



**SUBMISSION TO THE**  
**NUNAVUT WILDLIFE MANAGEMENT BOARD**  
**FOR**

**Information: X**

**Decision:**

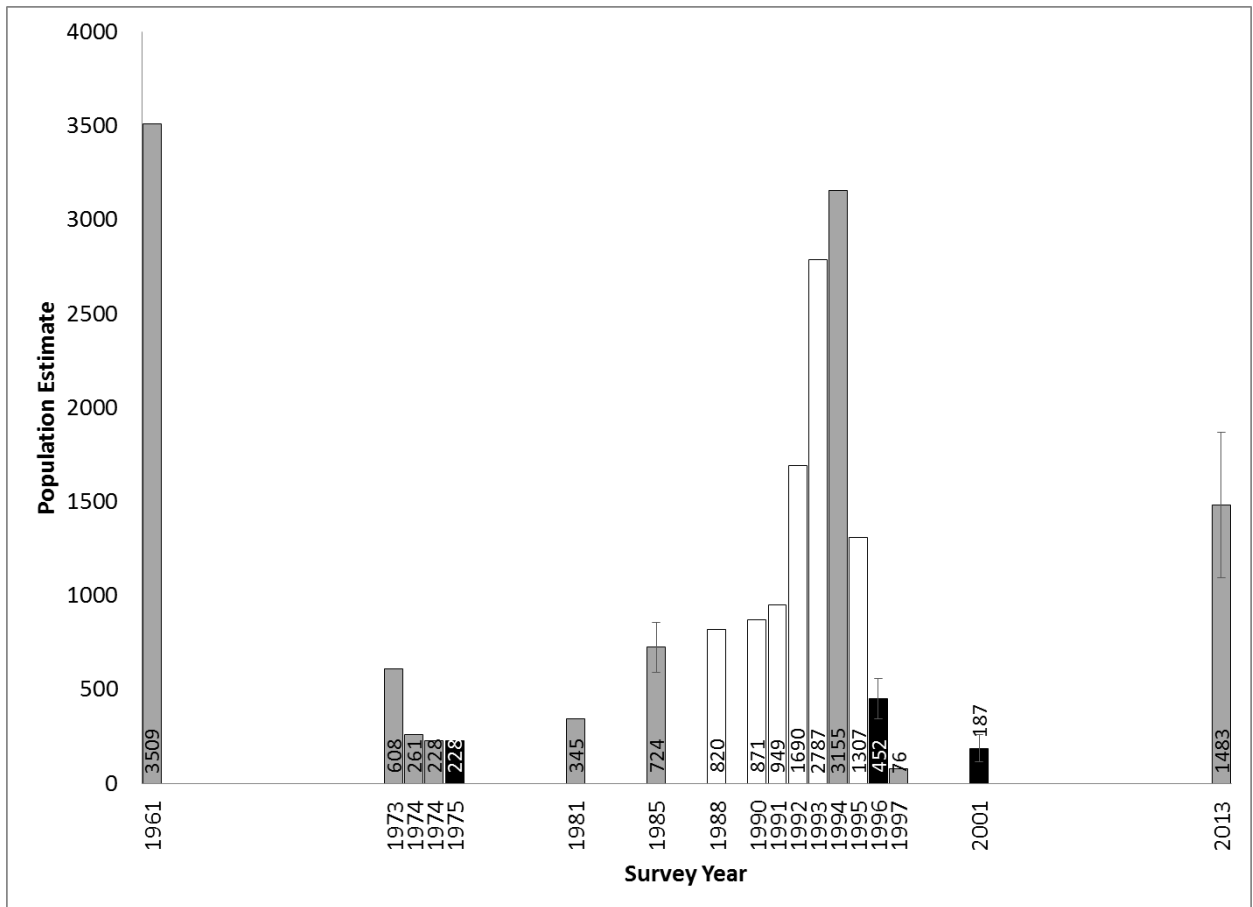
**Issue: Update on abundance and distribution of Peary caribou and muskox on the Bathurst Island Complex following aerial survey in May 2013.**

**Background:**

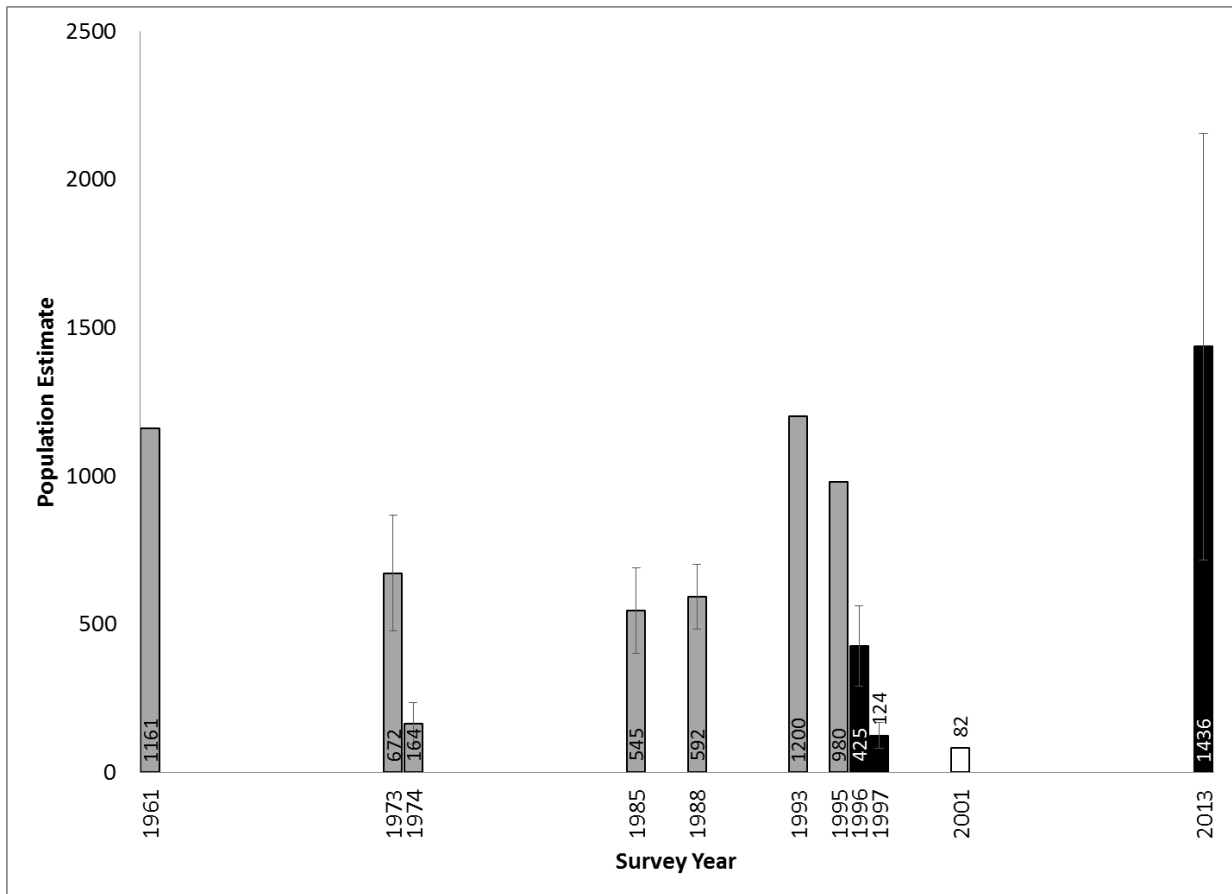
- Peary caribou on the Queen Elizabeth Islands are subject to periodic die-offs when ground-fast ice makes forage unavailable. On the Bathurst Island Complex, a series of bad winters from 1994 to 1997 caused the population to rapidly decline from 3155 caribou in 1994 to a minimum count of 76 in 1997. Muskox also declined over this period.
- The Bathurst Island Complex, as well as Cornwallis and Little Cornwallis Islands, were surveyed by the Nunavut Department of Environment in 2001 and 2002, with a population estimate of 187 Peary caribou (95% confidence interval 104-330) and minimum count of 82 muskoxen. No caribou were reported on Cornwallis or Little Cornwallis, and the minimum count of muskox was 18.
- Resolute Bay hunters reported seeing more caribou and muskox and requested a survey be flown to update the population estimate. We flew 42 hours by Twin Otter between May 13 and May 27. Poor weather dictated that north and south Bathurst Island were flown with 10-km transect spacing instead of 5-km. Cornwallis and Little Cornwallis were also flown at 10-km transect spacing.

**Current Status**

- The May 2013 survey estimated  $1483 \pm 387$  (95% CI) Peary caribou (including 11-month-old calves), substantially more than the May 2001 estimate of 187 (104-330, 95% CI). These results suggest that the caribou population on the BIC is recovering from the late 1990s die-off (Figure 1). Although a population estimate could not be calculated for Cornwallis/Little Cornwallis Islands, 2 caribou were observed on southern Cornwallis and 1 was seen on Little Cornwallis. Community members also reported occasionally seeing caribou on the islands.
- Muskox populations have also increased on BIC and Cornwallis Island. The May 2013 survey estimated  $1934 \pm 979$  muskoxen on BIC and Cornwallis Island, substantially more than the 2001-2002 minimum count of 100 muskoxen.
- Hunters are reporting large groups of caribou and muskox this winter (2014) as well, including some groups on Little Cornwallis and Cornwallis Islands.



**Figure 1** Survey history of the Bathurst Island Complex for Peary caribou. Error bars represent standard error where present. Estimates were calculated with calves (grey), without calves (black), or as minimum counts (white).



**Figure 2** Survey history of the Bathurst Island Complex for muskox. Error bars represent standard error where present. Estimates were calculated with calves (grey), without calves (black), or as minimum counts (white).

## Management Considerations

- Survey results indicate that the populations of Peary caribou and muskox have increased since the catastrophic die-offs, 1994-1997.
- Given a conservative harvesting rate of 3% (considered appropriate for recovering populations), 30-53 caribou could be harvested. A slightly higher, but still conservative, harvest rate of 4% would allow 39-70 caribou to be harvested.
- The Management Plan for the High Arctic Muskoxen of the Qikiqtaaluk Region proposes a TAH of 30 muskoxen, which was lowered due to low use of muskox. Since 30 muskox represents about 1-2% of the population, a higher harvest rate could be sustained if interest in hunting muskox increased.
- The history of sporadic die-offs and national concern over the recovery of Peary caribou (listed in 2011 under the Species at Risk Act as Endangered), highlights the importance of careful monitoring and management.

**DISTRIBUTION AND ABUNDANCE OF PEARY CARIBOU (*Rangifer tarandus pearyi*) AND MUSKOX (*Ovibos moschatus*) ON THE BATHURST ISLAND GROUP, MAY 2013**

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STATUS REPORT  
NUNAVUT DEPARTMENT OF ENVIRONMENT  
WILDLIFE RESEARCH SECTION  
IGLOOLIK, NU

Anderson, M. 2014. Distribution and abundance of Peary caribou (*Rangifer tarandus pearyi*) and muskox (*Ovibos moschatus*) on the Bathurst Island Group, May 2013. Nunavut Department of Environment, Wildlife Research Section, Status Report, Igloolik, NU. 34 pp.

**Summary**

A survey of the Bathurst Island Group (Bathurst, Helena, Cameron, Vanier, Massey, Alexander, Little Cornwallis, and Cornwallis Islands) was flown by Twin Otter in 42 hours between May 13 and May 27, 2013 to update the population estimate for caribou and muskox on the island group. The populations of both species declined precipitously in the late 1990s after a series of severe winters and ground-fast ice reduced forage availability. The last survey, in 2001-2002, indicated very minor recovery. Residents of Resolute Bay have reported increasing caribou and muskox populations for several years and requested an updated population estimate. This survey confirmed what residents reported.

Caribou were concentrated around Bracebridge Inlet and on Massey and Alexander Islands. We observed 559 caribou in total and estimate a population of  $1483 \pm 387$  (95% CI) caribou on Bathurst and its satellites. This is much higher than the 2001 estimate of 187 (104-330, 95% CI) caribou. An estimate was not derived for Cornwallis Island, although we saw 1 caribou off-transect on Little Cornwallis Island and another group of 2 caribou off-transect on Cornwallis Island, as well as fresh tracks. We identified 47 caribou calves (11 months old), including off-transect observations, making calves 16% of the population and suggesting high recruitment rates.

Muskox were concentrated on northwest Cornwallis Island and central Bathurst Island, especially around Polar Bear Pass and Erskine Inlet. We observed 773 muskoxen, including 98 on Cornwallis. The population estimate for Bathurst and Cornwallis Islands was  $1934 \pm 979$ . The muskox population appears to be the highest yet recorded on surveys of the islands (previously as high as 1200 in 1993 and up from a minimum count of 82 on Bathurst and satellites in 2001 and 18 on Cornwallis in 2002). No muskox were observed on Little Cornwallis or the satellite islands northwest of Bathurst Island. We counted 63 newborn muskox calves, which made up 15% of the population based on groups we were able to classify.

Figure 1. Transects, survey strata, and Peary caribou observations from 41.6 h of Twin Otter flights over the Bathurst Island Group, May 2013.

**Peary Caribou On Transect**

**Peary Caribou Off Transect**

**Strata**

**Block A, B, C, D, E, F, G, H**

**Transects**  
**Kilometers**

Figure 2. Transects, survey strata, and muskox observations from 41.6 h of Twin Otter flights over the Bathurst Island Group, May 2013.

**Muskox On Transect**  
**Muskox Off Transect**