

**INTERIM REPORT  
TO THE NUNAVUT WILDLIFE MANAGEMENT BOARD**

**1. PROJECT # 2-13-03****2. Project Title:** Caribou Health Monitoring Program**3. Project Leader:** Jaylene Goorts

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\*\*\*Previous Project Leader: Debbie Jenkins (former Regional Biologist – Baffin Region, Department of Environment, Government of Nunavut). Initial project proposal was submitted to the NWMB by Debbie Jenkins (January 2013).

**4. Summary:**

The purpose of this project is to establish a hunter-based program of information and sample collection for caribou health monitoring and genetic analysis across Baffin Region, Nunavut. This research addresses key wildlife concerns of local HTOs and wildlife managers while providing an opportunity for hunters and scientists to combine their knowledge and resources for the benefit of caribou.

Local harvesters have on-going contact with caribou and can provide important information on this species. A Caribou Health Monitoring Program makes use of this opportunity by training Inuit hunters to collect both samples and data from animals that they already harvest. The goals of this program include the establishment of baseline values for health parameters and genetic variation, with the potential for long-term monitoring to detect future change. Increasing the capacity in communities and the participation of youth in research is a priority. All communities that hunt on Baffin Island are invited to participate in this program, as their capacity allows.

**5. Project Objectives:**

Research Objectives: The overall goal of this program is to establish a long-term hunter-based sample collection program to address information gaps on caribou. Specific objectives include:

- Continue training regular hunters to collect samples and data from animals that they already harvest.
- Develop and execute a communication strategy to increase participation and understanding

- provide baseline information on caribou health (including prevalence of brucellosis and other disease), population structure, genetic diversity, morphology, and diet.
- archive the results in a departmental database that will be used to evaluate changes over time and allow comparisons between herds.
- to build local understanding and capacity.
- ensure timely sample analysis and information exchange with the communities.

## **6. Materials and Methods:**

*Sample Collection* – HTOs and hunters are given an overview of the project, sample/data requirements, and collection methods through consultations, public meetings, and other training and information documents. While on the land, hunters carry sample kits with labels, data sheets, instructions, and sample bags. When caribou are harvested they collect the samples and information required. Basic samples include a datasheet to record information about the harvest, (including the hunters name, date of kill, harvest location, sex of animal harvested, and a section to provide notes about anything that the hunter observed as unusual or worth documenting), a skin sample (1x3" strip), fecal pellets (~20 pellets), blood (collected on filter strips), a backfat measurement (recorded as zero if none), and information about the reproductive status and body condition of the caribou. The hunter receives a payment of \$60 if all of these samples are provided. Additionally, hunters may choose to submit the lower left hind leg with hoof (left metatarsal) and the lower jaw. If these 'optional' samples are provided, hunters receive an additional \$40. The kits are designed so that it should only take a few minutes for harvester to collect the required samples. Each sample kit is for one caribou only, however, multiple kits can be used if multiple caribou are harvested. As well, the program has recently been modified to allow hunters to submit samples when they return to the community without completing an entire kit. Based on feedback received, some hunters may not want to collect samples while out on the land, but may want to submit one or two of the samples after returning to their community. The new changes accommodate this request, and payment is provided to the hunter for individual samples provided. We have also included tissue as an optional sample. Hunters return their collected samples to the Conservation Officers or HTO in their community for later shipment to the Department of Environment regional laboratory in Pond Inlet.

*Sample Analysis* – The samples and data collected can be analyzed to evaluate caribou health and obtain information about the population(s). Some analysis can be done in-house, but specific expertise and equipment at various specialized labs throughout North America will be required for others. The types of analysis that may be performed include, but are not limited to: disease testing using blood collected on filter strips and coarse visual assessment of skin, jaw, and metatarsal; general parasitology using fecal samples; diet composition using fecal samples; genetic analysis using skin samples; tooth age analysis using incisors on the lower jaw; morphological measurements using the lower jaw and metatarsal; and overall body condition through assessment of metatarsal/jaw bone marrow and other information provided by the hunters.

*Reporting Results:* The results of the various sample analysis will be reported back to the communities where hunters, elders, and other local experts will have an opportunity to assist researchers in interpreting the observations and information obtained by sharing knowledge and combining IQ with science.

## 7. Project Schedule:

Output or Step	Start Date	End Date	Status
HTO and Community Consultations (South Baffin)	Nov.28, 2011	Feb.10, 2012	Completed
HTO and Community Consultations (North Baffin)	Dec.6, 2012	Dec. 14 <sup>th</sup> , 2012	Completed
Training (participating communities)	April 1, 2013	April 1, 2014	Ongoing
Data Management	April 1, 2013	April 1, 2014	Ongoing
Sample preparation and shipping			Ongoing
Data Input and Analysis			Ongoing
Status Reports	Jan. 1, 2014	Jan. 15, 2014	Completed
Data Compilation Mapping and Final Reporting	Sept. 30, 2013	Sept. 30, 2014	Ongoing, Final Reporting not yet initiated.
Communication, peer-review papers	Dec. 12, 2013	Dec. 30, 2014	Comm. Ongoing, Peer-review papers not yet initiated.

## 8. Preliminary Results and Discussion:

To date, a total of 37 harvest sample kits have been submitted by hunters through the HTOs; 10 from Sanikiluaq, 18 from Qikiqtarjuaq, two from Igloodik. As well, three incidental samples were returned to the wildlife office in Pond Inlet (including an abnormal hoof of a caribou harvested, and skin samples). Seven sample kits have been submitted to the Hall beach HTO but have not yet been shipped to the Pond Inlet Regional Wildlife Office for processing. Payment for samples/sample kits submissions were provided to participating harvesters.

Samples are initially being analyzed following the standardized protocols outlined in, 'Rangifer Health and Body Condition Monitoring: Monitoring Protocols Level 1 (Carma Network, 2008). Analysis, pre-processing and archival of all samples is ongoing. Morphological measurements from the metatarsal and lower jaw, and bone marrow analysis are being performed in-house, and hunter information from datasheets and backfat tags are being compiled. An opportunity also exists to train community members to analyze and prepare samples in-house and further engage local residents in wildlife research through preparation of public education documents and presentations.

Disease – Prevalence of disease can be monitored using a number of the samples collected through the 'Caribou Sample Collection' of the CHMP. At the coarsest scale of detection, samples are being visually

analyzed for macroscopic parasites, lesions, swellings, abnormalities, or other indicators of disease or parasitic infection. Currently, a total of 40 blood and fecal samples are being sent to the Canadian Cooperative Wildlife Health Center (Alberta Node) for sample processing and coordination of shipment to various specialized laboratories across North America for various diseases and parasite testing.

*Genetics* – Skin samples from Qikiqtarjuaq, Igloolik, and Pond Inlet (14 in total), have been sent to WGI for genotyping and will contribute to the larger GN-DOE caribou genetic project that will investigate the (sub)population structure of Barren-ground caribou on Baffin Island and the Melville Peninsula, and quantify the genetic diversity within and between these (sub)populations. Genotyping will be completed for 18 highly variable microsatellite markers. The markers chosen have been commonly employed in recent caribou genetic studies (including those in Nunavut), allowing for maximum overlap, consistency, and comparison with published data (Paetkau (WGI), pers. Comm.).

All samples are being archived at the Baffin Regional Wildlife Office in Pond Inlet for future analysis. Further sample analysis to look at diet and tooth aging are being considered when sufficient samples exist. All data will be compiled and analyzed in GIS to evaluate the spatial and temporal dimensions of parameters. The information and results will be shared directly back with all participating communities.

## **9. Reporting to Communities / Resource Users:**

Participating communities and other agencies are provided with updates and reporting on project progress, and preliminary findings, and/or, are provided with training and training documents on an ongoing basis. An updated schedule is provided below.

- 2007-08 – Consultation and Pilot study training between the GN-DOE, the Faculty of Veterinary Medicine at the University of Calgary, and the HTOs in Igloolik, Hall Beach, Clyde River, Arctic Bay, and Pond Inlet. (Completed)
- December 2011 – Consultations with the South Baffin HTOs – Qikiqtarjuaq, Hall Beach, Igloolik, Cape Dorset, and Kimmirut. (Completed)
- December 2012 – Consultations with North Baffin HTOs – Qikiqtarjuaq, Clyde River, Pond Inlet, Arctic Bay, and Igloolik. (Completed)
- November 2013 – QWB-AGM – Update on project progress and recruitment. (Completed)
- December 2013 – Consultations with South Baffin HTOs – Iqaluit, Cape Dorset, Pangnirtung. (Completed)
- January – 2014 – Scheduled consultations North Baffin HTOs – Qikiqtarjuaq, Clyde River, Pond Inlet, Arctic Bay, Igloolik, Hall Beach, Kimmirut. (In-progress)

Consultations with all Baffin Island HTO, including Igloolik and Hall Beach, following completion of research are planned for Late 2014.