Aklavik Local and Traditional Knowledge about Porcupine Caribou

September 2009

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Michelle Christensen

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Wildlife Management Advisory Council
North Slope

September 1, 2009

The settlement of the Inuvialuit Final Agreement (IFA) in 1984 changed the way fish and wildlife are managed on the Yukon's North Slope. The IFA established a special conservation regime to ensure that the area's wildlife populations, its unique arctic environment, and its traditional use by Inuvialuit people would be maintained for future generations. The Wildlife Management Advisory Council (North Slope) (WMAC (NS)) is a group of Inuvialuit and government representatives who work together, recommending ways to cooperatively and carefully manage wildlife on the Yukon's North Slope.

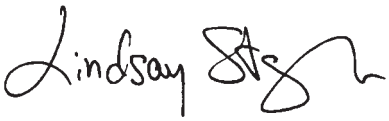
Porcupine caribou are one of North America's largest migratory caribou herds. Aboriginal people in the Northern Yukon and the Northwest Territories have depended on the herd for centuries for food and cultural well-being.

Concerns about herd numbers and harvest management have increased over the last several years which has led to debate and discussion about the management of the herd.

The traditional knowledge documented in this report may serve to inform future strategies for the conservation of Porcupine caribou.

It is an important time to record the knowledge held by Aklavik Inuvialuit and others, especially the wisdom of the Elders. The knowledge of Elders is based on many years of life on the land and, often, the knowledge shared and passed along by previous generations. We are grateful to the Aklavik experts who participated in this study and shared their knowledge so openly.

Quyanainni



Lindsay Staples
Chair
WMAC (NS)

September 1, 2009

The Aklavik Hunters and Trappers Committee serves as the voice for Aklavik Inuvialuit who hunt, fish, and trap on the land.

The Committee is proud to have played a part of the first traditional knowledge report ever done on the Porcupine Caribou herd. The herd is a critical part of the way of life for the people in Aklavik. Having traditional knowledge of the Porcupine Caribou documented will serve as an important resource for the community and others interested in the herd's management and conservation.

We appreciate the efforts of the Wildlife Management Advisory Council (North Slope) and Lisa Christensen for their careful consideration in how the study was carried out and the results communicated.

We also would like to thank Michelle Gruben and Savannah Greenland, community experts, as well as all the interviewees from the community who shared their knowledge so openly.

Evelyn Storr
Vice President
Aklavik Hunters and Trappers Committee

This report is dedicated to the memory of George Selamio, of Aklavik, NWT

George spent a great deal of his life out on the land pursuing a traditional lifestyle of hunting, fishing, and trapping. He was passionate about sharing his knowledge with others, and his involvement in this study is a testament to that. George's contributions to his community were many, and they will not soon be forgotten.

Richard Pither

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Alice Kenney

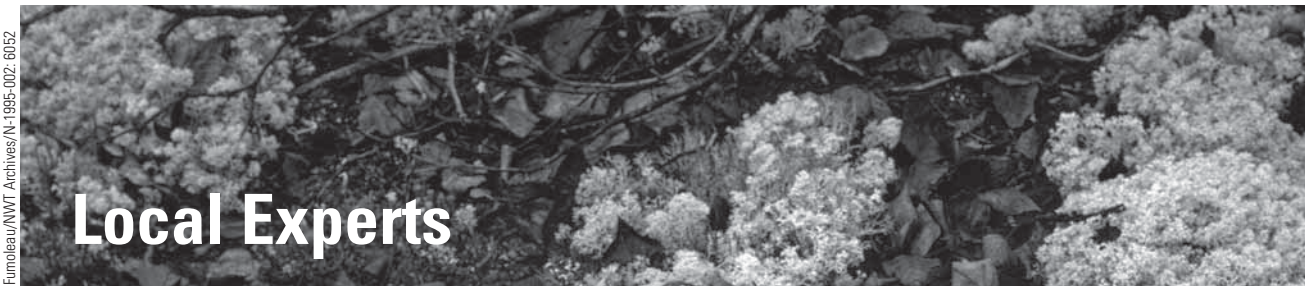
Aileen Horler

Acknowledgements

This project is the result of a collaborative effort by a number of individuals and organizations to document traditional knowledge about the Porcupine caribou herd from the perspectives of the peoples of Aklavik. Thank you to those who contributed to making the project a success—without your support this project would not have been possible. We are sincerely thankful to all the study participants for sharing with us their knowledge found in the following pages. We hope your knowledge is served well in this report and that it may be useful as a biological, ecological, and cultural resource for the future generations of Aklavik people and managers of the Porcupine caribou herd.

Thanks to the interviewers, Lisa Christensen, Michelle Gruben, and Savannah Greenland who lent their questioning, listening, and cultural translation skills to the project. A number of individuals provided feedback with respect to interview questions and research methodologies, including Richard Papik, Dorothy Cooley, Barney Smith, Don Russell, Agnes Tardiff, Danny C. Gordon, Richard Gordon, Lisa Christensen, Jennifer Smith, and Lindsay Staples. We are grateful for the wisdom, insight, and unique perspectives you brought to the project.

We would also like to recognize Jennifer Smith and Michelle Christensen, both of the Wildlife Management Advisory Council, for organizing and coordinating aspects of the project that are too numerous to mention. Thanks to Lisa Christensen who transcribed the interviews, analyzed, and wrote up the findings. Barbara Allen kindly shared with us Inuvialuktun translations of words that describe caribou and the land, which we are also grateful for. The maps found throughout this report are the work of Gerry Perrier—thank you for visualizing the spatial data. The members of the Hunters and Trappers Committee were important research partners and supported the work by providing a list of knowledgeable informants with whom to conduct interviews and by providing feedback on the final report. A thanks also to the WMAC Council members for their comments on the final report.



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Local Experts

Fourteen people from Aklavik were interviewed for this project. For those who wished to share their identities with the reader, brief biographies are included here.

Annie B. Gordon Annie was born in the Mackenzie Delta in 1935 and has lived on the land all her life. She has many fond memories of her childhood, much of which was spent with her grandfather. At that time, they travelled the land together by dog team. Annie has hunted caribou for a long time and continues to do so in the fall time or early spring.

Billy Archie Billy was born in Aklavik in 1962. He began trapping and whaling with his parents when he was a child and has been hunting caribou since he was 10 years old. Many of his currently held hunting skills were learned from his grandparents, parents, and uncles, whom he describes as part of a "tough" generation. Billy continues to hunt every summer.

Richard Pither

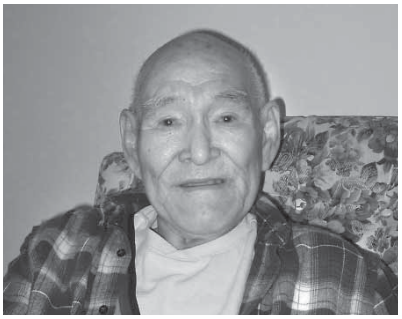
Barbara Allen Barbara has been out on the land ever since she can remember. Her parents and brother taught her how to hunt for caribou and live according to the seasons. Her mother also taught her the importance of preparing and using caribou meat. Barbara was born in 1936 on Kendall Island

Parks Canada

Dennis Arey Dennis was born in Inuvik in 1962 and was raised in Aklavik. He grew up trapping and recalls many years spent travelling the land by dog team while in the company of elders. Dennis is an avid hunter and has recently taken up trapping again. He also has experience working in the oil industry in Inuvik, Aklavik, and Fort McPherson

Donald Aviugana Donald was born in Aklavik in 1934 and has trapped for much of his life. When he was a child he hunted with his dad, who made a living as a reindeer herder for some time. Donald recalls learning many hunting skills from watching his father, whom he describes as a quiet and thoughtful man. Donald has also worked for Parks Canada and the Department of Fisheries and Oceans Canada

Nellie Arey Nellie loves being out on the land hunting, trapping, and fishing, and now enjoys these activities with her grandkids. She was born in the Mackenzie Delta, near Aklavik, in 1942 and moved to Aklavik as a teenager in 1959. Nellie was raised by her granddad, who taught her many land-based skills. She also spent time with her uncles and brother, who taught her a great deal about hunting caribou



Jacob Archie Jacob was born in Niakoluk in 1932 and moved to the Mackenzie Delta in 1948. People in Aklavik see Jacob as a knowledgeable person when it comes to the Porcupine caribou. Much of this knowledge was gleaned from his time spent hunting caribou with his mother and father, who were avid hunters in their time

Michelle Sicotte

Jerry Arey Jerry was born in Aklavik in 1951. As a young boy he learned to trap with his granddad at their bush camp during the winter and spring months. Summer months were spent whaling on the coast near Shingle Point. Jerry has hunted Porcupine caribou since he was 12 years old, and acknowledges his granddad as an important teacher. Jerry also has experience working in the oil industry in Norman Wells and Inuvik and has worked on a number of wildlife management efforts within the region.

George Selamio George was born in 1946 in Aklavik and, sadly, passed away in May of 2009. He spent a lot of his time on the land hunting caribou and whales, fishing, and trapping. In his early hunting days, he hunted caribou by dog team. George learned much of what he knew about caribou from his father, and enjoyed sharing this knowledge with young hunters in Aklavik. He will be dearly missed.

Figure 1: Areas Interviewees Travelled

The map in Figure 1 indicates areas where interviewees travel and provides context for understanding the maps throughout the report.

Government of Yukon

Introduction

The Porcupine caribou herd has long played a role in the way of life of the peoples of Aklavik and other Northwest Territories and Yukon aboriginal people. The herd also comprises a central part of the northern ecosystem and has international significance. Because of the herd's importance to many northern communities, and changes such as climate change and human development that may affect it, a variety of organizations were established in the interest of conserving the herd. The Wildlife Management Advisory Council (WMAC NS and NWT), the Porcupine Caribou Management Board PCMB), and the Circumarctic Rangifer Monitoring and Assessment Network (CARMA) are some of the groups that contribute to conservation of the herd.

These and other organizations use scientific and traditional knowledge to inform management decisions about the herd and its habitat. In the field of natural resource management, Traditional Ecological Knowledge (TEK) has been described as "the system of experiential knowledge gained by continual observation and transmitted among members of a community" (Huntington, 1998). Many TEK studies have been conducted in Canada's north in recent years to manage wildlife resources (Huntington, 1995), to investigate the effects of climate change (Kofinas et al., 2002), to serve as a cultural resource for communities (Thorpe et al., 2001), and to understand how co-management efforts that involve both scientific knowledge and TEK can be improved upon (Berkes and Henley, 1997), for example.

Both scientific knowledge and TEK are important to caribou management, but unlike scientific knowledge, no comprehensive record of TEK for the Porcupine caribou herd has been gathered to date. Instead, TEK has been collected in the past in response to specific Porcupine caribou management projects and information requests for planning. In recognition of the value of traditional knowledge of the Porcupine caribou herd and the way of life it is based upon, WMAC initiated this study.

Michelle Sicotte

Research Goals and Objectives

The purpose of this study was to document the traditional knowledge of the Porcupine caribou herd from the perspectives of Aklavik hunters and users. Specific project objectives were to:

- learn about movement patterns, distribution, range, population trends, habitats, and health of the Porcupine caribou herd;
- understand more about the relationships between caribou and the peoples of Aklavik;
- establish a body of information that can provide a background or frame of reference to assess future changes in the herd and peoples' use of caribou;
- inform conservation management of the Porcupine caribou herd; and
- inform the development and implementation of the Porcupine caribou harvest management plan and PCMB educational materials.

Government of Yukon

Michelle Sicotte

Methods

How Knowledge was Gathered

Perspectives on Porcupine caribou were gathered using in-person, semi-structured interviews, in which a specific set of questions was used to guide the interview process. This technique allowed for the collection of information on a variety of topics, while giving participants the freedom to deviate from these topics as they saw fit; they could also skip questions based on their fields of interest and expertise. In the end, this structure led to a set of findings punctuated with rich depth, context, and meaning.

Topics covered during the interviews included aspects of Porcupine caribou ecology such as habitat, range, distribution, population trends, and movement patterns; caribou health; human relationships with and use(s) of caribou; hunting practices; and future use and management of the herd. The questionnaire developed for this study may be found in Appendix A.

A map of the Inuvialuit Settlement Region was used for each interview so that information on caribou habitats, range, distribution, movement patterns, and human use of the region could be compiled and presented in visual form. An oral timeline was also employed to enhance the quality of time-specific information captured during interviews. More specifically, markers of change such as construction of the Dempster Highway and the introduction of snowmobile technology were referred to when participants needed

Michelle Gruben and Savannah Greenland recording spatial information during an interview.

help recalling specific dates associated with knowledge.

Before commencement of the study, a scientific research license was obtained from the Aurora Research Institute, as required by the *Northwest Territories Scientific Act*. In addition, WMAC and the Aklavik Hunters and Trappers Committee (AHTC) formed a partnership in order to structure and conduct the study in a respectful manner.

Michelle Gruben, Savannah Greenland, and Lisa Christensen organized and conducted interviews with residents of Aklavik. Lisa is a rural sociologist with expertise in northern, community-based research, and Michelle and Savannah are community interviewers with intimate knowledge of Aklavik's people and surroundings. This complementary team of interviewers invited elders with extensive knowledge of the land and the Porcupine caribou to participate in the project. The AHTC provided guidance in this regard. Interviews were conducted only after informed oral consent was obtained from participants (see Appendix B for the informed consent form developed for this study). To ensure local suitability, a pilot interview was carried out with an Inuvialuit person knowledgeable about the Porcupine caribou herd.

In total, fourteen individuals were interviewed over a period of ten successive days in Aklavik, and interviews took place either at the Aklavik Inn or participants' homes. Nine men and five women were interviewed. Thirteen individuals were Inuvialuit and one was Gwich'in.[1]

Interviewers (from left to right): Lisa Christensen, Michelle Gruben, and Savannah Greenland.

The average year of birth of interviewees was 1941, and ranged from 1928 to 1962. The average interview was one hour and thirty-nine minutes in duration; the shortest was one hour and ten minutes while the longest was two hours and five minutes. Total recording time for all interviews was twenty-three hours and three minutes.

All interviews were conducted in English, recorded on a digital recorder (based on informed oral consent) and subsequently transcribed. Transcripts were returned to interview participants, at their request, and are stored at the AHTC in a locked file cabinet. Transcripts will not be released for future purposes without express permission from the interviewees and the AHTC.

[1] These interviews went as planned except for one in which a spouse unexpectedly participated; this interview was not counted as separate.

How Knowledge was Verified and Summarized

To ensure accuracy in the interpretation of traditional knowledge, many verification questions were asked of interviewees when further clarity was needed during the interview process. Follow-up phone calls were also made to participants in cases where further clarification was needed.

Lisa Christensen analyzed the findings through a process of searching for patterns and themes in the interview data. Statements of relationships in the data were proposed using this approach. This allows data to be grouped into categories and themes and is a technique commonly used in qualitative research (Merriam, 1988). The outcome of this process was the accumulation of a series of stories about the interviewees and the Porcupine caribou. Quotations from interview participants are woven throughout the report so that the reader can appreciate participants' perspectives in their own words. As not all interviewees were comfortable disclosing their identities to report readers, some quotations are presented anonymously.

After findings were summarized and organized, they were written up in a draft report prepared by Lisa. The WMAC and AHTC reviewed and provided important feedback on the draft report before publication.

Gerry Perrier

Michelle Sicotte

The Peoples of Aklavik and the North Slope

The Inuvialuit people are one of the closely related groups of Inuit living across Canada's arctic regions. Inuvialuit are believed to be descendants of the ancient Thule people who migrated from Siberia thousands of years ago. Inuvialuit culture evolved as Inuvialuit people moved along the Yukon North Slope coast and the Mackenzie Delta, harvesting and fishing throughout the year. During the winter, Inuvialuit gathered in places such as Qikiqtaruk, Escape Reef, Shingle Point, King Point, Stokes Point, and Avadelek Spit.

For hundreds of years, the Inuvialuit traded with their neighbours: the Inupiat to the west, the Inuit to the east, and the Gwich'in to the south. Direct contact with European culture did not happen until the late nineteenth century, when the Inuvialuit guided whalers to the safe moorings of Pauline Cove on Qikiqtaruk. As a result, Qikiqtaruk became the centre for whaling in the Western Arctic. At the peak of the whaling era, nearly 2,000 people lived at Pauline Cove.

When the whaling industry collapsed in the early 1900s, many Inuvialuit focused on the trapping industry and several trading posts were established. By the mid-1930s, Aklavik, which was originally the site of the Hudson's Bay Company trading post, had become the main settlement in the region. Both the Anglican and Catholic churches established missions in the community. It was also the headquarters for the RCMP in the Western Arctic. Mission hospitals and residential schools attracted people from the surrounding region, and the smaller communities on the North Slope were eventually abandoned.

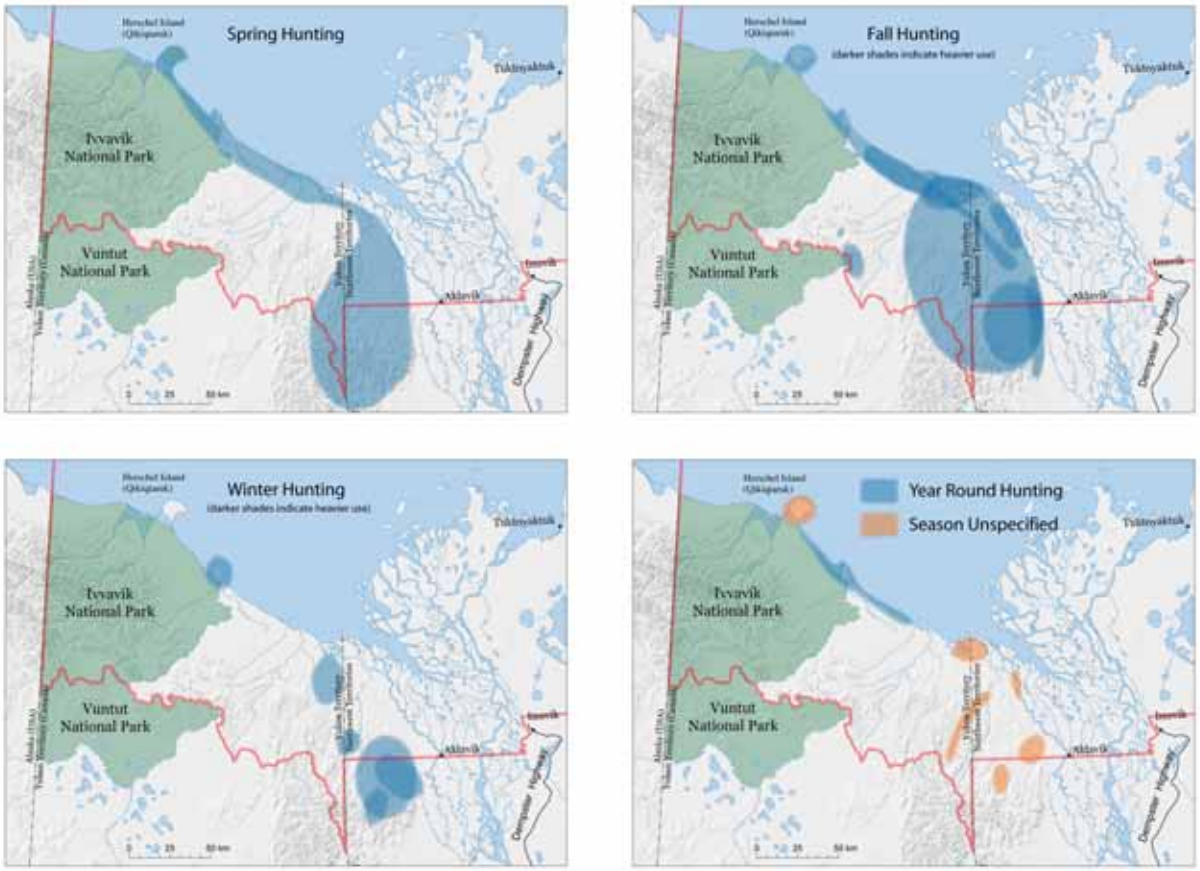
In the 1950s, concerns about flooding and erosion led to the construction of a new government centre, Inuvik. Although most services were moved, many residents decided to stay in Aklavik. Today, Aklavik is a community of some 750 Gwich'in and Inuvialuit, most of whom are still active harvesters.

Ron Larsen

Parks Canada – Ian McDonald

Distribution and Movements of the Porcupine caribou

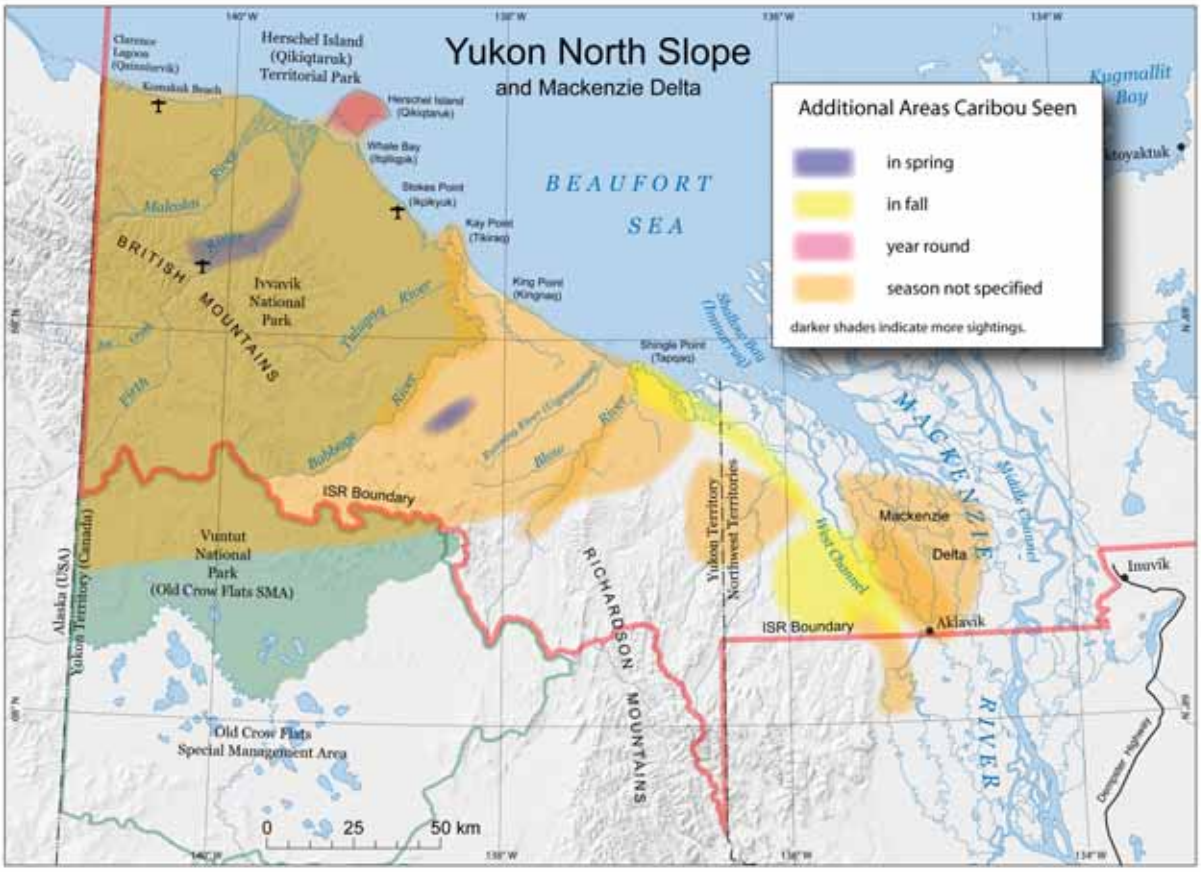
Figure 2



CARIBOU RANGE

Porcupine caribou have a vast range within which they feed, travel, mate, and bear their young. The areas in which caribou have been observed and hunted by interviewees are shown in Figures 2 and 3.

Figure 3



Although these maps indicate areas where caribou have ranged, their total range is not fully represented here. Some individuals consider range something of an elusive concept when it comes to Porcupine caribou:

" I could never [show their range], I always say, because they're all around here, and then they travel. "

Annie B. Gordon

" The border … it depends which way they travel. Sometimes they're further down, sometimes they're further up. "

Dennis Arey

Migration

" So right away you'd just get in that boat, heading down, going on a hunt. I think that whole excitement is something that I still remember, and I still do get excited when I hear caribou coming "

Billy Archie

Caribou are believed to know when to come to the people, so that a variety of needs such as food and clothing can be met. In terms of the timing of these events, people usually spot caribou on their spring migration sometime between March and June. Caribou are seen and hunted down below[2] near areas such as Coney Lake and Barge Lake in June, whereas hunting activities between March and April tend to occur in places south and west of Aklavik, such as the Bell River and Summit Lake. Spring migration dates have not always remained the same, however, as one participant recalled that, 15 or 20 years ago, spring hunts in close proximity to Aklavik took place in January or February rather than April or May, as they do today.

Government of Yukon

TIMING

When people wait for caribou to pass through Aklavik or nearby areas—either on their way to or back from the calving grounds—they do so with great anticipation. Excitement is a common feeling shared by residents of Aklavik when that moment finally arrives.

[2] "Down below" is a colloquial term used by residents of Aklavik for the Beaufort coastal region west of the Mackenzie Delta.

On their return from the calving grounds in the fall, Porcupine caribou are expected to pass near Aklavik as early as the first part of August and as late as the end of August. Caribou are hunted at this time as well as through September, when they are frequently hunted near places along the coastline, such as Shingle Point and Barge Lake. Variation in their time of arrival over the course of August is common.

" Sometimes they come early, sometimes they come late—in August all the time though, in August. Summer time only in August we expect caribou to come, but not the same time. Some time in the middle of August, end of August, sometime—last part of August. When they travel … they start showing in August, last part of August, like the 15th. That's why those old people always try to go to mountain August 15th or 10th, so they could look for caribou. "

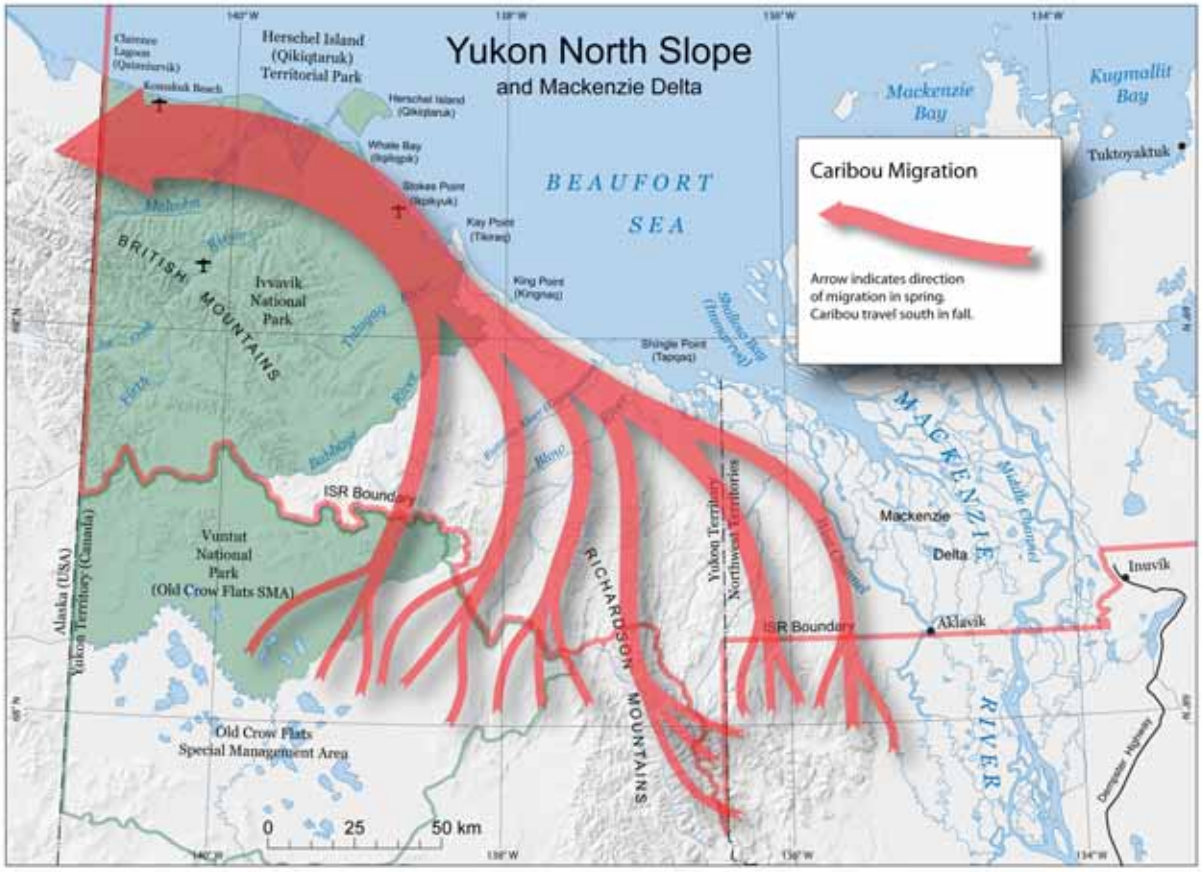
Alice Husky

The presence of ptarmigan in an area is sometimes interpreted as a sign that caribou are on their way. A reason cited is that ptarmigan eat willow leaves and berries, which are made more accessible to them by caribou when they clear the snow in foraging efforts.

" There's times in the past when I see ptarmigan on the road. One of the elders that passed on said when we see ptarmigan on the road the caribou are coming. So interesting, every time I see ptarmigan running across the road in town, 'Oh, caribou are coming!' "

Billy Archie

Figure 4



THE ROUTES

Caribou are known to use many different migration routes during their spring and fall travels. Figure 4 shows these routes as described and mapped by interview participants. Although not mapped, some of the traditional river crossings used by caribou on migration include the Blow River, Rat River, Firth River, and Running River.

Whether or not migration routes have changed over time appears to be a matter of how people perceive change or the information they use to make sense of change. That is, one person might assess change by considering a large area of land, while others might consider an area of smaller size. People may also have different temporal reference points, which would influence the variety of events and changes that account for knowledge and memory.

Some participants said that caribou have always used the same migration routes and that their use simply varies over time, depending on factors such as food availability.

" I don't think the caribou follow the same route, never. They always go a different route 'cause that stuff they eat, it grows real slow. That's what we found out—they grow slow those plants, the lichen. "

Jerry Arey

One person explained that caribou still use the same routes, but that they move cautiously through areas where hunters chase them with snowmobiles by "sneaking," "making sure there's no one around," and "watching for each other."

By contrast, others said that caribou migration routes have changed over time. Human disturbances such as plane and boat traffic, seismic activity and oil development (Prudhoe Bay), truck traffic on the Dempster Highway, changes in food availability, and changes in weather were all named as influential when it comes to caribou migration routes. Overhunting and the hunting of herd leaders were also mentioned as significant factors, and associated with the caribou's diminished use of areas such as the mountains above Aklavik, Barge Lake, Canoe Lake, Coal Mine, West Channel, and Martha Dick's where they were historically hunted.[3] Others felt they could not assign reason to why caribou are taking different routes. The following quotes illustrate the breadth of perceptions on why migration routes have changed:

" They used to respect caribou long ago. When we hear the caribous are coming, we just leave them for a while 'til the leader pass, 'til the lead bunch pass. After they pass, they always start hunting. Like today, soon as they hear there's caribou down here they take off with speed boats and put their skidoos in the boat and just drive up—hit the leader. I guess since that time our caribou don't like to go through that route anymore. I guess that's why we don't have too much caribou. "

Anonymous

" You can't fool around with animals. I hear elders say that long ago. One day that caribou just going to disappear and that's what came to my mind as soon as they say there's no caribou. How far Arctic Village is, way over this way in Alaska. People over there never see caribou for how many years, 20 years? The same herd from here, travelled right across that whole country. Old Crow hardly got any caribou and yet Arctic Village was getting caribou. People over there are very, you know they respect the animals so much. They just don't go out there and just shoot … they just get only what they need. "

Annie B. Gordon

[3] Participants traced the caribou's decreased use of these areas back as early as the 1980s and as recently as the late 90s.

" Nowadays everything is changing. You could go up to McPherson, they tell you migration is also changing. Because there's too much traffic and all the food they eat is not growing in time … and some don't grow. Sometimes we don't get rain and some days we get too much, and it gets too cold fast. Weather has lots to do with [caribou migrations]. "

George Selamio

" The caribou are coming later. Sometimes they don't come, they go by different route, way up … Old Crow Flats … sometimes they don't make it for the calving ground, they have calves in the mountains in spring time. So they die off—too much snow … deep snow in the valley they can't make it down. Lots of young ones die. They say it's overhunting, it's not that. It's the weather, climate change. "

Anonymous

Government of Yukon

" Something that I noticed last summer is they came onto the highway really early. And with me flying around with Ramona with that grizzly bear work, we seen a few caribou back in the mountains, the bulls in summer time … And the guys that were doing the sheep work with the Gwich'in saw a bunch up there in July. So, with all these winds, I'm thinking it's so windy up there that they're standing on the big ridges. And they're not going down to the coast, they're not migrating all the way to the coast, they're hanging out in those mountains now. "

Billy Archie

Some aspects of landscape change were expressed as concerns in terms of how they might affect the future of migration routes, including changes caused by permafrost melt and erosion.

" I know an elder told us, Gwich'in elder, said that's [permafrost melt] just like quicksand, so caribou are not going to come through there, so it could be changing their migration patterns, right? So, I know you're starting to see more water. "

Billy Archie

" When we go to Shingle, a few years ago, we see cut banks. I think it's going to affect a lot of caribou. Even when they're crossing that river, mostly through Blow River, you know. The land is just cutting right through and they'll have hard time getting into that other side. Their migration would be all different, 'cause all that thing is just falling down. They can't climb up, even how smart hooves they have. They have hard time to go up on top. Start going to other places where their old route is. "

Barbara Allen

Based on the stories interviewees shared about caribou migrations, Porcupine caribou rely on the availability of a variety of migration routes to adapt to change. The routes caribou take seem to depend on the following factors: food availability; weather conditions associated with rain, snowfall, and wind; air, boat, and land-based traffic; seismic activities and oil development; and hunting practices. Future migrations may also depend on climate change effects that unfold across the Yukon's North Slope, such as erosion and permafrost melt.

" In the early 90s … I was down at West Channel hauling meat. You could just see them like this [motioning to indicate lots of caribou] just covered. And when they move, just like a bunch of horses. Same thing. Really loud I tell you. And a ***long ways****, they covered the hills.* ***So much****. Hard to believe but that's the truth. That's a big hill, it goes over and over and just* ***full****. "*

George Selamio

" Never in my time did I ever go out to hunt caribou that I seen, just like they say long ago, the ground used to move when the caribou is passing by. Just like a wave—the hills, the caribou going. You don't see that nowadays anymore. Just see odd bunches of 20 to 30 in a bunch. One bunch here, one bunch over there, all different bunches. "

Jerry Arey

DPW&S/NWT Archives/G-1995-001: 1915

HERD SIZE AND GROUPS

When caribou migrate during the spring and fall seasons, they do so in groups. Based on observations made by the interviewees, group sizes have decreased over time. When the herds began to thin out, and by how much, varied according to interviewees' personal experiences and perceptions of how many caribou constitute a large or small herd size.

Other observations of large herds were noted in the 1940s, 1950s, 1970s, 1980s, and the general past. In the next few statements, participants juxtapose herd sizes long ago with those of today and share some of their insights as to why herd sizes have declined (some also state their uncertainty over the cause of the decline):

" Each caribou don't travel together anymore. Just long ago [late 1940s], big herd … it was down at Niaquliq. Big herd …. Wolves I guess, chase them around too much. "

Jacob Archie

" They travel in groups now. I notice that …. Long ago they used to travel in one big bunch. Now they just travel in groups, like maybe 30 or 40. "

George Selamio

" Long time ago that [decline in herd sizes] happened, 'cause of skidoos. Used to be they always travel in big herds, maybe 1,000 or something like that. Now you see just little bunches of them … 30 or 40–50, maybe at the most now. There's a reason for that. People are waiting for them here. They got their own brains, they got a system now. There's always one watching too. "

Jack Goose

" You don't see that much anymore. At Running River anyway we used to see caribous like sometimes 400–500, now you can't. Sometimes we see like about maybe 20–30. Nowadays you could hardly see caribous …. You don't see them all in one big bundle anymore [like in the 1950s]. They're scattered there and there all over. Just few, not too much. And you could see lots of caribous alone and in twos. "

Nellie Arey

" They have [decreased] I think we know that. And then the caribous are travelling and migrating in the fall time in small groups, we notice that. Say 30, 40 years ago there used to be one big herd—80,000, 100,000, 200,000. Now it seems people are saying there are 100 here, 500 there, 200 there—small little groups. And they don't know why they're breaking up into small groups. Maybe just nature? We don't know that. "

Anonymous

" It was all one big herd [in the 1980s]. Not like now, they're scattered [in bunches of 20 or 30] …. I don't know why. Could be wolves or feeding grounds or something. Maybe they got no food up here. Lichen takes seven years to grow. They don't grow in a year. So you might see caribou every seven years. "

Anonymous

" The only time the herd is together now is in the summer time when the bugs are out. Now we never see the whole herd in the fall, like what we used to see. We used to see thousands and thousands of caribou. Now it's maybe a big bunch would be a hundred or something. Not like in the past [in the mid-1970s] there used to be thousands in a bunch … just up here in the foothills … as far as the eye can see it's black and moving. It's what we used to see. "

Billy Archie

Although there are subtle differences in peoples' perceptions of when herd sizes declined and by how much, a common perception exists that a decline has occurred. Some suggest that the decline may be a survival strategy to cope with predation as well as the pressures created by hunters who chase caribou. Food availability may also be a factor in the herd-size decline. One person explained that when the caribou population is large, caribou migrate in large groups; when the population is small, they do so in small groups. These findings demonstrate that a variety of forces may be influencing herd behaviour.

Habitat

For a long time, the peoples of Aklavik have been hunting caribou. And quite often, hunting areas—which have been used by many generations of hunters—are selected based on where the caribou are and where they have travelled for thousands of years. As such, those interviewed have intimate knowledge of the features that characterize important caribou habitats.

As with migration, interview responses to questions associated with important caribou habitats depended on their scale of focus. That is, some chose to focus on the study area as a whole, some talked about components of that whole, such as terrain features of the landscape or specific locations, and others focused on both. To illustrate the diversity of these perspectives, findings are grouped accordingly.

All of the Land is Important

One notion that surfaced again and again during interviews is that all of the land is important to the Porcupine caribou. Caribou use a variety of migration routes and spend a significant amount of time travelling in search of food. And even though some places like Herschel Island are utilized by caribou on a year-round basis, others like the Delta are used intermittently. In other words, Porcupine caribou depend on an array of habitats to sustain them in different ways and at different times.

" I think the whole thing is important for the caribou. There's no spots where they stay, they're always travelling. Herschel would be a spot 'cause those caribou stay year round. "

Dennis Arey

" Well, I think all of the land is important, pretty well. Caribou has come out to Aklavik, but this was 15 years ago, 20 years ago. We had caribou out here, caribou up here … so once in a while the herd will come out here. "

Anonymous

" Migration patterns, migration routes [are important] … it's all got to be important. "

Billy Archie

" It's all important, wherever they can find food. They gotta follow the food. If it rains in the fall time it's real bad—freeze-up. Under that snow it turns to ice. That's when the caribou starve. If it's good fall, not much rain or not too warm weather, they'll stay healthy. "

Anonymous

Important Landscape Features

The coastline is an important place for caribou, because it offers them relief from heat, good feeding opportunities, and relief from summer swarms of mosquitoes because of offshore winds.

" Some years it's so hot down there, the caribou go along the coast and eat in the bays and stuff like that. They go to the cooler places rather than staying in the Delta, and then they migrate back in the fall time. "

Donald Avuigana

" In the spring or summer we try to get all our caribou from along the shore. When it's a lot of mosquitoes they always go, you know, towards the wind, from the ocean. That's where they always go. When it's hot too they can't stay up on the mountains, they always go towards the sea. "

Barbara Allen

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Box 1. More about Mosquitoes

Mosquitoes can harass caribou well into the fall months, but are most prolific during the summer; some say that caribou, and especially newborn calves, can actually die from too much harassment at this time. Other noted effects include the fact that caribou lose fur from mosquito-related irritations as well as precious body fat in efforts to outrun the mosquitoes. Over the last two years, one person noticed that caribou are "skinnier than ever" because the mosquitoes are "getting worse and worse."

A windy coastline is an important refuge for caribou. In the absence of winds, caribou will move into ocean water to escape the mosquitos' grip. Caribou are also known to seek relief under coastal infrastructure, such as that which exists at Herschel Island and Shingle Point.

Overwhelmingly, participants said they see more mosquitoes now than ever and associate the increase with rising temperatures; rain and flood events also enhance breeding conditions for mosquitoes. In some places the change has been more dramatic than others—in Kaktovik, Alaska, for instance, mosquitoes were unfamiliar summer denizens up until a few years ago, as noted by one interviewee. Another person traced the proliferation of mosquitoes to 15 or 20 years ago:

" When you hear people talk about the good old days, I mean they were good old days, and land of plenty. Beluga hunting was good, bugs weren't bad, lots of caribou, lots of char. I've seen all that change within the last 15, 20 years. "

Billy Archie

It was also observed that increasing winds could reduce the toll mosquitoes take on the Porcupine caribou.

" It's too windy. Look at here and Inuvik, getting stuck in Kaktovik for one month—too windy …. This climate change, insects, it's not going to have an impact because it's too windy. We've seen a lot of wind down on the coast. "

Billy Archie

Mountains were also described as features of importance. Caribou are often seen utilizing ridge tops for travel, because they tend to be snow-free during the snowy months, and they are commonly observed here during fall migration. Sometimes caribou are observed in the mountains during the summer months if there is ambient wind, because they get relief from the mosquitoes and hot temperatures without having to travel to the coast.

" It depends on the snow and if there's lots of snow. There's just certain places that they would travel by, and that's what I learned from elders. They try and find ridges, because ridges, if you got lots of snow, ridges are always blown off so you get good travelling. "

Billy Archie

" In the fall time when they are coming back we always notice them up on the ridge. "

Annie B. Gordon

" I know caribou travel all the time in the mountains. "

Alice Husky

" With me flying around with that grizzly bear work, we seen a few caribou back in the mountains, the bulls in summer time. And the guys that were doing the sheep work with the Gwich'in saw a bunch up there in July. So, with all these winds, that's what I'm thinking—it's so windy up there that they're standing on the big ridges. And they're not going down to the coast. So they're not migrating all the way to the coast, they're hanging out in those mountains now. "

Billy Archie

Mountainous terrain also affords cows and calves relief from predators on their way back from the calving grounds.

" And early August too, when they're coming back from the coast [you] see young ones with mothers—not all the time though. I think most of them are in the mountains, 'til they're safe enough to run away from the wolves. "

Alice Husky

Department of Info/NWT Archives/G-1979-023: 1908

Caribou are also known to favour low-lying areas, because they can sometimes travel here with greater ease. In spring, for example, when many of the ridges are still covered in snow, lower elevation areas such as West Channel and Coney Lake are already snow-free.

" [West Channel] it's lower, lower land, lower mountains. Around here is low. If you go farther up, really high mountains. They're just like this, mountains up that way …. It's easier to go around here. It's more valleys and that …. That's why the caribou come around. "

Anonymous

" Surprisingly last summer, it's the first time I've seen the [Coney Lake] so many bulls in one point. But it was warm weather, so I imagine they're all down getting relief from the ice on the lakes. "

Billy Archie

Important Localities

Interviewees identified many specific areas as important for caribou. These areas were wide-ranging across the land and were described in terms of their importance to people and caribou, the quality or availability of forage, protection from predators, seasonal importance, or just their inherent significance. These places are shown in Figure 5 and discussed in the statements to follow.

" I would say from Coney Lake to Miner to all along where I mark. Like start from Coney Lake, Canoe Lake, down to Myers, down to Beaver House, Stink Creek, and all along the Miner Rivers—Canoe, Coney, all the way down right to Herschel. All along … 'cause that's the main source of our caribou we feed on in the fall time. Watch over the caribou. Been living on caribou ever since I was a kid, so that'd be the best spot to get …. It's just the way they migrate, it's just that their food takes so long to grow. "

Jerry Arey

" A lot of times [during migration] they always have to go through that Fish Hole, in fall time. That's a really critical area for caribous, 'cause it's not too far from the community of Aklavik to get there. "

Barbara Allen

" Down below I guess, even up here [Red and Black Mountain] …. Good feed I guess. Spring time early, use leaves, willow leaves. "

Jacob Archie

" Canoe Lake used to have caribou all winter all the time. Used to be good place to hunt, there's a house there. And from Canoe Lake you could go way up to Sheep Creek, way up, that's where they put house there …. John Martin too, big mountain like, on the side, caribou always go through there. That's where there is always caribou, winter time … good feed there and good ground maybe … nice white food for caribou there used to be. That's why there's caribou there all the time …. I think caribou can't stay one place, they move all the time where it's good feed. I think it's like that you know. "

Alice Husky

" Well you know there's a lot of lichen, used to be [in the coastal area between Coney Lake and Herschel Island]. "

Anonymous

" From what they were saying, why they hung around McPherson was predators. "

Billy Archie

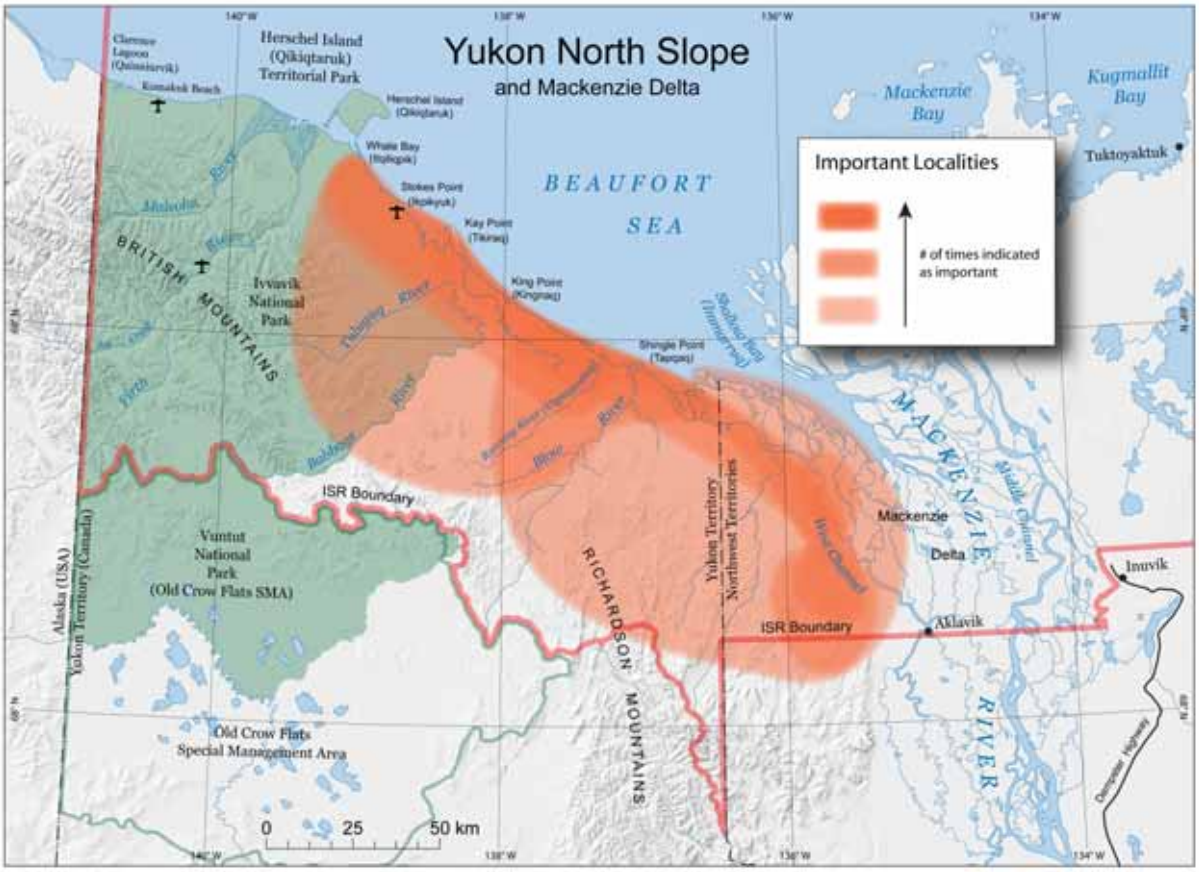
" That's the most important areas, when they're coming up that's when they start rutting. That's mostly areas like right from Vaaluq right to this part right here, this big area right here [the Richardson Mountains adjacent to Aklavik from Canoe Lake to the northern extent of their range]. "

Jerry Arey

" Ten to twelve years ago I remember they were way in the Delta, and I guess when it's freezing snow up here and they go hungry, they go and eat muskrat push-ups in the Delta. That freezing rain, you gotta dig into the snow. I just know the caribou, when there's freezing snow and ice they don't stick around here when there's no food or anything. They just keep travelling. "

Donald Avuigana

Figure 5



A handful of places were described as frequently used by caribou, which is also indicative of importance. These include the Babbage River, Canoe Lake, Coney Lake, Fish Hole, and Herschel Island and Kay Point where caribou are found year round. Small "bunches" of caribou are also found year round in the northwestern portion of the Mackenzie Delta.

Forage

As discussed in the previous section on caribou habitats, food is an important part of the caribou story—after all, caribou are in search of food much of the time. Caribou eat a variety of foods according to their seasonal availability. Interviewees reported that caribou eat lichen in the winter time and an array of plants in the spring and summer time, such as willow buds and leaves, grass, blueberries, and blueberry leaves. Occasionally caribou are seen eating muskrat push-ups in the Mackenzie Delta. However, if caribou have to rely on push-ups as a food source, their health can suffer.

" When caribou go into the Delta they starve. I've seen that before, over the mountains. Yeah, not a whole herd, but two or three. You shoot them, it's bones, because they gotta eat rat houses. That's not good for them …. It's not their food. Not their natural food. "

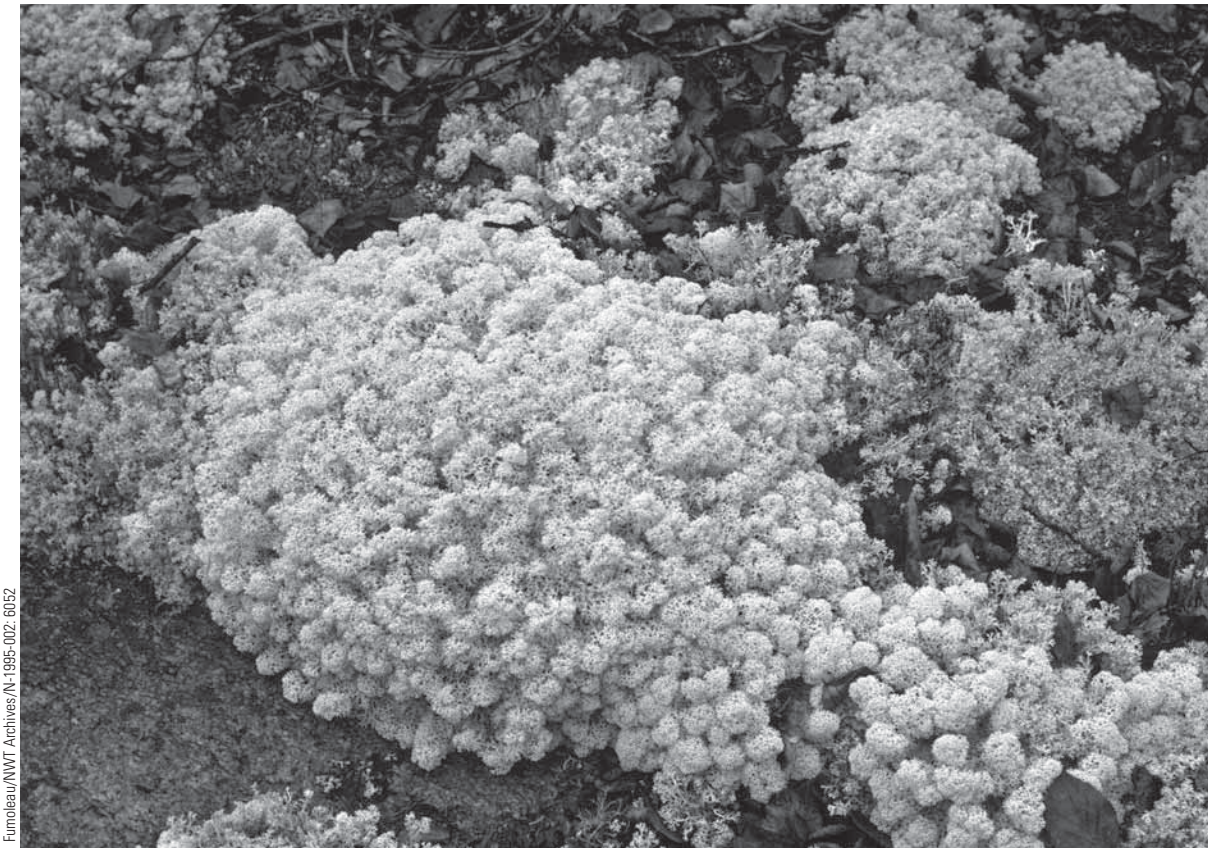
Anonymous

The Porcupine caribou herd's diet has been influenced by muskoxen. Muskoxen feed on lichen, just as caribou do, but when they feed in close proximity with one another, caribou relocate to other areas.

" Right across from Bella Arey's camp is that big hill. Caribous used to be right on top there, but after the muskox start hanging around there, they go further and further back. You don't see them along there. "

Annie B. Gordon

In terms of whether or not the diet of the Porcupine caribou has fundamentally changed, some people said it has and some said it has not. Some people reported that caribou eat "anything" now, that they eat more grass than usual, and that they have not eaten muskrat push-ups in recent years. Others said the caribou have always relied upon lichen as a mainstay and drawn upon alternative foods such as willow leaves in the spring time. Again, these divergent points of view could be attributable to differences in individuals' temporal and landscape-scale reference points.



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Porcupine Caribou Abundance

Caribou population counts have been conducted since 1972 by interpreting aerial photographs of large post-calving aggregations (Urquhart, 1983). Herd estimates have ranged from 102,000 in 1972, to a high of 178,000 in 1989, and 123,000 in 2001 (PCMB, 2009). More recent attempts to count the herd have been thwarted by weather conditions, poor visibility, and failure of the herd to aggregate (ibid.), a required condition for use of the aerial photo-census method.

Additional information that contributes to the overall picture of population dynamics is that held by local people. For this study, information on herd numbers was sought by asking interviewees how caribou numbers varied over their lifetimes as well as how they thought family-level caribou harvests had changed from year to year.[4]

Government of Yukon

[4] Information on community-level harvests was not captured, because it is not customary for such information to be shared among families in Aklavik.

Parks Canada

In the Past

Nearly all interviewees recounted a time in the past when lots of caribou were seen on the land. These stories were told from the perspective of personal observation or from that of a parent or grandparent. Stories that spoke to the bounty of the past were rooted in specific decades, including the 1940s, 1950s and 1960s, whereas in other instances such memories were linked to particular seasons, eras (such as childhood) or the general past. A few people explained that it was difficult for them to pinpoint specific dates when caribou were plentiful, because the idea of "keeping track" of caribou numbers runs counter to their thinking; harvesting caribou is considered a fundamental aspect of life rather than something external to or separate from it. The following are some of the statements participants made about caribou numbers in the past:

" When we used to live around Herschel and Ptarmigan Bay, that's when you could see caribous all over the mainland—maybe around like the 40s and 50s, somewhere around there. "

Nellie Arey

" A lot of times, long ago, when I was quite young, after being in school, my brother used to take me out when I'm not in school anymore. We used to go up to the hills with dog team. There was so many caribou you can't see the end of that caribou that's going through the mountains. Even you just look with binoculars, you can't see the other end of that caribou that's migrating. That's how much there were. "

Barbara Allen

" Yeah, it was lots of caribou [in the 1940s] then. Like when my dad was living every time he go up in the mountains he spotted caribou, he get caribou. "

Anonymous

" I used to hear some people say … some years it was so much caribou. They said one time it was so much caribou that they didn't even have to go right up to the hills, they just went to the foothills. People had tents and it was a big lake there … my grandfather was the first one to put up camp and then everybody started putting up camp right on the lake …. They said that was the most caribou they ever seen. I don't even remember what year was that. '39 or '40 or something like that, my mom said. People stayed there all winter, as long as they could and then they worked with the meat all that time. They said caribous were even in the Delta, that's how much caribou there was. "

Annie B. Gordon

" We used to have caribou all year round. Never see that for how many years. No caribou. Really dying off I think, caribou. "

Alice Husky

" [My parents] they always said when the herd is migrating, sometimes they migrate for a week—caribou are constantly moving by. That's the only way they said [there were lots of caribou], you know. It must be a big herd if they've been passing through for a week and then there's no end to it. "

Anonymous

" My granddad was raised up in Alaska. Him and his brother used to hunt caribou. They walked up with pack dogs and they stayed up there for one month—they left their parents on the coast, come back with a whole bunch of dry meat in fall time, and they cache a lot of meat too. Staples to last all winter. So there must be a lot of caribou back then. "

Anonymous

" My granddad, when he said lots of caribou [in the 1940s and early 50s] the earth move. You hear the noise of the hooves clicking, and grunting. That's when you could hear them. "

Jerry Arey

In addition to stories of caribou abundance, people harkened back to times when caribou were in short supply. There was a year in the 1930s, one interviewee noted, that elders from Aklavik, McPherson, Old Crow, and Dawson remember for its lack of caribou. Others recalled times in the past when caribou migrated later than usual or when people missed the caribou's migration altogether and starved as a result. People found ways to cope with these hardships by drying, storing, or rationing caribou meat so it could be used throughout the seasons; sharing caribou harvests with others; travelling to places like Herschel Island where caribou could be found and hunted year round; killing a rutting bull in the absence of other food sources; relying on other land-based foods such as moose, sheep, whale, seal, fish, rabbits, ptarmigan, muskrats, squirrels, beaver, ducks, and muskoxen; and migrating to the Delta or coastal areas where country foods were known to be more diverse and abundant. The principle of sharing also figured prominently in community life in the past, which served to bolster the community's food basket during tough times:

" Sometimes people can't hunt. Then those other people help them. [Long ago] people help each other all the time, especially if the family got no dad or if his kid is small and his dad died. Other people help that woman who has kids and can't hunt yet, or kids too small to hunt. Stuff like that. You help the person if they need help. "

Alice Husky

Most of the time people said they got enough caribou in the past to meet the needs of their family and community, but there were occasions when they did not. In these instances, people used a variety of strategies to ensure food security.

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In the Present

Today, not as many caribou are seen on the land as in the past. Although fewer caribou sightings were associated with a decline in the population, participants explained that caribou migrations can occur out of human sight and migrations are occurring in smaller groups than in the past. These trends can make it difficult to estimate population trends over time.

" With all the reports that they give when they do studies, you can see the number is dropping. But as individuals that don't do the studies it's hard to say, you know, because when they come by we see them. If they don't come by we don't see them. "

Dennis Arey

" We know from being on the land, I have observed over the last 10 to 15 years that the caribou are declining. I know that, I see less when I'm on the land. I think everybody is aware that the caribou is declining. Scientists tell us that 20 years ago there was 180,000. The last count was eight years ago, and they counted 123,000 so we've lost 50–60,000 some place. "

Anonymous

" [The caribou] is not as much as before. I don't know where they're going, maybe different routes. "

George Selamio

" [John Martin's] that's where people always hunt caribou in the fall time. Even spring time if they hunt caribou, they hunt up there. There used to be caribou there all year round. Never see that for how many years. No caribou. Really dying off I think, caribou … 15 years ago now I think the caribou start [getting less] not like they used to be. "

Anonymous

" We didn't have much of a chance this year to get caribou, because they passed through in August and they never really hung around …. From what I've seen in the past, when I was growing up compared to today, it just seems like they're not there anymore, the numbers. "

Billy Archie

" In the last two years there are lots of times you see no caribou. "

Annie B. Gordon

" You don't see that much anymore. At Running River anyway, we used to see caribous like sometimes 400–500, now you can't. Sometimes we see like about maybe 20–30. Nowadays you could hardly see caribous. Last summer was hardly any anyway. "

Nellie Arey

Today, some participants reported they are getting enough caribou to meet their families' needs, but many said they were not; reasons for the shortfall vary. Firstly, caribou have not been as locally accessible in recent years as they once were. When caribou are not found in traditionally hunted areas nearby, hunters have to travel further to find them, which means they must have access to resources such as boats, snow machines, and fuel, all of which come at a financial cost.

Secondly, some community members are unable to go out on the land to hunt for themselves, including some elders. Thirdly, and on a related note, sharing does not take place as frequently now as it did in the past, which was key to ensuring the food needs of the community were met. This is partially to do with the fact that some no longer feel they get enough caribou each year to share with others outside of their immediate families—especially those with large families—but also because sharing is not as much a part of life as it was in the past. Expansion of the wage economy and the individualistic values associated with it help to explain why sharing is not as common as it once was in Aklavik (this is explained in further depth on pages 34–36).

In the past when people did not get enough caribou, they sometimes relied on previous stores of caribou or other country foods to get by—strategies that are still used today to cope with caribou shortages, although access to country foods is somewhat limited these days, because most people live in Aklavik. Hunting privileges from communities outside the settlement region, such as Inuvik, Tuktoyatuk, and Fort McPherson, are also sought when caribou are in short supply. Two other measures relied upon today to cope with caribou shortages require financial wherewithal: the local sale of caribou meat and the grocery store.

Although the community of Aklavik has a range of strategies to ensure food needs are met in times of need, it is proving more difficult for many to access caribou meat. Reasons for reduced access today are more complex than they were in the past, and include factors related to social and economic change. One way to foster greater distribution of caribou meat in the community is organization of community hunts, as Dennis Arey suggests:

" I guess there's some people that have enough [caribou] for their needs, but there's a lot of them that don't hunt, that can't hunt. So, it would help if they had more community hunts. "

Anonymous?

Factors that Affect Caribou Population and Movements

Participants painted a complex picture of how caribou numbers and movement patterns have changed over time. The same is true for why they changed. Caribou population and movement dynamics were explained by many factors including food availability, calf survival and death due to old age, predators, and human hunting practices. Hunting has been carried out for millennia, but the practices of overhunting and hunting of herd leaders are relatively new phenomena that several participants expressed concern over.

" The wolves would take an awful lot, they take a lot of caribou. And overharvesting is another one. Hard winter, tough winter, like [cold and windy] this kind of weather is not good for the land because the snow is getting hard on top. If it rains it's going to freeze and the caribou can't break through that ice barrier to get down to where they want, you know, under the snow where the lichens and grass they eat are. "

Anonymous

" Some areas, some years is so many caribous and some years is hardly any. But you know, their food sometimes doesn't grow that fast. When my daduk was alive he used to tell us, you know when there's lots of caribous in one area, it's a big area like, but he said some years their food don't grow all at once. It takes years to grow. "

Nellie Arey

" Sometimes they don't make it to the calving ground, they have calves in the mountains in spring time, so they die off—too much snow …. Deep snow in the valley, they can't make it down. Lots of young ones die. They say it's overhunting, it's not that. It's the weather, climate change. "

Anonymous

" Old caribou die off too, keep the herd down. "

Anonymous

" We're seeing the changes and people don't, like I said, people don't respect animals and even the animals change now. When we were kids growing up we used to hear elders talking, saying 'You got to respect that animal otherwise one day it will just disappear.' And that's what is happening now. It's not the animals' fault, it's the peoples that's not respecting the animals. "

Annie B. Gordon

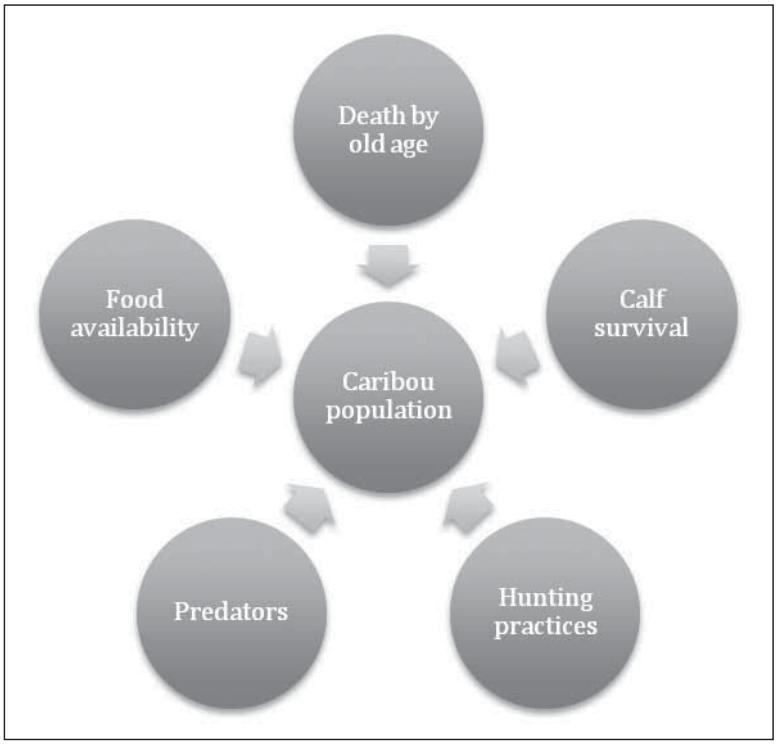
" [Caribou is] not as much as before …. I think people bother them too fast. Don't let the first bunch pass. When I was growing up the elders used to let the first bunch pass. They follow their trail. It's like if you want out, you make trail, somebody will follow you. If that trail is not there the caribou is going to go some other place. That's what is happening now. "

George Selamio

Government of Yukon

Factors that affect Porcupine caribou population and movement dynamics are summarized in Figure 6.

Figure 6



Another critical aspect of caribou population dynamics is that the population is known to fluctuate from year to year, as the next few participants point out:

" Well, it's just up and down. Like some years it's hardly any and some years it's quite a bit. Same thing with some animals don't bother coming around. Just like some years there's no wolves. You know when caribous are around, no animals like that, wolverines and that. They're just switching back and forth. Some years it's hardly any caribous, just like that. They're not the same every year. "

Nellie Arey

" Some years it's good and some years it's bad—never the same all the time. It depends on the food that's growing up and the freezing rain, freezing snow and everything like that, it's not good for the caribou. "

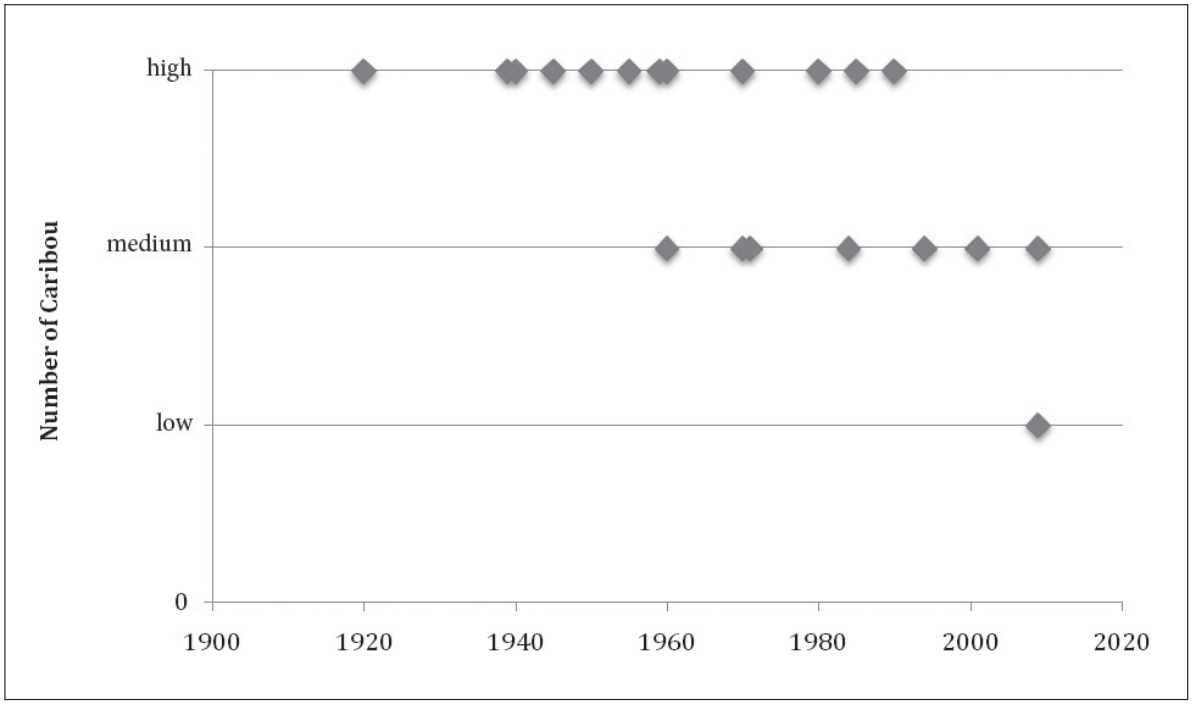
Donald Avuigana

" Some years it's different for certain animals. You get more animals at a certain time of year. Some years there's hardly any and some years they come back in lots, eh. "

Jacob Archie

Have the caribou ever disappeared? Based on the stories and life experiences of some, caribou have always been around. Figure 7 summarizes interview participants' perceptions of how the caribou population has gone up and down over the years. However, as these findings demonstrate, Porcupine caribou population and movement dynamics are not easily separated.

Figure 7. Porcupine caribou population observations over time.



Note: This chart represents the range in participant responses to questions regarding caribou population size. Density of responses is not shown due to the small sample size (n=14).

Mating and Calving

The Rut

The rut is the time of year when bulls and cows gather to mate. During this period bull behaviour has been described as bold and aggressive; they have also been observed to be "tired" and sedentary. The physical condition of bulls begins to deteriorate around this time, because—as one interviewee noted—their concern changes from eating to mating. The season itself can last for a couple of months, and when it gets into full swing mature bulls take on a strong scent associated with the release of hormones, which acts as a signal to hunters to end the fall hunt for mature bulls (to avoid "stink" meat).

Nearly all participants said the timing of the rut is the same from year to year, beginning from the last part of September to as late as November 3rd, although October was the month most frequently named. Within October, several participants associated specific dates with the rut:

" Middle of October, towards the end of October that's when they really start. You could even smell them. Stink. You could tell they rutting. They start to shine. You know that thing [neck] they got, if they look towards the sun it shines. "

George Selamio

" As far as I know it's always been in October, first week in October they'll start fighting, normally first week in October. "

Jerry Arey

" When [caribou] get to around this West Channel side, that's when they start, October, they start getting stink and October 10th, after that nobody can shoot caribou. Our elders used to tell our young people, 'Don't bother to shoot caribou after the 10th of October, because then they get really stink, you can't eat it. "

Annie B. Gordon

" Usually the rutting season starts about the 7th of October, about. In the rutting he gets that smell in him about the 10th, by the 20th you shouldn't be shooting them, because he is not edible. "

Anonymous

" Elders always say it's usually the 7th of October. 7th, 8th, 9th, somewhere around there. It's interesting they know the exact date. "

Dennis Arey

" When [caribou] start [rutting] you can't eat it. Every year same time … October 5th it's just strong that bull. "

Alice Husky

There have been instances when mature bulls have released hormones earlier than usual. For the past two years one participant noticed "stink" bulls in the last week of September, which he said was earlier than normal. Another person reported a "stink" bull in August, which was half reindeer:

" [The rut is] usually the same time of year, but there was one summer, one August that I got a caribou, couple of caribou. [I] skinned it out and put it away, but when I started cooking it, it was stink. It really stunk up the kitchen and it was too strong to eat. So I give it to the ENR [Environment and Natural Resources] guy and they sent it out and told me it was, with the DNA work that they done, they said it was half reindeer. And reindeer rut in August. So that's what they were telling me. "

Jack Goose

In terms of rut locations, these were not discussed at length during interviews. One person, however, pointed out an area commonly used during the rut, which is shown in Figure 8 on page 53.

Calving Season

For most people, calving is a phenomenon that goes unseen—by and large, caribou are left alone at this time of year. Participants are aware, however, that mountainous areas within the Yukon and coastal plains in the Yukon and Alaska are utilized for calving.

*" They said in those **big high** mountains [Ivvavik National Park], they said they always calve there. That's what our elders always tell us. We can't go there and go see where they really calve. "*

Barbara Allen

" I know they travel all the time in the mountains. When they gonna have young ones they go to the mountain all the time, caribou. So bulls can't bother them, or something like that …. They always have young ones in May …. My parents always tell me before they have babies they always go to high mountains to have young ones …. Big hills, it's not the mountains, just the hills. "

Alice Husky

" [Caribou calve] all along the coast and way out in the Wildlife Refuge. "

Dennis Arey

" I'm pretty sure not every female would reach the calving ground. Lots of them will have them on the way, because once they start [migrating], they don't stop for nothing. "

Annie Gordon

" They go where it's flat to have their young ones. They don't have young ones in the mountains 'cause there's animals like wolves, bears. They go where it's flat to have their young ones. "

George Selamio

" My daduk used to tell us when we travel in spring time, he always talked to us about that. You know, caribous go to the flats when they gonna have young ones. That's what he used to tell us, so they don't have so many young ones in the hills, in the mountains. "

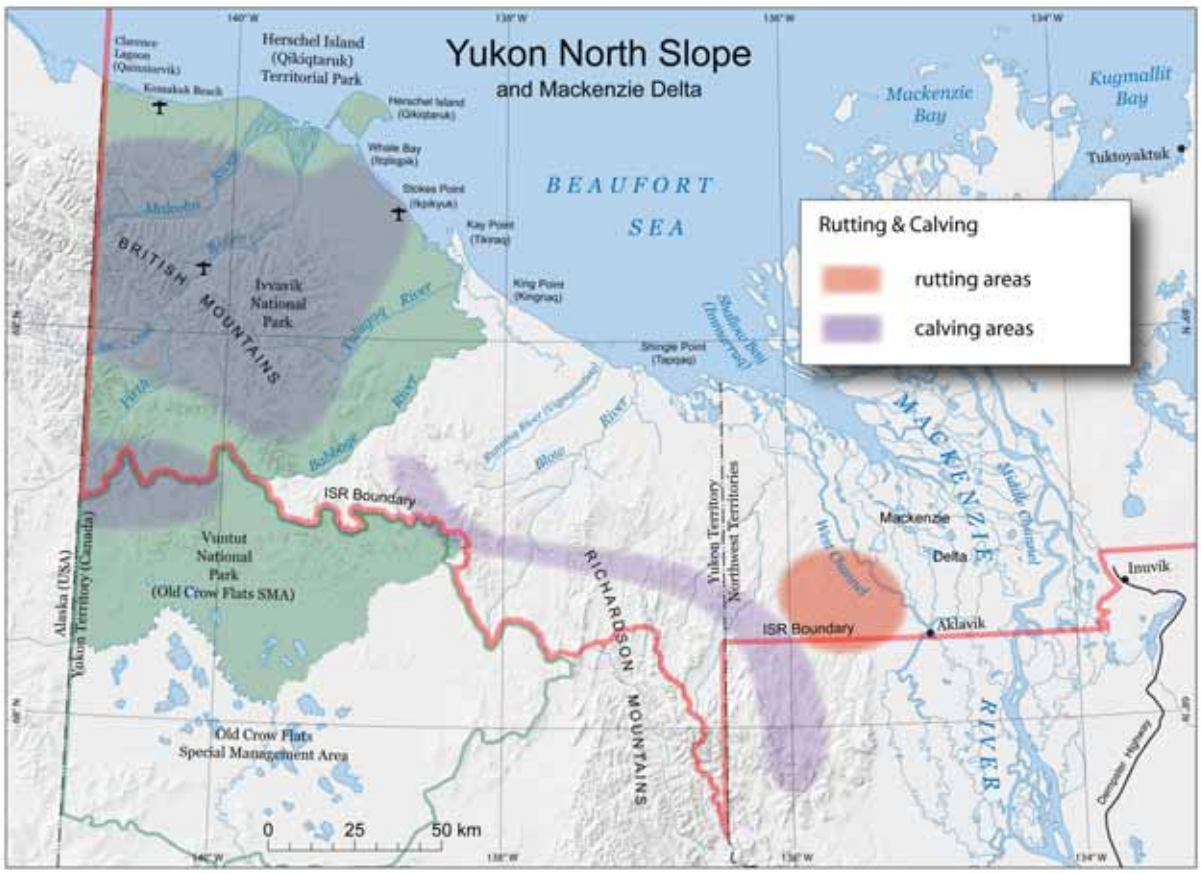
Nellie Arey

Norman Barichello

Two participants felt that caribou calve in the coastal plains more often than they do in the mountains. Over the last several years, however, many interviewees have observed caribou calving in the mountains more frequently than the coast.

Variability in calving location relates to weather and the timing of migration. In the next set of quotes participants describe these factors as well as their effects on calving, which include those associated with temperature and snow effects. They also chronicle late-in-the-season calving sites, some of which were pinpointed on study maps; sites were also named during interviews, in which cases they were not mapped to avoid inaccuracy. Refer to Figure 8 and the statements to follow to get a clear picture of calving locations.

Figure 8



" You know those caribous, when they're going to have young ones in spring time, like in June? They usually go down to the flats. How many springs now some of them just late to go down ... There's so many of them that don't really go down to the flats anymore. Cause just about every summer I go up to Sheep Creek [within Ivvavik National park] and you barely see caribous, just once in a while. Last summer though, last June, you could see them travelling down. That time I went to Sheep Creek on the 3rd, on the 5th [of June]. Before June they're usually travelling down, but this one was just starting to travel, could see young ones there and there. "

Nellie Arey

" The caribou are coming later, sometimes they don't come. They go by different route, way up [by] Old Crow Flats … Sometimes they don't make it to the calving ground, they have calves in the mountains in spring time so they die off—too much snow. Deep snow in the valley, they can't make it down. Lots of young ones die, by the thousands. They say it's overhunting, it's not that. It's the weather, climate change. [They're having calves now] from Old Crow Flats up here somewhere [Welcome Mountain east to Fish Hole and south to Symmetry Mountain]. "

Anonymous

" Due to climate change they changed [calving locations] quite a lot. Sometimes the spring come too early and then [they] have a heck of a time to cross rivers in order to get to the calving grounds … I remember [10] years ago that happened … Some years when it's warm in the spring time they have a difficult time to get through here 'cause there's lots of snow. Some years that snow is hard enough to go on top … You know, they're migrating a little too late, starting late from way up [Fort McPherson] way. They should be down there by April, April and May where they have their young. Sometimes they're up here 'til end of May and then it's too late. Then when they're heading down they drop their young on their way down. So they start having their young ones about the end of April. Some years May is so cold those youngsters don't survive. It's too cold. "

Donald Avuigana

" They've been calving around this area [western portion of the Yukon's British Mountains] for the last three years instead of Alaska and that's different … I think some of the reason might be that when they were travelling there was so much snow that the caribou couldn't move very well. The snow was deeper than what they're used to. That was one of the reasons maybe. "

Anonymous

" In this part here … towards the north slope of the Yukon some calve there. It's when they're late migration they don't make it to the calving grounds. I know when they're late migration they don't see a lot of them follow the Firth River down. They come off the Flats, Old Crow Flats, and then stay on the side, like they got no crossing … They follow it down until they could get across. I don't know how many years ago, that's when they found all those caribou drowned in the Firth. "

Dennis Arey

" You know those caribous, when they're going to have young ones in spring time, like in June? They usually go down to the flats. How many springs now some of them just late to go down .... There's so many of them that don't really go down to the flats anymore. Cause just about every summer I go up to Sheep Creek [within Ivvavik National Park] and you barely see caribous, just once in a while. Last summer though, last June, you could see them travelling down. That time I went to Sheep Creek on the 3rd, on the 5th [of June]. Before June they're usually travelling down, but this one was just starting to travel, could see young ones there and there. "

Nellie Arey

These comments clearly indicate that one of the most significant effects of changing air temperatures—and the associated snowpack and river conditions—and migration timing is decreased calf survival. Participants said that predation by eagles, bears, and wolves also lowers calf-survival rates; mosquitoes, too, can lower these rates. One person said that over the last few years bears have had a greater presence on the calving grounds due to fires in the Yukon. "That's why all those big animals come, they're trying to run away from the fire." Calves are noted to be most vulnerable to predators and mosquitoes during their first three weeks of life. That said, one person reflected that when caribou and predators have their young at the same time, predators spend more time caring for their young than preying on calves.

Box 2. Timing of Calving

For many, June typifies the calving season. Perceptions of the timing of calving within the month ranged from the entire month, to the first two weeks, to early June. Others associated May with calving, with April as the earliest known time for calving to occur. Some participants were reluctant to provide definitive dates for calving, because they said they do not see it take place.

Several people agreed that the timing of calving has remained the same over time. One person explained that, like location, the timing of calving is variable and dependent upon weather conditions:

" You can't tell really [if the timing of calving is the same] … When they're born, it might be a bit different every year. It depends on the weather. They follow the weather. "

Jack Goose

In terms of the number of calves observed travelling with adults in summer and fall, several participants said they see fewer now than in the past—one person said he sees only "Five or six in a bunch" now and that the 1980s was the last time many were seen. Some said calf numbers have remained the same over time. Another participant noted that calf numbers vary from year to year, depending on weather conditions. Contrasting observations specific to last year include the following:

" No [I don't see caribou travelling with as many young ones now compared to before] … [Just] odd bunches … That was last fall [towards Shingle Point]. "

Jerry Arey

Possible reasons for discrepancies in viewpoints here include that perceptions of "many" may differ between these two observers, and that numbers of calves and cows may vary depending on location.

" Last year we saw a lot of calves … There was a lot of calves last year … The last spring hunt we noticed a lot of calves and this fall too, we notice there's lots of calves, still with their mothers. Must have a good survival rate this summer. "

Dennis Arey

Labat/NWT Archives/N-20047-027: 0558

Hunting

When study participants talked about the ways in which caribou are hunted, they did so from a unique place: one that forms a connecting link between the generation of elders who spent their lives on the land and the young generation who are now learning how to hunt and participate in other land-based activities. As such, their perspectives on hunting are spoken with a great deal of wisdom, carried forth from their elders, insight, and hope for the young generations of hunters in Aklavik. The section to follow is written from these perspectives that bridge the past and future. Synopses of how the social and geographic contexts of hunting have changed over time are provided first to set the stage for this discussion.

The Changing Social Context of Hunting

When trying to understand historical and contemporary hunting practices, it is important to consider the social contexts that accompany them. This review of how the context has changed is brief, but proposes some thoughts on why certain hunting practices have changed and why others have stayed the same.

When participants described their lives "in the past" (during childhood or early adulthood), many put hunting, trapping, and gathering activities at the fore. Family groups often moved across the land in conjunction with the seasonal availability of resources. In terms of caribou, hunting activities were often carried out with other family groups, in a collaborative manner.

" If it's a good place for setting tent, people would set big camp like that and they'll go hunting caribou from there. And everybody works together, nobody do anything for their self, everybody's sharing. Young boys make sure that they go out and haul wood and make sure everybody get wood. And the women when they bring home caribou, they start cutting up meat and drying meat so there's always something, you never sit around doing anything. And the kids too have to get snow and they bring in wood, they're always busy doing things. "

Jerry Arey

" They used to hunt together. Big herd there and they all go in together. They talk before they reach the caribou. These guys going to be shooters, this guy's gonna be the one that drive them. And everybody has to listen to the leader. "

Jack Goose

" Anytime they always look to see where is the best place and they get together and they talk and after that they get all together and they start going up. And they help each other. They say, 'That man is pretty good with snowshoes,' he could just round up the caribou and let them go, and the other ones are shooting it. Round it up in the hills. Then they just shoot them there. "

Barbara Allen

Synonymous with group-harvest efforts was meat sharing among hunters and their families. Hunters also shared caribou meat with others not part of the hunt itself, including people without the resources or the ability to hunt for themselves and their families.

" Some people don't have their outfit like that and some people give meat to whoever doesn't have equipment to go out with. A lot of people want to go out hunting caribou, they don't have a boat, they don't have skidoo. That's why we share our meat. Give to the needy people. Years ago we used to share. Like for instance, five or six people went up hunting caribou, just one person alone got five-six caribou, they divide it amongst the whole bunch. Equal. But the one who got that shot get two shares of that meat. Never let a person go empty when you go up there with a dog team. Have to give them something. "

Donald Avuigana

" [Long ago people used to] help each other all the time. Especially if family got no dad, if his kid is small and his dad died, other people help that woman that's got kids and can't hunt yet, or kids too small to hunt. Stuff like that. You help the person if she needs help. "

Alice Husky

Hunts today bear some resemblance to their historic counterparts, but because many of the workings of community life are different than they were in the past, hunting has changed its face. For one, most people live in the community of Aklavik year round, which means that the travel technology that served people well in the past does not necessarily do so today. Instead of hunting by dog team, foot, and schooner, most hunters have embraced modern technologies such as snow machines, four-wheelers, and powerboats that allow them to travel to and from Aklavik with ease. This also means that they are more able to hunt independently.

" Before skidoos they were still doing it together … [Today] mostly everybody is independent. That happened a long time ago. They don't hunt like they used to. People long ago when there's caribou, everybody go together, hunt together … Everybody share the whole thing. Kill a whole bunch and they divide it among themselves, when the hunters are there at the time. "

Jack Goose

" Peoples never go down together too. They never hunt together. Just like they're apart. They used to hunt together down in the Whitefish. Schooner too, used to go down and hunt whale. They hunt caribou at Shingle in fall time. I never see that anymore … People got their own outfits, skidoos and boats. Today is different. Long ago got no boat, this person got schooner, they had to take them and help them. Not like today. "

Alice Husky

Dept. of Info/NWT Archives/G-1979-023: 0257

Secondly, the economy has shifted from subsistence based to a combination of subsistence and wage. This shift has had many implications for the dynamics of community life—one of which is the custom of sharing. Most participants said that the sharing of caribou meat still happens within some social circles but is no longer commonplace in the community at large. This is partly because group hunting and sharing often go hand in hand; the wage component of the economic system also helps to explain the trend of less sharing, an association that has been made by other aboriginal communities across the North. In the Inupiat village of Barrow, Alaska, for instance, when oil development and the *Alaska Native Claims Settlement Act* entrenched a wage economic system, cash became the primary mode of providing for one's livelihood. As a result, less emphasis was placed on assisting one another in times of need and commitment to collective responsibility—strongly held values in the previous subsistence economy (Chance, 1990). Similar changes have taken place in Aklavik. For example, where meat was once commonly shared it is now frequently sold for a price to cover the costs of gas and other resources required for hunting nowadays, or sold as a way to earn a living in the new economy:

" [Less sharing started to happen] in the 80s I guess, when the old-timers got too old to hunt. Them old-timers used to go and hunt, they let people go help themselves—go get caribou after they shoot a whole bunch. Now these young guys go and shoot a bunch of caribou, they keep it to themselves. You want meat, you gotta buy it. With the price of gas and everything, they want to sell the meat … [and] now when you hunt you have to make a profit. "

Anonymous

Diminished sharing is also associated with availability of purchasable foods from the grocery store and the fact that several elders have passed away in recent decades. Many participants describe elders as important teachers from whom young people learn about the ethics of sharing and a variety of other hunting traditions. Without elders, young hunters miss out on valuable mentorship opportunities.

" You don't only learn from your parents, your grandparents have things that they want you to learn, and from other people. You know, we used to have lots of elders and those were our teachers. Now today we don't have no elders, that's why we have a lot of young people not learning. "

Annie B. Gordon

Thus, the nature of social life and the economy have had significant influence on hunting and many of its associated activities.

Hunting's Geographical Context

Over the generations, people have learned to hunt caribou not only in places where caribou are known to frequent, but where other resources, such as fish, whales, seals, geese, ptarmigan, rabbits, berries, wood, and water supplies are plentiful. Open areas are preferred for the vistas of the land and the caribou they afford. Many hunters were taught to hunt in these places by their elders, who chose specific routes to travel across the land. Routes were often selected based on the degree to which travel was favourable (e.g., flat land, dry and tussock-free tundra, and places where landing or lining a boat was easy). Used by many generations today, these routes have become well travelled:

*" Nice trail. Good walking trail. It's been used for years and years. You could still see that old trail where people used to travel long ago with dog team. You go up, you see that trail it's still marked, **hard**. "*

George Selamio

Use of hunting sites is dictated by a number of factors such as modes of shelter and travel preferred by hunters. Most typically, people make day trips from Aklavik, stay in cabins at specific locations, or travel with a tent so that hunting sites can be selected with fewer limitations. Although all these modes of shelter are used today, tents were more frequently used in the past when people lived on the land year round and their movements were strongly influenced by the availability of resources. Linked to shelter is travel, of course. Because travel technology has become more powerful, hunters can now access a wider variety of hunting sites in a shorter span of time than ever before.

" [They] always have tent, no house. Couple of times I camp in snow house with my dad, but we always have tent when we travel, and a dog team. You can't travel like skidoo, just a few hours. Have to travel all day and before it get dark you have to camp and get wood, cook dog bag before you go to bed, feed your dogs, and in the morning save some for lunch for the dogs. Old people do lots of things. "

Alice Husky

Where people choose to hunt also depends on the time of year and weather-related cues. These cues can vary in scale from small—such as wind direction, which may influence a person's finer movement patterns while on a hunt—to large, such as when ice leaves the waterways in the spring, which makes them suitable for travel.

" You know what time of year to get them. When they're nice and fat in fall time or if it's too late in the winter you gotta go to Herschel to get some good meat. You don't just hunt them anywhere you want, you gotta find them. You gotta know where to find them. You can't just go out and get caribou, you have to know where caribou is. Gotta know ***where*** *to go and* ***when****. "*

Anonymous

" When you got good hot weather they like to come down right [to the shoreline], both spring and summer. When you get windy days they're usually far back. That's what I've seen over the years, that's why I try and hunt on a good warm day. That way you know the caribou are going to be down. "

Billy Archie

" [I] hunt right from Barge Lake to Coney Lake when there's caribou in the spring time, after the ice go …. That's in June, first part of June. "

Anonymous

" Even when you're rounding up caribou, you gotta know which way the wind is blowing. "

Barbara Allen

Accessibility of hunting sites is perhaps one of the most significant factors that influences current site use. Nearly every participant described how erosion, permafrost melt, and beaver activity are transforming land and water conditions—some beyond recognition.

Most lakes and rivers in the Delta (such as Little Moose, Big Moose, and Anderton) and the North Slope (Fish, Blow, Running) are getting wider and shallower, because of erosion and permafrost melt, which makes them more difficult to travel by boat; these conditions worsen in fall when water levels naturally drop. The same can be said about smaller creeks (such as those at the head of Fish Hole), including those relied upon as passages to larger lakes used for hunting (e.g., Skinny Creek to access Coney Lake). In other places new channels have emerged, like from Coney Lake to Blow River. These changes on the land were first noticed in the 1950s, and by the 70s and 80s were considered significant.

Beaver activity is also influencing the land. Beavers did not have a presence on the land in many areas until about four to six years ago, according to participant observations. The lakes beyond the foothills, for example, are no longer accessible by foot due to beaver dams in front of the foothills. Running River is another area where beavers are now known to be abundant.

The coastline between Shingle Point and Herschel Island is another area that has undergone dramatic changes in recent years. At Shingle Point, the point of land is extending further and further into the ocean each year. Boat access to both King and Kay points are now limited, because a sand spit has emerged. And at Herschel Island, the harbour used for landing a boat is no longer apparent, which increases boater exposure to marine elements. Again, many of these changes have been underway since the 1970s and 1980s.

For the most part, areas used for travel and hunting have become less favourable for travel over time.

" All the land where we travel long ago, easy to travel, it's not like that anymore. It's too much changes now, the creeks are drying out, the lakes is getting shallow. You'd be lucky to get into some places where we used to just go in with boats. It's not like that anymore. "

Annie B. Gordon

To cope with many of these changes, several participants said they must use different travel routes (such as alternate river channels), use alternative modes of travel, or hunt certain sites in the spring time only, when water levels are generally high. Now more than ever, selection of hunting sites requires knowledge of environmental conditions, careful planning, and access to a variety of modes of travel. Figure 2 on page 16 shows the distribution of hunting sites according to season. Their relative degree of usage is reflected by the colour scale.

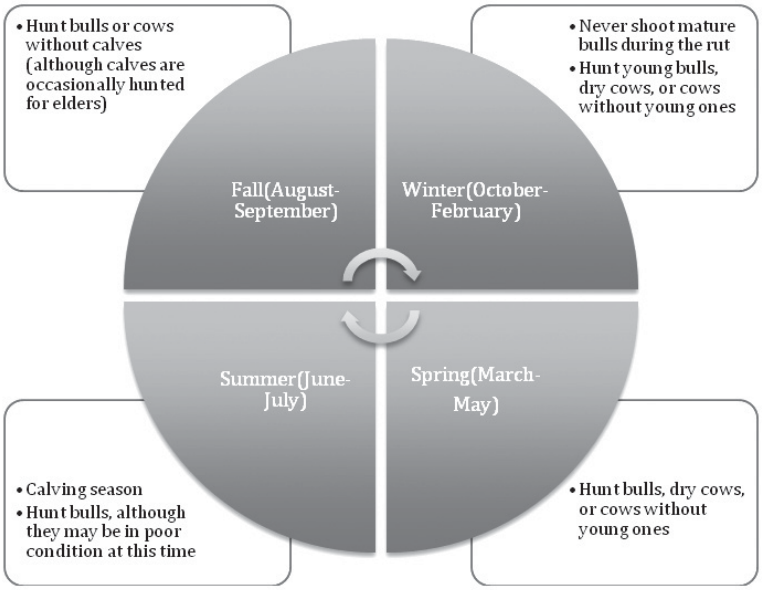
Government of Yukon

Cultural Rules and Respect

Hunt Seasonally

As explained in Figure 9, caribou hunts are always carried out according to season. Sometimes this means choosing a particular kind of caribou or eating other country foods if no caribou are available. Alternative country foods are relied upon more in the spring time when snow melt and open water can make for dangerous caribou hunting conditions.

Figure 9. Seasonal hunting



Hunting strategies vary from person to person, but all year round hunters pay attention to the condition of the animal, its sex, and avoid disturbing young caribou—with some exceptions—as the following people discuss:

" We just look for fat ones. When [you] go out to get the caribou, you watch and get just fat ones, dry cows and that kind. "

Jacob Archie

" We never bother caribou 'til fall. My dad wouldn't let us shoot caribou until August. We could see them in the hills but we didn't shoot them, can't. Not allowed, because our parents said, 'Wait 'til he gets fat and good shape before we kill him.' .... They don't want him to get bothered like that. Summer time there's lots of mosquitoes and he suffer ... never have fat in July. They always told us to wait 'til August. "

Alice Husky

" We never shoot females with young ones. When I was growing up we left [them alone]. Like now when I hunt, if I see a whale with a young one I don't bother it, 'cause I was brought up that way. Never touch a whale with a young one. Any animal with a young one, you leave it … Nowadays people shoot anything. To this day, if I see caribou with a young one I don't bother it. Whale with a young one I don't bother it. "

George Selamio

" The young ones in May, inside the females. Old-timers they like that, take that home. Shoot a couple for them. "

Anonymous

In light of the declining caribou population, one person said he has not shot a small caribou or a cow for the past 15 years. Many years ago he was taught by his father to try and hunt bulls rather than cows:

" I was told by my dad that we should try, and this was 50 or 60 years ago, to get bulls instead of cows. 'Cause every time you shoot a cow there's a chance that the cow you shot might have had two or three young ones. And if you shoot it, he said it's pretty well lost. So for me, I've always hunted bulls. "

Anonymous

Let the Leaders Pass

The importance of hunters letting the leaders pass is so that the legacy of a good trail is left behind for the remaining caribou to follow during migration. When leaders are shot, the other caribou are forced to make their own routes—some say this is why caribou have not used traditional migration routes in recent years.

" [People] used to respect caribou long ago. When we hear the caribous are coming we just leave them for a while, 'til the leader pass, 'til the lead bunch pass. After they pass they always start hunting. Like today, as soon as they hear 'There's caribou down here,' they take off with speedboats and put their skidoos in the boat and just drive up, hit the leader. I guess since that time our caribou don't like to go through that route anymore. I guess that's why we don't have too much caribou … You have to respect them to pass and let them go ahead for a little bit. Like when you want to go some place, when someone stops you, you don't like to do it again. It's just like a person. "

Anonymous

" If you just leave these caribou until they pass a certain area and just let them go, then people could hunt, because there's lots of caribou following behind. If they do that there would be caribou around here all winter long. "

Annie B. Gordon

How does a hunter know when the leaders have sufficiently passed by? It depends on the hunter. Some hunters wait for the females to pass and the bulls to appear, others wait for the first few bunches to go by, and others still wait for a certain amount of time to pass.

" Nowadays they go way up, 'cause too much traffic, too many people. Long ago they let the first bunch go. Could be 50 or 60, they let them go. That way the big herd that's coming behind they got trail to follow. "

George Selamio

" Normally we'll just watch for the females, if they have young ones we just let them keep going by, 'cause we always let the first bunch go by. Wait for the bulls to come around. That way caribou is already moving. Happen to turn the cows around they'll head up different directions—that's where the bull's gonna follow. They're gonna end up going different directions, so we normally just let the cows and the calves go by … We'll just find a dry cow or caribou that doesn't have a young one with it. Later on we'll wait around for the bulls to come up. That's what I usually look for anyhow, most of the time. "

Jerry Arey

" The females are always leading the herd, so you let the leaders pass. Maybe a week or three or four days, let them pass and then the others will follow right behind. That's what the McPherson [people] always did—they don't touch them for a week or something. Let the leaders pass and then the rest will follow from behind. "

Donald Avuigana

People have known for a long time that when leaders of the caribou herd are shot, the followers spread out and take different migration routes. One participant described a time in the past when herd leaders were purposefully shot so that the food needs for people living throughout the Delta could be met in times of need.

" Long ago when I used to go caribou hunting, when they want to get enough food for the whole people around the Delta, widows and all that, they used to just shoot the leader. Shoot that leader and they always start spreading out and you can have enough meat for the people that needs. And then after that they select their own leader again, then they start going again. "

Barbara Allen

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Be Patient

Patience is a virtue when it comes to caribou hunting. In their own words, interview participants associate patience with "watching" the movements of caribou, getting as close to them as possible, and then "waiting" for the right moment to shoot. Not only can patience yield a clean kill, the meat is tender as a result, and the task of packing is made easier. When caribou are chased the meat is very tough because of hormone release associated with stress.

" Hunting with skidoos and four-wheelers [the caribou] run, run, and run. Then when you start eating them it's so hard as a rock and you can't even chew it good. I know, I seen that happen before …. Not like when they used to just walk up to it. Go down and every time that caribou is looking up you go down after that. When it's looking [up] you start going up to it. "

Barbara Allen

" Long ago [people] used to use pack dogs and walk up from down below. Walk for about a week. Come back with caribou. We crawl to the caribou and shoot them. We don't even let them move. Good meat. "

Anonymous

" People have patience, I guess, to sit there and wait for caribou. And they'll choose which caribou. I used to wonder why dad used to do that. I used to think, 'Gee, there are lots of caribou, you can shoot at any darn thing out there,' and he'd just say, 'Shh!' He'd sit there and watch and say, 'I'm getting this one, I'm getting that one.' He picks them out and he shoots them. I used to tell him, 'How come?' He said, 'It's the caribou that don't run.' So he shoots them and that's why their meat is tender. Some people, when you get the meat, when you cook the meat you notice it. When you cook, it's just tough like, because they run them when they shoot them and they just tighten up like that so the whole meat just tightens up. Now today, young people don't have patience to sit down and choose which caribou. I know there's some hunters in Tuk that still do that no matter how cold it is. They sit there and they pick out the caribous. Sometimes they come right back to you. "

Annie B. Gordon

" Patience. That's something my dad and I did a few years back. We brought some of the young boys out that never had opportunity to hunt. And I think two or three of the boys, it was the first time they shot a caribou. To see that, kinda this big lump in your throat to see it, a young hunter shoot his first caribou. And that's something that we taught those boys right from the beginning is, hunting properly, hunting safely, and knowing how to be patient. I think if they're not patient the caribou is gonna run away, right? Or it's gonna be harder, they're gonna have to pack longer. "

Billy Archie

Patience is especially important to exercise during the winter time when caribou are known to "spook easily" and when motor sounds carry easily across the land.

Make a Precise Shot

Several participants said that good marksmanship is an important part of hunting caribou and showing respect. Some were taught at a very young age to hunt this way and are now sharing this lesson with others. Examples of some of the values of hunting with precision are that you take only what was intended, optimize utility of the meat, and avoid wounding caribou.

" [Granddad] learned me too that if there's lots in a herd you watch when you shoot … Nowadays when I take some guys out I just tell them to be careful when you go out there. Watch what you shoot. There's a big bunch, if there's 10 of them standing there, you're bound to get two of them. One shot, never know. Just the type of rifle you use when you go out hunting caribou. A lot of high-powered rifles go through caribou, two caribou if they're 50 feet away from you. Gotta watch how we hunt … A few hunters I know that are young, I tell them, 'You gotta be careful when you're out there. Careful what you shoot.' I said, 'You may never get a second chance at it. Get it the first chance you got,' make them proud of their first caribou. "

Jerry Arey

" When we were growing up they'd give us one shot. One shot—you miss, you miss. Me and my brother used to go hunting together. My brother Jim, when he was alive, they used to give us one shot each—you miss, you miss. Make sure we hit the caribou when we're gonna hunt caribou. "

Nellie Arey

" We never go with skidoos and that—we walk. And you got to learn how to get yourself close to the caribou so you don't have to wound it. You just shoot it right there. And they don't shoot it all over by the rump or the legs, they just shoot it where it could be shot and then it just drop dead. "

Barbara Allen

" Normally I try to shoot them in the chest all the time, don't wanna waste the rump. That rump you're packing it home, you get it all cleaned up you only got half a rump—pack all the other half for nothing. If you treat them good, they'll last you a lifetime. You look after the caribou. "

Jerry Arey

A gun that is properly sighted is critical to hunting with precision. One participant suggested setting up targets en route to popular hunting areas to help hunters ensure their sights are set.

Take Care of Wounded or Sick Caribou

In case a caribou is wounded in the hunting process, hunters set out to find them and end their suffering.

" After the caribou is [shot] I'll look around and see if I see any limping ones. If one is limping I'll go after it. "

Jerry Arey

" People long ago they have respect for their food so much that when they see animal it's not well, they burn it. Lots of wood on it and burn it. That's what they always do. They don't just leave it on the land for other animals to eat it. "

Barbara Allen

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" When I was growing up they used to tell us, when you wound a caribou you gotta go 'til you get it. You can't leave wounded caribous all over or anywhere .... If we wounded a caribou [in the past] and we can't keep up to it running, the dogs would go get the caribou and herd it back to us. That's what we used to do long ago. We just used our dogs and they used to herd them back to us, the wounded caribou. That way we don't lose them. That's what we used to do long ago, 'cause we were taught not to let wounded caribou just take off—our dogs gotta know what they're doing when we were growing up. We would just take them off the harness and take off on the herd and bring the caribou back. "

Nellie Arey

If a caribou is deemed sick and unfit for human consumption after it has been shot, some hunters will burn it so that other animals do not feed on it.

Take What You Need

Central to most participants' notions of respect is getting enough caribou to satisfy the needs of their families and community, and nothing more. This principle is practiced in all the seasons that caribou are hunted and is applied to other hunting and gathering activities, such as fishing.

" I don't know [how many caribou the community harvested in a year in the past]. People just get whatever they need. They don't take more than what they could. "

Annie B. Gordon

" We see a lot of caribou around our camp and … I guess when my family was home we probably went through 15–20 caribou a year. Now the two of us, we go through three, four maybe at the most, that's about it. So we don't need to harvest as much. "

Anonymous

" Don't overhunt. If you follow that, don't overhunt, you'll always have caribou …. If you overhunt you're killing [caribou] for nothing. Why hunt more than what you need? If you go to the store you buy what you need, you don't overbuy. Same thing, hunting. "

George Selamio

" Get enough for what you need. Never harvest a whole bunch. Not unless you got a big family and feeding someone else, too. If you don't share with other people, don't get a whole bunch. But if you got a big family, one or two hunters, it doesn't matter how much they get, as long as they share with their families. That's what I think … You gotta have respect for any animal, not only caribou. Try not to kill too many… Like fish, for instance. You don't get a whole lot. You think you got enough, you just quit. "

Donald Avuigana

As Donald points out, sharing meat with others exemplifies the value placed on collective responsibility, but it is also linked with getting caribou on successive hunts:

> ***" Long ago [sharing] is what they used to do. Even a little piece of meat, they give it away. Everybody. My husband when he goes out hunting, I used to think how much he worked and then he come home, he'd let anybody go in and take whatever. I used to kind of say, 'Why do you do that? You work hard to bring all this meat home.' 'Ah, never mind, just let them take whatever they want.' That's the way he's been all the time. They say when you give, let your food go out like that, you always get some back in place. You don't give for nothing. "***
>
> ***Annie B. Gordon***

Be Humble

One participant shared with interviewers a lesson he was taught t a young age, which is never to brag about animals killed on a hunt. The context of this discussion was caribou hunting, but he applied the ethic to the hunting of any animal.

How Caribou is Prepared and Used

Porcupine caribou is a very important food source for the peoples of Aklavik. Although other foods have always been eaten in addition to caribou, many prefer it and rely on it as a mainstay of their diet.

" That's our food. Right now I'm cooking caribou meat, because the last few days I've been eating another kind of food, and I don't feel like I'm getting anything at all. So I told my kids today I'm going to cook caribou meat today, because we have to have caribou meat. "

Annie B. Gordon

" We don't eat caribou meat all the time. It's a good source, and people can't go without it, 'cause they were brought up with it and they have to have it. You get the craving for it when you don't have caribou meat. "

Donald Avuigana

" I use caribou every day just about … For my grandson and my boy. "

Jacob Archie

PW&S/NWT Archives/G-1995-001: 3670

Preservation

In order to access caribou meat throughout the year, meat must first be preserved. Approaches to the preservation of caribou meat are numerous and include those brought about by modern refrigeration as well as those that have been used for centuries, such as rationing, caching, cold storing, and drying. Preservation has always been an important process, but was perhaps more critical in the past when winters were longer and colder—and not so amenable to hunting—than they are today.

Central to all preservation techniques is the notion of no waste. This idea is part and parcel of a broader paradigm already outlined in the previous section on hunting—respect. In fact, when interviewees were asked how they respect caribou, some referred directly to meat handling and preservation, as shown in the following conversations:

#1. Interviewer: What kinds of things do you tell [young people] about respecting caribou?

Jack Goose: You know, how to preserve it mostly. Don't let it spoil. Don't spoil all the meat that you killed.

#2. Interviewer: Can you tell us how people respect caribou?

George Selamio: Oh yeah, after they kill it, cut it up, make dry meat, put it away. Look after it.

This aspect of respect will become clearer as methods for preservation are discussed further.

One of the most common ways to preserve caribou—one that has persisted over the decades—is drying the meat. Some of the benefits of drying are that it can be done just about anywhere and can yield food staples that last for a significant period of time. Subtleties matter when it comes to cutting the meat for drying:

" Have to teach all the young people how to make dry meat. Make them right thickness so they don't spoil, and the fat too, you could dry them too. It don't get moldy when it dry up, the fat. "

Jack Goose

More common in the past than today, people dried caribou hooves, which could later be soaked in water and boiled up for a meal.

Historically, food was often preserved with sharing in mind, as the next few quotes demonstrate.

" In the fall time, even down in Shingle Point when lots of old people living, around the 70s and 60s, used to go down to Shingle Point after they hunt whale and hunt caribou. Make dry meat there, and they divide them. Split it up to other people like, share with other people. "

Alice Husky

" Save what you got for winter, and save all the feet too, caribou feet—people hang them. You know, winter time, the hooves get dry from the air, and spring time people boil them and eat them. No deepfreeze long ago, people had to save it some way, they had to dry it—can't get spoil. Then they leave them in the water, soak them. My grandmother said long ago, people they travel all the time for caribou to eat. She said when she dry those caribou feet, she tie them together and hang them. Maybe that person's got nothing to eat …. He find that feet of caribou and bones, he could boil it and he could save himself from starving. You never had control long ago. "

Alice Husky

Other methods for meat preservation include rationing / saving, caching, using the gut bag for storage, and cold storing or freezing.

Government of Yukon

" Ice house. Summer time we just throw [the caribou] inside. Skin them and freeze them. "

Jacob Archie

" At that time [long ago] people used to get together and talk together. There's a real good people that knows the land, how to do it, how they can best preserve what they get. They don't throw nothing away. Nothing. Even when they hunt whale, they never ever throw nothing away… They always preserve everything. They put it to dry or they make pit and put them in a pit. That's what they do all the time. "

Barbara Allen

" They use that gut bag too for bag. Your meat is fresh when you put them in there—long ago no deepfreeze. Winter time you can put that meat inside of the gut, got that big bag. Inside they put meat in it and cut it up, tie it. And see, that could last for all winter and spring time. "

Alice Husky

" My granddad raised up in Alaska. Him and his brother used to hunt caribou. They walked up with packdogs and they stay up there for one month, they leave their parents on the coast. Dry meat, come back with a whole bunch of dry meat, fall time. And they cache a lot of meat too. Staples to last all winter. "

Anonymous

" I know when we were home we always went hunting caribou in the fall. That's when I was home with my grandfather and we had caribou, we had moose, we had fish. We fish and then hang fish, but we had dogs, and sometimes for trapping we get fish. But we'd save a lot of stuff—we never went hungry. "

Anonymous

Use

When participants were asked how much of the caribou is put to use, "the whole thing," and "nothing is wasted" were common responses. The meat, head, tongue, liver, kidney, heart, fat, bones, marrow, hooves, horns, guts, and the "bible" (an organ that when opened resembles the pages of a bible) are all prepared in particular ways for consumption. Before any preparations take place, meat must be properly tended to after the hunt.

" You gotta put it away when you come back. You cut it up and you clean it and you hang it up in your smokehouse. Keep it away from the flies. You don't leave it laying around. "

George Selamio

DPW&S/NWT Archives/G-1995-001: 3677

Preparation methods and favourite parts vary according to the individual.

" Anything, everything [is used], guts, even the bag inside … well, even that is used. They can have it hanging and if it dries, they just cut pieces off it and they just throw it in when you're boiling meat, just to give that meat a flavour. "

Annie B. Gordon

" We never waste meat. We don't use the bone—long ago they used the bone, chop it up and boil it and make some fat out of it for making bread. But we like the marrow, really, that's a delicacy. "

Anonymous

*" Caribou bible is **really** tasteful for the elderly people. Even me, sometimes I'm just craving to eat that, and I always tell my boys, 'You're not a hunter if you don't bring that bible home,' the one I love to eat so much … That's how they gotta respect. "*

Barbara Allen

" You know the caribou stomach where all that food goes in the caribou stomach? I had some a couple of years ago, it's good … Some of them they eat it flat out with a little bit of sugar and eat it just like vegetable. "

Anonymous

" I like [the guts]. You empty the guts out. When the caribous are real fat, you empty the guts out and you boil it. After it's done you move it into the frying pan and cut it into pieces, just right to eat, and you cook it over in a frying pan. "

Nellie Arey

" I make head soup …. Take all that little meat out of the caribou head. Take the brains, take the eye, and cut it up for soup—tongue and all that, just bone left …. Boil it with that, you could make soup it taste good too. "

Alice Husky

*" And all that fat too, they always prepare that thing for special occasions, [when] **everybody** get together—Christmas, Easter, whenever. They always want something of the caribou meat, the special kind of meat that they want. And they make that Eskimo Ice Cream they call it …. They always freeze it, akutuq, and put it away for special occasion. "*

Barbara Allen

" Best part on open fire in fall time, that's the way, open fire, roast your ribs. If they got a lot of fat, good bull. "

Jerry Arey

" Never eat [caribou marrow or berries] them when you pack it, when you gotta pack at least five miles—it plays you right out. Better to just eat the sinew. You know the horns there, at the tips, the soft part, you could chew it and it will perk you right up …. Or you suck the blood if you're really thirsty. Just take a little bit of blood. Quench your thirst. I was taught all that, I still do that. "

Anonymous

Some parts, such as the head, fat, and bone marrow are preferred in particular seasons rather than year round.

" Fall time I like that stomach fat, because there's lots of it, and you wouldn't see any in the spring time. So there are certain parts that are good [according to the season]. As well, migration—if they're moving lots then you could tell the marrow is watery, runny. August is nice for marrow. That's what I find. "

Billy Archie

" They used to save the bones even. After they cook a bunch of caribou meat, the bones left there. They save the bones. In the spring time too when there's no hunting caribou they pound up the bones. And oil, you get lots of grease out of that, and same thing with the dry meat, lots of dry meat. Pound it, dry meat, when they're really dry you mix it in with the fat from the bones … and then it's good stuff. "

Jack Goose

" [Granddad] he told me that you can eat pretty well the whole caribou. There's certain time of year that I'll eat the caribou head—in the fall but not in the spring. I never eat caribou, because the blood is changing in the caribou. They got flies that stay in their nostrils and their bodies…But yeah, he said they're pretty well [all edible] like the liver, kidneys, the heart, the tongue. "

Jerry Arey

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Box 3. Warble Flies and Bot Flies

Warbles are parasitic larvae of the Warble Fly. Adults are known to lay their eggs on caribou in spring, and once they hatch, larvae penetrate the lower body skin and remain there until summer when they drop out. Participants noted that caribou can suffer greatly as a result of warbles. Caribou are often seen running to work out the skin irritations warbles inflict, and infestations are suspected to lead to death if significant. In summer, caribou skins have been described as "full" of warbles, but some years warbles are not as numerous as others. Warbles have always been observed on caribou in spring and summer, but by fall caribou have clear skin.

The Bot Fly also spends part of its life cycle on caribou, mostly in the nose, ears, and mouth. People have always been accustomed to finding Bot Fly larvae on caribou, most typically during the months between March and June. Some believe that Bot Flies "clean" the inside of a caribou's nose. Both flies are considered a natural aspect of caribou health, and neither parasite is considered harmful to eat.

If it was not possible to bring all caribou parts home, meat was sometimes stored underground and collected at a later time.

" They used to make us store if we can't take everything home. You would dig in the ground and cover them with rocks or moss. That's what he used to make us do. We never waste nothing of caribou. Even the horns, he used to make us take them home. That's how I learned since I could remember, my granddad. "

Nellie Arey

This comment and others like it demonstrate the high value placed on the notion of no waste. Bringing all caribou parts home is a practice that has historically been carried out in times when caribou are both scarce and plentiful. That is, no matter the availability, caribou are treated with a consistent level of respect.

" Even when there's lots of caribou like that, the people, the user of the caribou they have respect for the caribou. They never throw anything away—they use every little thing. "

Barbara Allen

Most participants have noticed in recent years, however, that not all caribou parts are used. Sometimes caribou heads, legs, guts, and other parts are eft behind; other times whole caribou are abandoned because they are killed during the rut when the meat of mature bulls takes on a pungent flavour. Participants expressed worry over these actions, and explained that their occurrence may be associated with poor accessibility of hunter training.[5]

" [Young hunters leave parts behind] 'cause they don't know, nobody tell them. They don't know how to eat the head or cook the head. Arms, they throw them away, they don't pack them out. "

Anonymous

" Our elders were our teachers …. If we had our elders living from back there [the 40s and 50s] and today go up with the young hunters, young people that are hunting, and tell them how to skin the caribou, how to cut up the caribou, they wouldn't waste anything, not a thing. Even the skin, they put it in the sled and they put their meats in that. "

Anonymous

Beyond food, caribou parts are used to fulfill a multitude of personal and household needs. Bones and skins, for example, are used to procure items such as tools and clothing. Fall skins in particular are valued for their moderate thickness and durability and are used to fashion a range of clothing and outerwear, including mukluks, mitts, gloves, parkies (parkas), shoes, pants, vests, and dresses. Skins are also made into tents, mattresses, and blankets, drums for entertainment purposes, and bags, pails, and packsacks for transporting items in and around camp.

" One time we sewed one spring for one whole week. We take all the fur off the caribou skins and we make tent. Big tent. Must have used about 20 caribou, sewed them together so it don't drip. That's a lot of work. "

Nellie Arey

[5] Some participants also explained that because certain parts were historically used to feed dog teams, which are no longer in use, their utility is somewhat limited.

" It's there to feed us, it's there to dress us … Nothing was ever wasted. In the fall time the caribou skin when it sheds all the thick fur from spring time, fall time so nice and smooth and thin. That's what they use for clothing. It stays warm. And later on when they start to get thicker they use that one for mattress. They sew caribou skins together, you know. Could fit across the back of the tent and they just roll that out when they set their tent. "

Annie B. Gordon

" Skins, we'll dry them and use them for everything, mattress, parkie. You know we never buy foam mattress and go to the store and buy foam mattress like that. We have to use caribou skins for mattress, but it's good. You can't get cold in the winter time when you travel and it can't get damp under you when you use them. "

Alice Husky

" Look at my mukluks. These I had for maybe 30, 40 years. And look, I change it two times, the sewing—they're just wearing out. My husband he killed a caribou and then us we prepare them to use them. I had them for so long. If you know how to tan the caribou skin yourself, the way your mom taught you, you can keep them for years. "

Barbara Allen

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" [People] take everything back and they use it. Even legs they use for shoes, caribou-leg shoes—all that they use. Mitts, caribou legs they use for mitts. They never waste it. All that meat … that big bag of guts, they use that one too for bag. "

Alice Husky

" We do lots of caribou hunting too when we go up to Firth, make lots of dry meat with caribous. And [daduk] he made lots of packsacks out of caribou skins, for dogs, packing. We used to use pails, we used to use them for pails too … I know we had kettles, teapot, dishes and that, but he would never carry pails. Caribou skin for pails. That used to be good. "

Nellie Arey

" And a lot of times, not only for clothing like this, they use them for entertainments too. They gotta have the right kind of caribou for those drummers, you know when you hear the drum … And they take all that fur off and see how thick and how thin is that, the skin of it … My dad show me that. He said when you hit it, it's a different kind of sound it make. So not only for food, they use it for a lot of other things. "

Barbara Allen

Several participants commented that caribou skins are not used as much now as they once were, because of the widespread availability of store-bought outerwear.

" The skin is used very little now. We still save caribou skins once in a while. We use them for travelling for mattress. They're warm, they're better than foam mattress, they're better than that. That's the only thing we save them for, we don't make parkies out of them anymore. We'll try and save the legs for making mukluks, not all of the time, but at the right season, when they're just right. "

Anonymous

" Nowadays we just eat the meat. When I was growing up we had caribou-skin shoes, caribou-skin pants, caribou skin for outerwear, it's windproof. You don't see that now. Long ago when I was growing up everybody had that. [It changed] when school started … in the 50s, '54, '55. "

George Selamio

Caribou Health

Given the time participants spend on the land hunting and caring for the meat, they have an acute sense of caribou health. When health is assessed, consideration is given to both caribou behaviour and physical condition; women in particular have a strong sense of the latter, because they often prepare the meat after a hunt. These evaluations give hunters a sense of how caribou health may fluctuate from year to year, which animals to select while hunting, which parts of the caribou may be inedible (although usually all parts are edible), and if particular cuts should be made to the meat to improve its quality.

One of the most common ways to distinguish healthy caribou from unhealthy ones is the amount of body fat observed on the animal. Body fat is closely linked with quality and availability of forage, which affects not only the health of an individual animal but that of the whole herd. How caribou are hunted and seasonal conditions also affect the extent to which caribou gain body fat.

" If it's easy feeding they're in good shape, but if it's hard they're lean … Plus season too. Spring time they're not as good shape as in the fall. "

Dennis Arey

" When caribou go into the Delta they starve, I've seen that before. Over the mountains. Not a whole herd but two or three. You shoot them, it's bones, [they] gotta eat rat houses. That's not good for them … Not their natural food. Their food is that lichen, that yellow stuff that grows out of the ground. If there's lots of that you'll have healthy caribou. "

Anonymous

" [Herd health] depends on the lichens and stuff like that. Migration in the fall time, when vegetations freeze up when it's green, it's a good sign they eat good on the vegetation. Grass and stuff like that, when it's green like that it's a good year. But when they're dry, not good for them. I mean for any animal, rabbits and muskrat that eat off the ground. Always watch that in the fall time … Vegetation is still green it's good food for animals. "

Donald Avuigana

Parks Canada

" [Caribou] used to come right in the foothills and they were fat all the time—and they're not wild, they don't run away from you. Skidoos come, they just chase them so much. They hardly stop here now. See them come out by the river for a while, in the West Channel. The thing about skidoos is caribou they take off to McPherson right away, they lose their fat right away. They gotta eat steady, caribou. All the animals that eat vegetation have to eat steady. When these people bother them they don't eat that good, they lose their fat right away. "

Jack Goose

" I've seen caribou that's pretty thin and I've seen caribou as pretty fat. They're pretty thin in the summer, caribou. Real skinny, caribou in the summer. So much mosquitoes down the coastline, you know. They're driving them nuts, mosquitoes—so thick now. "

Jerry Arey

" Well, some caribous they don't even get fat. Some of them are just like, no fat in them. But some of them, like dry cows and things like that, they're always fat. But then when they're gonna have young one they just get skinny like. And some of them, I don't know, they just don't gain weight or something like that. My granddad used to tell us, he said some of those caribous you might find them, some of them might be just bony—hardly any meat on them. [He] used to tell us that. "

Nellie Arey

Box 4. Meat Consumption and Clues About Caribou Health

Animals with a large proportion of body fat are considered good eating by many standards. This is why people generally do not want to miss out on the fall hunt. Other than usual seasonal influences, many people said that caribou meat has taken on a different taste in recent years. One of these observations relates to when hunters chase caribou—this practice results in tough meat due to caribou stress response. Another noted difference in caribou meat is that its taste is inherently "different," which one participant associated with ice road pollution and vehicular traffic; another person said this is perhaps because the food is different, or in her words, "the ground is changing." She went on to add that spring time caribou are notably "softer" and have "no taste" compared to years ago. Another person shared the same observation, but applied it to the last two or three years. Both said that when caribou have water in their joints it is noticeable to the palate right away. This joint condition is indicative of a caribou that has travelled for an extensive period.

Weather is an important force that governs the availability and quality of food, and can vary sharply from year to year; temperatures and the timing of rainfall events are especially key.

" When there's lots of rain it's good—not lots of rain, but rain once in a while. Everything grow better … When it's too hot everything don't grow. "

Jacob Archie

" Some years [herd health] is good and some years it's bad. Never the same all the time. Depends on the food that's growing up and the freezing rain, freezing snow and everything like that. It's not good for the caribou. "

Donald Avuigana

" One year, what time was this, in the fall time or the spring time when dad and I went down [Kaktovik] way with skidoo, when I said caribous just dropping all over the place. Fall time. Remember, in the fall time we stayed down there for one month and there was big rain and then big ice, everything just froze all over. The ground was full of ice and caribou, lots of caribou starved that year. We stayed down there for a month … seven or eight years ago maybe. "

Annie B. Gordon

" If it rains in the fall time it's real bad, freeze up. Under that snow it turns to ice. That's when the caribou starve. If it's a good fall, not much rain or not too warm weather, they'll stay healthy. "

Anonymous

In fact, caribou health for spring of 2009 is predicted to be poor because of warm temperatures that occurred in January.

" [Caribou health] differs every year, right? I mean there's some years where you get really good fat on caribou and there's other times when there's blue meat (no fat at all) … You see that normally in the spring time when they're going back, that's when they had a tough year … I imagine it's probably going to be like that this spring, because of this warm weather in January, 'cause you get out there and you try to be a caribou. Try and dig with that frozen ice, you're gonna have a hard time. So I bet you they're gonna have a tough go through the next few months. When they come through the next few months I imagine they'll be pretty lean. "

Billy Archie

In addition to body fat, people assess many other aspects of a caribou's body to determine its health, including conditions of its joints, liver, meat, and hair. Interviewees reported seeing swollen joints on either wounded caribou or caribou that have travelled for extensive periods. The liver organ is usually checked for spots; a healthy one is free of spots and is dark brown in colour. The meat is also examined for white markings, which are found on both healthy and unhealthy caribou (to prepare such meat for consumption, white markings are simply removed). With respect to hair condition, healthy caribou are described as having shiny rather than brownish or worn-out-looking hair. Lastly, whiteness of a bull's beard or hair on a cow is a sign of health; one hunter remarked how his dad taught him the practice of hunting the whitest caribou in the bunch.

A behavioural trait that helps people determine caribou health is how quickly or slowly they move across the land. People use this trait to assess both the health of individuals and the herd.

" When [the herd] makes a fast move, that's healthy, but when they're not moving fast enough they're not strong. "

Anonymous

" The times you hunt caribou, if a caribou is sick it won't run away. You leave that one … sick or too old. You don't shoot that one. When the herd takes off it just stands there. You don't bother it—too old or tired … The sick one might be the oldest one, even the young ones might be sick. Don't shoot it. When the herd is healthy all of them just run away. "

Anonymous

" [Healthy caribou] are lively. Sick caribou never move, never ever. I don't care, you could go right up to it and it won't move. Any animal won't move, not only caribou. f it's sick you could tell. It's almost like they're alone. They leave it. If you see a lonely animal they are probably sick. If they don't run away, you know it's sick. You could walk right up to it, it's sick. It don't run 'cause it's got no energy. That's why he got left behind. You see that every now and then. You find dead caribou on the road, just died from sickness. "

George Selamio

Other factors also affect herd health. Wounding as a result of poor marksmanship was noted as an indicator of poor caribou health. Predators such as grizzly bears and wolves also play a role in caribou health. Some participants recognize them as keepers of herd health, because they take sick and otherwise weak caribou. One person said that if wolves and grizzly bears take too many caribou, however, the herd is not healthy and not numerous enough to meet people's needs. The number of animals in the herd also influences people's perceptions of herd health. Summaries of the range of ways people evaluate animal and herd health are found in Figures 10 and 11.

Box 5. Contaminated Sites and Caribou Health

Aside from more everyday aspects of caribou health, study participants also reported physiological anomalies they associated with contamination. One of these anomalies was reported near Aklavik during the 1970s. In this case, the hunter described two caribou he killed in skinny condition with ears that were "dried up" and that "crumbled" upon touching them. The hunter thought this condition may have resulted from atomic bomb testing carried out in Alaska, which deposited radioactive residues across the tundra in the 1960s.

Two other hunters observed health anomalies that they associated with Distant Early Warning (DEW) Line site contamination. DEW Line sites were installed across Canada's arctic in the 1950s as warning measures against Russian long-range bombers, and because chemicals such as PCBs were used in their construction, contamination is a problem at nearly every DEW Line site (Locke, 1999). Hunters noticed both behavioural and physiological anomalies, which are detailed in the next two statements.

" [About 3 years ago] me and George were hunting down the hill towards King Point. We shot two big bulls, boy they looked good. When we got there, there was just this light turquoise colour [stuff] coming out of his nose. Cancer … One time, I don't know how many caribou we shot, just turquoise coming out … I know there was a lot of sick caribou, not only me who shot them. There's quite a few [in that area] … I never see sick caribou for six or seven years … [three years ago] was bad … Well last few years the caribou we shoot they're healthy since they had that DEW Line clean-up. "

George Selamio

" Sometimes some caribou are not healthy anymore. We never used to see caribou just go swimming in the ocean. A few times we see caribou just jumping in the ocean, and it's not common to see caribou like that … They belong up on the land … They get big lumps around [their joints] when they're swimming in the ocean like that… I mean their behaviour is not like before. Everything is changing. Mostly after that DEW Line … Sometimes they got big sores on their body too, and you can't eat them. You just have to burn them. "

Barbara Allen

Figure 10. Ways to assess caribou health

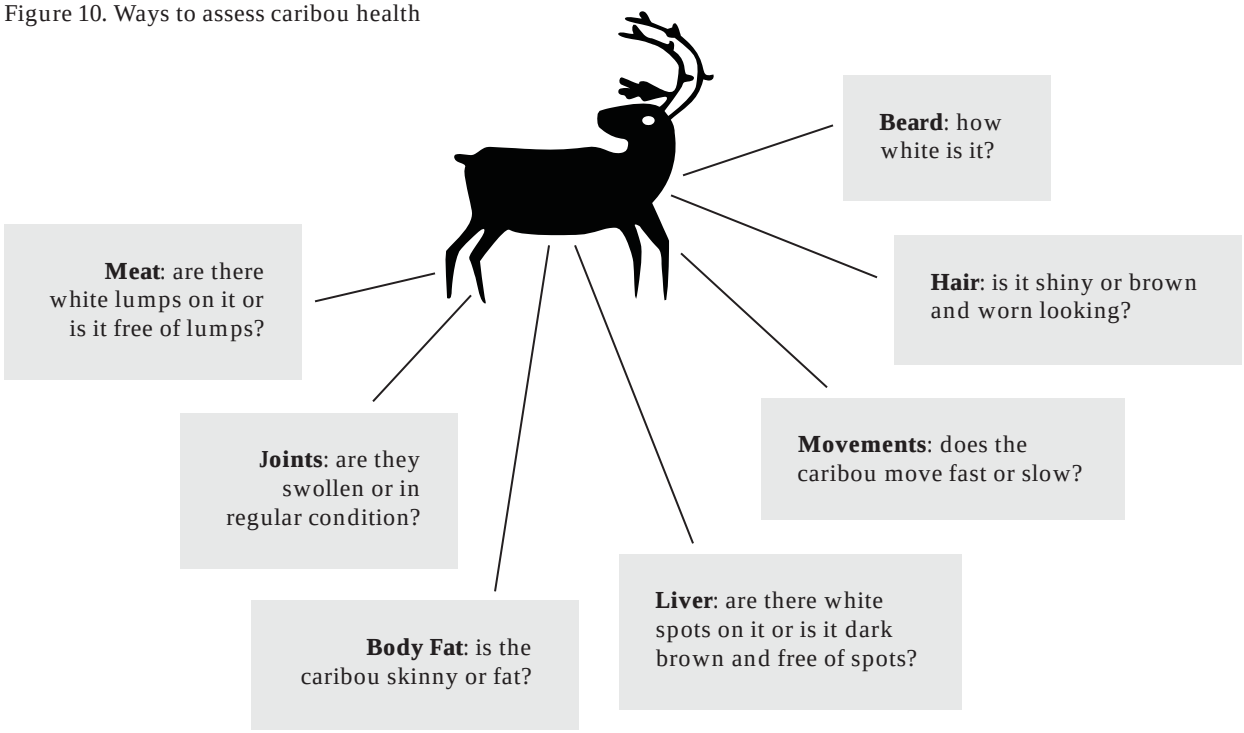
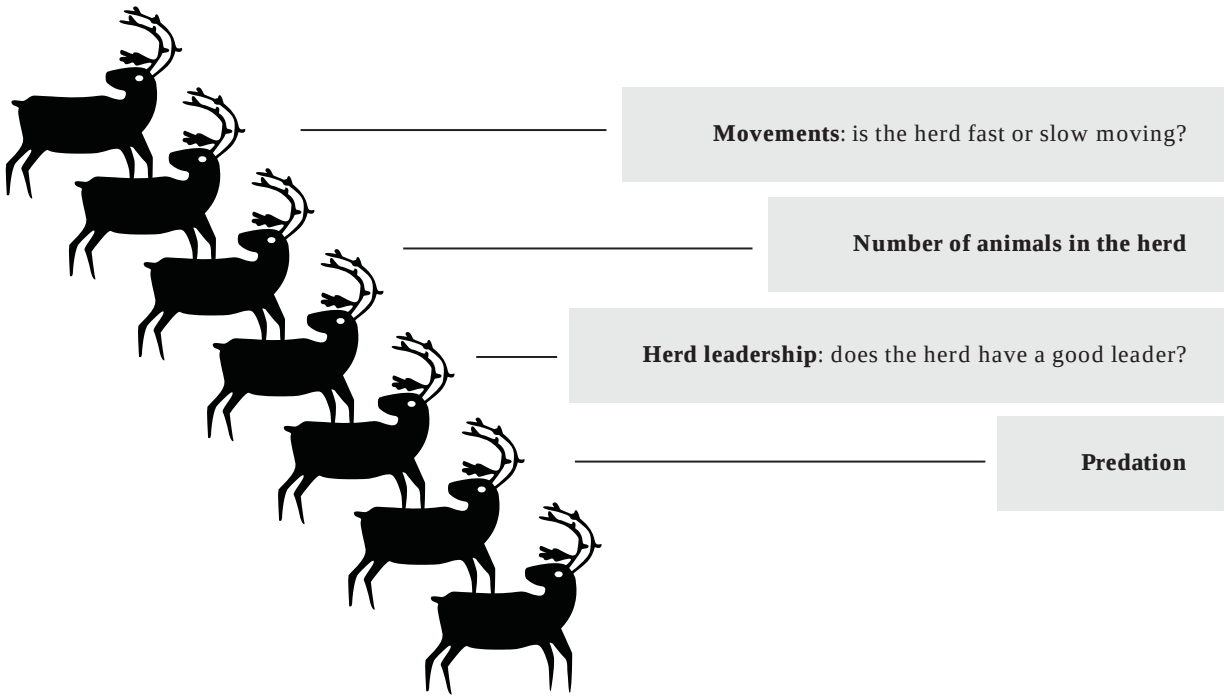


Figure 11. Ways to assess caribou herd health



Future of the Porcupine caribou

As has been made clear thus far, the Porcupine caribou form an integral part of the northern ecosystem and are a vital source of physical, social, and cultural well-being for northern peoples, including the Inuvialuit and Gwich'in of Aklavik. Because of the strong ties between caribou and people, many are concerned about the future of the herd and their communities. These concerns are found throughout the report, and many of them relate to the abundance and distribution of caribou.

Participants had several ideas that fall into three broad categories to address these concerns: increase hunter-education efforts, maintain an awareness of the herd's population, and ensure people harvest only what they need. These measures are described below.

Hunter Education

Several participants consider the expansion of hunter education imperative to future caribou-management efforts. To be successful, programs must be designed with careful attention, because hunting involves the development of a complex set of skills that are not taken lightly by expert caribou hunters:

> ***" The people that hunt … they gotta learn. They gotta ask questions … they gotta know things. Like you can't go on a job if you don't know how to be a nurse or a doctor, you gotta know things like that. Same with us. We need the caribou that we have. That's our livelihood. "***
>
> ***Barbara Allen***

Suggestions for teaching key points comprise many of the practices discussed earlier that relate to hunting and how to preserve and use caribou. Learning how to hunt with patience and precision are deemed especially key in the context of hunting successfully without wounding caribou or causing them undue stress. However, because many hunters see themselves as natural elements of caribou ecology—much like wolves or bears—"stress" is a concept specific to individuals, families, and cultural groups.

Learning by doing is one of the most effective approaches that may be taken in designing learning. This was confirmed by the hunters interviewed for this study, all of whom grew up on the land spending a significant amount of time hunting under the guidance of family members, elders, and others. Billy Archie comments on the combined importance of opportunities for practice and learning from others:

" I've seen elders in the past when I was growing up, when they're skinning caribou, when they're done there's not a speck of blood on their clothes, especially their shoes—I mean the technique on how they do it up. And you learn as time goes on how to do things properly. I'm at the stage where I only get a little bit of blood on my boots. So I mean, practice, skinning techniques, it's something that I learned from lots of people. Sara Meyook taught me how to do cutting briskets. My mom showed me different techniques on this, that, and everything. "

Additional considerations include ensuring the curriculum has wide appeal and that the learning needs of different age groups are addressed.

" I know there was one program we offered … that certain age level, there was a handful of kids that didn't want to come back to town. It was the first time they're out there. It depends on the season, so we keep them busy and that picking berries, and if caribou coming through, and there's good company with an elder that likes to tell stories …. 'Cause I know some of the boys that go out and when you come out and bring an elder hunter along, they got lots of stories. My boys don't wanna go back to town, or they wanna sit around some more and listen to stories. "

Billy Archie

These findings demonstrate that hunter-education design should balance curriculum content with ongoing opportunities for youth to learn-by-doing in the company of community members committed to taking on mentorship roles. In terms of judging the success of such endeavours, the degree to which students wish to continue learning is a good place to start.

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Herd Population

Several people highlighted the importance of knowing the herd's population so that management can be adjusted accordingly. In addition to caribou managers, community members and hunters alike also have strong interest in this knowledge:

" And for people that look after the caribou, they should really look after the numbers, and have a meeting with the people that are always hunting caribou, to let them know if the caribou herd is increasing or decreasing, and how their health is and that. That'll be real great … If the caribou is just dying off, let them know what they're dying off with, 'cause we won't have no caribou, that's our main food. We can't go and make main food with hamburger from the store, it'll be different. "

Barbara Allen

Reinstating a harvest study, such as the one in place from 1988 to 1997 (Joint Secretariat, 2003) was suggested as another means for maintaining awareness of the herd's population. Population counts and calf-survival assessments were also highlighted as important. Given challenges associated with the photo-census method of population estimation, one person suggested considering alternative methods:

" Try and look at different techniques to get the count. It was Stephen Frost senior that told us years ago that they actually had people out in Crow Flats counting caribou as they swam across the river, and I think it was the same way down here. There's gotta be other ways that they can get a population estimate. "

Billy Archie

Government of Yukon

Take What You Need

Taking only what you need is a tradition with an extensive history and a strong following today. People value the ability to hunt according to the needs of their families and communities rather than in accordance with set limits, which can undermine the ability of community members to look after one another. Moreover, because some people hunt only once a year rather than twice or more, a quota system may work against their ability to provide for their family and others on a year-round basis. For these reasons, many participants said they do not support the notion of harvest limits, but instead support the long-standing tradition of taking only what you need. In response to hearing about Tuktoyaktuk's harvest limits on Bluenose Caribou, one woman had this to say:

" They were putting quotas on caribou, two per family. When they go out hunting, they said, 'You could just get two.' It's not enough. When I send my grandson with gas and shells and that, he's gonna share with me. He's not going to have the whole thing, 'cause I spend money on him. See, that's where they always say, 'Just get this much,' that's wrong. They should see that they are hunting for their family. That's where it always bothers me, when they say that, 'cause us, when we was hunting, we get so much and we share with the peoples that we know that they need caribou. Like all those old people, those Gwich'in peoples, we used to share with them …. See, those Gwich'in old women, I wouldn't have enough for them if they just gave me two caribou, 'cause I got how many kids? I always share [with them] ... That's why I said it hurts me when they say, 'You just have to get two caribou a family, or two caribou for the person go out hunting.' Before we used to get a load. Five caribou, six caribou, cut up in their sled. "

Anonymous

To foster broader application of taking only what you need, participants suggested a number of measures. One of these is to expand youth-teaching efforts that relate to hunting practices and meat preservation and use, of which sharing is an important aspect.

" Teach the young people how to hunt, and teach them how to save, take everything home. "

Jack Goose

" They should really train the people how to hunt caribou, how to preserve, how to not waste anything that's good enough to eat. Don't just leave it there for it to spoil. Don't waste it, give it to whoever. They should really learn to share, that's the main thing … They gotta see how much caribou you think the community need. And that's the time to try to help those people out. Because a lot of elderly people like me I can't go out anymore. "

Barbara Allen

Possible teaching approaches are discussed in the previous section, Hunter Education.

Another recommendation is to put tighter restrictions on hunting carried out from the Dempster Highway, where a high number of caribou are taken each year. One person suggested closing the highway to all human traffic (snowmobiles, trucks, etc.) from September 1st until November when many caribou cross the highway en route to their winter range. Another suggestion was to ban the highway hunt altogether. Regulating caribou-meat sales associated with highway hunts was also suggested as a way to improve management of highway hunting.

Harvesting fewer caribou—and bulls whenever possible—is another strategy that could encourage hunters to harvest only what they need and address caribou population concerns at the same time. While this may be a possibility for some, many families already harvest only what they need for their families and community.

" Use common sense when we're out there. Just take what you need and leave the rest. I know for me, I'm aware the herd is declining so I want to take less. I guess I want to be able to hunt the next 20 years, and if we deplete the caribou herd then we're pretty well done. "

Anonymous

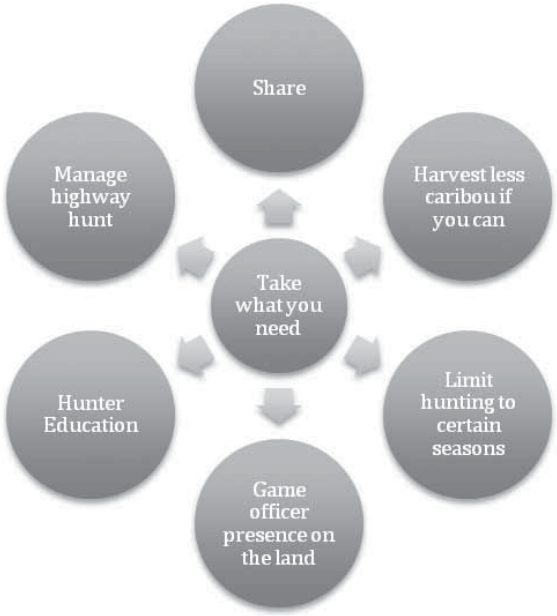
" Get less caribou. You know, try it anyway. That way [the caribou] might grow again—but not [too much], we like to eat caribou. Just to make the killing less, that would be okay, maybe if that's okay with other hunters. We have to help caribou some way, they're getting less I think, caribou. 'Cause we never have caribou in the winter time anymore. "

Alice Husky

Harvesting fewer caribou could also entail limiting hunting activities to certain seasons considered appropriate by the community. One person suggested greater game-warden presence on the land during hunting seasons to enhance awareness of community-based hunting practices. Ways to encourage "taking what you need" are summarized in Figure 12.

Alice Kenney

Figure 12. Ways to encourage "take what you need"



Other recommended considerations for caribou management relate to minimizing human activities that disturb caribou. These include banning development activities that take place along active migration pathways, and collaring caribou—a contentious scientific practice that launched a three-year moratorium on future caribou studies in 1993 (Kofinas, 2005).[6]

" Tell them to leave the caribou alone, been harassed too much. They think they're helping the caribou by chasing them out in the country and tagging them. That's bad. Let nature take its course ... They don't like that. They get stressed out and they go all over the country, they don't stay with the herd. They're loners. They see them on radar, they see a big herd of caribou over here, that's where they tag the caribou. There's only one. The other herd is gone. Leave the caribou alone. "

Anonymous

" As far as it concerns me, there should be no activities on the hills where the caribou migrate. No activity at all … Right from here down to Alaska in the summer time and fall time. You want activities, do it in winter. Shut her down for the summer. "

Jerry Arey

Respect for the relationships between people and caribou underlie many of the recommendations for future management of the herd. In summary, these recommendations highlight the importance of acquiring information on herd numbers, the sharing of such information between caribou managers and communities, and the need for community-based approaches to harvest management.

[6] While collar research is valued for the information it can yield on caribou migration patterns, many concerns related to public availability of such information and the act of collaring itself have been noted and discussed in terms of their implications for co-management of the herd at large (see Kofinas, 2005).

Michelle Christensen

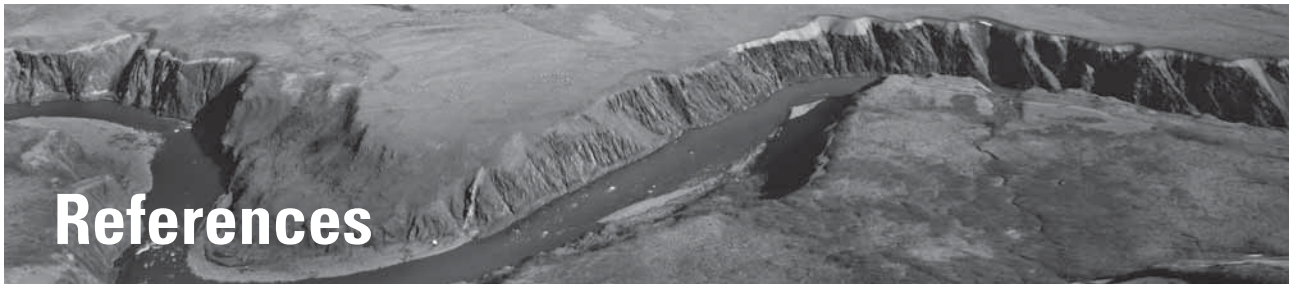
Conclusion

Many dimensions of Porcupine caribou ecology are described in this report, ranging from caribou distribution and movements, abundance, habitat and forage, mating and calving, to caribou health. While these findings may be described as rich and informative, a number of inconclusive results emerged, such as those that pertain to herd population, migration, and movement patterns. By and large, these may be accounted for by differences in participants' perceptions of landscape and the passage of time; on the other hand, it is possible that more interviews (greater than n=14) might have resulted in greater clarity on these topics. Nevertheless, several aspects of Porcupine caribou ecology were made clear, such as that caribou rely on a variety of migration routes in order to adapt to change; caribou depend upon a range of habitats to sustain them in different ways and at different times; a variety of environmental and human forces affect herd dynamics; and people are concerned about the numbers and distribution of caribou.

Discussions on ecology included the complex relationships between people and caribou. Descriptions of hunting practices and meat preservation / use further illuminated the depth and nature of these relationships as well as the cultural principles that underlie them. This information may well serve as a useful resource for young hunters in Aklavik, and when applied to future management, solutions that address issues facing both people and caribou abound. For instance, improving access to hunter education is something that could enhance hunting success and foster cultural continuity in Aklavik while addressing caribou population concerns at the same time.

Food security may become increasingly significant and important to address as a future management issue. As illustrated here, the peoples of Aklavik have long maintained their ability to ensure food security in tough times, but current social and economic circumstances, caribou migration and movement patterns, as well as changes on the land associated with a warming climate are making this task more difficult for many. Thus, the future success of caribou management may, in part, hinge on the ability of managers to address the greater social and cultural contexts that accompany Porcupine caribou ecology.

In conclusion, these findings demonstrate how traditional ecological knowledge—which in this case includes perspectives on caribou ecology and the human dimension of that—can be used to inform caribou management as well as help define its scope.



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References

Berkes, F., and T. Henley. 1997. Co-management and traditional knowledge: threat or opportunity? *Policy Options* 18(2): 29-31.

Chance, Norman A. 1990. *The Inupiat and Arctic Alaska*: An Ethnography of Development. University of Connecticut.

Evaluating agreements between indigenous peoples and resource developers. *In Honour Among Nations? Treaties and Agreements with Indigenous Peoples*, eds. M. Langton, M. Tehan, L. Palmer and K. Shain, 303-328. Carlton, Australia: Melbourne University Press.

Huntington, H. 1998. Observations on the utility of the semi-directive interview for documenting traditional ecological knowledge. Arctic 51(3): 237-242.

Huntington, H. 1995. Traditional ecological knowledge of Beluga Whales. *World Wildlife Fund Bulletin* 4: 20.

Joint Secretariat. 2003. Inuvialuit Harvest Study: Data and Methods Report 1988-1997. Inuvik, NWT, March.

Kofinas, G. 2005. Caribou hunters and researchers at the co-management interface: emergent dilemmas and the dynamics of legitimacy in power sharing. *Anthropologica* 47: 179-196.

Kofinas, G., with the communities of Aklavik, Arctic Village, Old Crow, and Fort McPherson. 2002. Community contributions to ecological monitoring: knowledge co-production in the U.S.-Canada borderlands. In *The Earth is Faster Now: Indigenous Observations of Arctic Environmental Change*, eds. I. Krupnik, and D. Jolly, 54-91. Fairbanks: Arctic Research Consortium of the United States.

Locke, S. 1999. Cleaning up the DEW Line. *Your Yukon*. Column 152, series 1. Accessed May 31, 2009 at: http://www.taiga.net/yourYukon/col152.html

Merriam, S. 1988. *Qualitative Research and Case Study Applications in Education: a Qualitative Approach.* San Francisco: Jossey-Bass Publishers.

Nadasdy, P. 1999. The politics of TEK: power and the "integration" of knowledge. *Arctic Anthropology*. 36 (1 &2): 1-18.

Porcupine Caribou Management Board. 2009. About the herd: population. Accessed June 1, 2009 at http://www.taiga.net/pcmb/population.html.

Thorpe, N., N. Hakongak, S. Eyegetok, and the Kitikmeot Elders. 2001. *Thunder on the Tundra: Inuit Qaujimajatuqangit of the Bathurst Caribou*. Vancouver: Generation Printing.

Urquhart, D.R. 1983. The Status and Life History of the Porcupine caribou Herd. Prepared for the Yukon Department of Renewable Resources.

Appendix A: Porcupine Caribou Ecology in Inuvialuktun

Animals

Qavvik—Wolverine
Amaguq—Wolf
Niutuiyik—Lynx
Kivgaluk—Muskrat
Kigiak—Beaver
Qinagluk—Porcupine

Seasons

Ukiuq—Winter time
Upingakraq—Spring time
Upingaaq—Summer time
Ukiaraq—Fall time

Coastal Place Names

Appayuachiaq—Running River
Tapqaq—Shingle Point
Kinnaq—King Point
Tikiqaaq—Kay Point
Niagulik—Head Point
Ikpigyuk—Stokes Point
Agvakvik—Roland Bay
Itqiliqpik—Whale Bay
Qargialuk—Ptarmigan Bay
Qikiqtagruk—Herschel Island

Observations

Niapiqtuq—To observe
Qimilguk—Survey
Naqit—To be low
Inugaikitirut—Getting less
Nuna alanuqtuq—Our land is changed

Weather

Unalaq—North Wind
Kanaknaq—East Wind
Kiluagnuq—West Wind
Nigiqpaq—South Wind
Anugi—Wind
Sialuk—Rain
Qannik—Snowflake

Caribou

Kulavauraq—Young caribou cow
Pagniq—Bull caribou
Tuttu—One caribou
Tuttut—More than one caribou
Tuttunniaq—To hunt caribou
Tuttulik—Boot with a soft caribou sole
Tuttuvak—Moose
Aviktuaqatikigiignig—Sharing
Atigi—Parka
Qaunaq—Caribou fat
Nunauraq—Map
Nuktuq—To move from place to place

Appendix B

INFORMED CONSENT FORM

What is the purpose of this project?

- The Aklavik Hunters and Trappers Committee (AHTC), and the Wildlife Management Advisory Council (North Slope) [WMAC (NS)] are conducting a traditional knowledge study on the Porcupine caribou herd.
- The main purpose of the study is to document traditional knowledge on the Porcupine caribou herd from the perspectives of the Aklavik Inuvialuit. More specifically, the study will aim to document abundance, distribution, range, and habitat of the herd, as well as changes in the Aklavik Inuvialuit people's use of and relationship with the herd. This information will be compiled in a WMAC report on Porcupine caribou. The Council will also provide information gathered from this study to the Porcupine Caribou Management Board (PCMB) to support their herd management efforts.

What kinds of questions will you be asked?

- During the interview you will be asked questions about: Porcupine caribou condition, range, numbers and habitat; how caribou are used now and how they were used in the past; and traditional values associated with the Porcupine caribou herd. We will also ask you to tell us a bit about yourself.
- If you are not comfortable with certain questions, you have no obligation to answer them. If after the interview is over you decide you do not want your information used, you have up to two weeks after the time your interview was completed to ask that it be withdrawn from the study and destroyed; you can also decide if you don't want to participate after the interview has begun.
- With your permission, we will record the interview on a recorder to make sure that the final report accurately reflects what you said.

Where will your name appear and who will know what you said?
What records are being kept or reports written, and how will they be used?

- If you would like to be identified, your name and photo will be used in reports and other communication materials associated with this project. If you do not wish to be identified, the information you share with us will be presented anonymously. However, given others may see us with you or be able to identify your words in reports and other products from this research, we cannot guarantee anonymity.
- We may find it important to report what you have said in the interview at length, since your direct words are important. Your direct words may also be used in an audio CD associated with this project, which will contain a compilation of quotes from Inuvialuit elders about caribou. We will contact you if we wish to use a quote that we think might be sensitive to ask for your permission to use it.
- The interview will be listened to by a professional transcriber, who must sign a confidentiality agreement stating s/he will not share what you say with anyone else or keep a copy of the transcript.
- In addition to the interview, we will also be gathering community members' photos of caribou harvests. These photos may appear in the final report and in a photo history booklet that will be available to local people and managers of the caribou herd.
- Following completion of the study, WMAC (NS) and the AHTC will keep copies of the interview transcripts. The transcripts will not be released for future purposes without your permission and the permission of WMAC (NS) and the AHTC. The original audio recording will be kept securely with the AHTC in a locked file cabinet and won't be released without permission.
- Results from the interviews will be used to compile a WMAC report of the findings and additional materials including a summary poster and audio and photo presentations. All of these products will be made available to the public and used by the PCMB to support their herd management efforts.

Where can you find out more about this project and the people involved?

- Lisa Christensen, Researcher, Queen Charlotte, BC, 250-559-9012, lchriste@haidagwaii.net
- Wildlife Management Advisory Council, 867-633-5525, wmacns@web.ca
- Aklavik Hunters and Trappers Committee, 867-978-2723, akl-htc@jointsec.nt.ca

Do you agree to this? _____ Date _____

(Signature)

May we record this interview? ____ Yes ___ No

Would you like your name to be used in reports or other communication materials associated with this project? ____ Yes ____ No

Would you like your photo and biographical information to appear in the final report and/or other materials associated with this project? ____ Yes ____ No

May we make copies of your personal photos, to appear in the photo booklet, the final report, and/or other materials associated with this project? ____ Yes ____ No

May we use direct quotations from your interview in the CD project associated with this research?

Yes ____ No

Would you like us to send you a copy of the final report? ____ Yes ____ No

Would you like us to send you a copy of your interview transcript? ____ Yes ____No

Address: _____

This study was explained by: _____

Appendix C: Interview Guide

Survey Questionnaire

Relationship with the Land and the Porcupine caribou

1. What do you do when you spend time out on the land?
2. What did you do on the land in the past?
3. Can you tell us when and where were you were born?
4. Where did you grow up (which community / geographic location)?
5. People in the community see you as someone who knows a lot about caribou. Can you tell us how you learned about caribou?

Human Use of Caribou & Caribou Habitat, Range, and Distribution

6. Can you show us on the map (1:250000 scale) the areas you travel and spend time in?
7. Do you have hunting or camping areas where you hunt caribou?
   a. Can you show us where these places are on the map?
   b. How did you choose these particular locations?
   c. How often do you use these areas?
   d. Have the conditions of these hunting areas or camps changed over time? ___If yes, how / when / why?
8. Can you also show us the areas you see caribou in (according to the seasons)?
   a. Does this represent the total area (i.e. range) that you see caribou in?
   b. Have the borders of this area changed over time? ___ yes, how / when / why?
9. What about their migration routes, have these changed at all over the years? ___If yes, how / when / why?
10 Within the area you showed us on the map, what places do you think are important for caribou? ___ If yes, why?
11. Do you know where the Porcupine caribou calve? ___ If no, go to 11b.
   a. Have they always used these places for calving? ___ If no, ask about new calving areas.
   b. What about changes in the timing of calving? ___ If yes, describe.
   c. Do you see caribou travelling with as many young ones as before? _ If yes, ask about details (how many, when change occurred, etc.).
   d. Do you know of any factors that make it more likely for caribou to have calves?

Hunting Practices and Harvests & Traditional Ways of Living with Caribou

12. Can you tell us how people respect caribou?
   a. Do people still respect caribou in the ways you talked about?
   b. What happens if people don't respect caribou?
13. Can you describe the way people hunt caribou today compared to the past? ___ Ask participant to name specific time periods.
   a. Do young hunters today follow any rules that you know of?

14. If you had to give advice to a young hunter on how to hunt properly without stressing out the caribou, what would you say?

15. How are caribou harvests shared within the community today compared to the past?
___ Time periods.

16. In the past, did people get enough caribou to meet the needs of their families?
___ Time periods.

    a. What about now? ___If not, by how much?

17. Were there ever times when you or your community had to go without caribou?
___If yes, when / why / what did you do?

18. Is there any way to predict whether or not caribou will come?

19. How do you use caribou in your daily life?

    a. Does use vary according to spring or fall season?

    b. How much of the caribou was used in the past compared to today?
___ Time periods.

Porcupine caribou Health

20. Over your lifetime, how has the total number of caribou changed? **Fill in chart.

    a. Do you know how abundant caribou were before you were born?

    b. What do you think causes the population to go up or down?

21. What kinds of changes have you seen in the health of individual caribou over the years?
___Time periods.

22. Have you observed any changes in how caribou are affected by bugs, like mosquitoes?
___If yes, what / when change occurred / why?

23. Do you have any concerns about parasites that live on the caribou, such as warbles?

24. Has the quality of the caribou meat changed over time? ___ If yes, how?

25. In your opinion, do caribou eat different foods now compared to in the past?
___If yes, what / when change occurred / why?

Porcupine caribou Herd Health

26. What are the things you look for to tell if the overall herd is healthy?

27. Have you seen changes in the make up of the herd? ___If yes, what / when / why?

28. What about changes in caribou group sizes? ___If yes, describe.

29. Has the timing of the rut changed over the years? ___If yes, describe.

30. How do predators like wolves, grizzly bears, and wolverine affect the caribou?

    a. Have you noticed any changes in how much they affect caribou? ___If yes, describe.

Future Use and Management of the Herd

31. If you had to choose how many caribou people should take, what information would you consider to make your decision?

32. If you could send a message to the Wildlife Management Advisory Council or the Porcupine Caribou Management Board about how to best manage the caribou, what would you say?

33. Before we finish today, we would like to ask if there is anything else you would like to say about caribou or any of the other topics we've covered?

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