

Inuvialuit knowledge of polar bears

Polar Bear Traditional Knowledge Project

Inuvialuit Elders, hunters, and other community experts have a lot to offer when it comes to knowledge about polar bears especially in co-management where decisions are made about harvesting and the long term conservation of polar bears in the context of climate change, oil and gas exploration and other developments. That's why the WMAC(NS) and WMAC(NWT) jointly recommended an "Inuvialuit Polar Bear Traditional Knowledge (PBTk) study" starting in 2009.

Collectively, the Inuvialuit have many years of direct experience with and observations of polar bears and the environment in which they live. This can help us better understand potential changes in polar bear health, habitat, locations, prey types, movement patterns, denning, and population numbers. Polar bear management can benefit greatly from the inclusion of detailed Inuvialuit knowledge about polar bears, in addition to knowledge from biologists.

A University of Alberta graduate student, Dan Slavik, was retained to conduct interviews with experts in the six Inuvialuit communities, with

community-based co-researchers, interpreters and youth. For several weeks during the winter and fall of 2010, Slavik and his colleagues interviewed 72 experts, many of them Elders with numerous years of experience with polar bears. Several women were interviewed because of their specialized knowledge of the bears.

Map biographies were made with help from the informants. These document polar bear feeding, denning, and habitat locations in addition to movement patterns and places where they were harvested by Inuvialuit. Interview audio recordings were transcribed for future analysis and compilation and so that they could be returned to the informants for validation. Most of the interviews were video recorded as well. Recordings could be used for archival and educational media purposes in the future.

In December 2011, the WMAC(NS & NWT) retained the services of consulting anthropologist, Peter Armitage. Armitage has 30 years experience working with Aboriginal people in Labrador, northern Quebec, and Ontario on land use and occupancy, environmental knowledge, cultural heritage, and environmental assessment research.



Dan Slavik, Sandy Wolki, Charles Pokiak, and Fred Wolki during the PBTk interviews in Tuktoyaktuk.

Monitoring and Research on the Porcupine Caribou Herd

Porcupine Caribou Satellite Collar Project

The satellite collar program is a long- running program with a diverse list of co-operators including Yukon Government, the Canadian Wildlife Service, Government of the Northwest Territories, the Gwich'in Renewable Resource Board, Ivvavik National Park, Vuntut National Park, the Wildlife Management Advisory Council (North Slope), Alaska Department of Fish and Game, and the U.S. Fish and Wildlife Service.

The Porcupine Caribou Management Plan (2002 / 03) directs agencies to maintain conventional and satellite collars on the herd to locate the herd for various population counts. Currently there are about 11 satellite collars on adult female caribou.

All collars including the satellite collars are put on caribou during the annual March fieldwork.

Radio collars (conventional and satellite) are used to locate the herd to monitor calf birth and survival rates each year. Having a sufficient number of radio collars deployed on the herd is critical to the accuracy of these estimates. Each March since 1991, Yukon Government and the United States Fish and Wildlife Service have documented over-winter calf survival, guided by the distribution of radio collars.

Satellite collars are also useful because they generally reflect the distribution of the herd and are valuable in recording the routes and timing of the Porcupine caribou migrations.

All of this information on how Porcupine caribou use their range is important for understanding the effects of climate change and developments on the herd.

Porcupine Caribou Satellite Collar Recovery

At any given time, there are about 100 radio collars, and 15 satellite collars on the Porcupine Caribou Herd. After the collars drop off of the animals, they often still transmit, so the radio frequencies can not be used for anything else. Currently there are about 70 of these shed collars in the field, making it a challenge to find available frequencies for new collars.

This project is a dedicated flight to retrieve dead and shed collars so some of the used frequencies can be made available and collars that can be refurbished. Removing old collars from the field will allow for more efficient programming and deployment of new collars, critical to the ongoing monitoring of the Porcupine Caribou Herd. The flights will take place in late June.



Ivvavik visitors and Parks Canada staff. Photo credit Ian McDonald.

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Summer 2012 Research on the Yukon North Slope

What's Happening on the YNS

Each year the Council reviews proposals for research projects related to wildlife management and ecological monitoring on the Yukon North Slope. Projects supported by the Council are recommended to Parks Canada, Yukon Government and the Canadian Wildlife Service, who carry out the research. The funding for these projects comes (in full or in part) through the Inuvialuit Final Agreement. The research projects that will be occurring on the Yukon North Slope in 2012-2013 include the following projects.

Richardson Mountain Moose Survey

The Richardson Mountains was the study area for a comprehensive study looking into the abundance, seasonal movement patterns, and habitat use of moose between 1987 and 1990. The study suggested that the moose population was vulnerable to over-harvest and potential oil and gas land development due to the clumped distribution of moose and the patchiness of suitable habitat.

The area was resurveyed in 2000 and results showed that abundance had increased significantly. The area represents the highest moose density per (available) habitat recorded in the Yukon to date.

In March of 2013, the 610 square kilometer study area will be surveyed again and moose groups will be mapped.

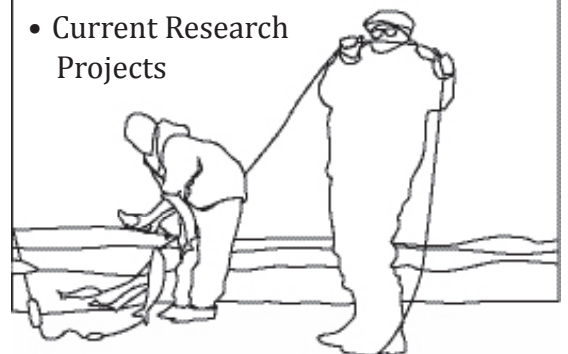


Ivvavik National Park. Photo credit Michelle Sicotte.

Documentation of use of late winter habitat in this survey will confirm the long term value of important moose habitats across the Yukon North Slope.

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Ivvavik and Monitoring Programs

Ecological Integrity Monitoring in the Forest and Tundra Ecosystems of Ivvavik National Park

Over the past few years, Parks Canada has been working to develop a monitoring framework for Ivvavik National Park. The framework divides the park into four ecosystems that can be monitored to give an indication of overall park health. Forest and Tundra are two ecosystems with established monitoring protocols.

This year's project will focus on these two ecosystems by recording the biodiversity (particularly insects and birds), collecting information on some ecological processes that may influence biodiversity, and

providing opportunities for skill development and capacity building for college and university students.

The students will work with researchers and Parks Canada staff to examine variation in weather, the consequences of this variation to insects, plants and to bird communities and bird productivity.

This project also occurred in 2010/11 and received good feedback by volunteer participants and Inuvialuit youths. One Aklavik student started a vegetation field guide for Sheep Creek, Ivvavik National Park. It will be completed next summer. University students also got hands on experience in conducting field research on

different ecological subjects, including soils, birds, insects, and vegetation. The results so far have contributed to assessing the condition of the tundra and forest ecosystems in the State of the Park Report for Ivvavik National Park.



Jason Straka monitors bird songs in the early morning while working on the forest and tundra monitoring protocols for Parks Canada. Photo credit Parks Canada.

Caribou in Ivvavik National Park. Photo credit Parks Canada.



Monitoring the Coastal Zone Ecosystem in Ivvavik National Park

Parks Canada is in the initial stages of developing the Coastal Zone monitoring component of the ecological monitoring program. The Council is keenly interested in the establishment of the monitoring program for the coast of the Park. This is an area that is undergoing significant changes from erosion and may experience impacts from future offshore development.

The project will measure rates of bank retreat and look at satellite imagery to understand changes in shorelines and in creek, stream and river ecosystems.

Arctic Borderlands Ecological Knowledge Coop

The Arctic Borderlands Ecological Knowledge (ABEK) Coop has been gathering community local knowledge in eight communities since 1996. ABEK tracks changes in environmental conditions across the range of the Porcupine Caribou herd. The program provides information about environmental trends, historical context and possible causes of trends. 2012/13 work will build on the previous years' successful redesign of the survey questionnaire, analysis, and communication products. Additionally, the program will validate and report on trends and changes as a result of the monitoring program, and complete analysis and reports based on the new survey questionnaire.

Herschel Island Ecological Monitoring Program

The Herschel Island Qikiqtaruk Ecological Monitoring program has been measuring and tracking ecological change since 1999. The program is focused on monitoring vegetation and permafrost and tracking wildlife occurrence. The program relies on the involvement of Herschel Island rangers for data collection and management, and ensures the program responds to ecological change and emerging threats to park values. The program now consists of 12 related projects ranging from thaw slump monitoring and breeding bird and vegetation surveys to airstrip monitoring. New initiatives for 2012 include

developing a new program that provides access to photos that Herschel Island rangers take annually. It will be an important resource for documenting climate change, rare wildlife species, vegetation communities, as well as research and tourism activities on the island.

North Slope Grizzly Bear Project

The Yukon North Slope Grizzly Bear Research Project began in 2004. The study results are currently being analyzed and summarized. The project focuses on grizzly bears between the Firth and Blow rivers. The study looks at grizzly bear population sizes, birth rates, death rates, where bears are found at certain times of the year, and how much they move around. The information will help wildlife managers including boards and community organizations that contribute to management decisions. Population information is especially important for setting harvest quotas.

Porcupine Caribou Rut Composition Count

In the Harvest Management Plan for the Porcupine Caribou Herd in Canada, there is provision for bull-only harvest restriction (for different user groups) if the herd drops below certain population sizes. If the herd size is between 115,000 and 80,000 (Yellow zone), all parties will strive to achieve 100% bulls only in the harvest. If the herd size drops below 80,000 caribou (Orange zone), a Total Allowable Harvest will be implemented along with a mandatory bull only harvest for all users.

The bull ratio was first estimated 20 years ago at 60 bulls per 100 cows. In 2010, the bull ratio was estimated at 57 bulls per 100 cows. With a bull ratio this high, we expect that breeding should not be impaired in any way due to a lack of male caribou.

When a photo census is done a composition count during the rut is also done to document the bull ratio. This information will be useful to see if there are any effects of a bull dominated harvest under the Green Zone harvest management regime and recommendations from the Porcupine Caribou Management Board.

Fieldwork is scheduled for early to mid October, 2012.

Since then, Armitage has focused on reading the interview transcripts and classifying (coding) the different types of information in them using a computer programme called “NVivo 9.” The programme works like a filing cabinet that allows one to put different types of information in separate files. Maternity den information can be placed in one file, while information concerning the effects of changing sea ice on polar bears can be placed in another. Once all of the transcripts have been processed, the programme makes it easy to see what all of the community experts said about a given topic.

In addition to the transcripts, Armitage has been working with a mapping (spatial data) expert, to organize the information on the map biographies. This will make it easier to make composite maps



Polar bear on the sea ice.

of Inuvialuit knowledge of polar bear movement patterns, den locations, and other information that will aid the study reports. A picture is often worth a thousand words, so the maps should assist greatly in illustrating what Inuvialuit were describing during the interviews.

The objective is to prepare a draft report and maps by the end of September, 2012 so that Armitage can meet with polar bear experts and other interested people in each of the six Inuvialuit communities in October. They will be asked to review contents of the draft report and maps at that time to identify any inaccuracies or information gaps. A final version should be completed by December 2012.

The PBTK study would not be possible without the willing participation of Inuvialuit Elders, hunters and other community members including co-researchers and youth.

Thank you to all involved!
Peter Armitage



Peter Armitage

The PBTK study should be useful for several reasons. It can:

- better inform management decisions that affect polar bears;
- serve as a public education resource and knowledge base;
- provide a cultural and environmental knowledge archive for future generations of Inuvialuit;
- inform future research initiatives and methods;
- provide useful information for environmental assessment and help mitigate and monitor the effects of Beaufort Sea oil and gas exploration and other developments;
- provide a unique perspective on Inuvialuit observations concerning the effects of global warming and climate change on polar bears;
- facilitate discussion among the Inuvialuit about the future of polar bears and human relations with them; and
- prepare WMACs and Inuvialuit leaders for upcoming international meetings such as the spring 2013 CITES meeting where the global status of polar bears will be discussed.

