MUSKOX SAMPLING: URINE AND FECALS
MAY AND AUGUST 2007

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Kugluktuk

2007

Field Report

Objective of the sampling:

Muskox fecal and urine samples were collected during classification work in order to assess the diet and energy balance (Dr. Perry Barboza and Dave Gustin, Institute of Arctic Biology, University of Alaska, Fairbanks (Alaska)), the genetic (Dr. David Paetkau, Wildlife Genetics International, Nelson, BC, Canada) and the parasite load (Dr. Susan Kutz, University of Calgary, Calgary, AB, Canada), and compare these data between two adjacent muskox clusters believed to be two distinct populations (East versus West of the Coppermine River) with different dynamics.

Study area:

Sampling was conducted within a 100 miles radius around Kugluktuk while conducting muskox classification work. (Figure 1).

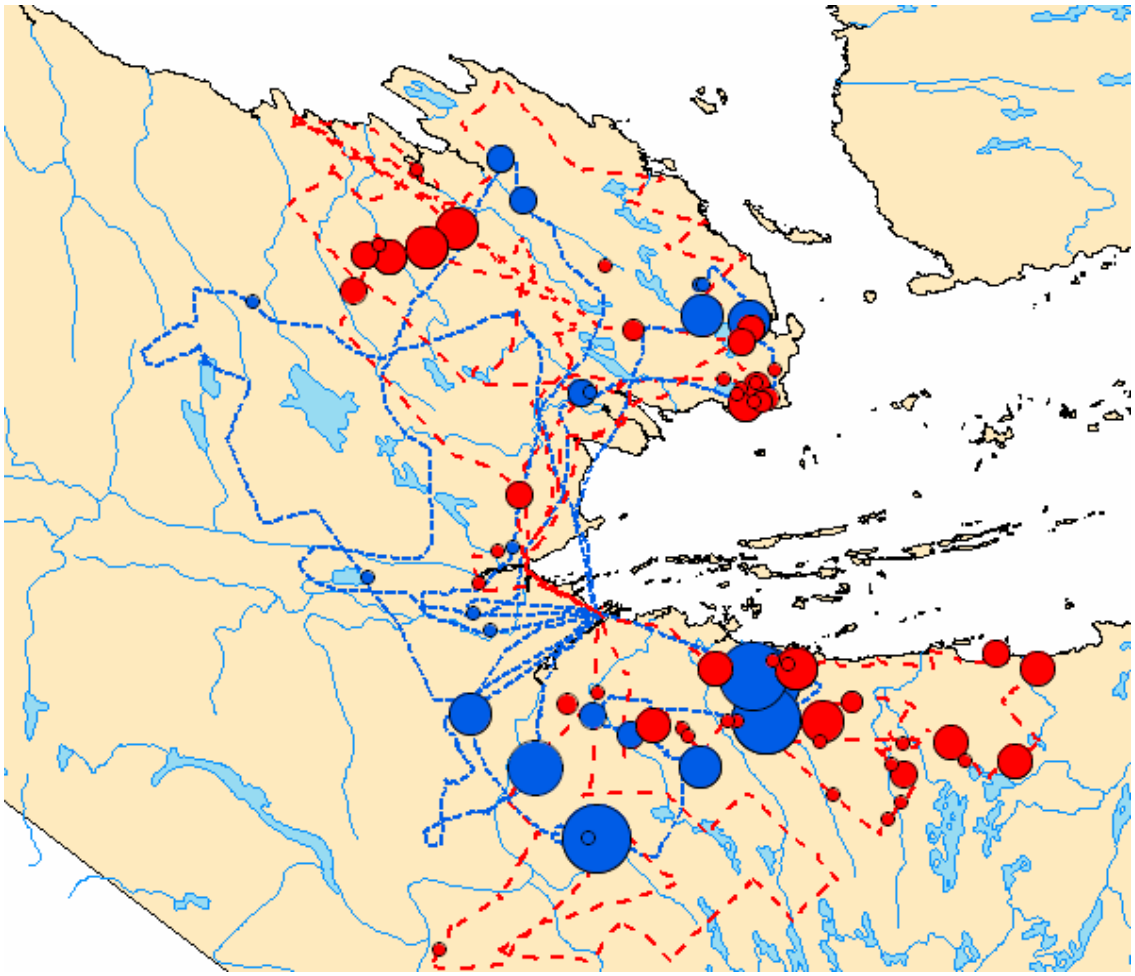

Figure 1: Flight track (doted lines) and observed muskoxen group size (circles) in May (blue) and in August (red), 2007 in the western Kitikmeot.

Methods:

Sampling was conducted on May 24, May 28, and on August 2 to 13, 2007 while conducting muskox classification work by helicopter in the Western Kitikmeot. In May, 2007, sampling was conducted by Allen Niptanatiak and Mathieu Dumond by helicopter. We were landing in the proximity of muskox groups to classify them and were seaching on foot for fresh feces and urine in the snow close to their location before we landed (A waypoint was taken at the landing location). From August 2 to August 7, 2007, samples were collected by Allen Niptanatiak and Luigi Torretti by helicopter. Additional samples were collected by Allen Niptanatiak and Mathieu Dumond on August 13, 2007. When possible we collected a number of samples equal to 10 to 20% of the muskox group size. We hoped to reduce the risk of double sampling one individual within a month by taking a limited number of sample per group and concentrating the sampling in a relatively small area where muskoxen were located prior to landing. For urine, “yellow snow” was collected. Because trails were crossing each other and overlapping, no attempt was made to collect urine and fecal samples from a same individual. Urine was not collected in August due to the absence of snow. During the field work, samples were kept in a cooler and then transferred in the lab freezer.

Results:

Table 1: Number of fecal and urine samples collected from muskoxen groups in May and August 2007, in the Western Kitikmeot.

	University of Alaska		University of Calgary	Wildlife Genetics International	Total	Number of muskoxen groups sampled
	urine	feces	feces		feces	
20070524	11	8	4	4	12	4
20070528	31	25	18	17	46	6
20070802	NA	7	8	5	20	2
20070807	NA	17	17	15	49	6
20070813	NA	7	8	6	21	2
Total	42	64	55	47	148	10 (May) / 10 (Aug)

Sampling will also be conducted in Winter 2008, and if funding is available in May 2008.
Long term sampling is planned for urine and feces samples each spring from 2008 to 2011.

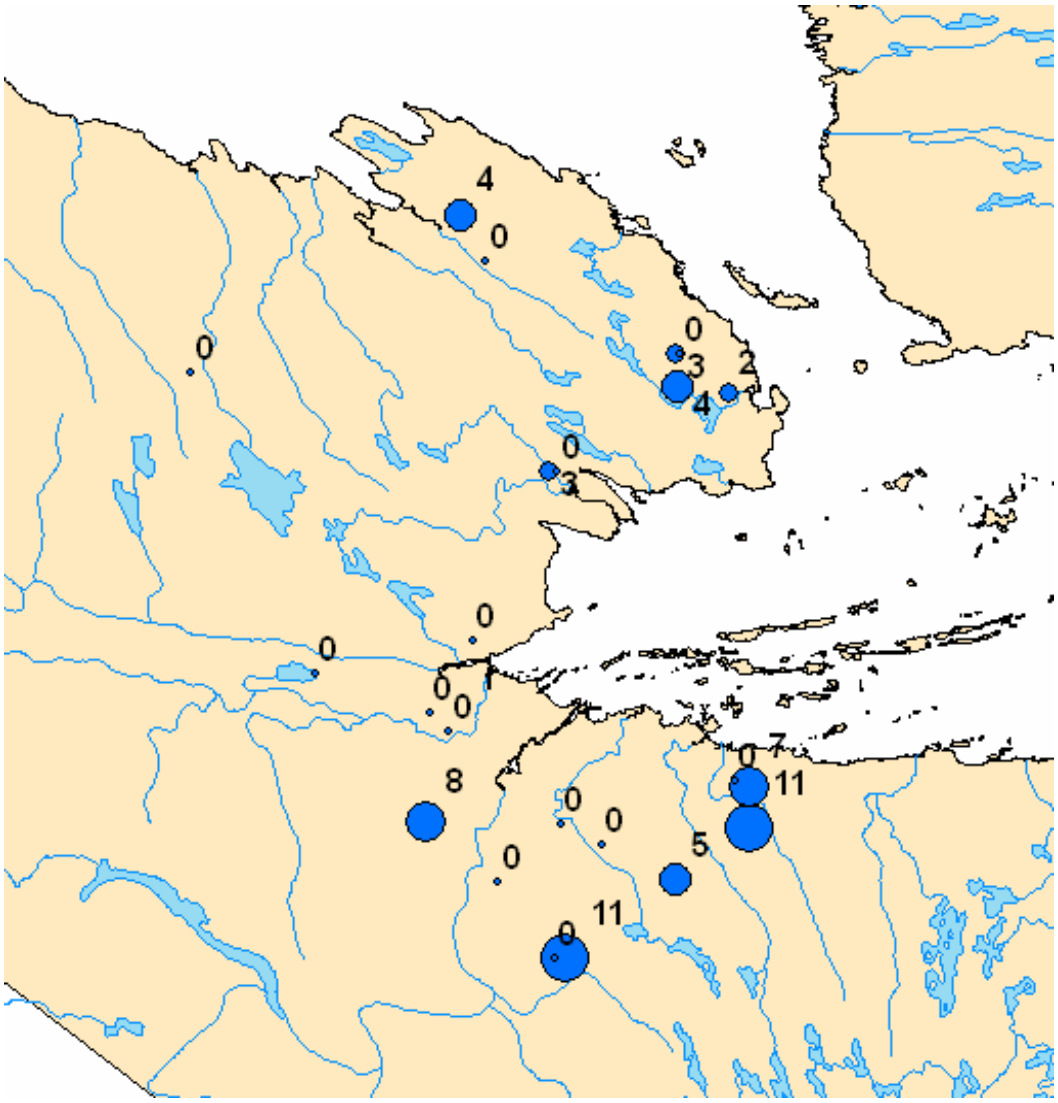

Figure 2a: Muskoxen fecal sampling sites, May 2007 in the Western Kitikmeot (Label indicates the number of fecal samples collected).

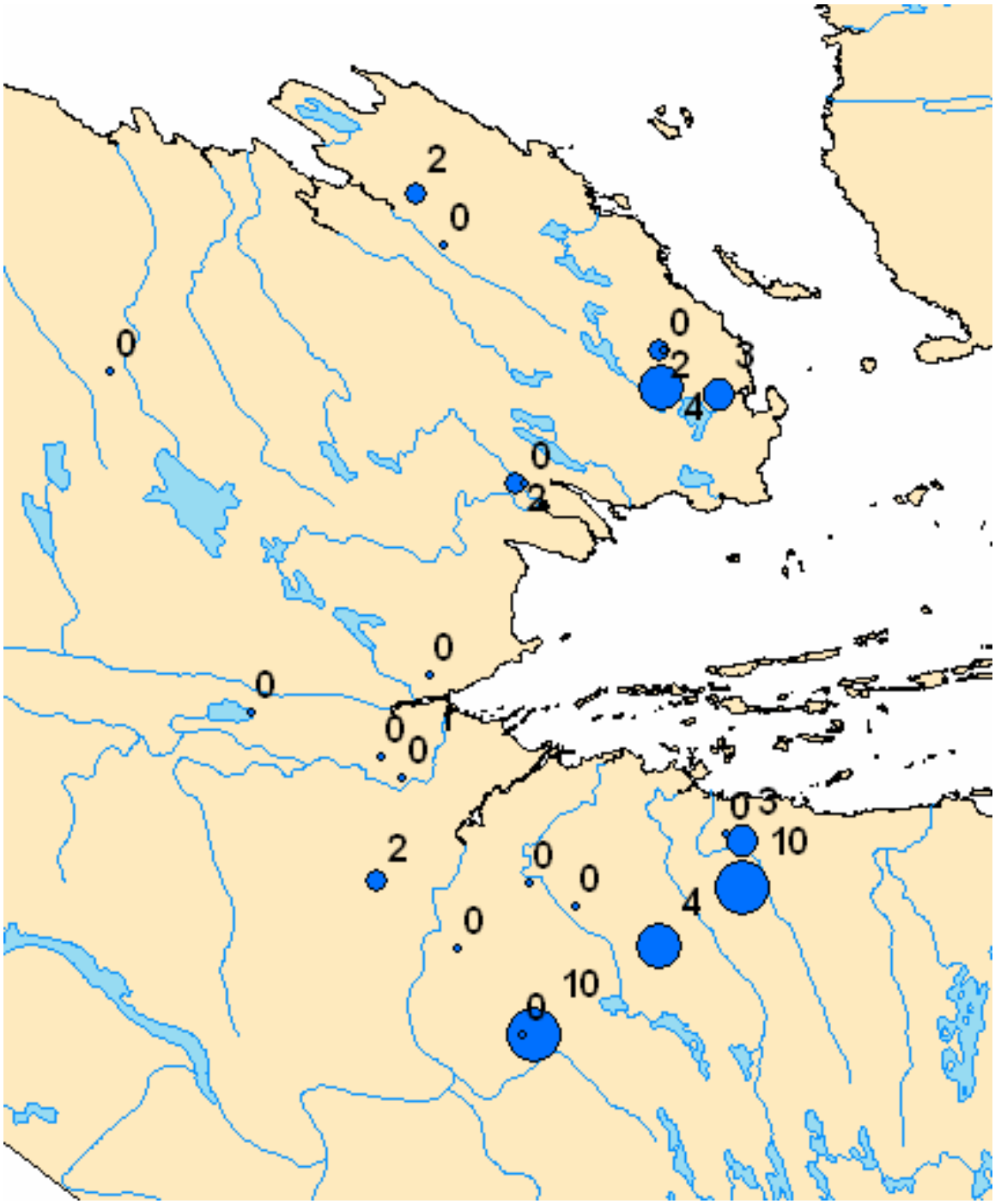

Figure 2b: Muskoxen urine sampling sites, May 2007 in the Western Kitikmeot (Label indicates the number of urine samples collected).

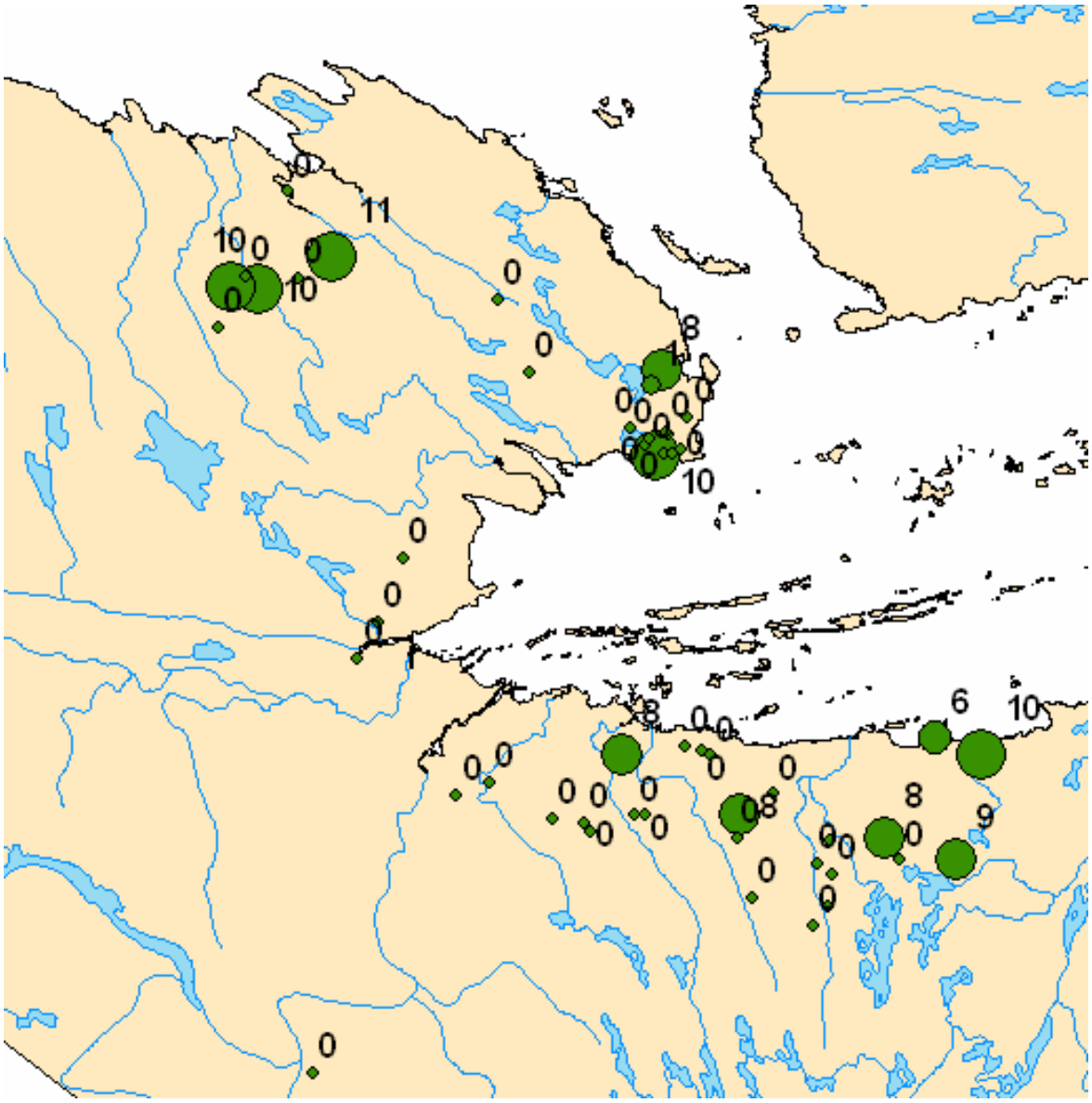

Figure 2c: Muskoxen fecal sampling sites, August 2007 in the Western Kitikmeot (Label indicates the number of fecal samples collected).

Deliverables:

University of Alaska:

- Copy of the results of the analysis of these samples.
- Collaboration on selected reports and publications using these samples.
- Copy of any report, publication or communication using these samples
- Acknowledgement of the Nunavut Wildlife Division, Department of Environment (Gov of Nunavut) contribution on any report, publication or communication using these samples.

University of Calgary:

- Copy of the results of the analysis of these samples.
- Collaboration on selected reports and publications using these samples.
- Copy of any report, publication or communication using these samples
- Acknowledgement of the contribution of the Nunavut Wildlife Division, Department of Environment (Gov of Nunavut) contribution on any report, publication or communication using these samples.

Wildlife Genetics International

- Copy of the results of the analysis of these samples.
- Report explaining the genetic results.

Government of Nunavut:

- Samples and collection information
- Collaboration on selected reports and publications using these samples. Planned reports/papers:
    - Genetic structure and relationships between two adjacent muskoxen clusters with different demographic dynamics.
    - Spatial variations in parasitic load in muskoxen in the Western Kitikmeot, Nunavut.
    - Spatio-Temporal Variation of the Diet and Nitrogen Balance in Muskoxen in the Western Kitikmeot, Nunavut
    - Muskox, from pregnancy rate to productivity and recruitment.
- Copy of any report, publication or communication using these samples
- Acknowledgement of the contribution of the University of Alaska, University of Calgary and Wildlife Genetics International on any report, publication or communication using the results of the analysis of these samples.