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
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)
- Lotek Iridium COWS (41)
- ATS Iridium COWS (3)
- 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)
Overview

Population
Harvest
Body Condition
Habitat
Population Size

Methods

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

Population Size
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**

![Annual Survival of Adult Female Porcupine Caribou](chart)

(Error bars are 95% confidence limits)
Methods

- Determine the ratio of bulls to cows in the fall
  - Attempted October 2017
  - Unsuccessful due to poor weather
  - Herd in Alaska

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>2010 = 57:100</td>
<td>(Bull:Cow)</td>
</tr>
</tbody>
</table>

Results

*Alaska Department of Fish and Game*
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
Herd increasing, highest recorded point
Pregnancy rate higher than average
Calf survival higher than average
March calf-cow ratio average
Overview

Population
Harvest
Body Condition
Habitat

Alaska Department of Fish and Game
Harvest Monitoring

Methods

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

<table>
<thead>
<tr>
<th>Methods</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>• How healthy individual caribou are by measuring back fat and rating animals</td>
<td>• Generally – very good shape for time of year</td>
</tr>
<tr>
<td>◦ Fall and winter 2016-2017 hunter samples submitted (Old Crow and NWT)</td>
<td>◦ Cows - body condition above average, backfat below average</td>
</tr>
<tr>
<td>◦ 78 cows and 31 bulls sampled for backfat</td>
<td>◦ Bulls – body condition and backfat below average</td>
</tr>
</tbody>
</table>
Caribou Body Condition

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

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

Wildland fires in PCH Range
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.
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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Snow Conditions

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
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 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.
Questions?

Peter Mather
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>5 year average</th>
<th>Notes</th>
<th>Assessment and Year Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population size and trend</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Population trend</td>
<td>2017 = increasing</td>
<td>--</td>
<td>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 λ = 1.35 similar to growth rate between 1972-1989.</td>
<td>Increasing (2017)</td>
</tr>
<tr>
<td>Adult cow survival</td>
<td>2017 = no data</td>
<td>0.879</td>
<td>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.</td>
<td>No assessment (2017)</td>
</tr>
<tr>
<td>Calf birth rate</td>
<td>2017 = 0.88</td>
<td>0.83</td>
<td>20-year average = 0.81</td>
<td>Higher than average (2017)</td>
</tr>
<tr>
<td>Late June calf:cow ratio</td>
<td>2017 = 0.72</td>
<td>0.56</td>
<td>27-year average = 0.58</td>
<td>Higher than average (2017)</td>
</tr>
<tr>
<td>March calf:cow ratio</td>
<td>2017 = 35.8</td>
<td>--</td>
<td>17-year average = 0.35</td>
<td>Average (2017, 2016 birth year)</td>
</tr>
<tr>
<td>Peak of calving</td>
<td>2017 = June 3, 2017</td>
<td>1 June</td>
<td></td>
<td>(Average 2017)</td>
</tr>
</tbody>
</table>
## Indicator Table - Nov. 2016

### Body condition

<table>
<thead>
<tr>
<th>Condition</th>
<th>Female (F)</th>
<th>Male (M)</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average backfat</td>
<td>1.4 cm; M: 0.3 cm</td>
<td>2.6 cm</td>
<td>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)</td>
</tr>
</tbody>
</table>

### Hunter assessment

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<tr>
<td>Higher than average (Fall 2016)</td>
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</table>

| Condition of caribou | Good | N/A | Average (Fall 2016) |

### Habitat and other considerations

#### Snow conditions winter (2015-16)

<table>
<thead>
<tr>
<th>Region</th>
<th>Snow Depth Eagle</th>
<th>Snow Density Eagle</th>
<th>Depth</th>
<th>Snow Depth Ogilvie</th>
<th>Snow Density Ogilvie</th>
<th>Depth</th>
<th>Snow Depth Old Crow</th>
<th>Snow Density Old Crow</th>
<th>Depth</th>
<th>Snow Depth Richardson</th>
<th>Snow Density Richardson</th>
<th>Depth</th>
<th>Snow Depth North Slope</th>
<th>Snow Density North Slope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eagle</td>
<td>82.0 cm</td>
<td>0.19 g/cm³</td>
<td>77.5 cm</td>
<td>65.3 cm</td>
<td>0.20 g/cm³</td>
<td>73.5 cm</td>
<td>68.0 cm</td>
<td>0.20 g/cm³</td>
<td>no data</td>
<td>no data</td>
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<td>no data</td>
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<tr>
<td>Ogilvie</td>
<td>68.0 cm</td>
<td>0.20 g/cm³</td>
<td>73.5 cm</td>
<td>65.3 cm</td>
<td>0.20 g/cm³</td>
<td>77.5 cm</td>
<td>no data</td>
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<td>Old Crow</td>
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<tr>
<td>North Slope</td>
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#### 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

<table>
<thead>
<tr>
<th>Year</th>
<th>Data Available</th>
<th>Area (km²)</th>
<th>Note</th>
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</thead>
<tbody>
<tr>
<td>2016</td>
<td>17.37 km²</td>
<td>251 km²</td>
<td>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)</td>
</tr>
<tr>
<td>2017</td>
<td>data not yet available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linear disturbance and human development</td>
<td>2016-17 = No major increases</td>
<td>N/A</td>
<td>Seismic project completed in 2013-14 south of Eagle Plains created the following: 2124 km new seismic lines and 228 km new access roads.</td>
</tr>
</tbody>
</table>