deeper than average snow depth in Eagle and Old Crow regions, above average snow depth in Ogilvie (2014-15)</p> <p>Slightly above average snow density in all areas (2014-15)</p> <p>Anecdotal reports suggest snow was less than normal in areas the majority of the herd wintered in.</p>
Wildland fires	2015 data not yet available 2014 = 23.9 km ²	392 km ²	2004 and 2005 largest burned area ever. Total of 15% of range affected by fires since 1960	Lower than average area burned in 2014; 5 year average continues to decrease.
Linear disturbance and human development	2014 No major increases	N/A	<p>New seismic project completed in 2013-14 south of Eagle Plains created the following:</p> <p>2124 km new seismic lines 228 km new access roads</p>	Increased in 2013-14; no additional increases in 2014-15 although proposals have been forwarded to build all season roads, conduct extended flow testing, and drill up to 20 additional wells at present.

Indicator Table - Nov. 2014



Linear disturbance and human development	2014 No major increases	N/A	New seismic project completed in 2013-14 south of Eagle Plains created the following: 2124 km new seismic lines 228 km new access roads	Increased in 2013-14; no additional increases in 2014-15 although proposals have been forwarded to build all season roads, conduct extended flow testing, and drill up to 20 additional wells at present.
Traditional Knowledge				
Hunters' needs met?	2013-14 = 39% of hunters met needs	58%	Borderlands data available from 2000-01 to 2013-14. New indices in development.	Significantly lower than all years except 2000-01. Lower than 5-year average.
Specify caribou abundance	2013-14 = 46% fewer, 5% increased, 27% changed migration route, 21% not in area	N/A	Borderlands data available 2013-14.	
Unusual, extreme and rare weather events	FALL More snow than normal = 42% More ice than normal = 3% WINTER More snow than normal = 28% More ice than normal = 5%	FALL Snow = 18% Ice = 14% WINTER Snow = 23% Ice = 10%	Borderlands data available from 2005-06 to 2013-14. New indices in development.	FALL (2013-14) Snow = much higher than average Ice = lower than average WINTER (2013-14) Snow = higher than average Ice = less than average
Observed body condition by season	2013-14 = Good in winter, spring and fall Fair in summer.	Good	Borderlands data available from 2000-01 to 2013-14. New indices in development.	Good but animals in Fair condition in the summer warrants further investigation (2013-14).
Climate Indicators				
Winter Range Snow Depth (3-year running average)	2014 = 24.9	25.2 cm (2008-2014)	CARMA Network's climate database (Appendix C; Russell et al 2015)	Declining since 1990
Spring Range Snow Depth	2014 ~ 9	10.2 cm (2008-2014)	CARMA Network's climate database (Appendix C; Russell et al 2015)	Slow increase in depth (2008-2014) Declining trend (2001-2007)
Growing degree-days on June 10	2014 ~ 29		CARMA Network's climate database (Appendix C; Russell et al 2015)	Declining (2012-2014) Increasing (2001-2011)
Summer drought index	2014 ~ 4		CARMA Network's climate database (Appendix C; Russell et al 2015)	Declining (1979-2014) More favorable conditions compared to 1980's and 1990's
Oestrid Index (insect harassment)	2014 ~ 13		CARMA Network's climate database (Appendix C; Russell et al 2015)	Slight increasing trend since 1979. Generally increasing (2008-2014)