Caribou and Muskoxen Survey on Melville and Prince Patrick Islands, 2012 Summary

Tracy Davison and Judy Williams
Department of Environment and Natural Resources, GNWT, Inuvik Region

Overview:

A caribou and muskoxen strip transect survey was conducted July - August 2012 on Melville, Prince Patrick and related Islands. The objective of the survey was to update the population estimate for Peary caribou and muskoxen. The last survey to estimate the population size for this region was conducted in 1997 (Gunn and Dragon 2002).

A strip transect aerial survey was flown using a Helio-Courier fixed wing aircraft. Survey lines were spaced 5 km apart. Observers were seated on each side of the aircraft and observations within a 500m strip on each side of the aircraft were considered on transect. Observations beyond 500m were considered off transect. Caribou were classified as bulls, adults (cows/young bulls), or calves. Muskoxen were classified as adults or calves. All other wildlife sightings were recorded. Population estimates for each species were calculated using adult observations only utilizing the program Ecological Methodology, Version 7.0 using Aerial survey method 2.

Results:

The survey was flown in 159hrs (including ferry flights) between July 31th and August 26th, 2010. The transectlines flown are shown in Figure 1.

Melville, Prince Patrick, Byam Martin, Eglinton, and Emerald Islands were surveyed. Mackenzie King, Brock and Borden Islands (see Figure 1) could not be reached because sea ice between the islands was not solid and the required ceilings to cross open water in a single engine survey aircraft were not achieved. There was incomplete coverage on the north end of Melville Island due to weather constraints. Two lines were dropped on Emerald Island and a few lines were cut short on the north end of Prince Patrick Island due to fog.

As the previous survey was conducted 15 years ago, we cannot determine the current population trend. The Observations of muskoxen calves may be biased low because they are often hidden when adults in the herd circle.

Five polar bears, and 17 wolves, were observed during the survey. The locations of these sightings are indicated in Figure 4.

Melville Island:

There were 556 adult caribou (and 119 calves) seen on transect giving a population estimate of 2,990 ± 647 (95% confident interval) non-calf caribou on Melville Island. Caribou observations on Melville Island are summarized in Table 1, and locations are indicated in Figure 2. There were a total of 587 adult muskoxen (and 19 calves) observed on transect yielding a population estimate of 3,033

± 852 (95% confident interval) non-calf muskoxen on Melville Island. Muskoxen observations on Melville Island are summarized in Table 2, and locations are shown in Figure 3. The estimates are higher than the 1997 estimates of 787 ± 97 Peary caribou and 2,258 ± 268 Muskoxen.

Prince Patrick Island:
There were 529 adult caribou (and 70 calves) seen on transect giving a population estimate of 2,649 ± 855 (95% confident interval) non-calf caribou on Prince Patrick Island. Caribou observations on Prince Patrick Island are summarized in Table 1, and locations are indicated in Figure 2. There were a total of 106 adult Muskoxen (and 4 calves) observed on transect yielding a population estimate of 507 ±320 (95% confident interval) non-calf Muskoxen on Prince Patrick Island. Muskoxen observations on Prince Patrick Island are summarized in Table 2, and locations shown in Figure 3. The estimates are higher than the 1997 estimates of 84 ± 34 Peary caribou and 96 ± 42 Muskoxen.

Byam Martin Island:
There were 23 adult caribou (and 8 calves) seen on transect giving a population estimate of 119 ± 114 (95% confident interval) non-calf caribou on Byam Martin Island. Caribou observations on Bryan Martin Island are summarized in Table 1, and locations are indicated in Figure 2. There was no Muskoxen observed on Byam Martin Island. In 1997 there were no living caribou or Muskoxen observed on Byan Martin Island.

Eglinton Island:
There were 9 adult caribou (and 2 calves) seen on transect giving a population estimate of 181 ± 143 (95% confident interval) non-calf caribou on Eglinton Island. Caribou observations on Eglinton Island are summarized in Table 1, and locations are indicated in Figure 2. There were a total of 41 adult muskoxen (and 1 calf) observed on transect yielding a population estimate of 213 ± 211 (95% confident interval) non-calf muskoxen on Eglinton Island. Muskoxen observations on Eglinton Island are summarized in Table 2, and locations are shown in Figure 3. The Observations of calves may be biased low. The estimates are higher than the 1997 estimates of 37 ± 21 Muskoxen. In 1997 there were no caribou observed on Eglinton Island.

Emerald Island:
There were 35 adult caribou (and no calves) seen on transect giving a population estimate of 61 ± 118 (95% confident interval) non-calf caribou on Emerald Island. Caribou observations Emerald Island are summarized in Table 1, and locations indicated in Figure 2. There was no Muskoxen observed on Emerald Island. In 1997 there were no living caribou or muskoxen observed on Emerald Island.

References:

Gunn, A. and J. Dragon. 2002. Peary Caribou and Muskoxen abundance and distribution on the Western Queen Elizabeth Islands, Northwest Territories and Nunuvut June-July 1997. Department of Renewable Resources, Government of the Northwest Territories, Yellowknife, NWT File Report No. 130 86pp.

Krebs, Charles J. 1999. *Ecological Methodology*, 2nd ed., Addison-Welsey Educational Publishers, Inc., Menlo Park, CA. 620 pp.

Acknowledgments:

Perry Linton (North-Wright Airways) expertly piloted the fixed-wing aircraft during this survey. The authors would like to thank Steven Lucas (Sachs Harbour) for his assistance as an observer.

This study was jointly funded by the Department of Environment and Natural Resources (Government of Northwest Territories), Inuvialuit Wildlife Studies Funds, Polar Continental Shelf Program, and the World Wildlife Fund.

Figures:

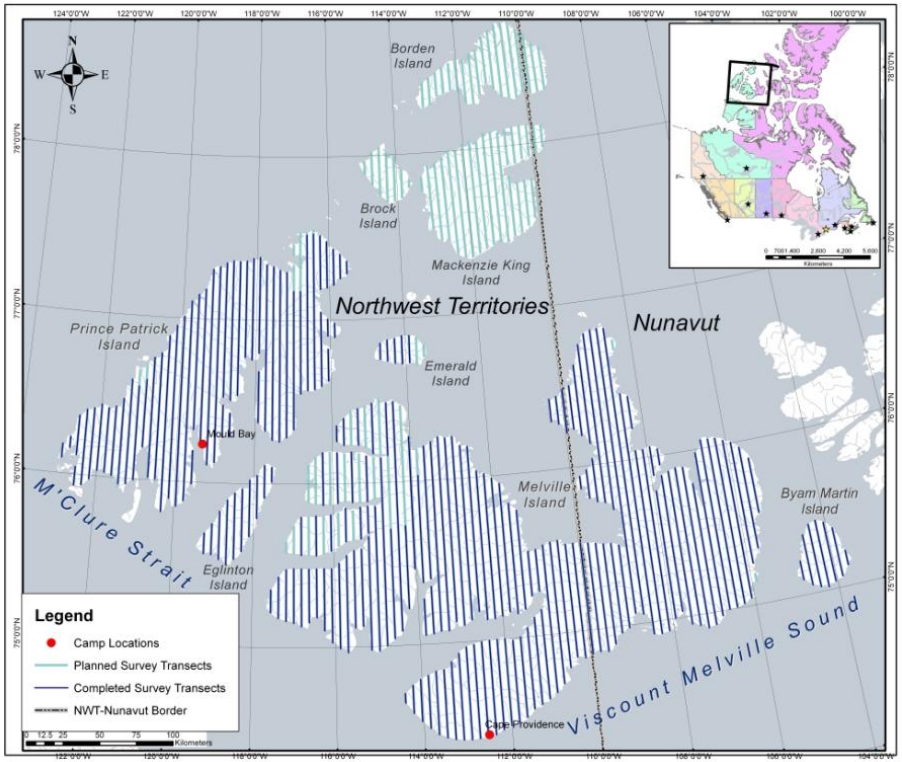

Figure 1: Survey area showing transect lines planned and flown.

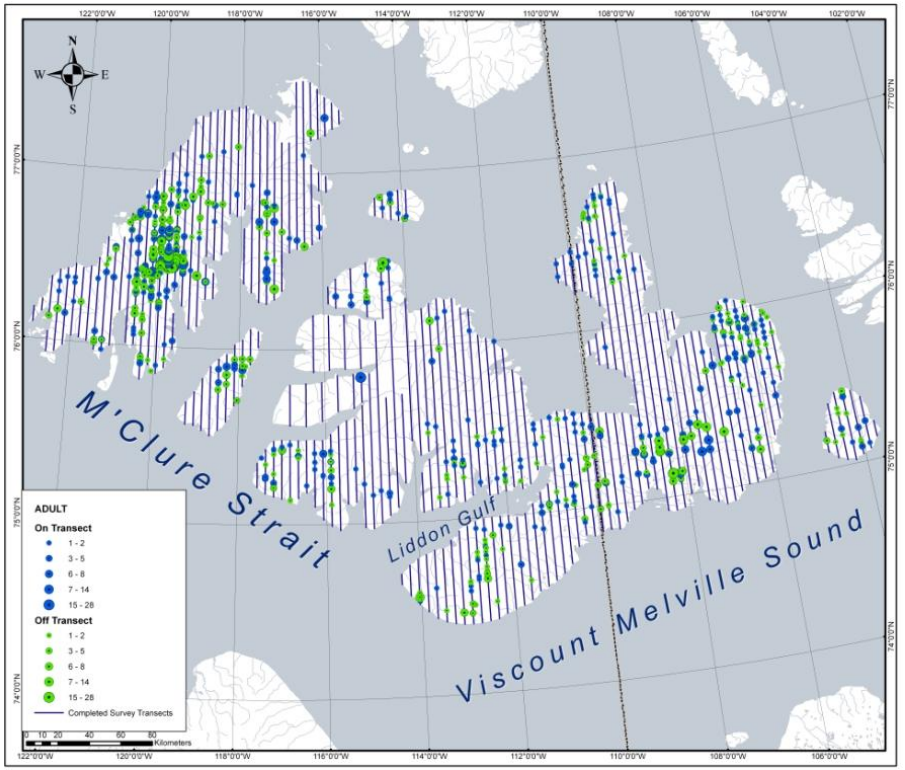

Figure 2: The distribution of caribou observed on and off transect.

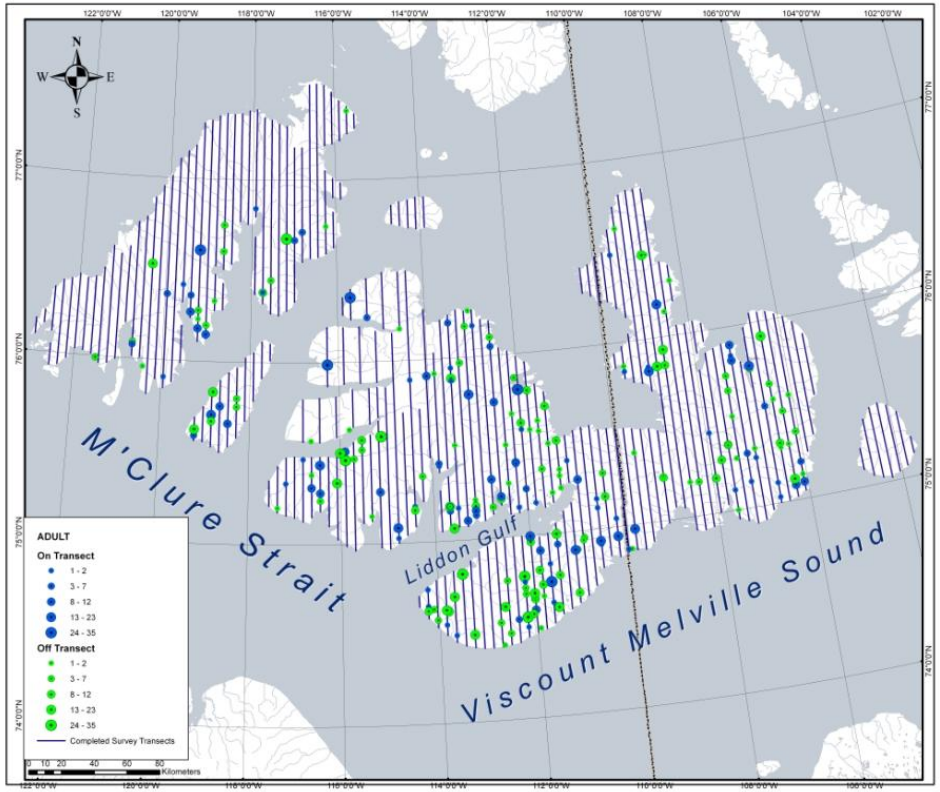

Figure 3: The distribution of muskoxen observed on and off transect.

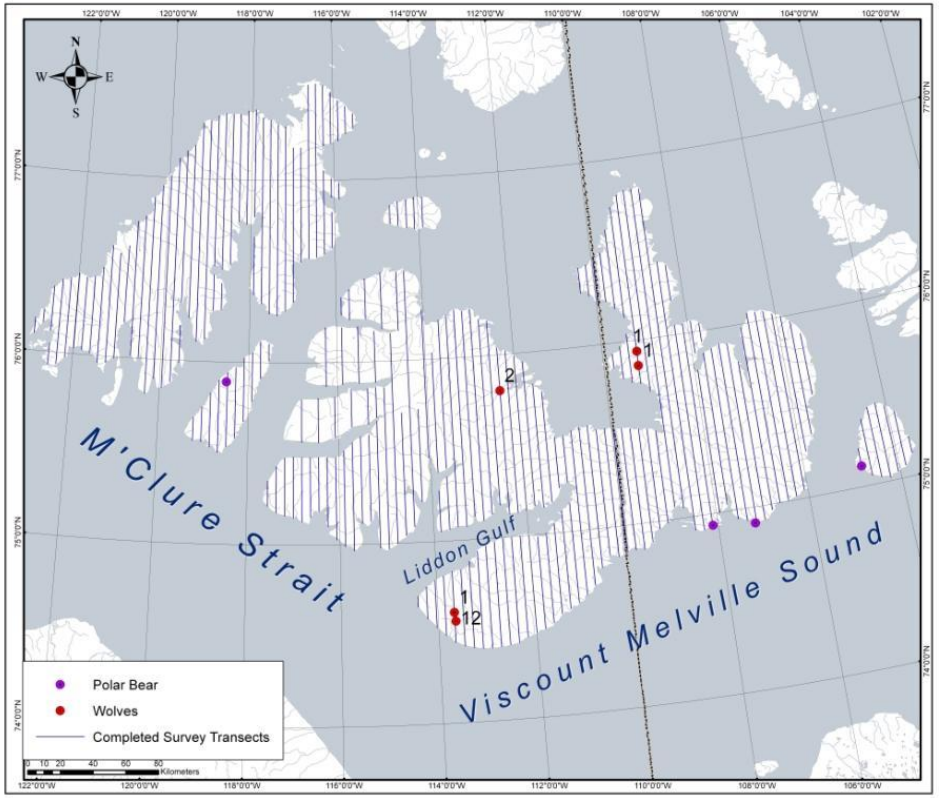

Figure 4: The location of polar bears, and wolves observed; with numbers of adult wolves observed at each location labelled.

Table 1: Summary of Peary caribou, 2012

Island	Island Area (KM2)	Percent Area Sampled	On transect		Off transect		**Population**	95CI
			Adult	Calf	Adult	Calf		
Byam Martin	1157.9	19.3	23	8	20	8	**119**	114
Emerald	550.2	14.7	35	0	42	3	**61**	118
Eglinton	1563.2	19.3	9	2	12		**181**	143
Prince Patrick	15937.8	20.9	529	70	574	41	**2649**	855
Melville	41836.3	17.9	556	119	750	77	**2990**	647

Table 2: Summary of Muskoxen, 2012

Island	Island Area (KM2)	Percent Area Sampled	On transect		Off transect		**Population**	95CI
			Adult	Calf	Adult	Calf		
Byam Martin	1157.9	19.3	0	0	0	0	**0**	0
Emerald	550.2	14.7	0	0	0	0	**0**	0
Eglinton	1563.2	19.3	41	1	58	1	**213**	211
Prince Patrick	15937.8	20.9	106	4	103	4	**507**	320
Melville	41836.3	17.9	586	19	897	40	**3033**	852