

Nunavut Water Board
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By e-mail: licensing@nunavutwaterboard.org

3 April 2014

Wildlife Research Section
Department of Environment
Government of Nunavut
Box 209 Igloolik NU X0A 0L0

To the NWB Manager of Licensing:

RE: REQUEST APPROVAL FOR USE OF WATER/DEPOSIT OF WASTE WITHOUT A LICENSE

Please consider this letter as request for approval to use water for drinking, cooking, and washing while conducting fieldwork on the Peary caribou landscape genetics project for June-August 2014. A summary of the project, in English and Inuktitut, is attached. The work is focused on eastern Axel Heiberg Island, the Raanes and Fosheim Peninsulas of Ellesmere Island, Bathurst Island, eastern Melville Island and Byam Martin Island. Since we will be backpacking and our routes and campsites depend how much ground we cover in a day and where caribou are located, as well suitable landing sites for helicopters/Twin Otters, exact campsite coordinates (of which there will likely be 50+) are not known.

If you require further information or would like to discuss the project further, I can be reached at MAnderson@gov.nu.ca or 867-934-2186 (after April 29; otherwise the Grise Fiord Co-op Hotel 867-980-9135 if I'm not in the field).

Morgan Anderson
Wildlife Biologist II, High arctic Region
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We extract DNA from the mucous coating on fresh (or fresh and frozen) scat, so animals don't need to be caught or handled, or even seen. Samples can be collected whenever people are on the land and come across fresh pellets, then shipped to the lab for analysis. The pattern of relationship across the landscape tells us how the caribou interact with each other their surroundings over generations. These are the interactions we strive to maintain into the future through responsible harvesting and land use.

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1. Population status. Population surveys will be periodically performed as part of the GN-DOE mandate for monitoring and managing wildlife populations in Nunavut (will be covered by specific permits for surveys as applicable)
2. Inter islands movements. Population and landscape genetic analysis will be used to pattern of gene flow in the Archipelago, characterize and spatially identify movement corridors (sex-biased dispersal, landscape features blocking/facilitating movement). This will in turn assist with the definition of critical habitat as required by the Recovery Strategy under the Species at Risk Act.

3. Population recovery process for Bathurst Island. The most recent survey of Bathurst Island, this May, suggests a marked increase over the 2001 estimate of 187 animals (559 caribou were seen on the survey as a minimum count). DNA analysis will be done to determine whether these animals are all descendent from the caribou that survived the severe weather events of the late 1990s, or whether caribou from elsewhere have contributed to repopulate the island.

4. Landscape genetics and critical habitat on Ellesmere/Axel Heiberg Islands. Previous genetic analyses indicated (Petersen et al. 2010) that the caribou on northern Ellesmere are more closely related to animals on central Ellesmere than to animals that lived on northern Ellesmere prior to Peary's expedition, when hundreds of caribou were killed. This suggests that the population in the north was not able to recover quickly on its own, and was supplemented by animals moving up from central Ellesmere. Genetic analysis of samples from central and southern Ellesmere, and nearby Axel Heiberg, will provide more insight into these source-sink dynamics. The densities of pellets encountered during sample collection can also help identify areas where caribou are spending most of their time and assist with finer scale habitat selection analysis.

5. Population definition. Working with samples from across the High Arctic, phylogenetic and population genetic analyses will be done to delineate and characterize the main population units. These samples will also contribute to characterize the differences (and extent of genetic introgression) between COSEWIC's Designated Units of Peary caribou, Dolphin-Union caribou and barren ground caribou. This is a longer-term objective.

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