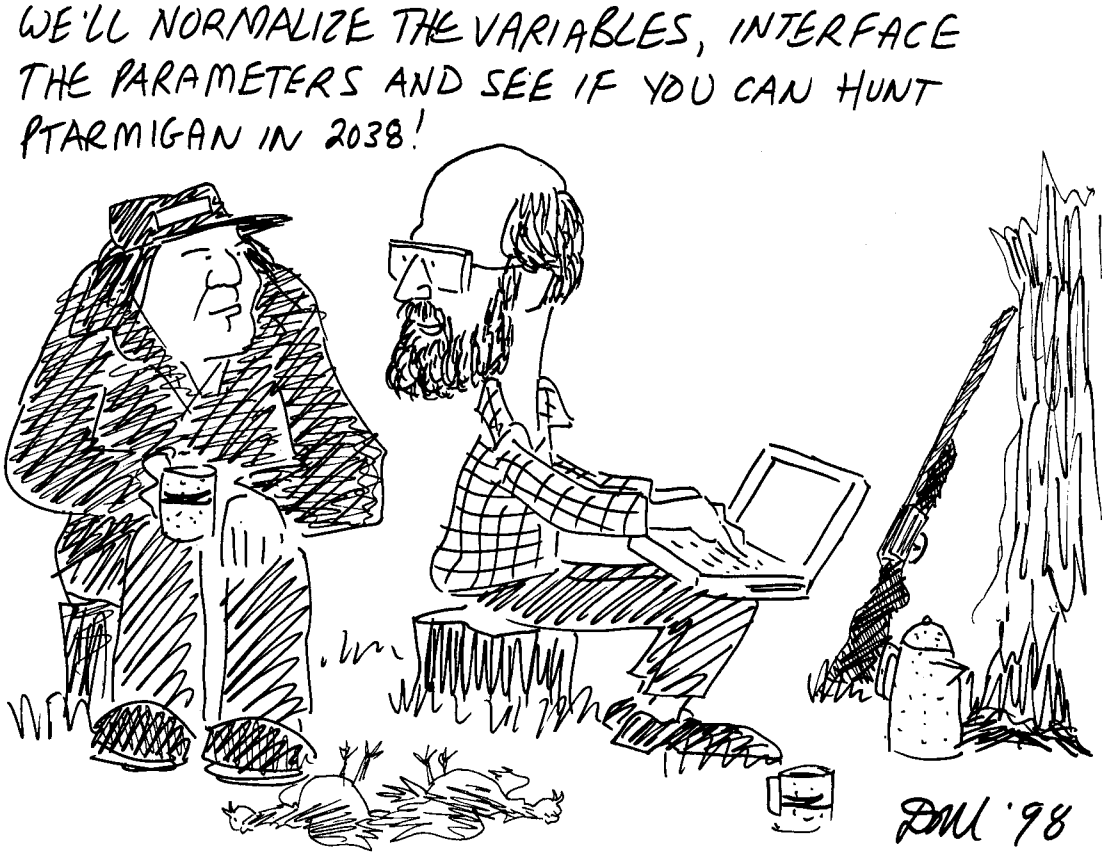
Session two

Co-Management



A case study of the Carcross herd in the southern Yukon

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Abstract: The Carcross caribou herd is a small herd of 450 woodland caribou (*Rangifer tarandus caribou*), which ranges in the most densely populated area of the Yukon. In response to concerns abour the herd's declining numbers, a community-based plan was developed in 1992 to recover the herd. As a result of the plan, Yukon hunting of the herd was stopped by regulations and voluntary compliance by First Nations. However, land use pressures on the winter range and migration corridors continue to threaten this herd. While the caribou are relatively undisturbed on alpine summer ranges, deep snow forces them into the populated lowlands for the critical winter period. Every year during spring and fall seasonal migrations, caribou are killed in vehicle collisions on highways that bisect the winter range. Land alienation by agriculture, cottage lot and residential development continue to displace caribou. Mining, forestry and unregulated fuelwood cutting can displace and disturb caribou on the winter range, and expand the network of roads and trails. Activities such as snowmobiling, ATV use, skiing, dogmushing and biking follow quickly with new access. The cumulative impacts of these activities reduces the 'effective' winter range and stresses caribou when their energy needs are most critical. Living with the Carcross caribou herd will continue to require dedicated efforts by many individuals and governments.

Human impacts on the Porcupine caribou herd

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Abstract: The Porcupine Caribou Management Board is directed by the communities that rely on the Porcupine caribou herd to promote the conservation and protection of the caribou and its habitat. This task is enormous as the herd ranges over two nations, one state, two territories, five First Nations land claims areas, a wildlife refuge, two national parks, and several protected areas. The formation of the Canadian Porcupine Caribou Management Board and the International Porcupine Caribou Management Board are the results of efforts to place renewable resource management in the hands of the Northern people. The Porcupine Caribou Management Board's eight members have equal native and government representation.

The Porcupine caribou herd is the foundation of the culture of the native peoples who depend on the herd. Their lifestyles combine the use of the caribou with the water, the land, the language, and the culture. Caribou are not only a vital food source but a way of life. The native peoples of the North have a vested interest in the continuance of the herd for future generations. The core calving ground of the herd is in the Arctic National Wildlife Refuge on Alaska's north coast. While the herd migrates over vast regions of northern Canada and Alaska, the migration patterns of the herd dictate that the continued success of the now 160 000 strong herd depends on at least 50% of the cows calving in this nutrient rich area on Alaska's coastal plain. Unfortunately, politics and oil development threaten the calving grounds and therefore, the existence of the herd.

The poster, which depicrs the calving grounds on Alaska's northern coast, is a composite of several individual frames. It has become the signature poster for the lobby efforts to permanently protect the calving grounds. The Board, along with native organizations and environmental groups, has for many years actively lobbied for permanent protection of this vital area. To date, the Refuge has still not been given permanent protection. Migration, industrial development, and politics are a volatile mix.

Behaviour and human disturbance

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Abstract: The Porcupine caribou herd is an ancient relarive that the Gwitchin people have relied on for food for thousands of years. They have lived in harmony wirh rhe caribou since time immemorial. With the rapid increase of technology and roads the caribou certainly feel the effects of human disturbances. Where there is human activity, other life forms will always be affected. Many factots come into play depending on the type of species, it's resiliency, and its role in nature. The building of the Dempster Highway has affected the caribou. Although their have been few road kills, increased traffic has resulted in an increased mortality rare. Overzealous hunters also have greater access to the caribou that cross at points on the Dempster. Earlier studies and Fitst Nation's observations indicate that the caribou are hesitant about crossing the highway where hunting has occurred. Although the herd is healrhy rhere is one major human threat to their survival. Oil development in the crucial '1002' calving grounds in Alaska could seriously harm the herd. Disturbance to the cows who calve in the Refuge could disrupt their calving patterns causing a decline in herd numbers. The Porcupine Caribou Management Board in cooperarion with First Nation governments and environmental groups has been actively lobbying for permanent protection of the Refuge for over ten years. So far we have been very successful however, it is very important that the U.S. Congress prorect the Arctic National Wildlife Refuge from any development. In order for them to do that it is very important that Canada do its part in protecting the caribou. They need to setiously reconsider re-opening the oil-caps in the wintering grounds of the Porcupine caribou herd. Another human disturbance factor are aircraft that fly low over caribou. They become alarmed resulting in panic and confusion. In panic, the calves have become separated from their mothers. This has resulted in more deaths due to starvation and predators. Caribou are also vulnerable to the noises of snow machines. There has been a lot of monitoring of the herd since the 1950s. Biologists have monitoted Porcupine caribou body condition year after year. The calves have been srudied for their mortality rates. Radio collars have been used to track rhe caribou over the years. We, as First Nations people hold tremendous amounts of knowledge pertaining to the catibou as well as the migration routes of the herd.

Learning with locals to model a future

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Abstract: Native communities of the North American Arctic increasingly expect that research endeavors will address community concerns and incorporate local knowledge into research processes. While many researchers acknowledge these expectations as valid, research methods which serve to meet these objectives are currently underdeveloped. This paper presents the method used by academic researchers and native community members in a collaborative research project. The National Science Foundation's Arctic Community Sustainability Project is a four-year, inrerdisciplinary study which, in patt, seeks to advance our understanding of how local knowledge and science can work in tandem to address applied research questions. Of concern in the Sustainability study is how possible future changes (shorr- and long-term climate change, the implications of 1002 gas and oil development, and shifts in levels and types of tourism and non-local hunting) may affect life in Porcupine caribou user communities of Canada and the United States. Consequences of possible changes on Porcupine caribou herd are a central focus of the study. An objective of the project is to combine local knowledge with multi-disciplinary scientific inquiry to model driving causal factors in order for researchers and locals to discuss better the implications of possible futures. Locals of Old Crow, Aklavik, Fort McPherson, and Arctic Village participate in focus group research and complete a mapping exercise to document current-day hunting patterns and prompt local hunters' discussions about ecological conditions affecting caribou movements and distribution. An iterative process of multiple small-group interviews is used in each community in which locals and researchers together generate and refine qualitative proposirions about environmental conditions affecting caribou and hunting success. Findings of former studies (e.g., harvest data, GIS displayed harvest locations, biological data, and socio-economic data on household and community sharing) are presented to groups of hunters to prompt their interpretations of data. Propositions address a range of topics and are later to be used with researcher's findings in the development of a project synthesis model which projects change.

Potential value of reindeer to caribou in a co-management system

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Abstract: A privately owned herd of several thousand reindeer is managed in an open herding system in the western Arctic. This herd inrerfaces with the Bluenose catibou herd, to which it could become an asset. Firstly, the reindeer are monitored annually for infectious diseases including parasites, and therefore they have potential value as sentinel animals for the early detection of diseases which may be introduced into the region from time to time. Secondly, the herd will be developed for meat production which could be used by local consumers to take the pressure off the caribou population in times of natural decline. Thirdly, gentled reindeer will introduce visitors to *Rangifer* and their place in the tundra biome, raising awareness of the nature of Arctic ecosystems. Principles of co-management will be applied through continuing consultation with other entrepreneurs and with all the people with whom we share the use of the land.

The mystery of the Clear Creek caribou herd

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Abstract: The Nacho Nyak Dun (NND) First Nation, the Mayo District Renewable Resources Council (MDRRC) and the Government of Yukon are equal partners in the Integrated Wildlife Management Plan for the NND Tradirional Territory. The objective of the plan is to coordinate the management of wildlife wirhin the Traditional Territory. The plan details the current status, concerns and solutions under selecred topics. One issue that arose during the planning process was that caribou in the Clear Creek area might be a separate herd from Hart River caribou, as they are currently managed. If Clear Creek caribou are separate from Hart River, they should be managed as a small herd. If herd size is small, reported plus unreported harvest in the past has probably exceeded the sustainable limit. Woodland caribou herds in the Wernecke Mountains were defined following a caribou inventory in 1989, when seasonal caribou ranges were delineated using radio collar locations from 32 caribou. In order to determine if the Clear Creek caribou are a separate herd from the Hart River caribou, the 1989 survey is being reviewed, employing both traditional knowledge of caribou range use, and wildlife survey techniques. During the summer of 1995, 17 long term Mayo residents were interviewed. This historical information revealed that caribou have been seen in the Clear Creek area for many years, and during all seasons of the year. During rhe winter of 1997-98, the MDRRC conducted more interviews. Clear Creek caribou were reported to use an area between the McQuesten River and the Klondike River, south of the delineated Hart River herd range. A 4-year inventory project was started in October of 1997. The project will determine whether Clear Creek caribou are separate from the Hart River herd, whether range use of caribou in Clear Creek overlaps with Hart River caribou range, and will derermine the herd size and composition of both herds in order to assess safe harvesting levels. Eight radio collars were deployed in the Clear Creek area in October 1997. Three telemetry flights during the winter of 1997-98 found that these cows had not moved to the usual Hart River herd winter range. Twenty-two more radio collars were deployed in March 1998. Blood samples were taken from rhe collared animals to be analyzed in conjunction with a Yukon wide caribou DNA sequencing projecr. DNA sequencing results will determine how related the 2 caribou populations are. Body measurements were taken to confirm local observations that Clear Creek caribou are of larger body size than Hart River caribou. In March 1998, snow depth and density measurements were taken to relate to caribou range use. Fecal samples were collected in March 1998 and will be archived. Over rhe remaining period in the 4-year inventory, five telemetry flights will be flown per year to locate the 30 collared caribou and determine range use. In 1999 a census will be conducted to calculate allowable harvest levels. As well, local knowledge will continue to be summarized to enhance the understanding of these two caribou populations, and cement the use of traditional knowledge in the realm of wildlife management practices.