Utilizing Borderlands Indicators of the Porcupine Caribou Herd
Previously reported to PCMB....

• Russell et al 2013
  • Co-op indicators showed increasing trends during 2001-2008 for availability, meeting needs, body condition....during period when population estimate not available

• Gagnon 2016
  • “how climate and non-climate trends affect the capacity of hunters to meet their needs”
Current Borderlands initiative: Linking Co—op indicators to climate and herd performance

- Reported here initial results for Fall and Spring body condition.
- Created quantitative index based on weighted responses of Fall and Spring condition
  - poor, fair, average, good, excellent
- Linked to CARMA climate database
- Linked to agency measures of vital rates
Fall condition and climate

GDD – Growing Degree days
• 58% variability in Fall body condition accounted for by 2-yr average of GDD June 20
• Other summer indicators also significant
Fall condition and Vital rates

- 71% variability in June calf survival accounted for by fall body condition the previous fall
Spring condition and climate

Freezing – total precip. – precip. as snow

- 39% variability in spring body condition accounted for by cumulative freezing rain
- NOTE: relationship seems counterintuitive, thus may be more related to a positive effect of winter temperature.
Spring condition and Vital rates

- 77% variability in spring recruitment accounted for by spring body condition
- Seemingly counterintuitive, BUT may be related to more cows with calves being on average in poorer condition in the spring.
Monitoring issues

- Recruitment only measured twice in last 12 years
- Borderlands offers annual indicator estimates
- No estimate of adult cow mortality available
- Climate indicators annual since 1979
Conclusions

• Co-op data has been available on an annual basis for the last 16 years
• Previous analysis has proven useful when more traditional (population estimates) are unavailable
• Co-op data helps to better understand the relationship between climate and community harvesting activity (Gagnon)
• In this analysis body conditions indicators relate to both climate and herd productivity.
• In recent years, either due to shrinking budgets or shifting priorities, agency monitoring of PCH vital rates have not been a reliable annual source of data, needed to fulfil the mission of the PCH Harvest Management Strategy.