



Gwich'in Knowledge of Porcupine caribou



State of current knowledge and gaps assessment

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Gwich'in Tribal Council

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Long ago, human was caribou and the caribou was human.

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Quotation: Mary Kendi in Kofinas 1999: 448

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Executive summary

The Gwich'in of the Northwest Territories live in Fort McPherson, Aklavik, Tsiigehtchic, and Inuvik. Their lands span the NWT-Yukon border, including the Peel Plateau and the length of the Peel River, along with many of the tributaries of the Peel; the entire length of the Arctic Red River; and the area around and to the north of the Mackenzie River. There are two dialects of the Gwich'in language spoken among these communities: Gwichya Gwich'in, associated mostly with the community of Tsiigehtchic at the confluence of the Arctic Red and Mackenzie rivers, and Teet'it Gwich'in, associated most strongly with the communities of Fort McPherson and Aklavik. The Teet'it Gwich'in have a special relationship and history with the Porcupine Caribou Herd. In broad terms, the herd migrates into their territory in the fall, over-winters in their territory, and migrates back through and out of their territory in the spring. When the herd is migrating far to the west and therefore out of the Gwich'in homelands, it still plays a key role in Gwich'in culture and subsistence.

Due to their special relationship, the Gwich'in have a deep and thorough knowledge about caribou. This knowledge is based on experience and teachings, generally passed down from knowledgeable people. Unlike scientific data found on the pages of a journal, it is based on observations and experiences over a large time-span, multiple seasons, and it is constantly being refined and updated.

This report contains Gwich'in traditional knowledge and traditional use of Porcupine caribou. For the Gwich'in, the word "traditional" has a special meaning, and it is this meaning that is used throughout this report. Traditional refers to the Gwich'in way of doing things. Traditional hunting practices, for example, are practices which are based on Gwich'in rules and culture. Although traditional use and knowledge are built on the rich Gwich'in history and culture, they are not historical or out-of-date. Traditional knowledge is the modern body of information held by Gwich'in knowledge-holders, based on experiences and teachings stretching back millennia. And traditional use is the way the Gwich'in make a living in their lands, based on the teachings of the elders and their very modern needs and requirements. There is no separation of identity or practice into "pre-contact" and modern: there are only continuities.

This report has three main sections. The first, *Gwich'in and the Porcupine Caribou Herd: Culture, Practice, and Continuities*, contains information about how Gwich'in use Porcupine Caribou and how their culture is intertwined with the lives of the caribou. This includes how the Gwich'in use and used the various parts of the caribou and how the caribou and the Gwich'in interact across space and time. It also includes legends, which codify Gwich'in history, spiritual practice, laws, and rules through the Indigenous use of story-telling. The second section, *Porcupine Caribou: Health, Behaviour, Biology, and Interactions* contains information about caribou and caribou habitat. Finally, threats to caribou, information about the writing of this report, and a summary of information gaps are included. The goal of this report is to both present well-vetted information about Porcupine caribou and identify Gwich'in use, which is protected.

Table of Contents

Executive summary	ii
Introduction	1
Methodology in Overview	4
Caribou and the Gwich'in Language	5
Modern consumption and use of caribou	6
Gwich'in and the Porcupine Caribou Herd: Culture, Practice, and Continuities	6
Caribou and being a good hunter	6
Learning how to hunt and process caribou	7
Change and continuity in caribou harvesting practices over time	10
Women, men, and the caribou hunt	12
Taking care of the caribou is a part of Gwich'in culture	13
Traditional trails	18
Traditional place names	21
Hunting and processing caribou	23
Hunting using a corral or fence	27
Calling caribou and masking sound	30
Butchering and field dressing caribou	31
Caribou meat	33
Caribou drymeat and other storage options	36
Caribou brains	38
Caribou intestines, marrow, and blood	38
Healing properties	40
Caribou fat and bone grease	41
Bones and antlers	43
Caribou hides	43
Tanning and preparing caribou hide	46
Caribou skin clothing	49
Caribou skin housing	54
Caribou leg skins	55
Games	57
Caribou in legends	59

Caribou hunting and the seasonal round	60
Places where Gwich'in have always harvested caribou.....	63
Caribou and medicine	67
Traditional management practises	68
Respect.....	69
Cooperation, leadership, and traditional co-management	69
Letting the leaders pass/avoid disturbing caribou at crossings.....	70
Territorial government wildlife policy	71
Porcupine Caribou: Health, Behaviour, Biology, and Interactions	71
What caribou are like.....	71
Health and body condition.....	73
Wisdom	77
Hearing and sense of smell	77
Fat	77
Parasites.....	78
The Porcupine Caribou Herd changes over time	78
There were enough caribou.....	79
There were not enough caribou	80
Caribou population and health trends over the last several decades.....	84
Caribou migration and travel: how they move and where they are found.....	86
Spring migration north.....	86
Fall migration south	88
Caribou behaviour during migration.....	88
Vinijàatan: where caribou settle for the winter	89
Caribou migration and “leaders”	91
Changes in caribou migration	92
Caribou calving areas and wintering areas sometimes change.....	92
Caribou reproduction.....	93
Caribou behaviour.....	96
Escape from insects	97
Caribou diet and feeding behaviour	98
Caribou and other animals.....	99

Woodland caribou.....	100
Moose	100
Muskox.....	101
Caribou predators	101
Caribou and smaller animals and birds.....	105
Threats to Caribou and the Gwich'in-Caribou Relationship	107
Hunting and Behaving in Inappropriate, Non-Gwich'in Ways	107
Exploration and Development	108
Development Controlled by Non-Gwich'in.....	111
Developers Contravening Gwich'in Practices and Conditions	114
Predation and competition	115
Climate change.....	115
Wildfires / Forest Fires.....	116
Caribou wildlife management research, biologists and collaring.....	116
Discussion and gaps in caribou information	117
Theme one: Climate Change	117
Theme two: Cumulative Impacts and other Threats and Effects	117
Theme three: Gwich'in Caribou Stewardship Principles & Practices.....	118
Theme four: Caribou Behaviour and Health	118
Theme five: Habitat, Habitat Change, and Habitat Use.....	118
Theme six: Gwich'in Culture and Language	118
Detailed Methodology	118
Sources used	119
Caveats and Limitations	119
Appendix 1: Primary sources	122
Appendix 2: Bibliography (annotated) of secondary sources.....	124

Table of Figures

Figure 1. Caribou and calf. Credit: Arthur Mitchell, Gwich'in Language Centre Colouring Book.	3
Figure 2. Children having a picnic. Credit: Arthur Mitchell, Gwich'in Language Centre, Colouring Book. ...	6
Figure 3. Cooking to the fire. Credit: Arthur Mitchell, Gwich'in Language Centre, Colouring Book.....	13

Figure 4. Trails used prior to the early 1980s to hunt for barren-ground caribou, from the Dene Mapping Project.....	20
Figure 5. Major Gwich'in traditional place names in the Peel River and surrounding areas, from the Department of Cultural Heritage Place Names Database	22
Figure 6. Caribou at George Vittrekwa's Camp Rock River Y.T. Credit: Keith Billington, GTC Department of Cultural Heritage. March 1965.	23
Figure 7. Andrew Kunnizzi. Feeding his dogs at days end. Credit: Keith Billington, GTC Department of Cultural Heritage. March 1970.	24
Figure 8. Walter Alexie standing beside a stone hunting blind in the Richardson Mountains. Credit: Greg Hare Cultural Services Branch Government of Yukon. 2005.	26
Figure 9. Caribou surround. Credit: Drawn from Osgood 1970: 25.....	28
Figure 10. Black Mountain and the Mackenzie Delta. Credit: C. Lambert-Koizumi. 2005.....	29
Figure 11. Belt made from caribou hooves, recreated from Elder's instructions. Credit: Elaine Alexie, Shinli' Niintaih. 2019.	31
Figure 12. Andrew Neyando, stopping for tea and caribou on the trail. Credit: Keith Billington, GTC Department of Cultural Heritage, March 1965.....	32
Figure 13. Having tea on the land. Credit: Ingrid Kritsch, Department of Cultural Heritage. 1998.....	33
Figure 14. Caribou camp, Rock River. Caribou head roasting by stove, with Mary Vittrekwa (Tizya) and George Vittrekwa Jnr. Credit: Keith Billington, GTC Department of Cultural Heritage, March 1965.....	35
Figure 15. Traditional style antler fishhook in the shape of a seal. Credit: Natasha Lyons, 2007.	43
Figure 16. Caribou skins freeze dying. John and Carolyn Kay's camp. Credit: Keith Billington, Department of Cultural Heritage. March 1968.	44
Figure 17. Gwich'in traditional caribou skin clothing (Aklavik outfit), Gwich'in Social and Cultural Institute Traditional Caribou Skin Clothing Project. Credit: DCH. 2002.	49
Figure 18. A fringe and beading on Gwich'in traditional caribou skin clothing, Gwich'in Social and Cultural Institute Traditional Caribou Skin Clothing Project. Credit: DCH. 2002.....	50
Figure 19. "A Loucheux [Gwich'in] Indian boy shows his spring catch of musquash. Fort McPherson. 1922. [Young boy in skin clothing]." NWT Archives N-1979-004: 0025.....	52
Figure 20. Western Gwich'in camp in 1847. Credit: Murray 1910:85.	55
Figure 21. Eunice Mitchell takes a closer look at a caribou leg skin mattress. Credit: Natasha Lyons. 2007.	56
Figure 22. Alice Blake holds a miniature caribou leg skin bag. Credit: Natasha Lyons. 2007.....	56
Figure 23. Miniature caribou leg skin sled. Credit: Natasha Lyons. 2007.....	57
Figure 24. Caribou tracks. Credit: Gwich'in Elders 1997: 24.....	73
Figure 25. Caribou condition in winter, 1997-2018, from Aklavik and Fort McPherson harvesters. Credit: ABEKS, 2019.	76
Figure 26. Reasons for not getting enough caribou. Credit: ABEKS, 2019.	82
Figure 27. Number of ABEKS participants who hunt caribou or not. Credit: ABEKS, 2019.	85
Figure 28. Caribou on the 1002 Area of the Arctic Refuge coastal plain, with the Brooks Range mountains in the background to the south. Credit: US Fish & Wildlife Service.	93
Figure 29. Caribou aggregation on the 1002 Area of the Arctic Refuge coastal plain (the calving area of the Porcupine Caribou Herd). Credit: US Fish & Wildlife Service.	95

Figure 30. Porcupine caribou Herd in the 1002 Area of the Arctic National Wildlife Refuge coastal plain, with the Brooks Range mountains in the distance to the south. Credit: US Fish & Wildlife Service. 96

Figure 31. Relative abundance of insects of note to caribou, 2010-2018, from Aklavik and Fort McPherson harvesters. Credit: ABEKS, 2019. 97

Introduction

My uncle told us a story about ancient times. In ancient times, the role of the caribou and the humans were reversed. At that time the caribou was much smarter than men, and the caribou were going hungry. The role of the caribou and the role of the human beings were not working out, so we had to reverse back in order to survive.¹

The Porcupine Caribou Herd is a large herd of migrating barren-ground caribou. Like other barren-ground caribou herds, Porcupine caribou calve in the early summer in the far north of their range, which is adjacent to the Arctic Ocean. They migrate south into the mountains in the fall, and spend the winter in the southern part of their range. They then migrate north again in the spring. Their range spans parts of the Northwest Territories, Yukon and Alaska.²

The Gwich'in of the NWT have a special and enduring relationship with Porcupine caribou, dating to time immemorial. The caribou represent a key food source to the Gwich'in, but the relationship cannot be distilled to something so simple and one-sided. From time immemorial, Dinjii Zhuh³ lived and 'made a living' using the natural resources in their traditional territories, throughout the Peel River watershed and beyond in what is now the Northwest Territories, Yukon, and Alaska. They travelled and made use of all the resources available to them, "[c]aribou, moose, mountain sheep, black bear, porcupine, beaver, rabbits and other small game, plus waterfowl and other birds and fish were the main sources of food. Wild rhubarb, berries and other plants were used as food when available."⁴ Although the Gwich'in and their ancestors used all the resources available to them, the Gwich'in have a special relationship with *vadzaih* (caribou).⁵

It is important to realize this relationship between the land, the animals and the people. Every aspect of life of both the Gwitchin and the Na-Cho Nyak Dun was carried out with great respect and appreciation of what was given to them by the Creator. It is believed that the caribou were created for the people. Their migratory habits are intertwined with the people's annual life patterns.⁶

The Indigenous residents of the area have been hunting caribou for tens of thousands of years, and from the archaeological record it appears that Gwich'in lands have been occupied continuously by caribou hunters, perhaps generations-old relatives of today's Gwich'in families, for two thousand years.⁷

¹ Mary Vittrekwa in Kofinas 1999: 449

² Parlee et al. 2013

³ Dinjii Zhuh is the name used by a Gwich'in speaker to refer to all of the Gwich'in in all the regions. Today, and in the remainder of the report, the modern (land-claim based) word 'Gwich'in' is used in this way. Dinjii zhuh means something akin to "indigenous person" in the Teet'it Gwich'in dialect.

⁴ Kritsch, Jerome, and Mitchell 2003:7

⁵ Benson 2011

⁶ Profeit-LeBlanc 1994: 3-4

⁷ Kofinas 1998

Many of the legends which showcase the connection and depth of knowledge between the Gwich'in and the Porcupine caribou are 'old-time' stories or legends, and even talk about a time when life on this earth was very different. However, the connection between the caribou and the Gwich'in still exists. Porcupine caribou are still interwoven in the fabric of everyday life for the Gwich'in. For example, in 1998 an important Gwich'in elder was ill and close to dying. Other Elders predicted that the caribou, out of respect, would not migrate past the community until he had passed away. Indeed, the caribou did wait, and the caribou came by afterwards.⁸ And this wasn't the first time caribou changed their migration due to the death of a person.

*You know those animals are funny sometimes, they know things and can change because of us. See that valley there, the one in the distance. They say there used to be lots of caribou there every year. You could go there and they would be just stacked up in there. One winter a guy went into that valley and disappeared, he died in there. Nobody ever found him, but since then caribou avoid that place. They know that something is wrong there.*⁹

The welfare and continued existence of the Porcupine caribou depends on the continued relationship between the caribou and the Gwich'in, and the other Indigenous/First Nation and Inuit communities who share responsibility and territory with the herd.¹⁰

Although the Porcupine herd is often associated with the Teet'it Gwich'in (of Fort McPherson and Aklavik), all NWT Gwich'in communities use this herd, especially due to changes in the size and distribution of the Bluenose herds to the east of the Porcupine caribou range. During the years of the Gwich'in harvest study, Porcupine caribou were harvested more than Bluenose, boreal, and mountain caribou, and even moose put together for all Gwich'in communities: Tsiigehtchic, Aklavik, Fort McPherson, and Inuvik. Only in Inuvik were Bluenose caribou the most important.¹¹

The connection between the Gwich'in and the caribou is not broken or diminished. Legends from the mythical past, archaeological exploration of sites thousands of years old, oral history stories from hundreds of years ago, Gwich'in harvesters speaking to the pipeline inquiry in the mid-1970s and again in the mid-2000s all speak of the importance of caribou, and the importance of the land the caribou need to survive.¹² Elders say that "as long as there were caribou and fish and land, we would always have our culture and our sense of belonging."¹³

Sometimes we cook at the kill site, we cook some ribs for our self to the fire. We have a good meal. At this time we clean out all the guts and everything, clean it well. While that I thank our Boss for giving us the food. I thank the Caribou Spirit for giving them their spirit for our food. I tell my Boss thank you very much for the food that you have

⁸ Wishart 2004

⁹ Anonymous Elder in Wishart 2004: 142

¹⁰ Alexie 2015

¹¹ GRRB 2009

¹² For archaeological information see Hare and Gotthardt 2012 among others.

¹³ Gwich'in Elders 2001: 12

*given us to live with and eat well. Many times I saw this same thing. The same pattern that was followed by our people.*¹⁴

Participation in the wage economy changed people's lives in important ways starting in the early 1800s; the Gwich'in continued, and continue, to hunt caribou. "All residents of Fort McPherson rely ...on the hills across here in the mountains for caribou."¹⁵ For example, those with a five-day work week will use their time on weekends to go to the mountains for caribou.¹⁶ Young people attending school still retain an interest and connection with the land and with making a living on the land, although their access has been limited.¹⁷

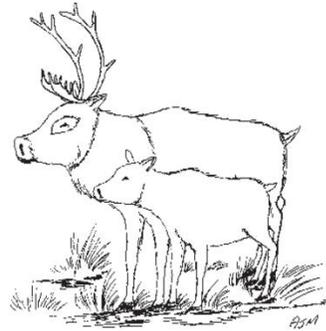


Figure 1. Caribou and calf. Credit: Arthur Mitchell, Gwich'in Language Centre Colouring Book.

Even though meat is available at the store, it is not as healthy or nurturing as caribou meat. It is also extremely expensive.¹⁸

Caribou are such an important part of Gwich'in daily life in the winter that people watch for them whenever possible. "Wherever the parents go, like anywhere in the delta or in the mountains, the kids like to play outside but the older people, they always on the look-out for caribou."¹⁹ Stories and even casual chatting between Gwich'in frequently include references to caribou, no matter topic. And caribou meat is so deeply connected to the idea of being Gwich'in that it is considered almost irreplaceable in a healthy lifestyle.

*Ever since I been on this job I started...becoming healthy once again. I have had a lot of tea, a lot of bannock, caribou meat, dry meat, dry fish, and in the past couple of months I started to feel my teeth starting to get strong, my body starting to get strong, and I have looked at all the food that I have been eating in the past year, mostly canned food and stuff like that, it isn't to the benefit of the native people, my people.*²⁰

The Porcupine Caribou Herd is currently at risk from proposed development in the herd's calving area. For this reason, the Gwich'in Tribal Council's Department of Cultural Heritage prepared this report, covering Gwich'in traditional use and knowledge of the animals. It covers many topics, from how the Gwich'in learned to use caribou, to how they used and continue to use it, to ecological information about the herd. Changes and threats to the caribou's livelihood are also included. Finally, a section on gaps in recorded knowledge is included to direct future research.

¹⁴ Eunice Mitchell, Elder's Biography Project 2000 Tape 8

¹⁵ John Kay, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V11 Fort McPherson July 8 1975

¹⁶ John Itsi, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V12 July 9 1975

¹⁷ Jane Charlie, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V13 July 10 1975

¹⁸ Doris Itsi, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V12 July 9 1975

¹⁹ Mary Kendi, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V40 Aklavik February 23, 1976

²⁰ Lawrence Norbert, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V02 Aklavik April 2 1975

Methodology in Overview

To collate the information included in this report, the Department of Cultural Heritage of the Gwich'in Tribal Council identified all secondary and primary sources available to them, the majority of which are in their digital archives. They used a search software to index and searched all the sources, and used content analysis to allow the information available to them to structure the report. The sources include interview transcripts from many projects carried out with the Gwich'in, starting in the 1970s, including but not limited to traditional knowledge studies, classic ethnographies, oral history, life history, place names, and multi-disciplinary projects. The bulk of all recorded information is included in this report, although the Gwich'in hold much more knowledge about caribou which has not yet been recorded. A discussion of the types of information considered to be data gaps is included in the Discussion and Gaps section. More information about the project's methodology, a description of sources used, and report caveats are included before the annotated bibliography at the end of the report.

The Man Who Turned into a Caribou

There was a man whose medicine was the caribou and he went and hunted the caribou. Suddenly, as he was shooting at the last of the caribou going by, the men in the group saw that there was no man.

They ran along after him to see what happened. They found his clothes on the ground and an extra caribou running away. The men were very confused and upset about this, but there was nothing they could do. The next year they went to the same spot, where there was a caribou crossing, and again they saw the caribou. But one caribou did not follow the others. He turned back into the lake and swam towards an island.

One man took a canoe and went after him. Now this man who went after the caribou was the father of the man who had disappeared the year before.

When the man got to the island, to his amazement he heard the caribou calling to him saying, "Father, father don't shoot me! I'm going to swim to the shore and when I get to the shore, throw a stone at me."

The man, who was startled and rather alarmed by this, returned in his canoe to the shore. The caribou swam after him and when the caribou got to the shore, the man threw a stone at it. Lo and behold! The caribou turned back into his son again, and stood there, naked and shivering on the beach.²¹

²¹ Gwich'in Language Centre, E. Cass Materials. Slightly edited.

Caribou and the Gwich'in Language

The following table includes a small sample of the words used to refer to caribou and caribou-related items in the Teet'it Gwich'in dialect.²²

Table 1. Select words referring to caribou in the Gwich'in language.

Aadzhi	Tanned caribou hide
Anan gyù'	Warble flies on caribou
Anchàt gyù'	Worms from the caribou's nose
Atsàn'	A rutting bull (refers to the smell)
Chyàh	Dried caribou skin mattress
Dazhòò ts'àt	Caribou fur blanket
Dazoo	Older than two but not yet a bull
Dazoo tsoo	Two year old bull
Ditr'ii thał	Caribou fur (hair left on) pants
Echeezhù'	Gut fat
Egii	A very young calf
lidheeghwat	Caribou or moose stomach
Ik'eetthàl'	Fat from 'inside the rump'
ltrik	Stomach contents
Khada' aatsan	Young cow
Khaints'an'	A fall bull
Kheedit'uu	Raw caribou skin without the hair
Kheedit'uu	Cleaned caribou hide with a bit of hair left on
Ne'eedi'	Lean November bull
Shrii t'iyah'ii	A caribou that stays in a cool place in the shade or on the snow during hot weather
Thehtsii'	A lone caribou
Tthał	Caribou corral
Vadzaih	Caribou
Vadzaih ch'iyah't'ok	Cow with a nursing calf
Vadzaih choo	Bull caribou ("big")
Vadzaih dhòh	Caribou hide
Vadzaih njoo	An old cow
Vadzaih njòò'	Cow with no calf
Vadzaih tsal	Cow caribou ("small")
Vadzaih Zrii'	October
Vanagwahgwan	A spring bull

²² Gwich'in Language Centre: Gwich'in to English word list, Gwich'in Elders 1997, Gwich'in Elders Biography Project

Modern consumption and use of caribou

Research on food consumption in Gwich'in communities shows a continued reliance on caribou. Despite radical changes in the period between the early 1900s and the 1970s, for example, in the early 1990s caribou remained the most frequently consumed wild food in Aklavik. At that time, Aklavik residents ate caribou around two out of every three days. In the mid-1990s, caribou constituted more than half of all meat eaten in Aklavik and Fort McPherson, and each Gwich'in household needed about 9 caribous to meet their annual needs (almost four caribous per person).

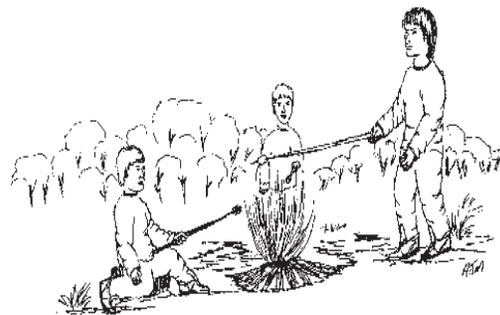


Figure 2. Children having a picnic. Credit: Arthur Mitchell, Gwich'in Language Centre, Colouring Book.

Caribou was found to be the most popular traditional food, with barrenland and woodland caribou harvested, as well as moose. Many parts of the large mammals were consumed regularly: flesh, blood, bone marrow, heart, tongue, head, kidney, liver, brain, fat, and stomach, etc. Organs and parts of smaller animals were also consumed in addition to meat: liver, brain, ribs, etc.²³

Caribou is the most important food source for many important nutrients and vitamins in modern Gwich'in homes. This is particularly the case for adults, although for children caribou was among the top ten sources of energy, protein, iron, and zinc.²⁴ Teens and young women also eat a lot caribou.²⁵

Gwich'in and the Porcupine Caribou Herd: Culture, Practice, and Continuities

It is impossible to understand caribou or the Gwich'in separately. Caribou and the interactions between the Gwich'in and caribou define the Gwich'in, and are threaded both literally and figuratively through Gwich'in culture, language, and lives.

Caribou and being a good hunter

One day, finally, somebody shot a small caribou. It was probably about six months to a year old, and I was told to go for it. They got me a dog with a dog pack and I had to climb a small hill. There was only a few willows here and there. Shortly after climbing this hill, I came to the spot where the young caribou lay. I cut it all up like I saw others do, packed it all up and took it home. This was the first time I did this.²⁶

²³ Kuhnlein et al. 2009: 50

²⁴ Kuhnlein et al. 2009

²⁵ Kuhnlein et al. 2013

²⁶ Bella Alexie, COPE story, "How We Lived Long Ago"

Two themes characterize a Gwich'in harvesters' ability to successfully hunt caribou. One is a hunter's skill, gained through experience and teaching. The combination of skills and knowledge was known as 'smart': "my dad was a very smart man for hunting caribou and moose."²⁷ Very good hunters were able to provide their families with extras like tea and tobacco, as well as the knowledge that they helped other families when they shared meat during times of scarcity.²⁸

The other theme is loosely referred to as 'luck'. Some years, people were unlucky and no caribou could be found. When caribou were plentiful or if they were found during a time of scarcity, this would be referred to as "lucky". Many elements of a successful hunt were simply outside of anyone's control: weather, the caribou's migration route, and so on.

By this time we were very few in our family and my Dad was a very smart man for hunting caribou and moose. Those days if people were going to go hunting, one person would tell them what to do. Only a wise person can talk and nobody can talk back, and young people really respect their parents and obey them. Later on the people moved over the mountains to a place called Rock Creek. Also the people used to make dry fish to move to the mountains. When this one time people were hungry, my Dad went hunting. He was lucky to get one caribou.²⁹

When we got back here there was no meat. We gave meat to everyone. We moved back into the mountains. We were very lucky with killing caribou and moose. We had lots of meat.³⁰

There have long been ways known to increase one's luck, such as following all the rules about hunting, butchering, and use and storage of hunting equipment. Also, wishes for a good hunt might come true. For example, a dying porcupine could be wished upon, including for a good caribou hunt. This wish would usually come true.³¹

Learning how to hunt and process caribou

Knowledge about Porcupine caribou is gained both through listening to others, especially parents, grandparents, and other respected elders; and from experience and time spent on the land.³²

Men often go caribou hunting with other men: their friends and extended family members.³³ "When we go hunting into the Richardson Mountains, a lot of us travel together hunting caribou, and we all make our living the same way."³⁴ For example, Mary Vittrekwa discussed hunting and preparing caribou when reminiscing about times past, when her brothers and herself were learning how to make a living on the land. "Caribou [hunting was] starting. And my brother kill lots of caribou and everyday me and my sister

²⁷ George Vittrekwa, COPE story, "Life Story - #2"

²⁸ George Vittrekwa, COPE story, "Life Story - #2"

²⁹ George Vittrekwa, COPE Story, Life Story, #2

³⁰ Nellie Mitchell, Life Long Ago

³¹ How to Clean a Porcupine Gwich'in Language Centre

³² Kofinas 1998

³³ Andrew Kunnizzi, COPE story, "Travels in the Yukon"

³⁴ Mary Kendi, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V40 Aklavik February 23, 1976

and Johnny Semple wife, that was my uncle Benjamin family, Richard Martin; all that they work hard with meat. Bring meat with dog pack and sometimes one day we make four trip. Just even that we are not tired!”³⁵

As noted above, successful and respectful caribou hunting is so important to the Gwich'in that in the past, leadership roles were assigned or obtained through being a good hunter. This is especially the case when in-the-moment leadership was needed to ensure a successful hunt and therefore the very survival of people, such as for the community hunts using caribou corrals (see *Hunting using a corral or fence*, below), or when making decisions about where a family group would travel for the winter in order to find caribou.³⁶

*The land becomes a classroom for experiential learning where family members carry out every day activities together. Often stories are included to reinforce certain situations or activities. This way of teaching and learning has worked well for the Gwich'in people for generations. The learning would occur when carrying out activities like collecting firewood, picking berries, setting a fish net, digging for roots, moose or caribou hunting, and so forth.*³⁷

*When I was a young boy [and] then a young man, we were taught to be good hunters to provide for our family when we begin having family. The boys [were] taught different. You learn from your father how to hunt, how to trap and to travel to know where to look for meat and for wild meat like caribou, beaver, moose, all those wild meat that we ate. They told us, we watch them and we learn. That's how I was taught. I have watched very carefully and listened to everything my father said and I learn in this way. When I got old enough I just followed and did what I learned throughout my young life. So in this way, I have learned the bush life good.*³⁸

To this day, Gwich'in harvesters communicate widely with each other and with their friends and family in other regions about the location and condition of caribou, in order to make good decisions about hunting.³⁹

The activity of hunting, and in particular hunting caribou, was and is one of the most important ways that young Gwich'in would learn how to be a good hunter. Abraham Alexie recalled being taught to hunt by his father, “he took me up close to the animal and then I shot only when he told me to go ahead. By doing so, I became a good hunter.”⁴⁰ Elders, especially respected elders and leaders, have deep and life-saving knowledge about caribou, “we moved towards the place where there was a high pointed mountain. Chief Julius said there was always caribou around this high pointed mountain, so we went

³⁵ Profeit-LeBlanc 1994: 7 (13)

³⁶ Wishart 2004

³⁷ Andre 2006: 37

³⁸ Jim Vittrekwa, Elders Biography Project, 2001, Tape 40

³⁹ Kofinas 1998

⁴⁰ Abraham Alexie, COPE story, “When I Was a Boy”

towards this mountain. Sure enough, we came across caribou tracks.”⁴¹ Often, teachings about caribou are within a family unit, or among close friends.

*My father taught me everything. He taught me how to hunt, he taught me how to butcher the meat, moose or caribou, he taught me how to dry the meat, to prepare the meat for food, and he taught me how to fish. Everything I know of the land my father taught me.*⁴²

*All day my sister spend with Charlotte. Charlotte went and taught her how to skin, how to clean rat hide, caribou hide, skin muskrat, dry them, how to cut fish, prepare the meat and all those things of the land.*⁴³

Mary Francis watched her mother process caribou and make drymeat, and in doing so, learned these skills for herself:

*How to work, how to hunt for meat, caribou, moose, when my dad kill moose or caribou, my mother really work to make good drymeat. And then they tan skins, all that I watch and my mother tell me to do this and I do it, I never talk back to my mother and my mother really enjoyed bringing me up like that.*⁴⁴

Often after a caribou or moose was shot, a feast is planned.⁴⁵ This is particularly true for the first time a young man kills a caribou, a ritual still carried out to this day.⁴⁶

Bella Alexie also recalled her brothers getting a talking-to from their father when they did not approach hunting caribou with the seriousness he felt they should:

*My two brothers hunted and killed caribou all winter long. They went out hunting together and on their way home they would play and have snowshoe races with each other. My father told them not to do this. He said that we lived alone and that it wasn't right for them to do this. He told them not to fool around and [instead] to make a good trail. They still did the same thing when they returned the next day, I can remember that. They didn't get very much meat but we lived alone and what they got was plenty for us.*⁴⁷

⁴¹ Andrew Kunnizzi, COPE story, “1938 Trip to Mayo, Yukon”

⁴² Alfred Semple, Elders Biography Project, Long Story

⁴³ Alfred Semple, Elders Biography Project, Long Story

⁴⁴ Mary Francis, Profile

⁴⁵ Abraham Alexie, COPE story, “When I Was a Boy”

⁴⁶ Gwich'in Elders 1997

⁴⁷ Bella Alexie, COPE story, “Early 1900s As I Remember It”

To this day, the Teet'it Gwich'in continue to learn from experience and knowledgeable friends and family, and hunt and collect other traditional foods, providing their families with healthy and culturally sustaining foods.⁴⁸

Change and continuity in caribou harvesting practices over time

The ways in which the Gwich'in have hunted caribou have changed drastically in the last several hundred years, although many key aspects remain in place. There has been a progression from travelling and hunting in small family groups, to the use of caribou corrals, to hunting from large 'meat camp' gathering areas, to the modern pattern of trips from town of just one person or a few people heading into the mountains on the highway for a day trip to hunt.

Years ago, caribou corrals and large, community hunts were more important, although perhaps these only became common when the metal axes which became more common through the fur trade were obtained by the Gwich'in. Early fur trade posts were often so-called 'meat posts', where large amounts of dried meat were purchased by trading posts to supply other trading posts. Once the Gwich'in started to participate more systematically in the fur trade and hunters were entering the wage economy to hunt for and sell meat to these meat posts, they would often hunt in groups. When the meat trade slowed down and Gwich'in families were more oriented towards trapping and hunting beaver for the actual fur trade, single trips to the mountains for enough caribou to eat and no more became more common.⁴⁹ As always, Gwich'in show flexibility in their livelihoods to best meet their own needs and the needs of their families and communities.

Co-operation and communication have always been important in successful Gwich'in harvesting of caribou, although the practice of both have evolved. In the past and long before the days of satellite tracking, knowledgeable and wise people would know when and where the caribou would arrive on their southward or northward migration and would tell others so they could go there in anticipation of the caribou's arrival. Anticipating the caribou's movements would ensure a successful hunt.⁵⁰ "[T]he people relied on each other and sent word to each other to find the caribou."⁵¹ In fact, being knowledgeable about caribou's movements could mean that a particular individual held decision-making power over the group, for these contexts.

The people are all up and down the river, but soon the caribou come and all the people come together. The people all come to the same place, when the white-man came it was the trading post, but before, it would be the fish camp of the chief... Used to be that the chief was a guy that was a good hunter, everybody like him because of this. He do things the right way...Everybody get together and they talk for a while, maybe two, three days, I don't know. Anyway they talk about hunting caribou. So they decide that some will go up to the mountains by Rat River, some by Stony Creek, some by Vittrekwa, some by Road River, some by other places. Each of these leads to the mountains, different places

⁴⁸ Alexie 2015:

⁴⁹ Slobodin 1962

⁵⁰ Mary Vittrekwa in Kofinas 1999

⁵¹ Neil Colin in Wishart 2004: 56

*where the caribou might come. Caribou come to different places each year in the mountains but they always choose among the same places... So the people go to all the places the caribou might come, all the valleys way into the Yukon where the caribou might spend the winter. In the old days people had caribou fences to help them hunt the caribou but this took a lot of people helping, so when they came the people came together again and hunted together, then they did not go far. It was better to just stay in that valley.*⁵²

Cross-regional cooperation on shared herds is also an important continuity. In the past, neighbours worked together, especially in areas far from their homelands. Today, this cross-border cooperation is manifested through organizations such as the Porcupine Caribou Management Board.⁵³

With changes to the traditional Gwich'in lifestyle, the practice of sharing has also changed over time. Some Elders recall fondly that people used to share much more in the past than they do today. However, hunting caribou is still an important shared activity, and sharing of caribou meat remains a cornerstone of Gwich'in culture.⁵⁴

*In both the fall/winter and spring seasons, most people hunt 1-3 times per season, depending on the availability of caribou in the area, free time, money for gas and shells, and available transportation. For the most part, trips are of short duration, a few hours to one day. The highway and its location through the heart of the winter range makes these shorter trips possible and creates opportunities to hunt despite varied employment status exhibited by interviewees. Many people have to fit hunting around their jobs which affects how often and how long they can spend hunting. Snowmobile trips tend to be longer, two to five days, and occur more rarely, compared to highway hunting trips. Transportation by truck and snowmobile is often shared between families and friends. Most respondents hunt in small groups of one to three, mainly consisting of family and friends. Elders and youth are a component of many hunting groups.*⁵⁵

The way people field dress caribou carcasses has also changed. "Today when men hunt caribou they don't bring everything home. Long ago, everything was used and nothing was wasted. Caribou and moose were skinned well and everything was taken home."⁵⁶ Today, there is agreement among Gwich'in harvesters and wildlife management rules that certain parts of the animal may be left at the killsite. This includes the head, the intestines, and stripped bones.⁵⁷

Some of the changes to traditional rules about hunting simply represent reasonable and culturally-appropriate adaptations to the radical social and economic changes that the Gwich'in are both leading, and experiencing, in the last few generations. The de-stabilization of hunting practices during fur trade

⁵² Neil Colin in Wishart 2004: 55-56

⁵³ Janet Winbourne, pers. comm. 2019

⁵⁴ Bella Alexie, COPE story, "How We Lived Long Ago"

⁵⁵ Wray 2011: 89

⁵⁶ Bella Alexie, COPE story, "How We Lived Long Ago"

⁵⁷ Wray 2011

has recently started to abate, and younger Gwich'in are more and more in agreement about the on-the-ground practice of traditional and appropriate hunting. Finally, as Gwich'in participation in wildlife management has been enshrined in the land claim agreement, traditional rules and rules and laws imposed through regional and territorial processes are also coming into closer alignment.⁵⁸

However, there are some wildlife management rules which are in conflict with traditional harvesting practices, and which are contested by some harvesters. The most important of these conflicts is the rule to avoid hunting cows. As noted elsewhere in this report, cows are hunted by the Gwich'in in certain seasons as bulls are less palatable or are inappropriate to hunt. Also, the Gwich'in have reservations about the appropriateness of harvesting only male animals and what this may do to the herd, especially if large bulls are continuously targeted. A focus on bulls may also change the way bulls migrate, causing further issues with the stability and predictability of the caribou's migration. Finally, disregarding a cow who presents herself to a hunter is not respectful or appropriate behaviour.⁵⁹

Women, men, and the caribou hunt

In the past, the responsibility to hunt caribou rested more with men than with women, and the responsibility to process hides, meat, and bones rested more with women. A man must provide for his family. In fact, being a good caribou hunter is one of the key skills young men learn to become good providers; good people. "The young men were trained to shoot with arrows, hunt down caribou, jumping, and skill fighting. All this, the people learned and all of the people knew how to do it. That is how they made their living."⁶⁰ Young men and women are both instructed on how to properly hunt and process, and they also gained experience through trial and error.⁶¹

When families were travelling on their seasonal round, the men would travel on ahead, scouting for and hunting caribou. The women would bring the rest of the family and the families' belongings. "Whenever they saw caribou, they killed whatever they could, skin the caribou, then cut up the meat."⁶²

Women handled much of the hide preparation, washing and meal preparation, and making caribou skin implements and containers.⁶³ However, everyone needed basic proficiency in almost all skills, because emergency situations may call for repairs of items made from wood, hide, or other materials.⁶⁴ And women were frequently travelling with their families and handling all aspects of life on the move. "Indian life. I remember. I like it, all summer we had open fire too and we move; we use dog pack. It's just like nothing! And then we make lots of dry meat, lots of grease. That's [what] we live on all

⁵⁸ Wray 2011

⁵⁹ Wray 2011

⁶⁰ Johnny Semple, COPE story, "Reminiscence - #1"

⁶¹ Mary Vittrekwa in Kofinas 1999

⁶² Bella Alexie, COPE story, "Early 1900s As I Remember It"

⁶³ Parlee, Andre, and Kritsch 2014

⁶⁴ Parlee, Andre, and Kritsch 2014

winter.”⁶⁵ Women also sometimes went with men during or after a successful hunt and brought the meat back with dog sleds.⁶⁶

*Women were often influential in deciding where families would move. In addition to knowledge about where the caribou were most abundant, such decisions included consideration of what terrain was best for travel and what sites were most valuable for setting camp (e.g., shelter and the availability of fuel wood and water). These decisions were also determined by social networks. Given the importance of working together to survive, decisions of when and where to go required consideration of who was nearby and could be called upon in times of need.*⁶⁷

Traditionally, separate rules were in place for men and women, in regards to hunting equipment and activities. For example, long ago, women didn’t step over caribou or walk through their blood. They also did not step over men’s hunting implements.⁶⁸ In the past, women kept themselves away from the caribou hunt during menstruation.⁶⁹

Although men were more typically hunters in the past, today, both men and women hunt successfully and respectfully for caribou.⁷⁰

Taking care of the caribou is a part of Gwich'in culture

Gwich'in take care of caribou in many ways: they share their harvest with others, they take only what they need, they use as much of the carcass as possible, and they preserve meat and fat for the future if they won't eat it before it spoils. They also clean up killsites in the traditional way, by properly disposing of intestines and not leaving body parts around. Hunting and processing equipment also must be cared for properly, as well.

Sharing and reducing waste

Sharing a good harvest is one of the ways that Gwich'in take care of caribou and builds and maintains family and community bonds. In the past, sharing also reduced the risk of starvation. A good caribou harvest means that caribou meat would be shared. “When a large amount of caribou was killed, one whole caribou was given to each family.”⁷¹



Figure 3. Cooking to the fire. Credit: Arthur Mitchell, Gwich'in Language Centre, Colouring Book.

⁶⁵ Profiet-Leblanc 1994: 7

⁶⁶ Sarah Simon, Starvation Story

⁶⁷ Parlee, Andre, and Kritsch 2014: 226

⁶⁸ Gwich'in Elders 1997

⁶⁹ Kofinas 1998

⁷⁰ Parlee, Andre, and Kritsch 2014

Land-based living is demanding work, but is also important to the physical and emotional health of Teet'it Gwich'in, as previously mentioned by the elders. This land-based healthiness also contributes to the practice of Teet'it Gwich'in self-governance. ...Teet'it Gwich'in land-based practice is often seen as gwiinzii kwùndei or "the good life" (Loovers, 2010, p. 219). Subsistence harvesting is a critical aspect of Gwich'in self-governance and one that is still practiced in Teet'it Gwich'in culture. By maintaining their access to bush foods, like fishing, berry picking, hunting (especially caribou and moose), Teet'it Gwich'in families provide healthy and culturally sustaining foods for themselves and their families. These practices keep Gwich'in values of sharing and respect alive that is central to the practice of self-governance. Key to this practice is the continuation of traditional diets that are vital to the cultural and physical well-being of the people and that maintain relationships with the land and other beings that live on it.⁷²

Sharing was and is carried out in both informal and formal ways. One elder recalled that a married hunter who killed a caribou would present the carcass to a respected hunter, who would be in charge of sharing it. If unmarried, it was the job of the hunter's father to share the meat.⁷³ Around the holidays, people would share what they could to add to the upcoming feast.

Two days before New Year's Day, men would go house to house carrying a large toboggan wrapper and had two or three toboggans pulled behind them. As they went to a door, they would sing some Indian song. The owner of the house would give whatever he or she could give. It could be half a caribou or more. It could be a pound of butter or lard - anything they could give for the feast. What was collected the teenage boys and girls or older ones would cook up for the New Year's feast, helping the chief who put up the feast.⁷⁴

Sharing happens generally within larger, complicated kinship relationships. Sharing in this way reduces the burden of bad luck, which can unreasonably affect any one family. It also ensures that the community in general works together to meet the need for caribou for the community taken as a whole.⁷⁵ Indeed, caribou is shared beyond even any one community – many hunters share meat outside of their home community.⁷⁶ Sharing the meat from a successful hunt could even become a bit of a friendly competition. If someone shared caribou meat they had brought in, someone else may try to share even more.⁷⁷

⁷¹ Bella Alexie, COPE story, "How We Lived Long Ago"

⁷² Alexie 2015: 109

⁷³ Gwich'in Elders 1997

⁷⁴ Neil McDonald, COPE story, "Christmas A Long Time Ago"

⁷⁵ Kofinas 1998

⁷⁶ Kofinas 1998

⁷⁷ Gwich'in Elders 1997

Young, single men are often those who share caribou meat, and this is an important role they maintain in their community before they start families and gain other responsibilities.⁷⁸

Sharing caribou meat is frequently part of an exchange between the hunter and recipient family, as reciprocity cements bonds and fosters future exchanges. There are a few times when it is not customary to return the favour when someone shares something, for example, sharing and gifts with children, to elderly or ill individuals, or in other special cases. The definitions of appropriate exchange are fluid and based on the situation of the hunter and the recipient, among many other conditions.⁷⁹

Legends tell about the consequences for people who do not share as they should. One son was given a stern talking to from his father when he lied about how many caribou he killed in order to save more for himself.⁸⁰ In the Boy in the Moon legend, a 'stingy' uncle who won't share according to custom causes even more suffering during a time of starvation.⁸¹

Christopher Colin was a good hunter who was able to help many families out by sharing the meat he harvested. Despite sharing being a Gwich'in value, not everyone participated in the sharing ways.

I was in the mountains with my family. I was at Loon Lake where I was getting lots of caribou and hauling it. In the meantime, the people from McPherson and Arctic Red were all moving towards where I was staying. When they came, I shared all the caribou I killed and hauled in. By the time I divided all my meat, I had nothing left.

Later, many people were going to Lapierre House so I went along with them. There were many tents around there and no one got any caribou yet. I passed this place and went on until I came to another meat camp where I set up my tent. I went hunting the next day and I came upon seven caribou. I killed all the caribou, then I shared all this meat with other people who were short of meat. Later, I killed eleven more caribou. This, too, I shared with the people. After the men went to haul in the meat, I asked each one of them to give me back one leg; not one of them gave anything. They had eighteen caribou. I shared all my kill with them but I never got any in return.⁸²

Elders interviewed in the mid-1990s also felt that the practice of sharing was in decline.⁸³ This may correlate with population declines or outside cultural pressure, including residential school legacy and colonial management regimes.

Sharing is not the only way to ensure caribou are taken care of after harvest. Gwich'in also carefully store meat and fat. In the past, meat was stored in cold storage near the permafrost in the ground or

⁷⁸ Kofinas 1998

⁷⁹ Kofinas 1998. Text box recipe: Gwich'in Language Centre (LC - Mammals - Caribou)

⁸⁰ William Nerysoo, COPE story, "Old Chief"

⁸¹ Lazarus Sittichinli, COPE story, "The Man In The Moon"

⁸² Christopher Collin, COPE story, "Living in Rat River"

⁸³ Gwich'in Elders 1997

made into drymeat. In modern times, a chest freezer is also used, although Gwich'in continue to dry meat as well (see the *Caribou drymeat and other storage options* section, below).

Reducing waste is traditionally important for the Gwich'in, especially with caribou. Sharing ensures that meat is not wasted. By sharing meat among family and beyond, a hunter is less likely to have meat in their freezer to throw away in springtime.⁸⁴ Another important way that Gwich'in reduce waste is to use as much of the carcass as possible, and 'take only what is needed'. The amount 'needed' is based on what can be consumed, stored, or shared. Hunting too many caribou is wasteful. The whole caribou can be used, apart from the lungs.⁸⁵ This includes the heart, kidneys, liver, stomach, and unborn calves (with restrictions).⁸⁶ Another waste-reducing strategy is to avoid shooting bulls during the rut, as the meat is flavoured from the hormones of the rut and is not good to eat. Hunting during this season is therefore possibly wasteful.⁸⁷ Wildlife protection rules that force hunters to hunt only bulls and only late in the fall can therefore actually promote waste.⁸⁸

Although there is a prohibition on wasting caribou, Gwich'in also know that the parts of the caribou which are considered to be acceptable to leave at the killsite will be eaten by another living creature, and for this reason, isn't really wasted.⁸⁹

The focus on preservation to reduce waste was, in the past, under the purview of women.⁹⁰ Caroline Kay provided a letter to the Berger Inquiry to the first Mackenzie Pipeline project in 1975. As part of her protest against the pipeline, she indicated that careful use of resources is a key part of Gwich'in culture.

*We live out in the bush all the time. We make our living that way. My husband goes hunting and gets caribou or moose. When he brings the meat home we dry the meat. We pound the bone for grease, tan the skin, we make babiche out of the skins, we also get sinew so that we can sew our shoes and mitts. I also have hundred caribou leg skins. That much I can't throw anything away.*⁹¹

Hunters remember which Elder or family most enjoys each part of the caribou, such as the head or the liver. They therefore can give those away in such a way that they will be used and not wasted.⁹²

Making fun and talking smart

Elders instruct younger harvesters to refrain from "making fun" or "talking bad" about caribou, or any animal.⁹³ "Because it is what we eat, and that's how much they have respect for caribou. My mother says you can't laugh at bigger animals like caribou, moose. You can't talk smart about them; you have to

⁸⁴ Gwich'in Elders 1997

⁸⁵ Woody Elias in Katz 2010

⁸⁶ Gwich'in Elders 1997

⁸⁷ Wray and Parlee 2013

⁸⁸ Wishart 2004

⁸⁹ Wray 2011

⁹⁰ Wray and Parlee 2013

⁹¹ John Kay, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V11 Fort McPherson July 8 1975

⁹² Wray and Parlee 2013

⁹³ Gwich'in Elders 1997

have respect.”⁹⁴ Making jokes or saying negative things about an animal or even a part of an animal is extremely disrespectful. Long ago, bad luck might follow someone who makes fun of any animal. For example, “a hunter who laughed at a vadzaih chewing its food at a distance from him. When the hunter woke up the next morning, his mouth moved and he chewed just like the vadzaih he made fun of. From that day on, he never stopped chewing.”⁹⁵

Being fussy or picky about eating an animal or which animal to eat is also disrespectful, and this ties into the traditional rule that when an animal presents itself to a hunter to be shot, it is rude and wrong to ignore this animal and seek another.⁹⁶ The animal has made the decision to offer itself to the hunter, or a higher power has done so. Obviously, this rule can clash with hunting regulations which specify which type of caribou may be hunted. There is more about this topic below.

Respect towards caribou, and any animal, includes a prohibition of going out into an animal’s range and watching it for no reason, which is seen as an invasion of the animal’s country.⁹⁷

Taking care of caribou and taking care of the land

It is impossible to separate apart the elements of the natural world usefully, especially when speaking of conservation. For the Gwich’in and for their traditional lands, the people, animals, plants, water, weather, and all the other natural systems function together, with strong ties and inter-dependencies. Taking care of the land is the responsibility of every person. “We want to be able to hunt caribou and fish and trap muskrats. That is what we want for our children. We do not want our grandchildren to say that we gave their birthright away.”⁹⁸

A discussion of how the Gwich’in take care of their lands is beyond the scope of this report (see *Discussion and gaps in caribou information* section, below), there are certain ways in which taking care of the land overlaps with taking care of the caribou more directly. For example, cleaning the caribou carcass and the killsite is appropriate, respectful, etiquette. In the past, this included spreading snow over the killsite to hide all the blood and remains.⁹⁹ All the ways that Gwich’in harvesters and their families take care of caribou as described in this report are a part of the holistic tradition of taking care of the land.

I learned lots from my parents, my father, and especially when we shoot caribou, or, you hunt caribou or you skin caribou, then you look after the place. You know? We skin caribou [carefully], that’s looking after it... you’re given caribou so you got to look after it. Well... you skin caribou, and you gut it, you look after it good, and, everything. By the time you leave there [there should be] no blood or nothing. If you want to put anything away, you... just don’t leave hair or, piece of caribou hair or ... guts ...you just don’t leave

⁹⁴ E Kay in Wray and Parlee 2013: 73

⁹⁵ Gwich’in Elders 1997: 25

⁹⁶ Wray and Parlee 2013, Wray 2011

⁹⁷ Wishart 2004

⁹⁸ Richard Nerysoo, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V13 Fort McPherson July 10 1975

⁹⁹ Gwich’in Elders 1997

*it wide open, you know. They say it don't look good from the other side. ...a lot of times I show kids, "Put it in snow, step on it. Cover it up. Nothing can see from nowhere." You know that's the way it is and I believe that. I really believe that ...later on, some animal going to eat it anyway but it's the only thing that I really look after.*¹⁰⁰

For a more specific example of care-taking, many elders discussed the importance of not wounding and leaving caribou. Wounding a caribou without killing it is not acceptable. A hunter should not leave a wounded caribou to die from the wound, and instead should follow it and kill it properly.¹⁰¹ Wounding is also considered a waste of a shell.¹⁰² Proactively reducing wounding relies on using and maintaining hunting equipment, knowing your own abilities, and being a good, patient, and skilled hunter. Being a skilled hunter includes being able to tell cows from bulls, and during the rut, being able to tell young bulls (which are still acceptable to hunt) from older bulls, who are not acceptable to hunt at this time. As noted above, killing older bulls during the rut causes waste.¹⁰³

In addition to avoiding wounding caribou, there are and were also times when caribou were left alone to they could safely continue as a herd. For example, Gwich'in seldom moved in the summer time because the caribou have their young at that time, and people do not want to kill or harass the young caribou.¹⁰⁴

Finally, caribou are taken care of by not chasing them for no reason.¹⁰⁵ Before the days when skidoos were available, hunters used snowshoes and dogs, which are much slower modes of transportation, to access caribou. "It does something to the meat when they chase them around... It does something...to [the caribou], when they are forever chasing them, and they shoot them."¹⁰⁶ However, harvest does often involve some amount of chasing. George Vittrekwa remembered other hunters driving caribou down a mountain towards him "I drove my dogs up the side of the mountain. The men that was shooting the caribou up on the mountain drove the caribou my way so I started shooting too."¹⁰⁷ Sometimes, a single hunter would take a shot in a particular location, the sound of which would chase caribou towards other hunters.¹⁰⁸

Traditional trails

Trails are extremely important to the Gwich'in. They not only connect all the important places in their traditional lands, trails are how the Gwich'in know and learn about their landscape and the animals and places within it. In the past, the Gwich'in travelled to move between different seasonal camps along trails, they visited friends and family along trails, and they went hunting and to their traplines along a network of trails.¹⁰⁹ Trails have a physical and intangible presence on the landscape. In some areas, the

¹⁰⁰ Robert Alexie in Katz 2010: 25

¹⁰¹ Wray and Parlee 2013

¹⁰² Walter Alexie, Black City Ethno-archaeology Project, 2004, Interview 8

¹⁰³ Wray 2011

¹⁰⁴ Christopher Colin, COPE story, "A Long Time Ago – Part #1"

¹⁰⁵ Gwich'in Elders 1997

¹⁰⁶ E. Colin in Wray and Parlee 2013: 74

¹⁰⁷ George Vittrekwa Tape 68 Life Long Ago 1974

¹⁰⁸ Neil Colin, Life Long Ago

¹⁰⁹ Fafard and Kritsch 2003

actual trail can be seen as a deep track in the soil, the evidence of thousands of footsteps across the land. However, trails are also intangible. Their locations (sometimes very specific, and sometimes more of a general route) are stored in living memory.

In the 1970s and early 1980s, the National Indian Brotherhood (later known as the Dene Nation) recorded the trails and travel routes from a sample of about 1/3 of all the hunters and trappers in the Dene communities in the Mackenzie Valley, including all four Gwich'in communities. The trails they recorded are so numerous and dense, showing such a rich history of traditional use, that if all of the trail lines are included on any one map they essentially turn the map black. The map on the following page shows the trails which were used to hunt for barren-ground caribou (both Porcupine herd and other herds to the east). The intensity and extent of use of the Porcupine caribou's range can be clearly seen.

As with many other traditional practices, the use of trails has changed over the years. Long ago, the trails were foot trails and dogs, if used, carried packs.¹¹⁰ Later, during the fur trade years when there were enough resources to feed and care for more dogs, dog teams pulling sleds were used in the winters. These days, traditional trails have largely been replaced by travel along seismic lines and on the highway.¹¹¹ This is in part because today, skidoos and trucks have become the most common way to access hunting areas and move caribou meat.¹¹²

¹¹⁰ Fafard and Kritsch 2003

¹¹¹ Katz 2010

¹¹² Profiet-Leblanc 1994



Figure 4. Trails used prior to the early 1980s to hunt for barren-ground caribou, from the Dene Mapping Project.

Traditional place names

Although an exhaustive list of traditional Gwich'in place names relating to caribou and the traditional use of caribou is outside of the scope of this report—it would be hundreds of names—a few select names are included on the map below to show the types of names that can be found across the Gwich'in landscape. This includes place names of several types. For example, some names refer to some aspect of caribou themselves (Edigii), and some refer to hunting caribou (Tthał Njik). A table of select names referring specifically to caribou are included in the table below. Some of these names refer to multiple places on the land.

Table 2. Select Gwich'in Place Names

Place name	Translation
Tthał Njik	Caribou fence-creek
Vadzaih Kàn Njik	Caribou-his den-creek
Vadzaih Kàn	Caribou-his den
Vadzaih Van	Caribou-lake
Vadzaih Van Tshik	Caribou-lake-at the mouth of
Vadzaih Van Njik	Caribou-lake-river
Edigii	(Caribou) calving (place)

The map on the following page has some of the important place names mentioned in this report.



Figure 5. Major Gwich'in traditional place names in the Peel River and surrounding areas, from the Department of Cultural Heritage Place Names Database

Hunting and processing caribou

Before firearms, caribou were hunted a variety of ways. They were snared, hunted using corrals (see below), speared, and killed using bows and arrows.¹¹³ “Individual snares, made of caribou braided rope, were used to hunt caribou in the spring.”¹¹⁴ Snares were used until at least the middle of the twentieth century, when wildlife officers began discouraging them as cruel.¹¹⁵ Braided caribou skin ropes were also used to lasso caribou.¹¹⁶



Figure 6. Caribou at George Vittrekwa's Camp Rock River Y.T. Credit: Keith Billington, GTC Department of Cultural Heritage. March 1965.

Firearms came into use around the same time as the fur trade, through increasing interactions between the Gwich'in and European traders.¹¹⁷ Bows and arrows and spears became less preferred by hunters when these muzzle-loaders were introduced, and even more so when muzzle-loading firearms were, in short order, replaced with modern firearms.¹¹⁸ When the first muzzle-loader style firearms were used, they were found to be too loud and perhaps even less efficient than bows and arrows:

¹¹³ Paul Bonnetplume, COPE story, “Hunting and Fishing in the Fall”

¹¹⁴ Kritsch, Jerome, and Mitchell 2003:7

¹¹⁵ Kofinas 1998

¹¹⁶ Sarah Peters, COPE story, “The Way People Used To Live”

¹¹⁷ Kritsch, Jerome, and Mitchell 2003

¹¹⁸ Osgood 1970

*In those days people couldn't afford any guns. A person bought a gun (it was not a rifle) - today we call it a muzzle loader. Before the gun ever came into this country all the people used was the bow and arrow. A person that bought this gun went out hunting. He made his first shot - he shot a caribou. When he made his first shot he made too much noise and the caribou started running away - so the people told him to, "Put that gun away", it made too much noise - that he was scaring the caribou away. Then the people went back to their bows and arrows and got more caribou than the gun.*¹¹⁹

Gwich'in hunters were very careful with muzzle-loader guns, as each shot must be carefully loaded, and if the black powder became damp it would no longer work.¹²⁰ Dogs were used to help hunt caribou in the past, during April when the snow was hard enough to walk on.¹²¹ Caribou meat was eaten by both people and their dogs.¹²²



Figure 7. Andrew Kunnizzi. Feeding his dogs at days end. Credit: Keith Billington, GTC Department of Cultural Heritage. March 1970.

Sometimes, locations where caribou would cross a creek or river were used to ambush caribou. "Later... we came across [a] late spring caribou crossing. We made our camp there and killed more caribou. We

¹¹⁹ Lucy Vaneltsi, COPE story, "Traditional Life - #1"

¹²⁰ Paul Bonnetplume, COPE story, "Hunting and Fishing in the Fall"

¹²¹ Osgood 1970

¹²² Laura Pascal, COPE story, "Winter Time in the Yukon"

were getting caribou right along and making dried meat. When there was no more caribou, we started moving again.”¹²³ While travelling around looking for caribou, hunters sometimes followed caribou trails.¹²⁴

An anthropologist living with the Teet’it Gwich’in in the mid-1940s went on a collective Teet’it Gwich’in caribou hunt with several Old Crow families they had met, and describes it as follows (using pseudonyms):

The group made camp near the willows of a mountain creek and set out to hunt caribou. Mrs. Lake and Mrs. Whaleboat went along on the hunt, as did eleven-year-old Stanley Whaleboat. When signs were found of fifty to seventy-five caribou, Willie divided the hunters into two parties, under Stephen and himself. The plan, as is usual in such a situation, was to surround the caribou, which were browsing in a narrow valley. Stephen had the youths and younger men under his direction: they were to make a wide circuit around the caribou as quickly as possible and go down into the other side of the valley. This was done, and when Stephen signalled that his men were in position, Willie opened fire, and the rest followed suit.

...The hunt was rather successful, netting over thirty caribou. Willie and Stephen were not completely satisfied, since they felt that the party had missed an opportunity to secure enough meat for the needs of humans and dogs until the end of marten trapping. As the situation stood, another hunt would be necessary, and there were not many caribou in the neighbourhood.

*...It was felt that this had been an isolated herd, whose survivors were now scattered and moving fast.*¹²⁵

Traditionally, caribou cows are preferred in the winter, as they tend to be fatter. In the spring, the bulls are better hunting, as calving can be resource-intensive for the cows and makes them thinner, so less preferred.¹²⁶ For winter hunting, hunters approach the caribou as close as is safe. In order to get downwind, a hunter may have to move very quietly or even crawl through the snow. Caribou have a great sense of hearing and smell and spook easily, so caution is needed to get close enough.¹²⁷ If possible, a wise hunter will shoot the caribou furthest downslope from him or her. That way, the other caribou in the group will run upslope toward the hunter. Good hunters, who can kill caribou with a single shot, will select animals out in the open and who won’t disappear, wounded, into the brush.¹²⁸

¹²³ Andrew Kunnizzi, COPE story, “Heart and Blackstone River”

¹²⁴ Mary Teya in Benson 2012

¹²⁵ Slobodin 1962: 52

¹²⁶ Osgood 1970

¹²⁷ Gwich’in Elders 1997

¹²⁸ Gwich’in Elders 1997



Figure 8. Walter Alexie standing beside a stone hunting blind in the Richardson Mountains. Credit: Greg Hare Cultural Services Branch Government of Yukon. 2005.

During the winters, people travel to areas where caribou were known to be abundant or available, or where they typically are (i.e. 'caribou grounds'). "If there was no caribou where the people were staying, they would travel to where there was a good place for caribou and moose."¹²⁹ In the past, they set up camps from which groups of men would leave and hunt, returning with meat and hides to be processed.¹³⁰ As noted above, decision-making about hunting caribou was accomplished by the group, with experienced and wise men making the final decisions and others following these decisions. This process ensured that the caribou hunt was successful.¹³¹

Caribou are also hunted opportunistically when people were travelling across the land for any reason.¹³² For example, a knowledgeable hunter would watch his dogs, as a good dog team will get excited when they scent fresh caribou tracks.¹³³

¹²⁹ William Nerysoo, COPE story, "A Long Time Ago - #2"

¹³⁰ William Nerysoo, COPE story, "People of the Mountains"

¹³¹ Mary Vittrekwa in Kofinas 1999

¹³² Mary Vittrekwa, COPE Story, "Trip to Old Crow"

Hunting using a corral or fence

*During the caribou migration in the fall, a number of families would join together for a cooperative hunt using caribou fences that stretched for several miles, ending in a surround, where the caribou were snared or shot with arrows. In the winter, small family groups hunted caribou in the mountains. Smaller, more temporary fences were constructed when hunters came upon a herd at this time.*¹³⁴

Historically, large numbers of caribou were hunted using surrounds, fences, or corral-type arrangements. This hunting style may have become more common after the introduction of iron axes to the area through the fur trade.¹³⁵ These were permanent, semi-permanent, or ephemeral structures and arrangements of people or vegetation set up to herd caribou into a particular area where they could be more easily killed, in relatively large numbers. Snares made from one-inch thick braided caribou hide ropes were used in some configurations, which would catch the caribou or their antlers and allow the hunters to kill them. The corrals were a good way to kill many caribou at once. The shape of caribou fences and corrals was different across Gwich'in lands, but the general idea of herding multiple caribou into a single area for quickly dispatching them was the same.¹³⁶ Various other traps and tools were used around the fenced area to prevent escape.¹³⁷

Figure 9 below shows the shape of a caribou surround from above, with fence-posts about four feet high and a fence of brush and poles. The poles in the approach were draped with moss to resemble men and keep the caribou moving towards the enclosure at the end.¹³⁸ These structures made use of natural landscape features as well.¹³⁹

The corrals could be relatively small but were sometimes a very large size. The circular fenced area could be as large as a mile (or more) across, and the funnel could also be very large, up to about five miles wide.¹⁴⁰ The people helping to herd the animals into the fenced area might make wolf sounds to scare the caribou.¹⁴¹ Young, fast hunters were often the ones to chase the caribou into the corrals.¹⁴²

Hunting with caribou fences was a communal effort.¹⁴³ Caribou corrals and fences took strong leadership and co-ordination of many people in many roles.¹⁴⁴

¹³³ Alfred Semple, Elders Biography Project, Long Story

¹³⁴ Kritsch, Jerome, and Mitchell 2003:7

¹³⁵ Kofinas 1998

¹³⁶ Kofinas 1998

¹³⁷ Gwich'in Elders 1997

¹³⁸ Osgood 1970

¹³⁹ Kofinas 1998

¹⁴⁰ Gwich'in Elders 1997

¹⁴¹ Gwich'in Elders 1997

¹⁴² Wishart 2004

¹⁴³ Osgood 1970

¹⁴⁴ Kofinas 1998

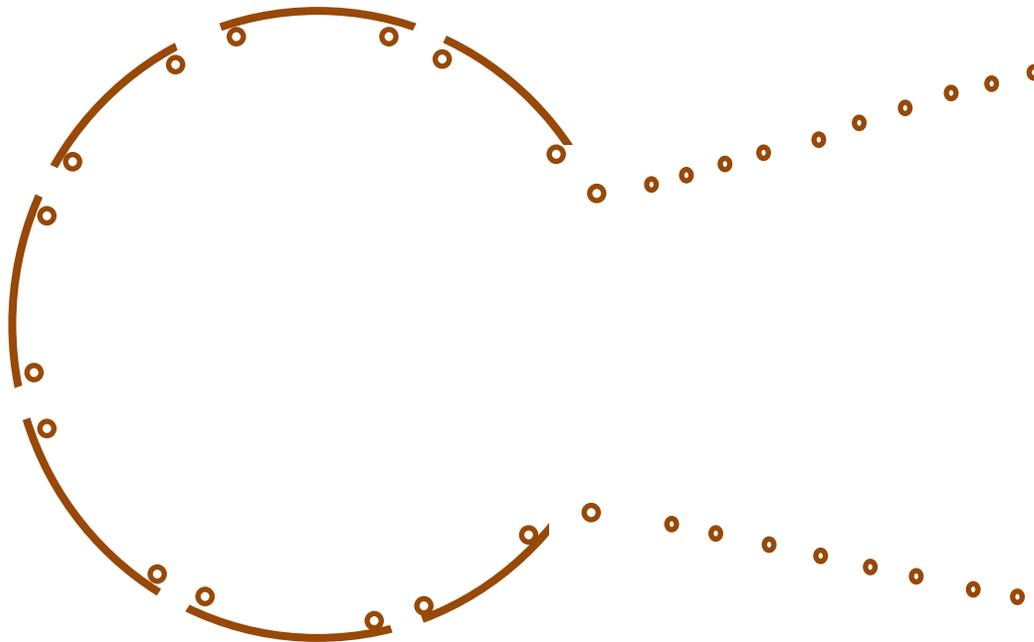


Figure 9. Caribou surround. Credit: Drawn from Osgood 1970: 25.

The collective hunt was organized by “strong well-known men, or leaders of a group”, and the caribou caught would be shared among the group.¹⁴⁵

*After all the caribou passed, they killed lots of caribou, must have been two to three hundred caribou at one time. And then everybody got enough, same amount of caribou and families, and all started packing meat back to camp, and everybody started working with the meat, everyone got a share, the same share of meat. Everybody started drying meat, working with caribou skin and everything they made was food for the winter to last them all winter until next spring.*¹⁴⁶

Corrals were used in various locations in the mountains, including around the headwaters of Timber Creek near Rat River (see list below under the heading *Places where Gwich'in have always harvested caribou*).¹⁴⁷ These corrals were made of rock piles, “centuries ago they got this big pile of rocks up on the hill, I don't know, how far they were, but I guess from a distance it looked like a human, and this would keep the caribou in one direction towards the lake or an ocean...”.¹⁴⁸

¹⁴⁵ Kritsch, Jerome, and Mitchell 2003: 20

¹⁴⁶ Roddy Peters, COPE story, “Timber Creek”

¹⁴⁷ Roddy Peters, COPE story, “Timber Creek”

¹⁴⁸ Amos Paul, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V01 Aklavik April 2 1975

After a successful hunt in this way, celebration suppers were held. On some occasions, people from the Yukon would join in and political meetings would be held.¹⁴⁹ Lazarus Sittichinli recalled how a single hunter using a caribou corral was able to get enough meat to share with many families, during the time when the presence of many outsiders during the gold rush had caused the caribou to migrate far away.¹⁵⁰



Figure 10. Black Mountain and the Mackenzie Delta. Credit: C. Lambert-Koizumi. 2005.

Once firearms were introduced, the Gwich'in no longer used caribou corrals.¹⁵¹ Neil Colin remembers seeing the remains of a caribou corral in the 1950s which was already rotting away.

So people travel all over the place even in summer. They go up Rat River, from ah, from the Delta they go down Delta and then from, Destruction City they goes up a summer trail, or around Black Mountain, this side of Aklavik they go straight over to Fish Lake, ah, not Fish Lake, Sheep Creek, Bear Creek, and Fish River, around Loon Lake area, and

¹⁴⁹ Johnny Semple, COPE story, "Reminiscence - #1"

¹⁵⁰ Lazarus Sittichinli, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V40 Aklavik February 23, 1976

¹⁵¹ Slobodin 1962

Rat River area. That's where they used to make, ah, just between Bear Creek and, Sheep Creek they used to make ah, a caribou corral. And I went past there one summer in 1954, I think, and we was up that way one week and I remember we passed there and we see these old corral, all rotten. That's where Indians used to have the corral for caribou. And that's where they used to ah, get caribou in the corral and they used to slaughter them with bow and arrows and so on. And later they had all muzzle-loader with that, they kill caribou.¹⁵²

The fences were rotten because they hadn't been kept up. Caribou fences needed to be repaired in order to remain useful.

Way up that way, Sheep Creek, on this side. Long ago, all the fence has fallen down and there isn't much left today. When we were traveling around with our parents, we used to go by there and our father used to tell us about how they would fix that before the caribou migrated back. Many elders have suffered just to make sure that the fence was fixed each year.¹⁵³

Calling caribou and masking sound

Caribou can be called by hunters to come towards the hunter.

From there I came upon some caribou tracks. They were old tracks but I followed them for a while until the tracks became fresh and I knew then that the caribou were not very far. It was very cold and it was hard to get near and I knew I couldn't hear the caribou with snowshoes so I took them off and broke off a small spruce tree and started rubbing it together lightly as I followed the tracks. Soon I spotted the caribou and it was coming towards me. All at once I killed it there. This is the way our people use to hunt caribou in cold weather, by rubbing this small tree together because it sounds like caribou hooves.¹⁵⁴

This clicking sound is similar to the sound that caribou themselves make when they're running—a caribou herd makes a lot of noise.¹⁵⁵ Alternatively, the rubbing of two sticks can make a sound like a bull rubbing their antlers on a tree, and the curious caribou may come over to investigate. Caribou can also be called over hills by making the cawing sound a crow makes.¹⁵⁶

¹⁵² Neil Colin Delta Report Dene Mapping Project Tape 71

¹⁵³ Caroline Kaye, Teetl'it Gwich'in Place Names Project 2008

¹⁵⁴ Johnny Semple, COPE story, "How Animals Live"

¹⁵⁵ Gwich'in Elders 1997

¹⁵⁶ Mary Vittrekwa in Kofinas 1999



Figure 11. Belt made from caribou hooves, recreated from Elder's instructions. Credit: Elaine Alexie, Shinli' Niintaih. 2019.

Hunters in the past also knew of ways to call caribou without making a sound, with medicine. As Mary Vittrekwa tells a story from her Uncle Richard Martin, caribou can be called when the moon is 'half dark' in the following way.

When [there is] no meat, make ... this long stick... willow with bark off, about 10 - 12 inches. Hold pots both side. And, when that moon is half dark, you just sing. ...put little meat on top your back. Pretend you got heavy pack and put something around here (pointing to forehead, referring to tumpline for packing heavy load) and just walk slow like when you have heavy ... and that white stick just do this to it. (clacking them at both sides of your head resembling the sounds of caribou going over land with their horns clacking). And Jijii Uncle Richard Martin he sing. His sing too, but I don't remember! He was singing this and go. And do this. Go all over the house. House to

house, go. And then just do this (makes motions with sticks) and sing. And then caribou going to come back to town again. That's what mean. That's what way Jijii, Uncle Richard Martin tell us about. That's a good story, this one. He know, he said.¹⁵⁷

Although sticks can be used to call caribou over, the sounds of sticks rubbing together can be used to mask the sounds of approach on snowshoes.¹⁵⁸ Hunters also had other ways to hide the sound of their approach. For example, a belt with caribou hooves hung from it might be used by a hunter to cover the sound of their own steps.¹⁵⁹ The hooves clacking together mimics the sound that caribou themselves make as they travel in a group.

Butchering and field dressing caribou

The first thing a hunter will do with a freshly-killed caribou is to cut the throat. This prevents stomach contents from rising and fouling the head, which is cut off later and is a delicacy when roasted.¹⁶⁰ Next, the hunter will skin the caribou carcass. In modern times this starts at the elbow or knee joint. In the past, caribou leg skins (from the lower legs) were useful and were carefully removed for later use, although this is no longer the case. The hunter will skin the animal's legs and part of the belly by carefully cutting down the belly and separating the skin with his or her hands. Next, the intestines are

¹⁵⁷ Mary Vittrekwa in Profiet-Leblanc 1994: 10

¹⁵⁸ Gwich'in Elders 1997

¹⁵⁹ Gwich'in Elders 1997

¹⁶⁰ Gwich'in Elders 1997

removed. Any organs being saved are removed and cleaned, such as the kidney and liver. The rest of the skin is then removed, using the knife as rarely as possible.¹⁶¹

Once skinned and gutted, the caribou is quartered into shoulders, legs, breast, loin, and ribs. The ribs are broken off each side, and the backbone is also cut in half.¹⁶² If a caribou is butchered carefully and properly, there is no blood on the meat.¹⁶³ Working with caribou immediately upon killing it or immediately upon receiving it is considered a traditional rule of respectful hunting.¹⁶⁴ When men are hunting away from a camp, they field-dress the caribou and bring the best parts back first, before returning to the killsite.¹⁶⁵ Sometimes, the meat is left in the snow, covered with the hide. Another person or the hunter can return to collect it later.¹⁶⁶ The meat left behind can also be covered with moss and snow, which protects it from even ravens.¹⁶⁷



Figure 12. Andrew Neyando, stopping for tea and caribou on the trail. Credit: Keith Billington, GTC Department of Cultural Heritage, March 1965.

¹⁶¹ Gwich'in Elders 1997

¹⁶² Gwich'in Elders 1997

¹⁶³ Mary Vittrekwa in Kofinas 1999

¹⁶⁴ Wray and Parlee 2013

¹⁶⁵ Johnny Kaye, COPE story, "The Fearless Group" and "Kidnapped"

¹⁶⁶ Tabitha Bernard, Life Long Ago

¹⁶⁷ Alfred Semple, Potential Heritage Conservation Zones interview, 2007

In the past, toboggans pulled by dog teams were used to transport caribou. Once the caribou were field-dressed, the skins were laid in the toboggan with the hair side out. The meat was then piled on top for transport.¹⁶⁸ A large sled load of caribou meat might be three to five caribou.¹⁶⁹ Care was taken for all steps to ensure the carcass was properly butchered, the meat and anything edible or useful saved, and that respectful hunting practices were followed.

And today the boys go hunting and they're just full of blood when they come back. It's not good. They're not hunters...Careless. But when dad come back, mom always say look at your dad's feet. Do you see any blood? Nothing. And wrapper. They just put that ... caribou skin inside there and then put the cut-up meat inside and very clean. They say that if you're careless with whatever you get well you, your luck goes away.¹⁷⁰



Figure 13. Having tea on the land. Credit: Ingrid Kritsch, Department of Cultural Heritage. 1998.

Caribou meat

Caribou meat is considered to be the healthiest meat. This is because caribou eat lichen and grass, which make for a more energy- and nutrient-dense meat when compared to moose meat. Moose eat

¹⁶⁸ Gwich'in Elders 1997

¹⁶⁹ Neil Colin, Life Long Ago

¹⁷⁰ Catherine Mitchell, Elder's Biography Project, Tape 16

mostly willows.¹⁷¹ People who eat more caribou meat are said to have a darker complexion than those who eat more fish.¹⁷²

Caribou meat is traditionally cooked in many ways. If no stove is available, then it can be cooked ‘to the fire’, or over an open fire.¹⁷³ Before stoves were in use, caribou meat was cooked in water using rocks heated first in the fire. Multiple rocks were needed.¹⁷⁴ The water could be contained in a mooseskin rawhide that was tied into a bowl-like shape.¹⁷⁵ Other containers that were used to cook caribou in this way include baskets woven from tree roots or birch bark, a pit lined with mooseskin, or even wooden pots.¹⁷⁶ The water would prevent the container from scorching.

Traditionally, the head was eaten first and considered a delicacy, and was roasted to well-done.¹⁷⁷ Many, many elders spoke about how they preferred the meat from the head. To prepare, the head is usually skinned and glands removed. The head is roasted in a large pan with water added. The nose and throat are plugged with caribou hair or skin. After an hour of cooking, the plugs are removed and the throat is washed with water. The plugs are returned and the roasting continues. When done, all the meat, along with the tongue, eyes, brains, and so on are removed for consumption. The tongue and nose can also be cooked separately.¹⁷⁸ Like the head, most caribou meat is preferred when it is cooked to be well-done rather than rare.¹⁷⁹ The back of the caribou is cut out and is like bacon to eat.¹⁸⁰ Sometimes, pounded meat is made into meatballs.¹⁸¹ The tongue, heart, heads, legs, and ribs, along with the meat from caribou calf, are also considered to be the best parts.¹⁸²

*Different parts of a vadzaih carcass make a variety of meals. Meat from the back makes good soup, while vadzaih front legs can be fried, roasted, or boiled. Old time tea was made from three or four vadzaih leg bones boiled with some salt for half an hour. The broth was drunk instead of tea. Vadzaih rump is roasted. Ribs are cut up into small pieces, put in a pot with water, and boiled or roasted, at medium heat, until well done. Vadzaih tails are cleaned and boiled, the neck meat is boiled or roasted, and the bones and some of the meat are good in soups. The collarbone is good roasted on the fire, or next to the stove. It is also good in soups. In the old days, Elders ate the soft, inside growing parts of the antlers in the summer.*¹⁸³

¹⁷¹ Gwich'in Elders 1997

¹⁷² Gwich'in Elders 1997

¹⁷³ Paul Bonnetplume, COPE story, “Hunting and Fishing in the Fall”

¹⁷⁴ Mary Francis, COPE story, “Food”

¹⁷⁵ Mary Francis, COPE story, “How to Boil Meat Long Ago”

¹⁷⁶ Gwich'in Elders 1997

¹⁷⁷ Osgood 1970

¹⁷⁸ Gwich'in Elders 1997

¹⁷⁹ Osgood 1970

¹⁸⁰ Mary Vittrekwa in Kofinas 1999

¹⁸¹ Gwich'in Elders 1997

¹⁸² Johnny Kaye, COPE story, “The Fearless Group”

¹⁸³ Gwich'in Elders 1997: 33



Figure 14. Caribou camp, Rock River. Caribou head roasting by stove, with Mary Vittrekwa (Tizya) and George Vittrekwa Jnr. Credit: Keith Billington, GTC Department of Cultural Heritage, March 1965.

Some parts of the caribou were not to be eaten by young people:

I saw some young people there cooking young caribou so they were talking about the older people. They said they were talking about home when we took these young caribou home for our parents, some of them told us not to eat it because it was no good for young people to eat young caribou because when they grew up they would get weak and when they walked with snowshoes they would get weak and get thirsty quick. They wouldn't hunt right that way and when they got to middle age they got grey hair. That's on the account of eating that young caribou.

So, our people or parents don't allow us to eat young calf caribou. Now they said we got all kinds of young caribou. We were frying all these caribou in a frying pan and they said this caribou, the young ones, tasted so good. It tasted like chicken - no wonder our older people don't want us to eat this young caribou but we're really going to have a

*picnic, they said. So, for four days staying in one place, all they did was eat, sleep, and feed dogs, and play poker every night.*¹⁸⁴

During the rut, the meat from bull caribou has an unpleasant flavour, and people do not hunt them at this time.¹⁸⁵ However, caribou meat is a popular food item for Gwich'in families year-round.¹⁸⁶

Caribou calves and fetuses

Caribou fetuses are special, and are a delicacy reserved for elders or people who are ill. This was a decision made in the time when caribou and people were equal, at a meeting of all the animals. Some harvesters target pregnant cows on purpose to get the fetus to give to elders, although this practice is in decline due to recent rule changes enforcing or suggesting a bull-only harvest.¹⁸⁷ Very small caribou calves were also delicacy.¹⁸⁸

Human flesh in the caribou

Leftover from the time when humans and caribou were equal, and when caribou and humans met to discuss whether humans could hunt and consume caribou, there is some human flesh retained in the caribou's body from an ancient exchange that tied humans and caribou together. It is in the back leg, and Elders say it should never be consumed.¹⁸⁹ This bit of flesh came from a time when caribou tried (once again, as the legend goes) to be human in form for a while. They decided they didn't like being human anymore, so they changed back. Some elders also say that the caribou's heart has some human heart in it, and the human heart has some caribou heart in it.¹⁹⁰

Caribou drymeat and other storage options

Caribou meat that can't be consumed immediately is frequently made into drymeat. Both drymeat and "fresh" meat are consumed in large quantities. Years ago, when multiple caribou were killed at once, a camp could be established in the area of the kill and the meat processed and dried for several weeks.¹⁹¹ In the past, women would cut the meat into the right size of piece and dry it over a fire inside their home. This fire needed to be nice and warm, which meant that women had the extra job of collecting firewood.¹⁹² Making drymeat is a lot of physical work, and also takes experience and skill to get the drying conditions just right. It is not an easy task.¹⁹³

Hind quarters and meat with a lot of fat in it are considered the best for making into drymeat. Large quantities of meat are cut from the leg and then cut into thin strips. The cuts have to be parallel to the muscle fibres, or the dry meat will fall apart when it is dry.¹⁹⁴ The meat strips must be turned twice a day

¹⁸⁴ Roddy Peters, COPE story, "How the People of Fort McPherson Hunted"

¹⁸⁵ Benson 2011

¹⁸⁶ Kuhnlein et al. 2009

¹⁸⁷ Kofinas 1998, Wray 2011

¹⁸⁸ Johnny Kaye, COPE story, "The Fearless Group"

¹⁸⁹ Mary Kendi in Kofinas 1998

¹⁹⁰ Gwich'in Elders 1997

¹⁹¹ Gwich'in Elders 1997

¹⁹² Bella Alexie, COPE story, "How We Lived Long Ago"

¹⁹³ Paul Bonnetplume, COPE story, "Hunting and Fishing in the Fall"

¹⁹⁴ Gwich'in Elders 1997, Neil Colin, Life Long Ago

for a week, to ensure they dry evenly on both sides. When they're close to dry, they can be flattened by hammering or standing on them (wrapped in canvas to protect the meat), which helps the meat to dry more evenly. These flattened pieces can be threaded on a sharp stick to continue drying. As the meat dries, it changes from red to dark brown in colour.¹⁹⁵

In the past, drymeat could be moved in dog packs, laid carefully on top of dried willow branches.¹⁹⁶ It can also be bundled into bales, consisting of a stack of drymeat about a foot high tied securely together.¹⁹⁷ Baled drymeat is easy to transport. "People live good with their own food them days. They bring caribou skin in and the women cut off the hair. They put their dry meat in there inside the skin and then you fold the skin over and over, and tie it. Big bundle full of dry meat."¹⁹⁸ Meat dried in the fall and early winter during the caribou's migration can be re-dried in the spring, and then pounded. The pounded, almost powdery meat is placed into a caribou leg skin bag or mixed with fat.¹⁹⁹

Caribou meat can also be stored frozen. Today, chest freezers are used, but in the past the permafrost acted as a freezer. Both drymeat and frozen meat remain popular in the Gwich'in diet of today.²⁰⁰ Before the days of plastic, the contents of the caribou's stomach could be smeared on the meat to prevent it from degrading during freezing. This also added flavour to the meat when cooked and prevented the meat from scorching.²⁰¹ "I always ask them to bring that home for me because I store my meat in it. I cut up meat, like backbone, rib bones, leg bones, arm bones, all that I shove into it and it tenderizes it, the stomach content."²⁰² Drying meat is still considered a good way to store meat, especially for staying at camp where there may not be the power to run a freezer, "If I am going to be out here and I don't have a cold place I dry it. I dry the meat and so that it don't get spoiled."²⁰³

Drymeat or frozen fresh meat can be stored on a stage, which is a raised, four-legged structure that prevents many animals from getting to the meat.²⁰⁴ Sometimes, caribou meat and other foods were cached in the ground for longer-term storage, as well.

They travel all over the mountains in search of meat, caribou. When they come upon, when he kill a caribou they stay there and dry all the meat. Sometimes the dry meat and the smoke meat, they used to store it in someplace in the mountains where they would find some sort of like, they would dig a hole, take rock by rock, they would take all that out and sort of make a hole and they would bury their food in there and piles rocks and rocks over it. This was the way they kept things and then mark the place. Then, later on when we needed the food, we would go back to that place and get what we had stored.

¹⁹⁵ Gwich'in Elders 1997

¹⁹⁶ Mary Vittrekwa in Kofinas 1999: 456

¹⁹⁷ Gwich'in Elders 1997

¹⁹⁸ Annie Benoit, Elder's Biography Project, Long Story

¹⁹⁹ Mary Vittrekwa in Kofinas 1999: 456

²⁰⁰ Kuhnlein et al. 2009

²⁰¹ Gwich'in Elders 1997

²⁰² Elizabeth Colin in Wray 2011: 111

²⁰³ Elizabeth Colin in Alexie 2015: 112

²⁰⁴ Andrew Kunnizzi, COPE story, "1938 Trip to Mayo, Yukon"

*There, in those years, there was not many wolves or grizzlies or bears so they never bothered our food too much too because there were not many of them.*²⁰⁵

Caribou brains

Caribou brains are used in the tanning process, to tan caribou, moose, beaver, wolverine, and other types of skins.²⁰⁶

*This is the way they tan caribou skin. When they bring the skin in, they first cut the hair off and clean it good - scraping both sides. You then put it in caribou brain water to soak it and then wring it out to get rid of the blood. Then you smoke and soak it like moose skin. You soak it and wring it out and after that you scrape both sides and then when it's dry, you put smoke under it (if you do it good, you can do it in three days). You scrape it and sew up the holes and put smoke under it with rotten wood. You can make it as brown as you like.*²⁰⁷

For more information about tanning, see *Tanning and preparing caribou hide*, below.

Caribou intestines, marrow, and blood

The intestines of caribou can be consumed or used as a storage vessel. For example, caribou fat can be stored in a bag made from the stomach of the caribou. In addition to use for storage, the stomach can also be used to cook in. Before use, the stomachs and other intestines were carefully cleaned and dried.²⁰⁸

*lidheeghwat [part of the stomach]...well I tell you a story about that. It's true this, for survival...but you got to know which part and, what you do if you got no kettle is you... fill it [the stomach] up with snow, and then it wouldn't really burn. And you cook it to the fire. And you see then you ... got to watch it, it doesn't really burn. Then you got soup! You got soup, and, you could eat your kettle too. You see that's really for survival.*²⁰⁹

The water-proof nature of caribou intestine bags was useful. Alfred Semple remembered that spruce bark fish nets were kept safely damp in these bags. "You know, caribou skin bag? Water not leaking. You keep that damp, that's what they said."²¹⁰

The partially-digested plant material found in the stomach could be used as protection for freezing meat, but was also consumed for its own healthy qualities. It was also mixed with other food and fed to dogs. This food is found in a part of the caribou's stomach known as the "bible", as it looks like many

²⁰⁵ Peter Kay, Elder's Biography Project, 2001, Tape 50

²⁰⁶ Mary Francis, COPE story, "Tanning"

²⁰⁷ Mary Francis, COPE story, "Tanning"

²⁰⁸ Mary Francis, COPE story, "Food"

²⁰⁹ Woody Elias in Katz 2010

²¹⁰ Alfred Semple, Potential Heritage Conservation Zones interview, 2007

pages. The bible itself was, and is, also consumed.²¹¹ One part of the stomach, a tube, could also be stuffed with cranberries and fat, and boiled, to be eaten for dessert.²¹²

*It's a part of the stomach. ...The lace [fat] covers the whole stomach. ...And they take all that off really good when you cut the caribou and cut the tube out. ...it's just small little, two small little [tubes], to come from other end too. Just cut it out there and, you put that fat back in that... Just fill that, with that fat is on it, put it back inside. ...You boil that and, after it's cooked, you just slice how much you want to eat.*²¹³

The undigested plant material found in caribou's intestines can be placed on porcupine quills that have become lodged in someone's skin. This helps the quills to be removed.²¹⁴

Since the caribou is of such great importance for protein, fat, and nutrients, in the past the Gwich'in used almost all of the animal. This included parts which are disposed of today, including the blood.

*Blood soup is another favorite dish. To make this, one drops pieces of frozen blood into boiling water, stirring all the time. To this, choice pieces of meat are added. Some people like the stomach of large animals very much. The Indians hang the whole stomach up for a week so that it attains a sour sauce-like taste. Afterwards they cut it open and stuff it with meat and fat. This is one way of preservation for the flies do not get at the contents which take on a salty taste. Indian cooks also stuff the esophagus, large intestines, and lungs of caribou and moose. They tie the lungs at one end and blow them up to dry a little first.*²¹⁵

Blood was poured into a 'gut pouch' which was tied and frozen for use later.²¹⁶

Marrow, which is the nutrient-rich fat found inside of the bones, can be eaten fresh while butchering caribou. The long bones of the caribou are split and marrow removed for either immediate consumption, or for storage to eat later. If not eaten fresh, marrow can be fried and added to other dishes, or rendered with bone grease and used that way (see below for more about bone grease).²¹⁷

The milky contents of a caribou calf's stomach were also eaten, after being made into a sort of cheese. The whole stomach of the calf was removed and hung for a time, while the outside of the bag dried and the inside became firmer. This was cooked with brains, grease, and marrow, and berries were also added. This mixture could be returned to the stomach bag for eating later.²¹⁸

²¹¹ Gwich'in Elders 1997

²¹² Walter Alexie, Black City Ethno-archaeology Project, 2004, Interview 5

²¹³ Alfred Semple, Black City Ethno-archaeology Project, 2004, Interview 5

²¹⁴ Gwich'in Elders 2001

²¹⁵ Osgood 1970: 30. Eyeballs and other parts of the head were also consumed.

²¹⁶ Bella Alexie, Life Long Ago, Tape 111

²¹⁷ Gwich'in Elders 1997

²¹⁸ Gwich'in Elders 1997

*That young calf yearlings, caribou. You get the stomach and, old people, they always ask me to bring some back, just empty a little bit out of it uh. And they take it back, and when I take it home they put on top of the stove pipe, [on] poles inside the tent for drying meat. They put it close to stove pipe, so it'll age. It'll rot and boil. After it age for a few days, three days maybe and then they get marrow and, they got, get good fat inside it lacing on their stomach, they get fat off like this. And then they cut it up into little pieces and cook it in frying pan. And after they cook in frying pan, they take that aged stomach down and they open it up and they pour it in there and they mix it. With that marrow and that grease and that fat. Mix the whole thing. That's it.*²¹⁹

Healing properties

During the terrible flu year of 1928, there were not many caribou around. A hunter managed to get one and it was made into soup by the restaurant owner in Aklavik. This soup had healing properties and helped the flu victims get 'back on their feet'.²²⁰ Caribou blood in particular was noted to have healing qualities. "Caribou blood gives strength and warmth, and it keeps you from getting hungry for a long time."²²¹ A lack of caribou meat has been known to change Gwich'in people's behaviour, and also can make people experience bad moods.²²²

Caribou fat, mixed with spruce gum, can be used to treat infection. The fat can clean the wound and seal it. Calf stomach contents were also dried for use as a medication to calm an upset stomach, and fermented stomach contents were consumed by medicine men, which gave them strength.²²³

In modern times, various health departments urge Gwich'in families to consume a traditional diet including caribou, as it is a healthy addition to a modern diet. This messaging is an attempt to reduce the consumption of some of the less healthy foods which have been brought in and adopted by Gwich'in after they settled into modern towns and the wage economy, leaving the traditional life spent on the land.²²⁴

A fascinating story about Gwich'in healing and surgical skills, and the use of caribou, was told by a Klondiker from the gold rush of 1898-1899.

One of the Klondikers, George Mitchell, who seriously injured his knee while cutting down a tree at Wind City, was taken in by the Gwich'in for the winter of 1898-99. Chief Francis' wife, Flora, under the direction of an older Teet'it Gwich'in woman by the name of Jane (Old Colin's wife), performed knee surgery on him. She used flint flakes to do the surgery, and small pins made out of caribou bone and fine caribou sinew to bring the two halves of the knee cap together. For the next month, a poultice of herbs and the inner bark of a tree was placed on his knee every second or third day. "...its drawing

²¹⁹ Walter Alexie, Black City Ethno-archaeology Project, 2004, Interview 5

²²⁰ Johnny Kaye, COPE story, "The Flu – 1928"

²²¹ Woody Elias in Kuhnlein et al. 2009: 47

²²² Kuhnlein et al. 2013

²²³ Gwich'in Elders 1997

²²⁴ Andre 2006

power was so great that the whole wound healed perfectly, without a trace of pus..." (Graham 1935:192). His knee cap healed perfectly.²²⁵

Caribou fat and bone grease

The grease comes from boiling caribou bones containing marrow. The marrow melts when boiling and comes to the top of the pot - this is called bone grease. Bone grease is clear white and clean. It is usually kept for special occasions like feasts. This time it was being used to freshen up the complexion and to make the warriors look nice.²²⁶

The bones are a good source of fat, from the rich marrow and the fat found in the bones themselves. Bones were broken up using a rock or the back of an ax, boiled and the fat skimmed.²²⁷ Marrow was taken from long bones but also from some of the smaller bones in the ankles.²²⁸

The fat or grease from caribou was stored and eaten later, and is well-liked as a dip for drymeat.²²⁹ In the past, bone grease served many purposes, including:

- Bone grease was used as a waterproofing agent.²³⁰
- Before tea became commonly available, the juice from boiling bones or boiling meat was used instead of tea.²³¹
- It was also used to preserve berries like cranberries.²³²
- Caribou bone grease was also used to grease the seams and the moose-hides, of the large moose-hide boats that were used to travel down major rivers in the spring.²³³ Sometimes, the fat was mixed with spruce gum and used like glue, to seal the seams of skin boats.²³⁴
- It was also useful for medicinal and cosmetic purposes. For example, it was used as a pomade for both men and women's hair.²³⁵

Old Time Tea

- 3 to 4 caribou leg bones.
- 1 tsp. salt.
- Water to cover.

Boil bones for half an hour. Remove bones. Add the salt.

Drink some good tea.

²²⁵ Kritsch, Jerome, and Mitchell 2003: 25

²²⁶ Paul Bonnetplume, COPE story, "War Between Indians and Eskimos"

²²⁷ Kritsch, Jerome, and Mitchell 2003

²²⁸ Robert Alexie, Black City Ethno-archaeology Project, 2004, interview 6

²²⁹ Kritsch, Jerome, and Mitchell 2003

²³⁰ Kritsch, Jerome, and Mitchell 2003

²³¹ Paul Bonnetplume, COPE story, "Hunting and Fishing in the Fall"

²³² Parlee et al 2014

²³³ Johnny Kaye, COPE story, "From Fall to Spring"

²³⁴ Lucy Vaneltsi, COPE story, "Traditional Life - #1"

²³⁵ Osgood 1970

Bone grease is pure white when frozen.²³⁶

Bone. You see that bone, they, they make dried meat out of it and they put the bone this way, this way, hang it up. When they know is, when they know they've got enough dry meat, they clean the caribou skin. And then they put all the dry meat inside, on top, they put the string around it and make it just like it's about that wide. Enough to put it in the toboggan, and they make lots of big pile of dry meat outside. And then this bone I'm talking, I was telling you about it, they put ah, they clean caribou skin, no hair on it and they put stone right in the middle. They pound it up. They pound up that, the bone...And then after that they, they pound it up and then they got big pot, big pot for that. They always when people around they have to get that big pot because they boil bone inside. And then after that, pound it up on the stone, they use axe. Pound it up and then they put that, all the mash bone, just into that pot and then they boil it. Boil it and boil it and boil it. And then, they know it's enough they, they know that the bone is boil enough, they take the big pot down, nothing but thick grease on top of it. And then, they get all the grease out and... [put it in a stomach bag]. You put stick like this and you put that bag over it and you pour the grease in it and then you just sew it. You put stick through it and tie it up to hold it and you freeze it and the grease is just like this. They just use a piece of stick so it can close it. That's what the, they use to eat the dry meat with.²³⁷

The fat found around the guts is also preserved for eating. It can be hung to dry and then cooked carefully to prevent scorching. The fat can be stored attached to the guts, which are cleaned and turned inside out and stuffed with more of this organ fat, which was known as "lace" fat.²³⁸

And from the guts too you can get really good fat if it is a really good fat caribou. You get lots of lace, they call it lace fat. And then there is a big, I don't know how they call it, but there is a big fat in there that you just clean too, and you know, we used to be...to eat all that but I am a diabetic now I can't eat anything like that now. When they go hunting, when they first come back it's always a [inaudible] back there with the guts, the ones that you eat. So I wash it, I wash it and then I boil it, all. Guts and the ribs, I don't know why the ribs, but the ribs go in the oven too, that's when they first come back from hunting. Or heart. You can have heart too. So the heart is good from the inside too, and the kidneys too.²³⁹

²³⁶ Johnny Kaye, COPE story, "The Fearless Group"

²³⁷ Catherine Semple and translator Annie B. Gordon, Ehdiitat Gwich'in Place Names Project 1999, Tape 14

²³⁸ Gwich'in Elders 1997

²³⁹ Elizabeth Colin in Wray 2011: 111

Bones and antlers

In the past, caribou bones were used for many purposes: as needles, hide scrapers, beads, awls, saws, arrow heads, and many other tools and weapons.²⁴⁰ To make saws, the long bones were split and sharpened, and fabric wrapped around the two outside ends to make handles.²⁴¹

Caribou antlers were split into sharp tines and used in the manufacture of fishhooks, traditionally.²⁴² Metacarpals (wrist bones) were also used to make fish hooks.²⁴³

Caribou antler clubs were made by sawing off unwanted tines and boiling in order to make them straight. They were used both to hunt animals and during warfare.²⁴⁴ Sometimes, a part of the skull was left on the antler when making a club, to add weight. These clubs were around ten pounds. A very brave man could even kill a bear using a club like this. Clubs could also be manufactured out of bones.²⁴⁵

Antlers were also used to make handles for other implements, and were carved into decorative items.²⁴⁶ They were used as the tips of spears.²⁴⁷

Small bones and hooves were used to make various types of rings and necklaces, worn on the fingers, in the ears, or nose. Beads were also made of caribou bones. These beads were very thin and were used like money is.²⁴⁸

Caribou hides

*The skins were used to make shelters, clothing, sleds, containers, baby straps, blankets, mattresses, games, snow glasses and even sails for birch-bark or moose-skin boats. Bone, hair, hooves and antlers were made into tools, weapons, utensils and games. Bones and hooves were also carved into jewelry and used to decorate clothing. Sinew was important for sewing.*²⁴⁹

Caribou hides were one of the most important materials for Gwich'in families before fur trade brought manufactured goods, including woven cloth, to the area. They were used in nearly every context where cloth, thread, or any form of bindings may be used. Hides were used green (untanned) and tanned to varying states. In some cases, caribou were killed at a particular time of year solely for their hides, as the



Figure 15. Traditional style antler fishhook in the shape of a seal. Credit: Natasha Lyons, 2007.

²⁴⁰ Kritsch, Jerome, and Mitchell 2003, Kritsch and Wright-Fraser 2002, Osgood 1970, Gwich'in Traditional Caribou Skin Clothing Project Video Log 1998.

²⁴¹ Gwich'in Elders 1997

²⁴² Osgood 1970

²⁴³ Osgood 1970

²⁴⁴ Osgood 1970

²⁴⁵ Edward Snowshoe, COPE story, "Man Without Fire – Part #1", Osgood 1970

²⁴⁶ Gwich'in Elders 1997

²⁴⁷ Paul Bonnetplume, COPE story, "Hunting and Fishing in the Fall"

²⁴⁸ Gwich'in Elders 1997

²⁴⁹ Kritsch, Jerome, and Mitchell 2003:7

hides and fur changed with the seasons. The activity of tanning was so important that camp location would sometimes be dictated by the needs of tanning: when deciding where to stay during the summer when tanning would take place, Gwich'in families would include "presence of willows" in their selection criteria, as willows were important for the smoke needed to tan hides and were suitable for constructing the various drying racks used.²⁵⁰

Caribou hides continue to be used, although not with the same frequency.



Figure 16. Caribou skins freeze drying. John and Carolyn Kay's camp. Credit: Keith Billington, Department of Cultural Heritage. March 1968.

Caribou rawhide, cut to about $\frac{1}{2}$ to $\frac{3}{4}$ inch thick, is known as babiche and was used for many purposes. For example, it was used to string the centre part of snowshoes, and to make the laces which attach the snowshoe to the boots.²⁵¹ Different thicknesses of babiche were used for different purposes—snowshoes need "skinny babiche".²⁵² Sinew or babiche was used as thread to sew and it was used to make snares and traps.²⁵³ Caribou skin ropes made from braided strips of skin were also used as a belt and for other purposes.²⁵⁴ The skins from cow caribou killed in May or June were traditionally considered the best for making babiche. It was partially tanned and then cut into a long strip using a

²⁵⁰ Jim Edwards, Dene Mapping Project Tape 79

²⁵¹ Elijah Andrew, COPE story, "Snowshoes"

²⁵² Lyons 2007

²⁵³ Johnny Kaye, COPE story, "The Deserted Woman", Christie Thompson, COPE story, "A Long Time Ago – Part #1"

²⁵⁴ Bertha Peters, COPE story, "A Bushman Story"

spiral form.²⁵⁵ Babiche could also be used instead of willow to make fishnets.²⁵⁶ It was also used as fishing line.²⁵⁷

The number of items made from or using caribou hide could fill a book, so this is just a subset (see below for more information on a selection of important items):

- Caribou skin was used to make clothing.
- Caribou skins could be used to cover a canoe, or even a larger boat (although usually mooseskins were used for this).²⁵⁸
- Skins were used to make tents and lodges.²⁵⁹ It would take around twenty hides to make a caribou skin tent. The tents were decorated with a red paint made from ochre.²⁶⁰ Ochre was also used to dye caribou skin pants.²⁶¹
- Caribou skins were used to make “wrappers”, the large/long bag on a toboggan.²⁶²
- Caribou hides cut into thin strips were used to make dog whips, by braiding raw, cleaned caribou skin around a heavy handle, and attaching it to a babiche tail.²⁶³
- Untanned caribou hide, if very thin, could be used to stretch over a circle of willow or birch, to make a drum.²⁶⁴
- Caribou hide was used to make a slingshot, used as a toy for children but also to hunt small game.²⁶⁵
- Dolls were made from caribou skins.²⁶⁶
- Four or five caribou skins, sewn together, made a blanket.
- Caribou skins were used to make a variety of types of mattresses, a practice which continues to today.²⁶⁷
- Caribou skins also spread over the spruce branches used on the ground inside a tent, to make a warm, insulated surface.²⁶⁸
- Caribou hides were used to make a soft platform and ropes used in a trampoline-like game. Unlike a trampoline, the jumping surface was quite small, though, and the ropes which attached it to the trees were long. The point of the game was to land on the small square of hide despite being rocked up and off by the onlookers holding the ropes.²⁶⁹

²⁵⁵ Osgood 1970

²⁵⁶ Wishart 2004

²⁵⁷ Christie Thompson, COPE story, “A Long Time Ago – Part #1”

²⁵⁸ Andrew Kunnizzi, COPE story, “Travels in the Yukon”, Sarah Peters, COPE Story, “Attachakai – Part #2”

²⁵⁹ Andrew Kunnizzi, COPE story, “Travels in the Yukon”, Sarah Peters, COPE Story, “Attachakai – Part #2”

²⁶⁰ Sarah Peters, COPE story, “Life in the Old Days”

²⁶¹ Lyons 2007

²⁶² Andrew Kunnizzi, COPE story, “Travels in the Yukon”, Sarah Peters, COPE Story, “Attachakai – Part #2”

²⁶³ Lyons 2007

²⁶⁴ Elijah Andrew, COPE story, “How to Make a Drum”

²⁶⁵ Osgood 1970

²⁶⁶ Osgood 1970

²⁶⁷ Gwich’in Elders 1997

²⁶⁸ Annie Benoit, Elder’s Biography Project, 2001, tape 52

²⁶⁹ Paul Bonnetplume, COPE story, “Diniijik, the Medicine Man”

- Hides were used as blankets to sleep under.²⁷⁰
- The skin of the baby caribou was used in the past to strain fat rendered from fish intestines, to purify it.²⁷¹
- Caribou hair, after being cut from the hide, was used to stuff pillows and mattresses.²⁷²
- The seams of mooseskin boats were sewn with caribou sinew.²⁷³ Sometimes canoes were large enough to have a mast with caribou-skin sails.²⁷⁴
- Hair can be used like a scrubber to wash hands or for insulation under the spruce boughs used as flooring material in tents. Hair was also used to make beds for dogs.²⁷⁵

Charles Koe remembered that during a starvation time when he was young, his mother cut strips of a caribou mattress and soaked them to feed the dogs, keeping the dogs alive this way.²⁷⁶ In times when food was abundant, caribou hooves and legs were hung in trees. In later years, these could be used as emergency food if it was a time of starvation. Caribou dung could also be used to make soup during starvation times.²⁷⁷

Tanning and preparing caribou hide

Working with caribou skins and making clothing was women's work, and it took skill and strength.²⁷⁸ Women would work on caribou hides in all aspects: cleaning, tanning, and sewing them.²⁷⁹

To tan caribou hides, first the skin would be cleaned, and any remnants of meat and fat removed. Then the hair would be cut off, if desired. Both sides of the skin were scraped very carefully to remove all the remaining hair, fat, or meat. It is hard to avoid scraping through the skin and making holes during this step, so Gwich'in women were very careful, skilled, and experienced.²⁸⁰ This scraping was traditionally done with a scraper made from the long bone of a caribou or moose.²⁸¹ After scraping, the skins would be placed in lukewarm water, wrung out, and then hung to dry over a pole. When the skin was half way dry, the thick parts of the skin were scraped to make the hide more even, after which more washes in lukewarm water were needed. It would take two or three days to finish these steps.²⁸²

Next, warm water with carefully-rotted caribou or moose brains (today this is replaced with soap) was used to soak and tan the hide, after which it was wrung out yet again and dried. This step was repeated until the hide started to soften, at which point it was scraped again.²⁸³ Even after all this work, the hides

²⁷⁰ Mary Husky, COPE story, "Life Long Ago"

²⁷¹ Osgood 1970

²⁷² Gwich'in Elders 1997

²⁷³ Kritsch, Jerome, and Mitchell 2003

²⁷⁴ Osgood 1970

²⁷⁵ Gwich'in Elders 1997

²⁷⁶ Charles Koe, COPE story, "Memories of Hungry Lake (Yukon)"

²⁷⁷ Gwich'in Elders 1997

²⁷⁸ Paul Bonnetplume, COPE story, "Hunting and Fishing in the Fall"

²⁷⁹ Bella Alexie, COPE story, "How We Lived Long Ago"

²⁸⁰ Lucy Vaneltsi, COPE story, "Tanning"

²⁸¹ Gwich'in Elders 1997

²⁸² Lucy Vaneltsi, COPE story, "Tanning"

²⁸³ Lucy Vaneltsi, COPE story, "Tanning"

were not finished—they still needed to be smoked. Hides were placed over a willow frame over a fire of chips and dry willow.²⁸⁴ Rotten wood was added to the fire to produce smoke as needed. Smoking, like all the steps of tanning a hide, was very particular. Women couldn't let the fire get too hot (no flames, just a smouldering fire), and needed to tend the hides very carefully.²⁸⁵ Another round of scraping followed, and the now much-softer and almost finished hide was smoked one more time.²⁸⁶

The following table describes the process of tanning caribou.²⁸⁷

Table 3. Phases of Tanning Caribou Hides

PREPARING AND STORING THE HIDE	
Caribou harvest	Caribou are typically hunted in fall and winter months. Historically, people lived in camps in the mountains near places where caribou were known to migrate and overwinter.
Fleshing the hide	After the meat was brought back to camp, the remaining flesh was removed from the hide using a flesher made from the leg bone of a caribou or moose. In some cases the hide was first pegged to the ground with small sticks placed through holes made at the corners of the hide. Fleshing could take 1 or 2 days, depending on the hide's size.
Removing the hair	The hair was removed from the outer side of the hide using a long knife and a downward scraping movement. Care was taken not to damage the hide, which reflected poorly on the tanner.
Storing the hide	The hide would be rolled or folded to be frozen through the winter. Care was taken to keep it away from dogs and to ensure that it did not thaw, lest it rot. Alternatively, the hide was hung, resulting in it both drying and bleaching in the winter sun.
TANNING THE HIDE: SPRING AND SUMMER WORK	
Preparing "brains"	During the winter, brains of caribou, bear, or lynx had to be found for the tanning process; women would pack the brains away in a container away from people and animals for 2–3 months until they were sufficiently fermented for use.
Soaking the skin	Once thawed, the hides had to be soaked in the river or lake for about 1 week.
Gathering wood for smoking the hide	Before tanning could begin, the women gathered dahshaa, the inner part of a tree (usually poplar) that had turned brown and rotten.
Singeing the hair side	Before wringing out the water, the hair side had to be singed to take off

²⁸⁴ Lucy Vaneltsi, COPE story, "Tanning"

²⁸⁵ Lucy Vaneltsi, COPE story, "Tanning"

²⁸⁶ Gwich'in Elders 1997

²⁸⁷ Parlee et al 2014: 228-229

	any remaining bits of hair. A pan was heated and placed upside down on the ground and the hide drawn across it. When this was completed, the hide was black where it had been singed. Care had to be taken not to scorch the hide.
Thinning the neck	The exterior neck area was thinned with a long knife (it being the thickest part of the hide).
Wringing out the water	The hide was wrung out and then rinsed in clear water in a wash tub. This was repeated several times, using fresh water for each rinse.
Twisting the wet hide	To prepare the hide for twisting, small loops were cut out along its outer edge. A solid stick was placed into the ground, and about 3 of the loops were slipped over it at the same time. Three loops on the opposite side of the hide were slipped over a loose pole about 1 m long. This pole was rotated, twisting the hide. After being twisted, it was rinsed and twisted again. This continued until only clean water came out when the hide was twisted.
Soaking the hide in brain water	To soften the hide further, it was then soaked in a mixture of water and fermented brain. After soaking, it was again twisted, then soaked and twisted again.
Preparation of a pole and tripod/stretchers	<p>Two tripods support a horizontal pole about 1.5 m off the ground, from which the hide hung while being scraped. The pole could be raised or lowered, depending on the part of the hide being scraped. To tighten or stretch the hide to make it easier to scrape, women would kneel or sit on the bottom of the hide.</p> <p>A stretcher could also be created by lashing 4 poles together to make a frame to be leaned against a tree or building. Small holes would be made every 15–30 cm around the edge of the hide and thongs used to stretch it within the frame. This was done while the hide was wet; care had to be taken not to stretch the hide too tightly, since it would shrink while drying.</p>
Preparing the hide for smoking	The hide would be smoked to soften it to make it into moccasins, pants and coats. Before smoking, the twisting holes would be sewn up and edges trimmed off. The hide was hung on a stick 1 m off the ground with a canvas sometimes attached to the bottom to act as a funnel for the smoke.
Smoking the hide	The smoking fire was made of rotten wood and had to be well tended so it would not go out or break into open flame and scorch the hide. The smoking fire would be kept going for 8–10 hours. Once the inside of the hide was smoked, it was taken off and scraped to soften.

During the winter, fresh caribou hides were sometimes simply frozen. In the spring, it was time to start working them.²⁸⁸ Caribou hides from animals killed in the spring might have warble fly holes and therefore be less desirable. These holes heal up and are just small scars by the summer.²⁸⁹ Caribou hides from the fall generally do not have warble fly holes, which makes them preferable as they don't need as much mending.²⁹⁰ They are also very thick at that time.²⁹¹ Young caribou would be sought in the summer, in order to use their hides for clothing.²⁹²

Gwich'in women prepared sinew for use by drying it and then hammering it on both sides to make it pliable. The strands were first separated and then twisted back together to make it into a very strong thread.²⁹³ Sinew comes from the backbone of the caribou or moose. Caribou sinew is shorter, which is preferred for good sewing.²⁹⁴

Caribou skin clothing

During the fall everyone used to get caribou skin so that they could tan it to make clothing. Lots of times, my grandmother used to make young caribou skin dresses for me and when I put it on I was sure proud of myself. In those days everyone used to wear only caribou skin clothing and even with that nobody got cold.²⁹⁵

...Gwich'in summer clothing [was] made of white caribou hides, sewn with sinew, and decorated with porcupine quills, trade beads,



Figure 17. Gwich'in traditional caribou skin clothing (Aklavik outfit), Gwich'in Social and Cultural Institute Traditional Caribou Skin Clothing Project. Credit: DCH. 2002.

²⁸⁸ Paul Bonnetplume, COPE story, "Hunting and Fishing in the Fall"

²⁸⁹ Gwich'in Elders 1997

²⁹⁰ Benson and Ernst 2017

²⁹¹ Mary Vittrekwa in Kofinas 1998

²⁹² Lucy Vaneltsi, COPE story, "Traditional Life - #1"

²⁹³ Gwich'in Elders 1997

²⁹⁴ Gwich'in Traditional Caribou Skin Clothing Project Video Logs 1998

²⁹⁵ Mary Vittrekwa, How I Grew Up

*silverberry seeds, fringes, and ochre. Distinctively styled and striking to look at, these garments are a testament to Gwich'in women's great skill and artistic expression. This skill and artistry is particularly evident with men's clothing. As June Helm (1989:189) has noted for Aboriginal women of the Subarctic, the husband's clothing "served as a kind of traveling art gallery" advertising the wife's handiwork from afar. The same pride in fine handiwork exists today.*²⁹⁶

Caribou hides were tanned and made into many types of clothing.²⁹⁷ This includes soles for mukluks, slippers (moccasins), mitts, bags, straps, jackets, parkas, pants, dresses, gun-cases, and so on.²⁹⁸ "Sometimes caribou skin shirts and pants [were worn], they called that akaii chii, pants with shoes attached."²⁹⁹ Gwich'in caribou skin clothing was well-known for its quality and visual appeal, and several outfits are in different museums around the world. The Gwich'in Social and Cultural Institute worked with seamstresses from each NWT Gwich'in community to recreate one of the caribou skin outfits in a large, multi-year project. These reproduction outfits are now on display in Fort McPherson, Aklavik, Inuvik, and Tsiigehtchic, and one is in the Prince of Wales Northern Heritage Museum in Yellowknife.³⁰⁰ Tanned caribou hides are lightweight, flexible, and breathable, so are an excellent choice for making clothes.³⁰¹

White caribou fur outerwear was considered particularly fine.³⁰² It was common for men's outfits to be made from caribou skins smoked darker brown with white hides caribou used for women's outfits. The darker brown hide was brown through an extra smoking, and the white hides were allowed to turn white through hanging them in the wind and sun.³⁰³ White



Figure 18. A fringe and beading on Gwich'in traditional caribou skin clothing, Gwich'in Social and Cultural Institute Traditional Caribou Skin Clothing Project. Credit: DCH. 2002.

²⁹⁶ Kritsch and Wright-Fraser 2002: 205

²⁹⁷ Sarah Peters, COPE story, "Life in the Old Days"

²⁹⁸ Gwich'in Elders 1997

²⁹⁹ Mary Kendi, Elder's Biography Project, Tape 26

³⁰⁰ Kritsch 2001, Kritsch and Wright-Fraser 2002

³⁰¹ Parlee et al 2014

³⁰² Bella Alexie, COPE story, "Early 1900s As I Remember It"

³⁰³ Gwich'in Elders 1997, Thompson and Kritsch 2005

hides were also worked with flour or baking soda.³⁰⁴ Skins could be decorated with bone or seed beads and porcupine quills dyed to be different colours using natural dyes from rocks and plants.³⁰⁵ Fringes were sometimes used to decorate fine caribou skin outerwear as well.³⁰⁶

Caribou skin clothing is warm even in temperatures as cold as 60 or 70 below (-50 to -55C).³⁰⁷ Some caribou skin coats had to be left outside in the cold, as the warm temperatures of a tent or home would ruin them.³⁰⁸

Gwich'in would wear caribou skin clothing in both the summer and winter. Winter outfits made from caribou skin were as warm as any modern equivalent.³⁰⁹ The caribou used for winter parkas was summer or fall caribou, as the fur was short.³¹⁰

*In the summer, the caribou hair is very short. They keep some of the skins to make clothes out of. The young calf skins too. My older brother, when he get a good calf skin, he keeps it and my grandmother makes a lined calf skin parka for me. She make it long. That is the only way we dress. When we started getting cold, she also made caribou skin pants and the feet part she put moose skin on it. I really like the outfit. That is how I would dress. We also have caribou skin mitts. And we never even get cold.*³¹¹

Young caribou skins were used for making summer clothing.³¹²

*For summer, everyone wears thin caribou skin outfits. For winter, moose hide was used for clothing. For parkas, caribou skin (with the hair on it) was used.*³¹³

Caribou could be cleaned and tanned with the hair on, or could have the hair removed.³¹⁴ For some clothing items, the fur was turned in, towards the skin, where it was the warmest.³¹⁵ Mitts were sometimes made this way.³¹⁶ For other items, like parkas and pants, the hair was on the outside.³¹⁷ Mary Vittrekwa remembers her pride when wearing a caribou skin dress her grand-mother had made her.³¹⁸

Caribou calf skin was sometimes used for men's outfits.³¹⁹

³⁰⁴ Eunice Mitchell, Elder's Biography Project 2000, Tape 30

³⁰⁵ Kritsch, Jerome, and Mitchell 2003

³⁰⁶ Sarah Ross, COPE story, "Story of Bush Man with Bad Luck"

³⁰⁷ George Vittrekwa, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V13 July 10 1975

³⁰⁸ Mary Firth, Gwich'in Traditional Caribou Skin Clothing Project Video Log 18.9.01. 1998.

³⁰⁹ Mary Vittrekwa, COPE story, "How I Grew Up"

³¹⁰ Monica Pascal, COPE story, "Interview by J. Semmler – Part #1", Mary Vittrekwa, COPE story, "How I Grew Up"

³¹¹ Mary Vittrekwa in Kofinas 1999: 456-7

³¹² Kritsch, Jerome, and Mitchell 2003

³¹³ Paul Bonnetplume, COPE story, "Hunting and Fishing in the Fall"

³¹⁴ Mary Francis, COPE story, "How to Tan Moose Skin and Use It"

³¹⁵ Lucy Vaneltsi, COPE story, "Clothing and Dishware"

³¹⁶ Walter Alexie Tombstone Oral History Project Tape 1

³¹⁷ Kritsch, Jerome, and Mitchell 2003

³¹⁸ Mary Vittrekwa, COPE story, "How I Grew Up"

³¹⁹ Mary Husky, COPE story, "Life Long Ago"

The women were busy making winter clothes from caribou fur skins after tanning them. They made fur parkas, fur mitts, pants, and boots for the men and also for themselves and the children.³²⁰



Figure 19. “A Loucheux [Gwich'in] Indian boy shows his spring catch of musquash. Fort McPherson. 1922. [Young boy in skin clothing].” NWT Archives N-1979-004: 0025

³²⁰ Mary Francis, COPE story, “A Man Leaving His Wife to Die”

Caribou skin clothing skin is no longer made and used in the way it was long ago. Amos Paul, in the mid-1970s, recalled that he wore only skin clothing (caribou, bear, and others) when he was a child. Paul was born in 1911. But by the seventies, he wore only western clothing.³²¹

One special item of clothing made from caribou skins is the girl's puberty hood. This special hood had long fringes and was worn only by girls, to ensure her powerful glance didn't have unintended consequences.³²²

The state of an unmarried man's pants could tell young women how eligible he was as a hunter. Young women looked for men who worked hard and who could participate fully in the family's workload.

Our Elders used to say those who wear pants that look like they have been worked on, it shows they work very hard and he is working all the time. Those who are lazy, no matter what time of the day their pants are always the same it never shows anything. Elders always say on a caribou you see this down by the hooves, how their two hooves are really straight and there's not a wrinkle to it or doesn't show anything. They call people who are lazy and their pants never show any sign of work he's wearing Daatsoo Ehli' it means it's just straight it never changes.³²³

Style and Sewing: the outsiders' perspective

The style of caribou skin clothing has been recorded in traveller's journals.

Their Shirts are not square at Bottom but Tapering to a point from the Belt downwards before and behind and come opposite the Knee embellished with a short Fringe. They have another Fringe the same as I have already described, with the addition of a Stone of a Grey ... Berry of the Size and Shape of a large Barley Corn, brown coloured and fluted which they bore thro' the middle and run one on each String of the Fringe with which they decorate their Shirts by sewing one of them on, forming a Demy Circle on the Breast and Back and crossing over both Shoulders. The Sleeves are wide and short, but their Mittens supply this Deficiency, as they are long enough to come over part of the Sleeve, and they wear them continually hanging by a Cord over their Necks. Their lygans want nothing but Waistbands to make them Trowsers. They fasten them with a Cord round the Middle . . . Their shoes are sewed to their lygans and garnished on every seam ... The womens dress is the same with the Mens, only their Skirts are longer, and have not a Fringe on the Breast.³²⁴

Other travellers into Gwich'in lands also commented on the fine style and construction of Gwich'in caribou skin clothing. The earliest examples of caribou skin clothing known to exist are from the middle of the nineteenth century. The sewing work is beautiful and fine, with tiny, regular stitches. This is

³²¹ Amos Paul, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V01 Aklavik April 2 1975

³²² Gwich'in Elders 1997

³²³ Mary Kendi, Elder's Biography Project, Tape 26

³²⁴ Mackenzie, Alexander. The Journals and Letters of Sir Alexander Mackenzie [1789-1819]. W Kaye Lamb, ed. Toronto: Macmillan of Canada, 1970: 192, in Thompson and Kritsch 2005: 11

particularly impressive considering the time invested. Gwich'in seamstresses would have poked a sharp awl through two layers of hide and then fed sinew through both to make the seam.³²⁵

Caribou skin clothing could be decorated with many types of decoration, such as dyes and fringes.³²⁶ Very nice clothing was worn in the summer, made from caribou hides tanned white. These outfits were worn by men and children as well, and were decorated with quillwork and beading. There were also separate, rougher, clothing items made for working. These work clothes were made from untanned caribou hides.³²⁷

As Gwich'in seamstresses adopted and adapted new styles and materials available to them after the fur trade started, ethnographic collectors stepped in to purchase some of the clothing which was falling from popularity within Gwich'in communities. They also purchased items made for the ethnographic trade. These items are now available for study after being cared for in various museums around the world.³²⁸

Caribou skin housing

Caribou skin tents or lodges were an important housing choice for the Gwich'in, before canvas tents were available. Large homes were created from 20 tanned caribou hides, which may have the fur on (facing inside) for warmth.³²⁹ There could be various decorations on the caribou hides, such as powdered red dye in patterns or along the seams.³³⁰ The caribou skins could be tanned white, as well.³³¹ The caribou skins were stretched over bent poles.³³² The poles were typically willows, and inside the house there was a fire burning.³³³ A dry caribou skin could be used as the door, as it was stiff.³³⁴ The floor of the caribou skin tent would be covered with spruce boughs, changed weekly to keep them fresh.³³⁵

When it was time to move to a new camp, a caribou skin tent could be taken down and folded neatly.³³⁶

Sometimes, two of these tents were set up facing each other.³³⁷ "Two tents are set towards each other and in-between there is a stage."³³⁸ However, at other times, there was care taken so that the doors weren't facing each other.³³⁹

³²⁵ Thompson and Kritsch 2005

³²⁶ Mary Husky, COPE story, "Life Long Ago"

³²⁷ Sarah Peters, COPE Story, "Life in the Old Days"

³²⁸ Thompson and Kritsch 2005

³²⁹ Mary Husky, COPE story, "Life Long Ago"

³³⁰ Mary Husky, COPE story, "Life Long Ago", Sarah Peters, COPE Story, "Life in the Old Days"

³³¹ Johnny Semple, COPE story, "How Animals Live"

³³² Mary Husky, COPE story, "Life Long Ago", Sarah Peters, COPE Story, "Life in the Old Days"

³³³ Amos Paul, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V01 Aklavik April 2 1975

³³⁴ George Vittrekwa, COPE story, "Games Children Played", Kritsch 2000

³³⁵ Kritsch, Jerome, and Mitchell 2003

³³⁶ Mary Husky, COPE story, "Life Long Ago", Sarah Peters, COPE Story, "Life in the Old Days"

³³⁷ Mary Husky, COPE story, "Life Long Ago"

³³⁸ Mary Vittrekwa in Kofinas 1999: 456

³³⁹ Sarah Peters, COPE story, "The Way People Used To Live"

Caribou skin houses were still being used relatively recently, for example, they were in use when the Pokiak subdivision was inhabited by Gwich'in families (around 1910). Pokiak was a small subdivision of Aklavik, across the Peel Channel, where Gwich'in families stayed for the times they were in town.³⁴⁰

A very fancy caribou skin tent was described in a legend and used by a powerful medicine man, made from “white tanned caribou skin, painted seams with berry dye and dyed eagle feathers were also sewn on it and it made it the fanciest wigwam, compared to the others.”³⁴¹

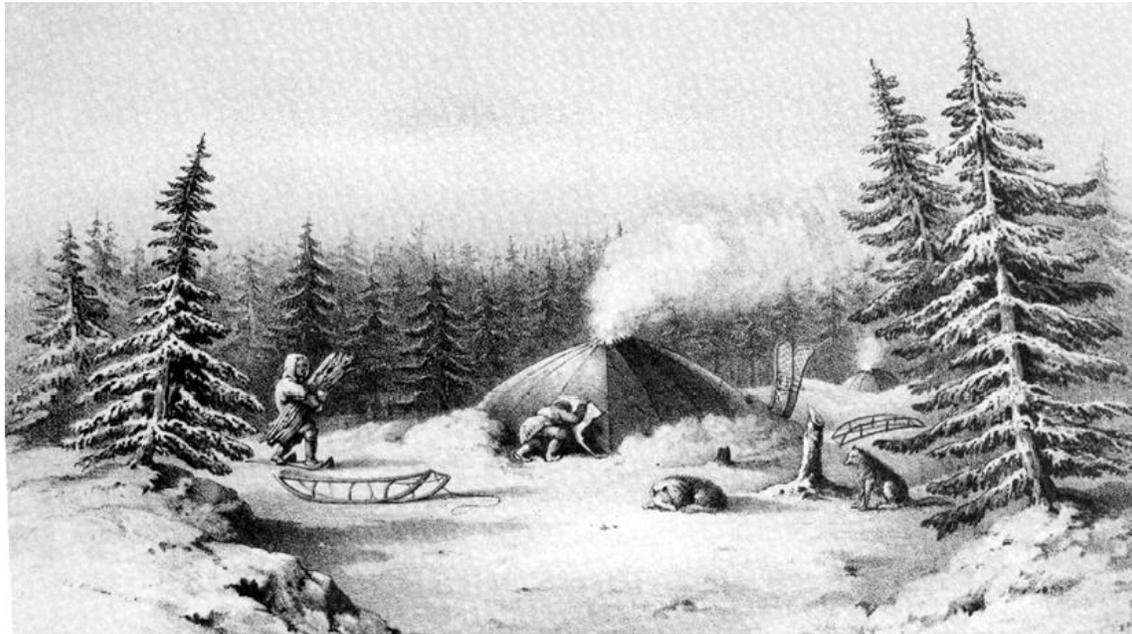


Figure 20. Western Gwich'in camp in 1847. Credit: Murray 1910:85.

Caribou leg skins

Caribou leg skins are “a rectangle of caribou hide with short, sturdy hair that is removed from the lower leg of the caribou, generally the lower hind legs.” The front leg skins are generally too short.³⁴² The fur on the rectangles of skin is very different than on other areas of the caribou’s body, as it is short, smooth, and lays very strongly in one direction. The skins are rectangular and used by sewing more than one together into useful shapes.

For example, caribou leg skins are most known for their use in a very special setting: as a sled! Caribou leg skins could be sewn together to make a long, bag-like sled.³⁴³ The leg skins were also used to make dog packs and bags, including the large, long bag that goes inside a toboggan (the “wrapper”).³⁴⁴ Smaller caribou leg skin bags were used to hold food, such as dry meat, bone grease, bannock, and so on. The

³⁴⁰ Benson 2007a

³⁴¹ Lucy Rat, COPE story, “Man Without Fire”

³⁴² Lyons 2007: 5

³⁴³ Paul Bonnetplume, COPE story, “Hunting and Fishing in the Fall”

³⁴⁴ Mary Francis, COPE story, “How to Tan Moose Skin and Use It”, Sarah Peters, COPE Story, “Story of Goghwai”

leg skins from about seven caribou are needed to produce a bag. The leg skins are naturally stiff, so the bags hold their shape, making them easy to use. Both caribou leg skin bags and sleds had a tanned, scraped hide lip and were laced up to close them, and had handles to make them easier to carry. Kids liked sliding down hills in these bags as they were very fast on snowy hills. Gwich'in parents would frown at this behaviour as it caused the leg skins to lose their hair more quickly.³⁴⁵



Figure 21. Eunice Mitchell takes a closer look at a caribou leg skin mattress. Credit: Natasha Lyons. 2007.



Figure 22. Alice Blake holds a miniature caribou leg skin bag. Credit: Natasha Lyons. 2007.

Caribou leg skins were also used to make a 'mattress', which is a type of pad used for sleeping or sitting on, like a rug. One example from Tsiigehtchic was made from more than 80 leg skins sewn with babiche and sinew.³⁴⁶ Soles of shoes could also be made from leg skins.³⁴⁷ There are modern uses, as well: if green (untanned) and still fresh from being skinned, the leg skins can also be moulded around the handlebars of a skidoo to keep the skidooper's hands warm.³⁴⁸

³⁴⁵ Lyons 2007

³⁴⁶ Lyons 2007

³⁴⁷ Gwich'in Elders 1997

³⁴⁸ Neil [Colin?], Elder's Traditional Forestry Project, Workshop transcript

In the past, caribou leg skins could be used in a pinch to repair a broken sled, if the runners were damaged, according to elder Elijah Andrew. This is due to their special nature, with the short, dense fur laying in one direction.

...my sled was very badly damaged. The head had just about come off. As far as I thought I knew, it could not be repaired. I skinned my caribou and did whatever I had to do, then remembered my uncle, Stephen. Stephen had been dead for many years but



Figure 23. Miniature caribou leg skin sled. Credit: Natasha Lyons. 2007.

whatever he taught me as a young man, I never forgot. I went to work on my sled as soon as I remembered what to do. He told me that in the olden days when a man had no tools, they used caribou leg skins to do a repair on a sled. You had to take about 6 fresh legs and skin them. Before the skins froze, you stuck them onto the sled to hold the two pieces together. You put three skins on either side of the sled and this held the sled head together in the cold weather. I

*did as I remembered and was surprised to see how well my head stayed together all the way back to my camp...*³⁴⁹

Games

There was a game that people used to play, a game requiring great co-ordination and skill. A small, two foot by two foot square of hide was tied using long pieces of caribou-skin or moose-skin ropes, to four young, strong trees. The player, a man, would jump onto the square of hide, and try to stay on, while being tossed up by others who were singing and pulling the trees or the ropes around. The man would land back on the square if possible, jumping down when he was done, to be replaced by another man.³⁵⁰

Christopher Colin told a story, "Akaii", which included a discussion about this game, and how the game and the songs sung at the time of the game fit within Gwich'in life in a much broader way.

At the same time the young men wanted to play the traditional games. They started getting ready. They got four trees standing in a square, and a small piece of moose skin. Then about five feet above the ground, they tied vyaa, skin rope, on the little square piece of moose skin and then, on to the four posts. They tied it very strong and tight.

³⁴⁹ Elijah Andrew, COPE story, "To Repair a Sled"

³⁵⁰ Lucy Vaneltsi, COPE story, "Traditional Life - #1"

After that they would start the game. They sang the song, "akaii dulchyyu", as they played. This is just part of the song, we do not know all of it.

"Akaii dalchyyu, akaii dulchyyu yehdii hihleelii lyoh, goot t'ehniintr'i agg yii. Yah yah. Yehdok dahgwinuu, yehdi heylai laii leeh goot tyehniintr'i, a yaii, yaii. Akaii dulchyyu, akaii aii yaii."

When they began to play and sing, it was very cold out. As they sang the song the west wind would start up over the mountains, the trees would sway in the warm west wind. This song would always bring warm weather to where ever they sang.

They would go through Vittrekwa creek, when they moved to the mountains. The caribou would be further up in the mountains, so they would move way up the river and over the mountains, where the caribou were. Once they were there they surrounded the caribou. Like the warriors, they chased all the caribou down the mountain. They really had a good hunt. They used the caribou for food and clothing. That was the way they made their living.

Two families would live in one skin tent. In the center there was a fire place. The two families lived on each side of the fire place.

When they made dried fish they had a stage outside, and they also had one inside the fish house. As for drying meat they made a stage inside the tent. They would bring all the caribou home, then they would cut and slice the meat, to make dry meat. As they did all that, they had a caribou head hanging by the fire. Sometimes they roasted caribou ribs by the fire. They'd have a pan under the ribs and if it was fat, caribou grease would drip into the pan. They would eat the grease with the ribs, or meat. Other times they used to get a big pot, I don't think you know the kind I mean. They put that pot in the middle of the fire, and cut up all kinds of good meat, then they would boil it. That's the way they used to live. Now a days you can get any kind of food you want, from the Hudson's Bay Company. In those days you couldn't get that.³⁵¹

Caribou bones and skins were also a key part of another game.

Only one game serves for gambling, namely, the ecagoo or ring and pin game. This device among the Peel River Kutchin is made of five caribou toe bones strung on a cord with a piece of caribou skin full of little holes at one end and a needle made from a piece of leg bone at the other. Two men or more play, each with the same number of counting sticks. Each man takes his turn and has three attempts to catch with the needle the bones or piece of skin. Each bone counts one regardless of the number caught at each cast; pinning the leather counts five, or, if two holes at once, ten. Each contestant gives the successful players sticks to the amount of the total score of his three attempts. When

³⁵¹ Akaii by Christopher Colin. Gwich'in Language Centre materials.

*a player thus loses all his sticks, he is eliminated. Finally one man wins all the sticks and collects the wagers.*³⁵²

Another game called “caribou chase” was played by people play-acted like caribou and hunters. The hunters chased and “killed” the caribou by spearing them and then dragged them back in.³⁵³

Caribou in legends

Unsurprisingly when considering the importance of caribou, many legends mention caribou and caribou hunting. There are some legends which refer specifically to caribou, and some in which caribou and caribou items play a key role. For example, skin clothing and items may have special abilities, or caribou meat being shared or not causes issues for the protagonist. Caribou is often useful to further the story or to provide lessons. Every instance when caribou appear in Gwich’in legends and stories can’t be described here as it would fill an entire book, so a few examples are included instead.

One legend tells of the practice of unmarried Gwich’in men leaving their caribou-skin pants on the trail for unmarried women to find. Women would select the pants on the trail, which showed off the skill of the hunter who wore them, and marriage would ensue. In one version of the legend told by Bella Alexie, the male protagonist’s pants are dirty and wrinkled, and a poor grandmother and her granddaughter take them, thinking they will return them. In an unexpected twist, the owner of the pants is a good provider: a good hunter of caribou, who brings back much meat, hides, and so on, for the grandmother and daughter. The granddaughter married this good provider, and they lived a long and happy life together.³⁵⁴ In another related legend, a repentant younger brother provided caribou fur pants, mitts, and boots, along with new bedding, to his older brother, whom he had wronged many years ago.³⁵⁵

An angry young man in another legend got his revenge on the people who didn’t help him when he was dressed up as a poor man. He killed numerous caribou and then put holes in the stomach rather than skinning them and dressing the carcass for consumption.³⁵⁶ Spurned characters such as this man show up with some frequency in Gwich’in legends, and often have a lesson that is morally instructive.

In another legend, an elderly man left behind (because he was felt to be useless) was able to hunt a bunch of caribou and return, triumphant, to feed the community.³⁵⁷ A woman left behind in a winter camp for laughing at her husband in another legend is also able to make a triumphant return, with two new husbands who are excellent caribou hunters and good providers.³⁵⁸

Another legend tells of an old couple’s revenge on the Inuit who killed their son. This old couple collected caribou bones and made thousands of tiny, sharp caribou bone fragments. The bone fragments were stuck into the ground and froze there. The attacking Inuit ran to the bones and impaled

³⁵² Osgood 1970: 95-96

³⁵³ Gwich’in Elders 1997

³⁵⁴ Bella Alexie, COPE story, “Marriages”

³⁵⁵ John Francis Sr., COPE story, “Two Sons”

³⁵⁶ Mary Husky, COPE story, “A Lesson Taught By A Man From Old Crow”

³⁵⁷ Mary Husky, COPE story, “A Man the People Teased”

³⁵⁸ Mary Husky, COPE story, “Loucheux Folklore”

their feet and then fell, and impaled themselves on other fragments as they fell. They died from their wounds.³⁵⁹

In another legend, a powerful medicine man was able to shrink the surface of the earth and travel quickly across it, using caribou meat, a fire, and his medicine:

*In the meantime, he had something to eat and went outside and brought in caribou muscle, which was frozen so he threw it in the fire. Once it started thawing, it kind of shrunk all together. That way the medicine man made the country come closer together so that he would have a short trip, instead of a long one. In the Indian language, Daniizhuk means "strong medicine" that is why they called him this.*³⁶⁰

This same medicine man armed his snowshoes with sharpened caribou spikes, to the front and back.³⁶¹ In another telling of the story, caribou veins are used in the fire to shrink the distance on the land instead of caribou meat.³⁶²

Another legend tells of a medicine man strong enough to kill a caribou and moose with his hands.³⁶³

Finally, a mythological creature who can be both spruce gum (the hardened sap of the spruce tree, useful as medicine and for other purposes) and an eagle, was named "They Made a Leather Jacket Out of Caribou Skin". His caribou-skin jacket gave him special abilities to shift between different animals.³⁶⁴

Caribou hunting and the seasonal round

Before recent times, the Teet'it Gwich'in lived in small family groups which travelled across the landscape in accordance with the seasons, coming together at gathering sites several times a year to catch up with extended family and friends and work together to harvest resources suited to collective harvest. Even today, these same family connections remain an important aspect of Gwich'in life. Family groups, dispersed for the winter, would come together at gathering places in the spring, to celebrate the end of a long winter. Gwich'in families were often joined by white families, mixed-race families, and First Nation families from neighbouring regions.³⁶⁵ Sometimes, these camps were occupied for a month or more, before people moved on.³⁶⁶ Gathering sites were also occupied in the late fall or early winter to hunt Porcupine caribou.³⁶⁷ During years when caribou were scarce, large gatherings were not useful and people would split into smaller groups and disperse. This was because it became hard to share a small

³⁵⁹ Roddy Peters, COPE story, "Two Real Old Couples"

³⁶⁰ Sarah Peters, COPE story, "Daniizhuk – Strong Medicine Man"

³⁶¹ Sarah Peters, COPE story, "Daniizhuk – Strong Medicine Man"

³⁶² Lucy Vaneltsi, COPE story, "Hunnu-Dul-Un"

³⁶³ Lucy Vaneltsi, COPE story, "Kai Tenjik"

³⁶⁴ Sarah Peters, COPE Story, "Legend of the Sprucegum Man and the Two Women"

³⁶⁵ Slobodin 1962

³⁶⁶ Neil Colin, Life Long Ago

³⁶⁷ Kritsch, Jerome, and Mitchell 2003

number of caribou, or even a single caribou, among so many families, if that was all the hunters could find.³⁶⁸

Important gathering places included the Blackstone area, Black City, Stony Creek, Caribou River, and Hungry Lake.³⁶⁹ People also gathered in the Rat River watershed and area, for example around Canoe Lake.³⁷⁰

*There's caribou on Caribou Mountain and lots of people stayed at Caribou River... Back in the 1930s. In 1938, I think it was...I don't remember [the] time but [there were] fifty-two tents.*³⁷¹

Although sweeping socio-cultural and economic changes over the last several centuries caused drastic changes to the daily life of many Gwich'in, there were still families who spent much of their time on the land into the 1970s, contributing to the strong body of traditional knowledge found even in today's youth.³⁷²

Winter

Porcupine caribou are hunted in their wintering ranges in the mountains.³⁷³ Annie Benoit, an Aklavik Elder, remembered that after spending Christmas in Fort McPherson visiting, Gwich'in families would head into the mountains to hunt caribou for three months.³⁷⁴ Long ago, people would head out into the mountains before the caribou arrived, although in more recent history, trips were usually a bit later on. While waiting for the caribou, "they fish for mountain fish and hunt also for mountain squirrels. In September caribou stay and we all get enough caribou."³⁷⁵ Caribou were harvested all winter long.³⁷⁶ During the winter in the mountains, Gwich'in harvesters were also trapping.³⁷⁷

People also moved around in the mountains a lot all winter, to find caribou. "In the fall, when the caribou started migrating from the mountains around the Arctic coast towards inland where there was timber, they would follow these herds all winter."³⁷⁸ Caribou was the main food source in the winters.³⁷⁹ If a good number of caribou were found and killed, the hunter's family would move close to it in order to process the caribou. Camp sites would need good access to wood, in order to stay warm and process

³⁶⁸ Mary Kendi, Ehdiitat Gwich'in Place Names Project 1999, Tape 16

³⁶⁹ Katz 2010

³⁷⁰ Annie Benoit, Elder's Biography Project, Long Story

³⁷¹ Robert Alexie Sr. in Katz 2010: 42

³⁷² John Itsi, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V12 July 9 1975

³⁷³ Andre 2006.

³⁷⁴ Greer 1999

³⁷⁵ Mary Vittrekwa in Kofinas 1999: 456

³⁷⁶ Bella Alexie, COPE story, "How We Lived Long Ago"

³⁷⁷ Kritsch, Jerome, and Mitchell 2003

³⁷⁸ Jim E. Sittichinli, COPE story, "Stories about the Peel River Indians"

³⁷⁹ Andrew Kunnizzi, COPE story, "Heart an Blackstone River"

drymeat.³⁸⁰ However, during years when caribou were plentiful, they were hunted from gathering sites such as Hungry Lake.³⁸¹

One of the more recent changes to caribou hunting occurred when skidoos became the dominant way to travel on the land. Freddy Frost indicated that he used to harvest more caribou when he was out trapping, to feed himself and his dogs. Now that he traps using a skidoo, he can bring food along more easily and doesn't have to feed dogs.³⁸²

*By the month of August or September, they were right up around the mountains, living off fish or caribou. People depended entirely on nature and whatever talent they themselves had, and usually got themselves sufficient food. Spears were made; corrals were used for large animals; bow and arrows were largely used also.*³⁸³

Spring and Summer

In the spring and summertime, Gwich'in families would split their time and effort between different tasks. "And there, they would fish for the summer. It's mostly old people that fish, during summer. The younger people go, go, where they could get caribou. Mostly for the skins, the skins that they are going to use for clothing, and also for tent."³⁸⁴ Spring was often passed at a gathering sites as well, like Calico Town or Black City.³⁸⁵ When the caribou were close, these large gathering areas or "meat camps" could have 15 to 50 Gwich'in families.³⁸⁶ Generally speaking, in the summer time, it was hard to get caribou.³⁸⁷

Fall and early winter

Before heading to the mountains to hunt caribou, Gwich'in families were typically at fall fish camps, harvesting and drying or otherwise preserving fish.³⁸⁸ Women would also be sewing winter clothes from caribou hide and other fur in the falltime.³⁸⁹ After the establishment of settlements, hunters used boats before freeze-up in September, to travel north of Fort McPherson and north and south of Aklavik, skirting the mountains.

Them days it was not like that but I remember my Jijii had a whale boat. They got kicker [outboard motor] on it, and they go down towards Selamio's Lake or, Beaver House. And they wait for caribou there. And in the fall time, maybe September, they'd go down there. And they've got to be careful how they travel, because them days you know, it freeze up early too! So they try to go down there and just wait for caribou to come up,

³⁸⁰ Sarah Peters, COPE story, "The Way the People Use to Live"

³⁸¹ Andrew Kunnizzi, COPE story, "Heart and Blackstone River"

³⁸² Freddy Frost in Katz 2010

³⁸³ Paul Bonnetplume, COPE story, "Hunting and Fishing in the Fall"

³⁸⁴ Jim Edwards, Dene Mapping Project Tape 78

³⁸⁵ Andrew Kunnizzi, COPE story, "Heart an Blackstone River"

³⁸⁶ Gwich'in Elders 1997

³⁸⁷ John Francis Sr., COPE story, "Grey Wings"

³⁸⁸ Kritsch, Jerome, and Mitchell 2003

³⁸⁹ Christie Thompson, COPE story, "The Way Indians Make Their Living Long Ago"

*they know caribou's going to come up so they go down Beaver House or that West Channel...to those hills.*³⁹⁰

Then, they would move further away from the delta and up into the mountains to hunt. Traditionally, hunting and fishing would cease when the rivers were actively freezing.³⁹¹

*Years ago, the people of Fort McPherson were very hard working people. Summer, winter, fall and spring was filled with different kinds of work. During the fall, after freeze-up or sometimes after Christmas, the people moved up to the mountains. Some men trapped from after freeze-up until the end of trapping season. Then they went up to the mountains to get caribou meat. The men got as many caribou as they could kill and their wives fixed up the meat. They made dry meat, pemmican, and they cut all the meat off the bones. The bones were then chopped up into smaller pieces and this was all put in one big pot and boiled. The marrow would melt and come to the top as grease. The grease was put into another container and then frozen. This was bone grease. It could be used for frying meat or cooking with. Same was done with all the fat. The good caribou skins are cleaned and wrapped around the dry meat. Sometimes the women made huge bags out of the skins for dry meat. When enough meat was waiting to be moved, some men would take the meat and move it on ahead. Sometimes they brought it all the way home to McPherson. Then, when it was time to move back to McPherson, there was room for the food, clothing, and the kids in the sleds.*³⁹²

Mid-1900s, people from Fort McPherson would take boats and hunt southward migrating caribou on the eastern slopes of the Richardson Mountains, on trips from town. They would leave their boats and bring a few dogs with packs to hunt caribou up the slopes.³⁹³ The areas between Black Mountain and Rat River were favoured places to hunt fall-migrating caribou.³⁹⁴

*People lived at Black City in the fall and spring because caribou migrate through here at these times of the year. This is where they made their dry meat and got their winter meat and caribou skins for making clothing. The fall (late August) was the best time to hunt caribou for caribou skin clothing.*³⁹⁵

Places where Gwich'in have always harvested caribou

*Life...was good. There was plenty of moose, caribou and sheep.*³⁹⁶

Areas where game and other necessities could be found with regularity are considered to be, in the understated Gwich'in manner of expression, *good*. The concept of *good* is similar to the concept of *fat*

³⁹⁰ Annie B. Gordon, Potential Heritage Conservation Zones Aklavik 2007

³⁹¹ Osgood 1970

³⁹² Charles Koe, COPE story, "Winter, Summer, Spring, and Fall"

³⁹³ Gwich'in Elders 1997

³⁹⁴ Gwich'in Elders 1997

³⁹⁵ Kritsch 2000: 4

³⁹⁶ Paul Bonnetplume, COPE story, "Big Willow Man"

when describing caribou. A *fat* caribou has fat, but that is not the only meaning. It means the animal is healthy in major systems, and healthy for the humans who eat it, as well. The areas to the west and north of Fort McPherson in the Richardson Mountains, along the western flanks of the mountains, are *good*: seasonally rich with important resources, including caribou. Archaeologists have noted that these areas have numerous archaeological sites, indicating extensive pre-contact use of the area. The southern and eastern portions of the mountains have fewer archaeological sites, perhaps due to the type of use: smaller, ephemeral winter camps used briefly during caribou hunting.³⁹⁷ In modern times, the majority of caribou hunting happens around the Dempster Highway. There are also important hunting areas accessed from the western channels of the Mackenzie Delta, and on skidoo trails in the mountains. These areas are where traditional harvest locations and modern access overlap.³⁹⁸

Christopher Colin remembers a time when he was younger and hunting with his father, when caribou were plentiful around Hungry Lake right after Christmas. Gwich'in families all left Fort McPherson in order to get enough to eat and feed their dogs, and many families were staying there.³⁹⁹ Knowledgeable hunters and their families would anticipate where the caribou would migrate and would arrive ahead of time. "[C]lose to September when the meat is fat, they know and the people go where is caribou passing and they all go there. And they wait for the caribou to come, finally they see the caribou coming and they start shooting caribou and everyday caribou come that way."⁴⁰⁰ Harvesters also went far down the Mackenzie Delta to hunt caribou, travelling by canoe.⁴⁰¹

Caribou were also hunted, and continue to be hunted around Caribou River Hills and Rat River.⁴⁰² Gwich'in harvesters also went to the headwaters of Timber Creek, in the same area, in about September when the caribou were arriving from the north.⁴⁰³ A caribou hunting camp can be found at Rock River.⁴⁰⁴

As noted above, caribou were hunted from traditional meeting places in the mountains. For example, there was an important meeting place for people from Fort McPherson, Old Crow, Eagle River and Aklavik on the Driftwood River. Although it would be impossible to create a full list of places where Gwich'in harvested caribou as it was, and is, across their entire traditional lands, some of the places mentioned for hunting caribou include:⁴⁰⁵

³⁹⁷ Hare and Gotthardt 2012

³⁹⁸ Wray 2011

³⁹⁹ Christopher Colin, COPE story, "A Long Time Ago – Part #2"

⁴⁰⁰ Louisa Snowshoe, Profile, 1990

⁴⁰¹ Mary Kendi, Ehdiitat Gwich'in Place Names Project, Tape 1

⁴⁰² Christopher Colin, COPE story, "A Long Time Ago – Part #5" and "Living in Rat River"

⁴⁰³ Roddy Peters, COPE story, "Timber Creek"

⁴⁰⁴ Andre 2006

⁴⁰⁵ Julia Edwards in Benson 2012, Johnny Kay in Benson 2012, Jim Edwards in Benson 2012, Mary Teya in Benson 2012, Eunice Mitchell and Bob Norman in Benson 2012, Benson 2007a, b, Neil Colin, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V12 Fort McPherson July 9 1975, George Vittrekwa, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V13 July 10 1975, Lazarus Sittichinli, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V40 Aklavik February 23, 1976, Kritsch, Jerome, and Mitchell 2003, Gotthardt 2007, Greer 1999, Hare and Gotthardt 2012; Kritsch 2000, Profeit-LeBlanc 1994, Gwich'in Elders 1997, Life Story by Mary Firth Snr, Sarah Gardlund Life Long Ago, Alfred Semple, Potential Heritage Conservation Zones interview,

- Bear Creek
- Beaver House
- Bell River
- Big Fish River
- Big Eddy up the Husky Channel from Aklavik
- Black City
- Black Mountain
- Blackstone River area
- Blow River
- Bonnetplume River
- Buckland Mountains
- Bug Hunter Creek
- Brass Vizheh
- Cache Creek
- Calico Town
- Canoe Lake
- Caribou Mountains, Caribou Creek, Caribou River
- Chii Ezhyah Njik (Rock wall creek)
- Chii nah'it njik (Chii Nahil Creek)
- Coal Mine Lake
- Curtain Mountain
- Dachan Dha'aii Njik (North Vittrekwa River)
- Ddhah Ch'ok (Mount Mason Wood)
- Ddhah Ch'ok (Slim Mountain, Mount Mason Wood)
- Divide Lake
- Driftwood River
- Eagle River
- First Creek
- Old Crow and camps surrounding this area
- Gillespie Lake area
- Gyuu Dazhoo Njik (Snake River) the headwaters of Snake River were known for Mountain Woodland Caribou, as well
- Hart River
- Hungry Lake
- Husky River
- James Creek
- John Martin's Creek
- Johnson Creek

2007, Annie B. Gordon, Potential Heritage Conservation Zones, 2007, Jim Edwards Dene Mapping Project Tape 78, Lucy Greenland, Ehdiiat Gwich'in Place Names Project Tape 3, Freddy Kendi, Land Use Research 1988

Gwich'in Knowledge of Porcupine caribou: State of current knowledge and gaps assessment.
 March 2019, Department of Cultural Heritage, Gwich'in Tribal Council.

- K'ài Kàhnjik (Willow River)
- LaPierre House
- Michel House
- Ndàk Haii Jùuk'an' Adaniinlaih Gwichoo and Gwitsal
- Nihtak Van
- Nihtak Van (Divide Lake, near Canoe Lake)
- Nils Vadum's place
- Ogilvie River, including headwaters
- Old Crow area, Old Crow Flats, and Fish Lake in the Richardson Mountains
- Old Robert Viteetshik
- On the travelling trail between Old Crow and Fort McPherson
- Picnic Lake
- Porcupine River
- Rat River and Rat Pass
- Road River
- Rock River, including headwaters
- Selamio's Lake
- Sheep Creek
- Slim Mountain
- Snare River, which was named for snaring caribou
- Sreih Nitsik (Red Mountain)
- Stony Creek'Summit Lake
- Timber Creek Flats
- Trail River
- Ts'ii Kan Tat
- Tth'oh Zraii Njik
- Up Stony Creek and at Curtain Mountain
- Upper Ogilvie River area
- Vadzaih Kàn Njik is a very important caribou area, named after Vadzaih Kàn meaning caribou den
- Vadzaih Vàn (Lusk Lake) and Vadzaih Vàn Tshik, the creek draining from the lake
- Vitreekwaa Viteetshik (Vittrekwa River)
- Vittrekwa River
- Willow River
- Whitefish Lake

Caribou corrals were used in some areas of the mountains as well. Areas known to have corrals (some possibly used for both Porcupine and mountain caribou) include:⁴⁰⁶

- The Rat River area has many references to caribou fences, although they are not mapped out.
 - Around Fish Hole up the Rat River
 - Horn Lake, where a corral was built around 1700, used in the fall when caribou were migrating south
 - Tthat Njik (which translates as caribou fence creek), a point where a caribou fence was built, near Horn Lake (this may be the caribou fence at Horn Lake or there may have been several)
 - Dachan Njuu Njik (Longstick River/Timber Creek), around Rat River, used in September
 - Gyah K'it Gwinjik Han (Vyah Kit Creek)
 - Between Bear Creek and Sheep Creek
- Divii Daaghoo Njik (Scho Creek/Bear Creek), with a caribou fence built around or before 1930
- Driftwood River
- Etshit Googhwar (Chapman Lake) – possible location nearby
- Ts'ok litl'in
- Tthat Dàii Dha'aai in the Rock River area
- Tthat Njik
- Vyàh K'it Gwinjik
- Rock River headwaters
- Blackstone River
- Fence Mountain
- Miner River
- Ogilvie River headwaters

Caribou and medicine

Medicine, as the word is used by the Gwich'in, refers to the powers of medicine men and other people with particular wisdom and unique powers. Unsurprisingly, considering their importance, caribou are used in medicine.

Paul Bonnetplume described how legendary medicine man Diniizhok was able to travel across vast distances in very little time, using caribou veins(see also the section about legends, above). When he placed the veins into the fire, they shrivelled up. In this way, the land also shrivelled up, and Diniizhok could step across great distances.⁴⁰⁷ In another legend, a caribou gut bag filled with dog blood and

⁴⁰⁶ Benson 2007a and b, Alfred Semple in Benson 2007a, Kritsch, Jerome, and Mitchell 2003, Gotthardt 2007, Hare and Gotthardt 2012, Kritsch 2000, Neil Colin Delta Report Dene Mapping Project Tape 71, Walter Alexie Tombstone Oral History Project Tape 1

⁴⁰⁷ Paul Bonnetplume, COPE story, "Diniijik, the Medicine Man"

pierced to allow the blood to slowly drain stands in for a rival medicine man, as his blood also slowly drains.⁴⁰⁸

Another legend tells of a medicine man who worked and slept on a caribou skin from a recently-killed caribou. The skin, with the man's medicine, acted as a sort of real-time map of his enemy's movements.⁴⁰⁹

*Medicine or ritual was also used in the past to assist with a good hunt. Certain provision may be made before a hunt to insure success as, for instance, when each male hunter carves out of wood a model of some part of the caribou such as a kidney or a tongue. After these figures have been made the hunters gather together and each piece is held up by the maker and the others guess what it is. This concentration on the constituent parts of the caribou appears to create a certain relationship between the men and the animals which brings them together so that the game may be killed. Women are strictly prohibited from joining in this procedure connected with the carving of the models and should they interfere, bad luck would inevitably follow. This particular practice of magic has potential control only in the case of caribou hunting.*⁴¹⁰

Traditionally, Gwich'in hunters could predict the arrival of caribou nearby, or learn of future luck in hunting, through sensations in their own bodies, such as twitching legs or hands.⁴¹¹

Traditional management practises

Gwich'in continue to be careful about their use of the resources in their lands, and always consider the health of the land and all the plants and animals upon it—including their health well into the future. "whenever any action is taken "on the land," people must think of the grandchildren and their grandchildren".⁴¹² The actual strategies they used to ensure that Gwich'in families' needs were met were adaptive, iterative, and dependent. Traditional management is found within and transmitted through *narratives*: stories, legends, and conversations. Narratives lose their predictive and educational cores when they are frozen in time, as their usefulness comes from the re-telling. "Knowledge held in a wildlife management system is time and space dependent; it is the product of experience as perceived in a culturally defined process."⁴¹³ The essence of traditional governance is through land-based practice.⁴¹⁴

⁴⁰⁸ Paul Bonnetplume, COPE story, "Medicine Man of Fish Creek"

⁴⁰⁹ Paul Bonnetplume, COPE story, "Yukon and Peel River Medicine Men"

⁴¹⁰ Osgood 1970: 26

⁴¹¹ Osgood 1970

⁴¹² Wishart 2004: 143

⁴¹³ Kofinas 1198: 130

⁴¹⁴ Alexie 2015: 109

Although sometimes Gwich'in Elders indicate that young people have forgotten or not been taught the ways of the elders, a recent research project found that in fact, there is good congruence between traditional hunting rules as told by both young harvesters and Elders.⁴¹⁵

The Gwich'in share many rules about the actual practice of traditional management of caribou which have not been recorded in the literature reviewed, and as such, this is a knowledge gap. There are some basic rules about how the Gwich'in manage caribou described more fully below: respect, co-operation and leadership, allowing migrations to continue without harassment, and working together. However, see also the *Taking care of the caribou is a part of Gwich'in culture* section, above, for the principles, laws, perspectives, and beliefs from which these practices flow.

Respect

Respectful behaviour towards caribou is the core of traditional human-caribou interactions and the basis for a long and sustainable relationship. Respect towards all animals has several key components: humans may not make jokes about animals or meat, or make fun of them; no matter if the animal is living or dead. It is also disrespectful to touch animals, or to kill them in a way which causes suffering.⁴¹⁶ Disrespect includes wasting meat, as well. Respectful hunters plan ahead to ensure they can properly store all the meat in their care when temperatures fluctuate in the spring, for example.⁴¹⁷ Respect for the caribou encompasses all the traditional rules of hunting as described above, including sharing, wasting, not chasing, correctly handling remains, and so on. For younger Gwich'in, respectful hunting also includes participating in the wildlife co-management process and following the regulations set up within that structure.⁴¹⁸

When an individual caribou offers himself or herself to a hunter, it is disrespectful to the relationship between hunters and caribou to not harvest this caribou. In fact, poor luck in later hunts can result from breaking this bond. Hunters demonstrate their humility by taking the first animal that has offered itself.⁴¹⁹

Cooperation, leadership, and traditional co-management

Co-operation between individuals, families, and groups is key in ensuring both a successful harvest, and for the long-term management of caribou for the future of all Gwich'in. Unlike in the modern context, in the past leadership and co-operation were flexible.

And they're very careful with caribou, the people there. The chief tell them what to do, maybe ten families they, managed to go around the caribou they kill about 70, 60 caribou. Now the chief told them, "Leave it alone, you have enough now. Leave it."

⁴¹⁵ Wray and Parlee 2013

⁴¹⁶ Kofinas 1998

⁴¹⁷ Kofinas 1998

⁴¹⁸ Wray and Parlee 2013

⁴¹⁹ Kofinas 1998

*They haul all that meat and the woman clean all the caribou skin, right down from head to foot. Make drymeat and everything.*⁴²⁰

Different Gwich'in families and groups used to manage caribou harvests through negotiation. Cooperation in the effort of directing herds [for a hunt using a caribou corral], handling of large quantities of caribou meat, and accommodating unsuccessful groups were part of a complex form of early Porcupine caribou management organization. As pointed out by others, this "economic cooperation" should be understood in the context of family alliances, political rivalries, and moieties [which are similar to clans].⁴²¹ Long ago, a caribou kill was shared between two clans in a complex system of reciprocity, ensuring distribution of meat and the continued allegiance of different families.⁴²² In more recent years, the chief would ensure that the caribou herds were protected, "The chiefs way back would tell people not to over kill caribou, but they make sure everyone had caribou."⁴²³

Letting the leaders pass/avoid disturbing caribou at crossings

The "leaders" of caribou herds are generally described as those who lead the migration south and north. These animals or groups of animals may also make decisions about where the caribou will over-winter, and the migration routes they will use. Since inappropriate harvest of the caribou during migration can teach the caribou to migrate differently in later years, harvest of leaders when they are near the community may affect the location of the herd and the ability of Gwich'in hunters to access meat.⁴²⁴

*I remember my dad used to trap and hunt. I remember my uncles done the same, and our grandfathers, they always warned the people when this caribou migrate, they always tell the people not to shoot the first caribou that trying to cross the river or anywhere because if you don't interfere they are just like what you call leaders, they go ahead and then if we don't bother them, these caribou go right ahead and migrate, and then the main herd comes after them. Then, he says, our old people used to tell us then, he says, you can hunt. But never, never touch the caribous that's coming ahead, because they know where they're going and they're just like leaders for the caribou and this is what -- right now, he said, there's no caribou up there, nothing. So must be something wrong some place.*⁴²⁵

Traditional rules were also in place about hunting caribou at caribou crossings before they had settled in to the wintering grounds they select any one year. In modern times, this now includes allowing the caribou to cross the Dempster Highway.⁴²⁶ If caribou are disturbed at key crossings on their way to

⁴²⁰ Alfred Semple, Potential Heritage Conservation Zones interview, 2007

⁴²¹ Kofinals 1998: 82

⁴²² Osgood 1970

⁴²³ Sarah Simon, Life Long Ago

⁴²⁴ Kofinas 1998

⁴²⁵ Mary Kendi, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V40 Aklavik February 23, 1976

⁴²⁶ Wray and Parlee 2013

wintering grounds, the caribou may alter course.⁴²⁷ Crossings are otherwise known to be good places to find caribou.

Territorial government wildlife policy

In early years of territorial wildlife administration, the NWT and Yukon differed in how they imposed outside laws on Gwich'in harvesters. The Yukon government allowed only one caribou, one moose, and one mountain sheep. In the NWT, the Gwich'in had much freer access to harvesting their traditional foods.⁴²⁸ Since the early 1990s and with the signing of the Gwich'in Comprehensive Land Claim Agreement, the Gwich'in Renewable Resources Board has had the ability and power to make policy about harvest and other management provisions concerning the Porcupine Caribou Herd within the Gwich'in Settlement Area. They also participate in cross-border initiatives to manage the herd.⁴²⁹ The Gwich'in Land Use Planning Board also has the power to manage lands in the Gwich'in Settlement Area for the benefit of Gwich'in participants.⁴³⁰ Participating within and driving the decisions of this administrative context is one of the ways Gwich'in harvesters are continuing to adapt traditional management to benefit both Gwich'in and the caribou herds.

Porcupine Caribou: Health, Behaviour, Biology, and Interactions

Gwich'in hunters and elders have comprehensive knowledge about caribou, especially for the seasons and places where and when they meet. This includes caribou on a southward migration from the calving grounds in the fall, during the winter when the caribou settle in, and on their northward migration in the spring. This knowledge comes from generations of inter-connectedness and use.

What caribou are like

Caribou are sentient animals who make careful decisions about where they will go and what they will do. They will leave an area if they are 'bothered', or even if they remember someone or something inappropriate in their territory.⁴³¹

Caribou cows are smaller than bulls. They weigh about 150 lbs and are about five feet tall. Bulls, on the other hand, weigh about 2-300 lbs and are around six feet tall. Bulls become quite fat in the fall time, and were prized for their backfat in particular.⁴³² In the wintertime, it would take four or five dogs to carry the meat from one bull caribou.⁴³³

Both cows and bulls have antlers, but bull caribou have larger antlers and bulls lose them earlier in the year.⁴³⁴ The largest antlers are found on mature bulls. Young bulls have smaller antlers than mature

⁴²⁷ Kofinas 1998

⁴²⁸ James Simon, COPE story, "A Long Time Ago"

⁴²⁹ Spak 2001

⁴³⁰ Species at Risk Committee 2017

⁴³¹ Wishart 2004

⁴³² Gwich'in Elders 1997

⁴³³ Thomas Koe in Wishart 2004

⁴³⁴ Gwich'in Elders 1997

bulls, but bigger than cows, which have the smallest antlers.⁴³⁵ It is hard to tell young bulls from cows in the summer, as their antlers are closer in size.⁴³⁶ Bulls drop their antlers in December, but cows have their antlers through the winter.⁴³⁷ Cows drop their antlers in March or April by rubbing against brushy trees.⁴³⁸ They lose the ‘fur’ or velvet on their antlers in September.⁴³⁹ They rub it off on trees, leaving white rub-marks.⁴⁴⁰

In the spring time, the caribou’s coat looks rough as it sheds in clumps.⁴⁴¹ In the summers, the caribou’s coat is very short.⁴⁴² Young caribou are darker than older caribou because their coats are damaged from the way they play with each other.⁴⁴³

Today, the animals in a herd look relatively similar. In the past, there was sometimes an individual who looked quite different. The rest of the herd would surround this animal and move around them as a herd, so the different-looking animal was always hard to see.⁴⁴⁴ The coats of bulls and cows are slightly different. Bulls have a longer beard than cows, and cows are a bit lighter-coloured than bulls.⁴⁴⁵ Both bulls and cows have lighter-coloured hair on their belly and tail.⁴⁴⁶ In the fall, the neck of the bull caribou would become fully white, making them easy to spot.⁴⁴⁷ In fact, this white hair is used in one of the ways the Gwich’in refer to the fall season, by saying it is the time when the caribou turn fully white.⁴⁴⁸

Caribou talk to each other through making vocalizations and sounds, including something similar to a domestic cow’s “moo” sound. They also make a growling sound if they sense danger. Calves are quite noisy, calling to their mothers (who attend to these calls right away).⁴⁴⁹

Caribou can move very fast to escape predators (see below for more information about the predators of caribou).⁴⁵⁰

Caribou and moose both create trails for themselves, which can sometimes look indistinguishable. Caribou prints and moose prints are slightly different, however. Moose tracks are pointed at the front tip, whereas caribou tracks are rounded. Caribou also take smaller steps.⁴⁵¹

⁴³⁵ Gwich’in Elders 1997

⁴³⁶ Gwich’in Elders 1997

⁴³⁷ Gwich’in Elders 1997

⁴³⁸ Gwich’in Elders 1997

⁴³⁹ Gwich’in Elders 1997

⁴⁴⁰ Gwich’in Elders 1997

⁴⁴¹ Gwich’in Elders 1997

⁴⁴² Kofinas 1999

⁴⁴³ Gwich’in Elders 1997

⁴⁴⁴ Gwich’in Elders 1997

⁴⁴⁵ Gwich’in Elders 1997

⁴⁴⁶ Gwich’in Elders 1997

⁴⁴⁷ Edward Snowshoe, COPE story, “Man Without Fire – Part #1”

⁴⁴⁸ Gwich’in Elders 1997

⁴⁴⁹ Gwich’in Elders 1997

⁴⁵⁰ Eddie Greenland, Gwich’in TK of Grizzly, 2012



Figure 24. Caribou tracks. Credit: Gwich'in Elders 1997: 24.

Health and body condition

Gwich'in harvesters are particularly knowledgeable about caribou health.⁴⁵²

Depending on the time of year and location along their migration, caribou are in varying states of health. This sometimes changes year to year as well. For example, caribou may be in good shape in one valley one year while in another location, they are in “poor” shape.⁴⁵³

There are seasonal changes in when bulls and cows are harvested, and there are some differences or uncertainties in what type of animal is preferred when.

Some harvesters say that in the spring, bulls are in particularly good shape. Cows are less so, as they have been feeding and taking care of their calves in the winter.⁴⁵⁴ However, some harvesters feel differently:

Some hunting occurs during December and January, rising to a peak again in March and April, during which time the caribou are beginning the trek back to their calving grounds. During the winter and the spring cows are preferred, as they have regained their body condition. During the summer, the Porcupine herd is back at the calving grounds, and not in the Fort McPherson area. In August, when the herd returns, the bulls are once again the best choice as they are fat from summer feeding, while the cows have recently given birth and are feeding their new calves so their body fat is low.⁴⁵⁵

⁴⁵¹ Gwich'in Elders 1997

⁴⁵² Kutz et al. 2005

⁴⁵³ Kofinas 1998

⁴⁵⁴ Gwich'in Elders 1997

⁴⁵⁵ Wray 2011: 88-89

According to Woody Elias, there are certain times of year when it's best to hunt caribou. After August, he felt it was best to refrain from hunting caribou until November. Again after November, there is a break until January. From November to January caribou are settling in, in their over-wintering area, and gaining. Gwich'in harvesters hunt for caribou again between January and March. After April, they are in poor shape and are not harvested.⁴⁵⁶

After the rut in the first two weeks of October, bulls are very thin. Even bulls who were fat before the rut have used much of their fat up.⁴⁵⁷

In the past, if a sick caribou was seen, the hunter killed it to prevent further suffering. This meat could be fed to dogs or if it was too poor, it could be burned. A sick caribou might be staggering or falling down.⁴⁵⁸

When looking for a healthy caribou, Gwich'in generally seek the following:⁴⁵⁹

- Size of rump
- Gait or waddle of walk
- Whiteness of mane
- Size of rack
- Symmetry and overall shape of rack
- Number configuration of points on rack
- Size and shape of antler shovel
- Grayness of rack
- Social role of individual in group
- Posture of animals when moving

Post-mortem indicators of quality vs. illness include:

- Quantity of "backfat" (i.e., rump)
- Quantity of stomach fat
- Colour of marrow
- Tone and colour of lungs (i.e. lungs stuck to chest indicates poor health)
- The colour of kidneys and liver
- Pus bags on kidney
- Absence of "water" in muscles (with water being produced when animals are worked)
- Contents of stomach (grass filled indicates sick animal)
- Presence of parasitic larva in kidneys

Hunters and others who process caribou are very familiar with these measures and how to identify healthy caribou. In fact, knowledge about caribou body condition "is embedded in the language of

⁴⁵⁶ Woody Elias in Katz 2010

⁴⁵⁷ Gwich'in Elders 1997

⁴⁵⁸ Gwich'in Elders 1997

⁴⁵⁹ Kofinas 1998: 166

indigenous northern caribou hunters”, including the Gwich’in.⁴⁶⁰ Generally, Gwich’in say that most caribou are healthy, although a few ill animals may be spotted.⁴⁶¹

There is variation among Gwich’in harvester’s opinions about yearly variation in body condition. Some feel that caribou body condition changes from year to year, and some feel like it’s relatively stable. Some harvesters instead notice changes on a much longer time-span, through the decades.⁴⁶²

Observations about condition of caribou has been tracked over the last several decades, in a variety of contexts. Observations about caribou in winter are included as a chart, below.⁴⁶³ The majority of caribou are in excellent or good condition, although the trend is variable.

⁴⁶⁰ Lyver *et al.* 2003: 45

⁴⁶¹ Wray 2011

⁴⁶² Lyver *et al.* 2003

⁴⁶³ ABEKS Data, Aklavik and Fort McPherson.

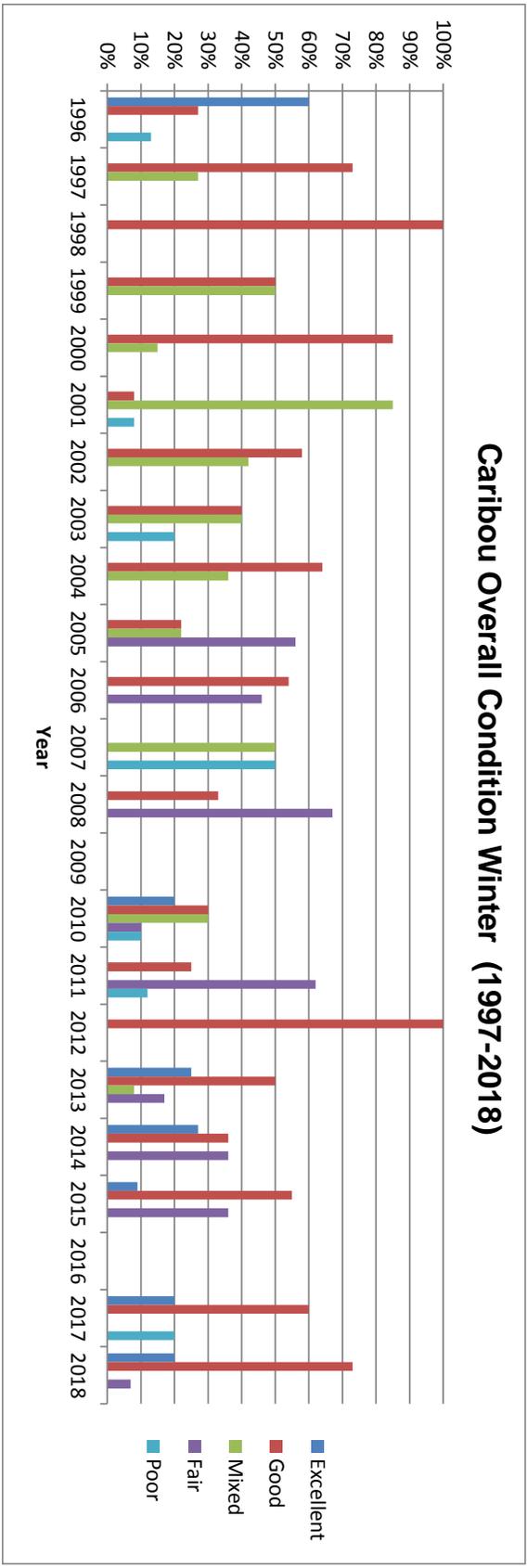


Figure 25. Caribou condition in winter, 1997-2018, from Aklavik and Fort McPherson harvesters. Credit: ABEKS, 2019.

Similar variability is seen in other seasons, as well. As another index of health, the ABEKS has also asked hunters about caribou size and abnormalities. Over the last decade, caribou appear to be of average size; over the last two decades, the incidence of abnormalities such as cysts, white spots, sores or pus, wounded or limping animals, swollen joints, testes, glands, or bad liver was very, very, low.⁴⁶⁴

Wisdom

Caribou are known to be wise and intelligent animals. In fact, in the earliest of times when caribou and humans were equal, caribou passed along some of their wisdom to people, which allows people to predict caribou's behaviour, if only part of the time.⁴⁶⁵

Hearing and sense of smell

Caribou have very sensitive hearing.⁴⁶⁶ They also have an excellent sense of smell. In fact, in ancient times right after the caribou and people switched roles and humans started killing caribou, a man who started out life as a caribou found he couldn't live among people due to their smell:

*This is how the humans and the caribou exchanged roles. In the first place, the caribou was too smart to be killed, and in order to survive the roles were reversed and that's how it was. This is the story my uncle told me. Later on, this young man had to leave camp and live alone for quite some time before he got accustomed to living among people again, because people had a strong odor, and [he] had to get accustomed to that.*⁴⁶⁷

Caribou can smell the lichens and grasses they like to eat through the snow as they walk along.⁴⁶⁸

Fat

The composition of caribou fat is different in different parts of their bodies. "Kidney fat is yellowish, this was done [processed] separate, and back fat is white and done separate. Marrow and bone grease is done separate, too."⁴⁶⁹

As noted above, there are differences seasonally and difference between cows and bulls when it comes to their health, and subsequently, their fat. Caribou were 'nice and fat' – a description which means both that they were healthy and vigorous but also that they had a thick layer of actual fat – in the fall time.⁴⁷⁰ "When we killed lots of caribou in the early fall, the caribou were very fat. Bull caribous are very fat in fall time – it took five dogs to pack one bull caribou."⁴⁷¹ These bulls led the migration south and were often hunted in August.⁴⁷²

⁴⁶⁴ ABEKS Data, Aklavik and Fort McPherson.

⁴⁶⁵ Kofinas 1998

⁴⁶⁶ Fred Greenland, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V40 Aklavik February 23, 1976

⁴⁶⁷ Mary Vittrekwa in Kofinas 1999: 450

⁴⁶⁸ Gwich'in Elders 1997

⁴⁶⁹ Andrew Kunnizzi, COPE story, "Heart and Blackstone River"

⁴⁷⁰ Monica Pascal, COPE story, "Interview by J. Semmler – Part #1"

⁴⁷¹ Andrew Kunnizzi, COPE story, "Heart and Blackstone River"

⁴⁷² Gwich'in Elders 1997

Parasites

Caribou are known to have several types of parasites, internal and external. Warble flies parasitize caribou's skin and grow there over the winter, then leave in the spring as flying insects which resemble bees. Some people do eat warble fly larvae from the skin of caribou.⁴⁷³ The flies come out of the skin during the summer and the skin heals.

Caribou also are prey to flying and biting insects, as described in the Behaviour section below.

The Porcupine Caribou Herd changes over time

When talking about changes in the Porcupine Caribou Herd, both the number of caribou—population—and the location where the caribou can be found—distribution—are considered together, as the Gwich'in are circumspect in making too many generalizations about topics that are not suited to traditional knowledge. Since caribou move so much, if they are not found by hunters in an area where they were found before, or in herds of the size anticipated based on previous years, Gwich'in harvesters can't be sure if the caribou have simply moved further away, or the population has changed.

Unfortunately, determining if the caribou herd is changing in size is very difficult. The majority of Gwich'in hunters do not have faith in the population numbers which wildlife biologists report from airline counts and collaring experiments.⁴⁷⁴ Often, Elders feel that if there are not caribou around, the herd has simply moved to another migration route or wintering area. It does not mean that the population is lower.⁴⁷⁵ Recent studies with Gwich'in harvesters and Elders has found varying evidence of population declines in the recent decades. Some feel like the caribou numbers are very strong, and some feel like there are fewer than there have been.⁴⁷⁶

Caribou population/distribution changes on a cycle. Woody Elias indicated that the cycle is about 30-40 years.⁴⁷⁷

... that was a big story I don't know when, maybe, in the 1920s, maybe before that, it was caribou disappeared for 40 years, um, [then] I guess somebody went hunting, and really saw caribou so was just surprised, it was big news, and he went back to the people [to tell them the caribou were back]⁴⁷⁸

These cycles, along with cycles of migration which take the herd closer to the Gwich'in communities and further away, mean that there have been times in the past when there were enough caribou, and times of starvation.

⁴⁷³ Benson and Ernst 2017

⁴⁷⁴ Kofinas 1999

⁴⁷⁵ Gwich'in Elders 1997

⁴⁷⁶ Wray 2011

⁴⁷⁷ Katz 2010

⁴⁷⁸ Woody Elias in Katz 2010: 29

There were enough caribou

Much of the time, the population and distribution of Porcupine caribou means there is enough to eat for everyone. In the numerous Gwich'in oral histories about spending winter in the mountains, there are hundreds of references to caribou. Caribou were seen in small groups, caribou were harvested in small groups, caribou were plentiful, caribou were a bit scarce but everyone had enough to eat, and so on. When telling a story of a particular trip, the presence of caribou and the number of caribou hunted seem to be always included as an integral part of the story. Indeed, this is the exact information that older Gwich'in story-tellers want to impart through their stories: how to make a living in Gwich'in lands.

Some stories make it clear that caribou were sometimes plentiful. "One winter (it was the year when there was lots of caribou) people of Ft. McPherson, Arctic Red and Aklavik were going to the mountains..."⁴⁷⁹ During this winter, Christopher Colin killed many tens of caribou for those families and himself.

When caribou were plentiful, times were very busy for everyone. Men had to keep on hunting, and women processing the carcasses, hides, and making drymeat. Cleaning the hides would come last, as the meat would spoil if not dealt with.⁴⁸⁰ "After the meat was dried and the bone grease was made and the skins were all cleaned, we started to get ready to return home."⁴⁸¹

Selling meat

Caribou were known to be abundant in some areas when they were scarce in others. Several elders recalled harvesting caribou and moose and bringing the meat to sell in Dawson, especially in the early part of the 20th century.⁴⁸² According to Abraham Alexie, for example, when he was young (around the turn of the 20th century perhaps) there was enough caribou to harvest and sell the extra drymeat in Dawson.

*There was a lot of caribou. Everyone had plenty of meat. Since there were many people in Dawson, there was a shortage of meat, so the town bought meat (caribou, moose, sheep, etc.) from whoever could supply it. Our people went to Dawson with big loads of meat and sold it all. They brought back a lot of food when they returned.*⁴⁸³

At that time, it was hard to find moose and caribou near Dawson, so the meat was easy to sell. At other times, the price for meat was very low and poor as the market was flooded, and the animals abundant.⁴⁸⁴

The money earned from meat sales was sometimes a hunter's only income, or the only income outside of trapping.⁴⁸⁵ This was particularly the case during the gold rush years, when many Gwich'in hunters

⁴⁷⁹ Christopher Colin, COPE story, "Living in Rat River"

⁴⁸⁰ Paul Bonnetplume, COPE story, "Hunting and Fishing in the Fall"

⁴⁸¹ Christopher Colin, COPE story, "Living in Rat River"

⁴⁸² Andrew Kunnizzi, via Neil Colin, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V12 Fort McPherson July 9 1975, Ronny Pascal, COPE story, "Trip to Dawson".

⁴⁸³ Abraham Alexie, COPE story, "When I Was a Boy"

⁴⁸⁴ Ronny Pascal, COPE story, "Trip to Dawson".

moved to Moosehide in the Yukon to hunt and sell meat to the gold diggers.⁴⁸⁶ Andrew Kunnizzi remembers his dad selling meat for 20 cents a pound when he was a kid in the 1890s.⁴⁸⁷ They'd use the profits for buying 'white man's grub' and other goods.⁴⁸⁸ In the early years of the fur trade's presence in Fort McPherson, the post was a so-called "meat post". The post supplied caribou and moose meat to other posts, rather than furs to the company for sale elsewhere. As the fur economy boomed in areas up the Mackenzie River and further south, Indigenous harvesters turned more to fur harvest through trapping and obtained their meat through trade, rather than hunting.⁴⁸⁹

*At the end of the 19th century, the Peel River people were major suppliers of fresh and dried vadzaih meat and tongues to the Hudson's Bay Company posts. In 1972, hind saddles, weighing approximately 40 to 50 pounds (18-23 kg), sold for \$25. [In the early- and mid-1990s] one gallon bag of dry meat cost about \$30. Two hind quarters make about three such bags of dry meat.*⁴⁹⁰

It wasn't until around 1880 that trapping became an important economic activity for Gwich'in and for the fort at Fort McPherson.⁴⁹¹

There were not enough caribou

Sometimes, there were not enough caribou. Starvation stories are frequently found in Gwich'in oral histories and legends. Starvation is typically identified as being related to times when the caribou were not to be found; or even when all animals were scarce.⁴⁹² There are both oral histories and legends which talk about starvation. One well-known story about a child with special powers, the Boy in the Moon, starts with starvation and lack of caribou. "It was a winter without meat and the people were half starving and getting worried. Every witch craft tried to bring caribou but with no luck."⁴⁹³

However, many other stories have similar lines:

- "One winter there were no caribou or moose and everyone was hungry"⁴⁹⁴
- "We had a hard time getting game, since there wasn't very much caribou, moose or sheep."⁴⁹⁵
- "There were no tracks of moose or caribou, and ptarmigan and rabbits were scarce. The people were very hungry and getting weak - men, women and children were walking with canes. The people were very poor by this time."⁴⁹⁶

⁴⁸⁵ Ronny Pascal, COPE story, "Trip to Dawson"

⁴⁸⁶ Kofinas 1998

⁴⁸⁷ Andrew Kunnizzie Life Long Ago Tape 73.1, 1979

⁴⁸⁸ Mary Vittrekwa, COPE story, "A Long Time Ago"

⁴⁸⁹ Kritsch, Jerome, and Mitchell 2003

⁴⁹⁰ Gwich'in Elders 1997: 34

⁴⁹¹ Slobodin 1962

⁴⁹² Ronny Pascal, COPE story, "Trip to Dawson", among many others

⁴⁹³ Johnny Semple., COPE story, "Story of the Boy in the Moon"

⁴⁹⁴ John Francis Sr., COPE story, "Two Sons"

⁴⁹⁵ William Nerysoo, COPE story, "When He Was Eleven Years Old"

⁴⁹⁶ William Nerysoo, COPE story, "Winter's Tale"

It was not rare or even uncommon for there to be 'no caribou'. "At that time, people had good life and sometimes not so good. Some winters, there were no caribou, but people helped one another when there was need for it."⁴⁹⁷ Stories of travel through the mountains sometimes indicate that there are no caribou tracks around, despite long distances travelled.⁴⁹⁸ However, it is not clear that the times without caribou related to times when the caribou population was lower or whether it relates to distribution of the herd. In some stories, winter starvation is narrowly avoided when months-old caribou tracks are finally found, followed, and a group of caribou is discovered and killed.⁴⁹⁹

*Eventually the weather warmed up, it was April. We were living at the top of Nan Zhak Nadhadlaih (Peel Rapids). My brothers killed a bull caribou and my sister was working with it. That evening the dog started barking. We went outside and saw three men coming toward us. I don't really remember who they were but I can recall seeing George and the other's name was Its'ik Zraii, I didn't know the third one. They came after us by following our trail. They said that there was no caribou during the winter and the people were poor. They said that they stopped at different camp sites on the way hoping to find food left behind but there was nothing. Each time we left our camp site my sister burned whatever was left behind. This is why there was no food left behind at our camp sites.*⁵⁰⁰

In times where there was not enough to eat, Gwich'in hunters were particularly careful with their hunting, and took special care of their equipment as well.⁵⁰¹ They also made use of other resources, like fish and moose or headed to the north for mountain sheep.⁵⁰² They could also snare ptarmigan or rabbit, or even hunt seals.⁵⁰³ One legend tells of a very wise chief who knew early in the winter that there was no caribou nor moose around. He took his family to the Peel River where they were able to harvest and live off beaver for the whole winter, sparing them.⁵⁰⁴ Although Gwich'in storytellers often talk about the lack of both caribou and moose in starvation stories; sometimes when caribou were not available, moose were found and people could live well off moose.⁵⁰⁵

Over the last decade, Gwich'in harvesters have been polled about reasons why they don't get enough caribou during years of scarcity. The leading factor is availability, relating to caribou abundance and distribution.

⁴⁹⁷ Johnny Kaye, COPE story, "The Fish Wheel Near Old Crow"

⁴⁹⁸ Andrew Kunnizzi, COPE story, "1938 Trip to Mayo, Yukon"

⁴⁹⁹ Charles Koe, COPE story, "Memories of Hungry Lake (Yukon)"

⁵⁰⁰ Bella Alexie, COPE story, "Early 1900s As I Remember It"

⁵⁰¹ Paul Bonnetplume, COPE story, "Hunting and Fishing in the Fall"

⁵⁰² Johnny Kaye, COPE story, "The Fish Wheel Near Old Crow", Andrew Kunnizzi, COPE story, "Heart and Blackstone River"

⁵⁰³ Amos Paul, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V01 Aklavik April 2 1975

⁵⁰⁴ William Nerysoo, COPE story, "Old Chief"

⁵⁰⁵ William Nerysoo, COPE story, "Trip to LaPierre's House and Back"

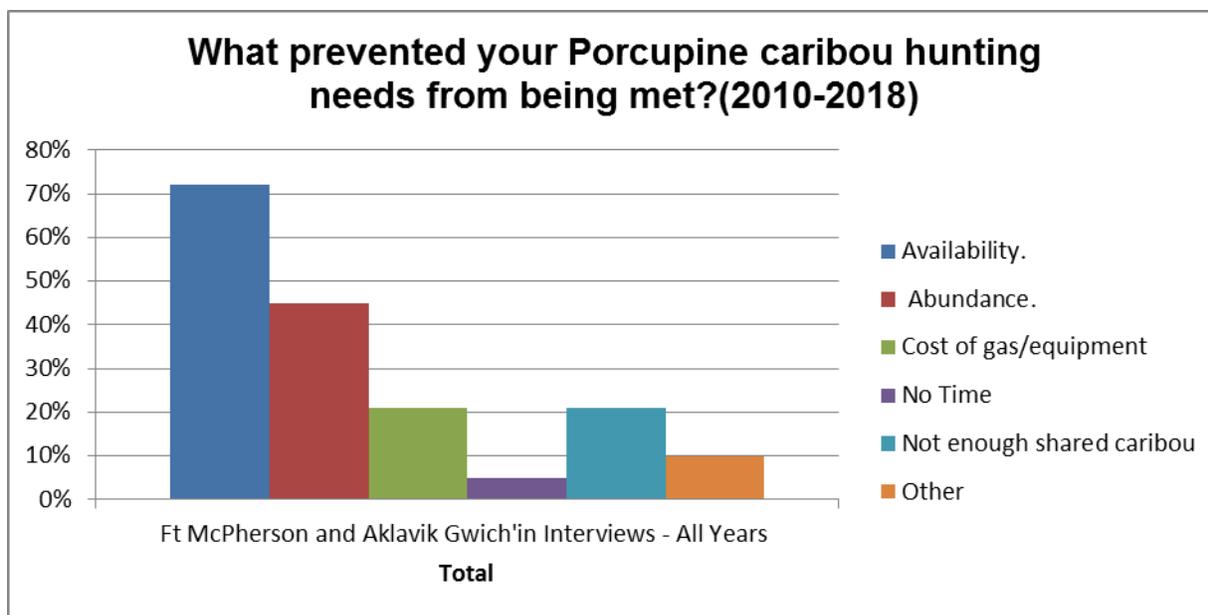


Figure 26. Reasons for not getting enough caribou. Credit: ABEKS, 2019.

Today, when caribou are scarce, Gwich'in families have to purchase meat at the store. Food prices are very high in Gwich'in communities, so this creates hardship.⁵⁰⁶

When asked in 2007 why Porcupine caribou population or distribution (migration) might have changed, a TK researcher was told by Gwich'in interviewees that the following are important factors.

Table 4. Reasons why the Porcupine caribou population is changing.

Reason ⁵⁰⁷	Number of interviewees who mentioned this cause
Climate change	10
Predation	8
Overhunting (non-local Aboriginal)	6
Pollution	3
Natural population variability	3
Distribution/Migration route change	3
Hunting methods/Management	3
Overhunting (non-Aboriginal)	2
Resource/Industrial development disturbance	1
Overhunting (local)	1
Tourism disturbance	1
Helicopter disturbance	1

⁵⁰⁶ Mary Kendi, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V40 Aklavik February 23, 1976

⁵⁰⁷ From Table 3-6 in Wray 2011: 67

Table 5. Reasons why the Porcupine caribou distribution (migration route and seasonal range) is changing.

Reason ⁵⁰⁸	Number of interviewees who mentioned this cause
Food (forage) availability	10
Climate change	7
Natural variability	7
Fire (effects on food availability)	3
Overhunting (non-local Aboriginal)	2
Overhunting (non-Aboriginal)	2
Hunting methods	2
Overhunting (local)	1
Ecosystem change	1
Predation	1
Highway traffic disturbance	1

Shifts in population/distribution

Although we do not have a solid and continuous record of caribou population and distribution changes over time, some observations have been recorded incidentally in Gwich'in stories and interviews.

- The winters of 1903-04, there was a stable and large group of caribou on the traditional trails between Dawson and Fort McPherson. Gwich'in families congregated in this area, in particular at a large gathering site near Hungry Lake.⁵⁰⁹ A few years later, in 1908-09, there were caribou around the Bonnet Plume Flats, around Stewart River and the Bonnet Plume River.
- Aklavik elders recalled that caribou became scarce around 1910, perhaps indicating a shift in migration or a population cycle. The population of caribou returned after 1910.⁵¹⁰ Many other important animals experienced a similar cycle.

After years ahead of us, long way ahead of us, ...the [musk]rat they come back... rabbit. Maybe rabbit will come back sometime too. Old Lazarus Sittichinli he told me it happened, it happened [in] 1910. It happened, same thing, their caribou, [there is a] shortage, pretty near [every] 8, 9 years. It happened that time. After that they, everything coming back. Rat, and everything else. That's what he told me, old Lazarus Sittichinli, yeah.⁵¹¹

- In 1922, caribou were scarce around Fort McPherson. "There was a lot of work to do, at that time there was no moose or caribou, the people would hunt and snare rabbits all the time."⁵¹²

⁵⁰⁸ From Table 3-7 in Wray 2011: 67

⁵⁰⁹ Slobodin 1962. Note that the term "Gwich'in" doesn't adequately describe the cultural affiliations of these harvesters and their families at this time.

⁵¹⁰ Alfred Semple referring to Lazarus Sittichinli's information in Benson 2007a

⁵¹¹ Alfred Semple, Potential Heritage Conservation Zones interview, 2007

⁵¹² Rachel Robert, Stories Of Easter Carnival In The Olden Days. 1995.

- In 1932, during the time when Alfred Johnson, the Mad Trapper of Rat River, was on the run, there was a lot of caribou in the area where he was hiding in the mountains.⁵¹³
- Caribou were very scarce in 1935.⁵¹⁴
- Caribou were plentiful around the lower Peel, in the Richardson Mountain area, in the winter of 1938-39.⁵¹⁵
- Before the 1940s, caribou were generally scarce, and people relied on moose meat.⁵¹⁶
- There was a scarcity of caribou and moose in the 1940s-1960s.⁵¹⁷

*But them days [around 1952-3], hardly any caribou and moose either. Hardly any moose, marten is very scarce, few lynx sometime, mink. Everything is scarce them days, it's just, I remember, you come from McPherson, you go up river, after you pass Trail River, which is 75 miles away. Only then you see odd moose trail.*⁵¹⁸

- In 1956 and again in the 1960s, Robert Alexie Sr. travelled to Hungry Lake. There were many caribou around Hungry Lake. However, there was a wildfire in 1963, after which caribou were not found as frequently in the area.⁵¹⁹
- Caribou ... been more abundant or closer to the communities from about 1970 or 1975.⁵²⁰ The caribou were close to the community of Aklavik specifically in 1974 and 1975. Some elders felt there had never been so many caribou so close to the community as there was at that time.⁵²¹
- In the mid-1990s, Elders and harvesters interviewed for the Gwich'in Words About the Land project indicated that there were more caribou around at that time than in past years.⁵²²
- Caribou were very numerous around Horn Lake in the Rat River area in 2007. By 2008, there were none around this area.⁵²³
- The caribou migrated closer to Aklavik around 2006, but were back on a much more westerly migration route by 2012.⁵²⁴
- Caribou were scarce around the Bell River winter road in 2008-2009.⁵²⁵

Caribou population and health trends over the last several decades

The Arctic Borderlands Ecological Knowledge Society (ABEKS) has been tracking caribou abundance and health trends for several decades.

⁵¹³ Annie Benoit, Elder's Biography Project, Long Story

⁵¹⁴ Johnny Kaye, Land Research Files, 1975

⁵¹⁵ Slobodin 1962

⁵¹⁶ Gwich'in Elders 1997

⁵¹⁷ Benson 2014a

⁵¹⁸ Walter Alexie, Black City Ethno-archaeology Project, 2004, Interview 8

⁵¹⁹ Katz 2010

⁵²⁰ Gwich'in Elders 1997

⁵²¹ Amos Paul, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V01 Aklavik April 2 1975, John Kay, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V11 Fort McPherson July 8 1975

⁵²² Gwich'in Elders 1997

⁵²³ Abe Peterson, GEKP Interview 2008

⁵²⁴ Benson 2014a

⁵²⁵ Freddy Frost, Caribou – Wolf-Vegetation Food Chain Project, 2009.

Arctic Borderlands is a cooperative program run by and for Gwich'in and Inuvialuit people across the range of the Porcupine caribou Herd and neighboring coastal and marine ecosystems. Community monitors work with local experts to record observations about changing conditions in the region so that local information can be made available for responsible co-management of natural resources. Monitors use a survey to gather information about caribou, berries, birds, fish, weather, insects and other mammals and enter survey answers into an online database. The database can be accessed with permission from the Renewable Resource Council or Hunter & Trapper Committee in each community.⁵²⁶

The number of people in the group of interviewees who hunt has shown a slight decline over the decades, although many harvesters continue to hunt caribou.

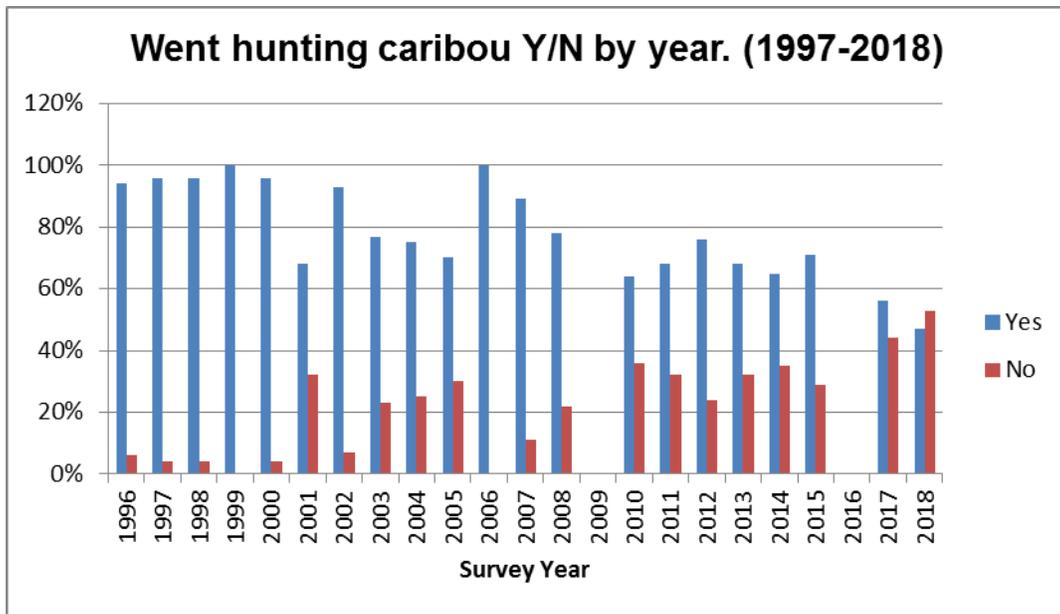


Figure 27. Number of ABEKS participants who hunt caribou or not. Credit: ABEKS, 2019.

Aklavik and Fort McPherson harvesters have seen the following trends.⁵²⁷

- The relative abundance of young females and males, bulls and cows seen in the winter, summer, and fall has been variable, 2010-2018
- The relative abundance of young females and males, bulls and cows seen in the spring is apparently decreased, 2010-2018
- The relative abundance of calves in all seasons has been variable, 2010-2018
- Between 2013-2018, fewer people were getting caribou for each caribou hunting trip taken, which implies a change in abundance/distribution.

⁵²⁶ ABEKS 2019: 2

⁵²⁷ ABEKS Data, Aklavik and Fort McPherson.

In addition to the trends tracked by ABEKS, they also collect observations. The observations of caribou abundance (2010 to 2018) show that Gwich'in harvesters are finding caribou to be less predictable, and are offering information about the source of the changes as well. Some examples of observations pointing out this lack of predictability include:

- Big bulls moved fast they moved out in two days. They did not stay long. Unusual for it to do that.
- Caribou was more spread out in smaller groups.
- Caribou don't travel together anymore other than spring time.
- Caribou were more numerous with young bulls and cows.
- Changes in calving time. (Early).
- Different migration every year.
- Dry cows were skinnier than usual last year. Might be because of the freezing rain.
- I seen more of the caribou in groups, they sometimes are scattered and go in one or two.
- Leave early for wintering ground.
- They move very fast in their migration to wintering ground (Arctic Village).

Caribou migration and travel: how they move and where they are found

Caribou have been migrating along the same general route for thousands of years.⁵²⁸ They may change routes over the years, but they remember the abandoned routes and will use them again after a time of regrowth.⁵²⁹ Caribou follow each other closely as they travel, on trails worn deep into the ground.⁵³⁰ In the winters, they can walk on top of the snow in some conditions, although sometimes they fall through, which can slow them down and harm their legs. They are also known to follow trails through the snow, including those made by the Gwich'in, as Walter Alexie remembered how the caribou damaged a carefully set trail, "... the caribou, they follow our winter trail. And it's bad when they do that, you know, the sleigh go like this, in their trail. Oh boy. I was mad at the caribou."⁵³¹

The contemporary Gwich'in settlement of Fort McPherson, along with other modern settlements, were established due to their proximity to the wintering ranges of the Porcupine herd.⁵³² The careful placement of habitation sites at areas where caribou will cross nearby is an ancient tradition in the area, at least two thousand years old.⁵³³

Spring migration north

Porcupine caribou migrate twice a year. In the spring, they travel north from their wintering areas, which vary from the Yukon to Alaska. The caribou will wait for the snow to be soft and easy to move

⁵²⁸ Gwich'in Elders 1997

⁵²⁹ Gwich'in Elders 1997

⁵³⁰ Gwich'in Elders 1997

⁵³¹ Walter Alexie, Black City Ethno-archaeology Project 2004 Interview 8

⁵³² Alexie 2015

⁵³³ Kofinas 1998

through, rather than walking through ice-topped snow.⁵³⁴ They start moving in March, when it is just starting to warm up.⁵³⁵ However, they must also start to migrate early enough that the ice on the rivers they need to cross will still be solid. If it's not, they'll stay in a safe place for a time.⁵³⁶

Elders in communities have explained the incentive of caribou to head north as following from the need to escape insects of summer forested areas, graze on the new growth of plants, and revisit their birthplace. Driven by what might possibly be an age old instinctual understanding, cow caribou's arrival on the coastal plain appears to coincide with the availability of quality forage...of new plant growth. If arriving too early, the area will be snow covered. If arriving too late, nutrient-rich vegetation will be past its peak.⁵³⁷

Some years they travel along the eastern slopes of the mountains. They pass the Rat River areas and Canoe Lake and then continue on to Blow River. Occasionally they will travel near James Creek.⁵³⁸ "Sometimes, the herd gathers in very large numbers at favoured mountain pass crossings. In mid-April of 1972, thousands gathered in the meadows southwest of the confluence of Bear Creek and Rat River."⁵³⁹ Other years, the herd migrates far to the west, closer to Old Crow and the Porcupine River, for which the herd was named.⁵⁴⁰ Caribou will change their migration routes for several reasons. If there is not enough to eat, or the route is used up, the caribou will choose another route. However, caribou will also change routes if there are disturbances on the route, such as hunters or predators.⁵⁴¹ Generally, Elders agree that Porcupine herd caribou do not cross the Mackenzie River.⁵⁴² However, as noted elsewhere, there may be times when a small group of caribou do cross the river.

Caribou were frequently harvested in the late winter and spring:

Here is another story about Fort McPherson people - how they used to hunt late in the spring, in April sometimes. Caribou travelled all the way down along the mountain. Some people hunted along the mountain. Some people hunted along up Stony River – already caribou passed down towards Rat River. They brought caribou or moose back to McPherson. This time, one spring about the last week in April, all the caribou went down to Rat River. Thirty-seven teams went hauling towards Rat River. ... They got into Rat River and travelled through Rat River. Pretty soon, there was another river on the south side called Wolf Creek. They passed there and kept travelling through Rat River. Pretty soon they got to the mouth of Bear Creek and that's where everybody settled down and put up tents. That time, thirty-seven teams travelled together.

⁵³⁴ Katz 2010

⁵³⁵ Gwich'in Elders 1997

⁵³⁶ Gwich'in Elders 1997

⁵³⁷ Kofinas 1998: 72-3

⁵³⁸ Gwich'in Elders 1997

⁵³⁹ Gwich'in Elders 1997: 21

⁵⁴⁰ Gwich'in Elders 1997

⁵⁴¹ Gwich'in Elders 1997

⁵⁴² Gwich'in Elders 1997

*They had four tents. Everybody got a room, they divided the four tents to get a room. They all camped there and the next day they all went up towards the south on the foothills. All kinds of caribou were there on the flat so all of the hunters killed all the caribou they needed.*⁵⁴³

Fall migration south

In the late summer, caribou will start to migrate away from their coastal summering areas. They'll leave in August or September.⁵⁴⁴ They move first into the mountains, where they feed low on the slopes, moving higher up the slopes as the snow accumulates.⁵⁴⁵ They can travel through First Creek or by Divide Lake, although may choose another route by Willow River if chased by hunters.⁵⁴⁶ About a month or two later, in September or October, they'll again move through low mountain passes. Some years, they will move through the Rat Pass.⁵⁴⁷ They'll either cross Fish Creek, a tributary of Rat River, or follow Sheep Creek, crossing over to the Stony Creek and Rock River watersheds.⁵⁴⁸ Caribou on this route end up around Hungry Lake.⁵⁴⁹

*After they travelled a few days through the mountains [from Peel watershed towards Dawson in the fall], they came upon a large herd of caribou. The people did not just happen to come to the herds. They usually knew quite well where to find the caribou at that time of year. After killing as many caribou as they needed, the people set up camp at a suitable spot.*⁵⁵⁰

Before freeze-up, caribou were harvested and drymeat made for the upcoming winter.⁵⁵¹ In September and October, Teet'it Gwich'in families would leave their fish camps and head into the foothills and mountains, ready to find caribou.⁵⁵²

Caribou behaviour during migration

When caribou are migrating, they don't stop for any weather.⁵⁵³ They can also travel across rivers and up steep cliffs that leave their human hunters far behind, even with snowmobiles.⁵⁵⁴ Caribou travel during the day, and avoid burnt out areas.⁵⁵⁵ Although they are remarkable travellers, some areas are too cold for even caribou to migrate through. These are areas where dogs on dog teams could even freeze to death.⁵⁵⁶ However, caribou can move easily, and in fact are particularly strong, in very cold

⁵⁴³ Roddy Peters, COPE story, "How the People of Fort McPherson Hunted"

⁵⁴⁴ Gwich'in Elders 1997

⁵⁴⁵ Gwich'in Elders 1997

⁵⁴⁶ Gwich'in Elders 1997

⁵⁴⁷ Gwich'in Elders 1997

⁵⁴⁸ Gwich'in Elders 1997

⁵⁴⁹ Gwich'in Elders 1997

⁵⁵⁰ Johnny Kaye, COPE story, "From Fall to Spring"

⁵⁵¹ Mary Francis, COPE story, "Story About Two Old Women-#1"

⁵⁵² Roddy Peters, COPE story, "How People Lived in the Old Days"

⁵⁵³ Gwich'in Elders 1997

⁵⁵⁴ Gwich'in Elders 1997

⁵⁵⁵ Gwich'in Elders 1997

⁵⁵⁶ Woody Elias in Katz 2010

winter conditions, “And when caribou...in that, in that cold north wind, like 40 below, or 45 below, something like that, with a cold north wind, it’s really cold. And when it’s that cold, the caribou get strong. You know they can really go.”⁵⁵⁷ Although caribou avoid dangerously cold areas, there are still other dangers on their migration route. Many caribou drown while crossing rivers or get picked off by bears and wolves. Also, caribou can die from avalanches in the mountains.⁵⁵⁸

Caribou travel in groups, from a just a few to much bigger groups.⁵⁵⁹ If a group of caribou reach a river in the evening, they won’t swim across until the next morning.⁵⁶⁰ Cows swim on the downstream side of their calves to help them cross the river, although many calves are killed during river crossings by being swept away.⁵⁶¹ The strong current of some rivers moves the swimming caribou far downstream from where they started crossing.⁵⁶²

In some snow conditions, caribou fall through the top of the crusty snow with each step. This makes travel difficult and slow.⁵⁶³ In fact, crusty snow over the plants caribou eat is one of the reasons that caribou migrate from the coast, where the winds make the snow crusty and ice-covered, to the mountains, where brush keeps the snow softer.⁵⁶⁴ Both ice cover and deep, wind-hardened snow will be avoided by caribou due to difficulty moving, and difficulty eating.⁵⁶⁵ Alternatively, icy areas of overflow or glaciers are good for caribou, when they are travelling.⁵⁶⁶ When they’re looking for food in the winter, caribou will travel in brushy areas as the snow is softer there.⁵⁶⁷

Vinijàatan: where caribou settle for the winter

Due to the shorter days in November and December, caribou find a place to “settle down and lie around and just eat”. This place is Vinijàatan. When the caribou then move around in January, they will be ‘fat’, which refers to the caribou’s overall health.⁵⁶⁸ The potential winter range of the Porcupine herd is large, and they occupy different areas over the years. Caribou disperse in the winter, scattering throughout different areas of their winter range. They disperse to obtain enough to eat, as food is scarcer in their winter range.⁵⁶⁹

According to Woody Elias, in the past Gwich’in harvesters waited until caribou had settled in for the winter before starting to actively harvest in larger numbers. This practice ensured that the caribou could be found again.

⁵⁵⁷ Walter Alexie, Black City Ethno-archaeology Project, 2004, Interview 8

⁵⁵⁸ Gwich’in Elders 1997

⁵⁵⁹ Gwich’in Elders 1997

⁵⁶⁰ Gwich’in Elders 1997

⁵⁶¹ Gwich’in Elders 1997

⁵⁶² Sarah Bonnetplume, Gwich’in Elders Biography Project, Tape 55, 2001

⁵⁶³ Benson 2014b

⁵⁶⁴ Gwich’in Elders 1997

⁵⁶⁵ Freddy Frost in Katz 2010

⁵⁶⁶ Robert Alexie Sr. in Katz 2010

⁵⁶⁷ Gwich’in Elders 1997

⁵⁶⁸ Mary Effie Snowshoe, personal communication to Sharon Snowshoe, Nov. 30 2018

⁵⁶⁹ Katz 2010

*If you see caribou you don't, just shoot it, you got to come back... how they call that Vinijàatan. Well that means that's where the caribou has settled. See eh? Everybody come back and pretty soon they have a meeting. And they said they're going to go hunting there. See that's the way they do it... You can't just shoot caribou, you got to come back... So I guess you call that 'control' ah? That's the way they do it.*⁵⁷⁰

Harsh conditions or other factors may cause caribou to change the area they select for wintering, which can cause hardship for Gwich'in hunters and families.⁵⁷¹ Sometimes, during times of starvation, Fort McPherson families would move as far as half way to Old Crow looking for caribou.⁵⁷²

Caribou are found in the mountains in their winter range in smaller groups. Hunters would see groups of a few animals or up to around 20.⁵⁷³ In addition to dispersing as groups, bulls and cows may stay in different areas during the winter.

Once they cross Hart River, between Hart River and Wind, there's big country in there, you know. The caribou calves and cow caribou they stay above Hungry Lake area, above Hungry Lake area. In the big area that's between aye Wind and Hart, Little Wind and Hart, or Big Wind. They winter there all winter and then. The bulls travel same time and the bulls just keep it going. They pass Hungry Lake straight across go east and Deception, Deception Mountain where, you know where that. Deception you know where's Deception. Right and there's Deception Mountain aye and Deception too. There's Deception Lake, yeah, right in there, Ts'ii Kàn Tat they call it. Bull caribou just move in there like that. And that's where they winter ... all winter...

*We been there [the area around Hart, Little Wind, Wind, and Peel rivers], we travel through there few time with dog team, and it's a big, big country for caribou. A good country. Bull caribou usually live in there from December until, November, December, January, February, March. All winter they stay in there, they winter in there. It's a hilly country and good feeding, scratching, and hill. But now it's all burnt a few years ago. ...[19]88 I went there. It burnt before that. Burnt quite a few years back, but the whole place burnt. So, no more caribou there for a long time I guess.*⁵⁷⁴

Caribou migrate huge distances over the seasons, but they can also follow regular daily patterns on a much smaller scale.

January through to April, we stayed there. Not where there is a dip, but further down at Ch'iiheetl'at. The caribou were going back and forth here. In the morning, they would come from the east and go West and then the next day they would be going back down.

⁵⁷⁰ Woody Elias in Katz 2010: 25

⁵⁷¹ Freddy Frost in Katz 2010: 26

⁵⁷² Lucy Vaneltsi, COPE story, "Life When a Young Girl in 1902 - #1"

⁵⁷³ Christopher Colin, COPE story, "A Long Time Ago – Part #5"

⁵⁷⁴ Robert Alexie, 2004, Black City Ethno-archaeology Project, Interview 5

*I remember they did this. After we dried all the meat, they would be coming from the east again. And more meat would be taken from them. They did this all winter.*⁵⁷⁵

Caribou migration and “leaders”

A study conducted in 2009-2010 about caribou leaders and migration included a component on Gwich'in knowledge. From this study, it appears that Gwich'in harvesters and Elders are split on whether or not the leaders of the caribou herd are the ones making the decisions about where to migrate. Some feel like the leaders make a decision and the herd follows, others suggest that outside constraints such as food availability and weather conditions are more important. Some harvesters indicated that the leaders of the herd were cows, but others felt like bulls led the herd. A previous TK study in the early 1990s suggests that each group of migrating caribou has one or more leaders, typically a large older bull or cow. If this leader is killed, another immediately takes their place.⁵⁷⁶

*These young caribou, two to four year olds, those they don't mate, and the bulls and young, the young bulls and girls, they go, that's how these dry cow teach them to go, generation after generation, that's the ones. Then behind stays the big cows, those with the bulls, those are the ones that mate. So when you get up Dempster you watch, you see first bunch, they're little, they're small, not so brushy, some bulls are big, eh, big horn, that's the young cow, bulls. Then these young bulls go with them, they protect them. It's just like a guard to them, they're always the guard these young bulls, they watch, one sleep nighttime, one stay up they watch, one or two. Then they fool them and they just take off.*⁵⁷⁷

There is also a diversity of opinions about which types of caribou are consistently “leaders”, the function of leaders, the general number of leaders, and whether there are leaders in each group of caribou or not. Although what *types* of caribou constitute the leadership is debated, the *roles* of caribou leaders are more consistently agreed upon by Gwich'in harvesters. Traditionally, it appears that there are two separate approaches to caribou leaders. If a hunter wants to harvest an entire group of caribou, killing the leader first will cause the rest of the caribou to become confused, making them easier to kill in larger numbers. For conservation purposes, there is a general rule prohibiting the killing of leaders. It is possible that these rules apply to caribou at different times/places along their migration route and seasonal round, although this was not clarified in the research project. Since ‘allowing the leaders to pass’ is an important and frequently-repeated traditional rule, this knowledge gap should be subject to further research. For example, an earlier anthropological report indicated that older, wiser caribou were the leaders, just as older, wiser Gwich'in individuals are selected to lead the Gwich'in.⁵⁷⁸ Alternatively, in the mid-1990s, Gwich'in elders suggested that historically people would hunt the fat bulls that showed up on the migration south first, even though these bulls lead the migration.⁵⁷⁹

⁵⁷⁵ Mary Kendi, Ehdiitat Gwich'in Place Names Project 1999, Tape 16

⁵⁷⁶ Gwich'in Elders 1997

⁵⁷⁷ “Fort McPherson” hunter in Padilla 2010: 35, see also Padilla and Kofinas 2010.

⁵⁷⁸ Wishart 2004

⁵⁷⁹ Gwich'in Elders 1997

Migrating groups of caribou also have “scouts”. Scouts are young caribou which are sent out in search of food, sometimes travelling for long distances before reuniting with the group and taking them towards any food they find.⁵⁸⁰ If a hunter sees scouts, they should be followed, as they may lead back to a bigger herd.⁵⁸¹ The scouts also tell community members that the herd is on its way.⁵⁸²

Changes in caribou migration

There are broad changes in the route caribou take during their migration, some of which are considered natural and some of which seems outside of a normal cycle.

*A long time ago there were no caribou around Ft. McPherson. People had to go halfway towards Dawson, Yukon to get meat. Nowadays, we get caribou close to town and that has been going on for a number of years and we should be thankful to get meat every year.*⁵⁸³

Development such as a pipeline may affect the caribou’s migration path by ‘blocking’ it.⁵⁸⁴ Caribou will also change their migration in response to being chased on skidoo or other non-traditional hunting practices.⁵⁸⁵ If development in one place displaces the caribou, it may make it extremely difficult for Gwich’in families to get enough to eat.

*Then what will our people live off? If the pipeline goes through Prudhoe Bay and past Fort McPherson, The caribou may be forced away to other areas far away from us. The caribou have their young up along the Arctic coast. That is where Gas Arctic wants to put the pipeline. We really don't want this, we are against it.*⁵⁸⁶

Caribou calving areas and wintering areas sometimes change

The Porcupine caribou calving grounds are outside of the Gwich’in territory. For this reason, and due to traditional rules about hunting caribou while they are calving, there is not much recorded traditional knowledge relating to caribou calving. Gwich’in are reluctant to make guesses about things which they do not have a good grounding in. See the Threats to Caribou and the Gwich’in-Caribou Relationship section, below, for more information.

Caribou used to calve on Edigii, far from the coast (see Figure 5 for the location of this hill).⁵⁸⁷ The area was used for calving by the caribou as it is windy.⁵⁸⁸ Caribou used to calve around Bell River, as well. “Now in those days, caribou have their young ones all along [their migration route], after they cross Bell

⁵⁸⁰ Gwich’in Elders 1997

⁵⁸¹ Gwich’in Elders 1997

⁵⁸² Wishart 2005

⁵⁸³ George Vittrekwa, COPE story, “A Long Time Ago”

⁵⁸⁴ Mike Pascal, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V11 Fort McPherson July 8 1975, John Itsi, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V12 July 9 1975

⁵⁸⁵ Wray and Parlee 2013

⁵⁸⁶ Mary Vittrekwa [Vittrekwa], Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V11 Fort McPherson July 8 1975

⁵⁸⁷ Benson 2007b

⁵⁸⁸ Katz 2010

River, and that's where they used to have their young. But lately, they've been going a way down North Slope as we are, we call it now."⁵⁸⁹

Caribou have also been seen around Firth River and Point Barrow in the wintertime, indicating that caribou may be close to their typical calving areas even in the winter.⁵⁹⁰



Figure 28. Caribou on the 1002 Area of the Arctic Refuge coastal plain, with the Brooks Range mountains in the background to the south. Credit: US Fish & Wildlife Service.

Caribou reproduction

During the October rut, male and female caribou start to look for each other in order to mate.⁵⁹¹ "By late fall, when the bull caribou's fat starts turning red, we would stop killing them because they were mating."⁵⁹² Gwich'in hunters usually avoid hunting during the first week to ten days of October, during the rut. This is for several reasons. The flavour of the meat is different and not preferred, and also it's customary for Gwich'in harvesters to leave the mating animals alone at this time to protect the herd.⁵⁹³ The rut is over by the middle of October.⁵⁹⁴

⁵⁸⁹ Jim Edwards Dene Mapping Project Tape 78

⁵⁹⁰ John Itsi, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V12 July 9 1975

⁵⁹¹ Gwich'in Elders 1997

⁵⁹² Andrew Kunnizzi, COPE story, "Heart and Blackstone River"

⁵⁹³ Kofinas 1998

⁵⁹⁴ Gwich'in Elders 1997

Rutting bulls are known to make snorting sounds, which are distinctive among caribou vocalizations.⁵⁹⁵ Bulls will also rub their antlers on bushes.⁵⁹⁶

A bull may chase cows during this time, and bulls may fight for access to cow caribou who are ready to mate.⁵⁹⁷

Robert Alexie once saw a few bulls hang back in the late winter when the caribou started to migrate north and most of the bulls were in another group. He wondered if it was to catch any females which weren't already pregnant.⁵⁹⁸

Calving

Caribou generally calve close to the coast. The coast offers them a good spot for calving: it is cooler and windy, which helps with the insects.⁵⁹⁹

Their calving area is an important area for the caribou which must be protected.⁶⁰⁰ The area is known as *vadzaih digii nanh kak*, meaning 'caribou calving grounds'.⁶⁰¹ Developments such as oil and gas and pipelines must not interact with caribou calving areas.⁶⁰² Caribou calve in spring, between May and June.⁶⁰³

In some cases, caribou calve on their northern migration and move to the coast with their newborn calves.⁶⁰⁴ Some caribou calve inland and do not go to the coast, as well.⁶⁰⁵

Once a caribou cow has her calf, she'll wait for the calf to be able to stand up, which happens almost immediately. The cow will then lead the calf away.⁶⁰⁶ A cow usually has a single calf, and does not mate for the first time until they are two years old.⁶⁰⁷ Calves are able to eat the same food as adult caribou by October, which is when the bulls chase them away during the rutting season. The calves do come back to find their mothers, though, and stay over the winter and for the spring migration north with them. They leave their mother's side when calving starts in the summer. At this point, they are yearling caribou.⁶⁰⁸

⁵⁹⁵ Gwich'in Elders 1997

⁵⁹⁶ Gwich'in Elders 1997

⁵⁹⁷ Gwich'in Elders 1997

⁵⁹⁸ Robert Alexie, 2004, Black City Ethno-archaeology Project, Interview 5

⁵⁹⁹ Gwich'in Elders 1997

⁶⁰⁰ Mike Pascal, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V11 Fort McPherson July 8 1975

⁶⁰¹ Gwich'in Elders 1997

⁶⁰² John Itsi, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V12 July 9 1975

⁶⁰³ Parlee et al. 2013

⁶⁰⁴ Kofinas 1998

⁶⁰⁵ Gwich'in Elders 1997

⁶⁰⁶ Gwich'in Elders 1997

⁶⁰⁷ Gwich'in Elders 1997

⁶⁰⁸ Gwich'in Elders 1997



Figure 29. Caribou aggregation on the 1002 Area of the Arctic Refuge coastal plain (the calving area of the Porcupine Caribou Herd). Credit: US Fish & Wildlife Service.

Cows teach their young calves where it is safe to travel:

If a calf is in a place where it can get hurt, for example, on a steep bank, the cow chases it away. When a young one tries to pass its mother on the trail, she pushes it back with her nose, teaching it to stay behind. Cows exercise their calves by chasing them around and playing with them. Calves also play with one another and, sometimes, with other members of their herd. A calf never leaves its mother unless she is killed. Even if there are thousands of vadzaih around, a calf still knows which one is its mother.⁶⁰⁹

⁶⁰⁹ Gwich'in Elders 1997: 23



Figure 30. Porcupine caribou Herd in the 1002 Area of the Arctic National Wildlife Refuge coastal plain, with the Brooks Range mountains in the distance to the south. Credit: US Fish & Wildlife Service.

Caribou behaviour

Caribou behaviour is well-known by hunters but has not been clearly documented, and is an important information gap.

Rob Wishart (2004) writes how the Gwich'in describe their political practices as being related to that of caribou. In caribou herds, the caribou leadership is respected for their strength, they are followed because of their knowledge of land and in return they are expected to ensure the survival of the herd (p. 65). Small bands of caribou live together as relatives during winter and summer months, and all join together in congregation in the fall and spring to rely on the older respected caribou to lead them across the huge expanse of land in search of food (ibid). The caribou herd's reliance on the older 'leaders' is similar to Gwich'in notions of leadership, respect, and sharing.⁶¹⁰

⁶¹⁰ Alexie 2015: 98

When approached by a hunter, Porcupine caribou are likely to flee.⁶¹¹ They are especially skittish when it is foggy.⁶¹² For this reason, they like to be in open areas where they can see danger approaching.⁶¹³ A few ‘watch’ caribou will stay awake at night, feeding in the hills. They’ll sleep during the day. If danger approaches, they will warn the rest of the caribou and lead them away.⁶¹⁴

Caribou calves are quite noisy, and if they are separated from their mothers, they will call out. Their mothers will look for them immediately upon hearing this sound, and a mother knows the particular sound of her calf.⁶¹⁵

Escape from insects

Caribou need to escape from insects. They do this in several ways: by finding ice patches or snow patches, which can provide relief. “In the summer all they do is just fighting the mosquitoes. Whole shake...down the coast is danger with mosquitoes.”⁶¹⁶ The relative abundance of various insects as noted by Aklavik and Fort McPherson harvesters is noted in the chart below.

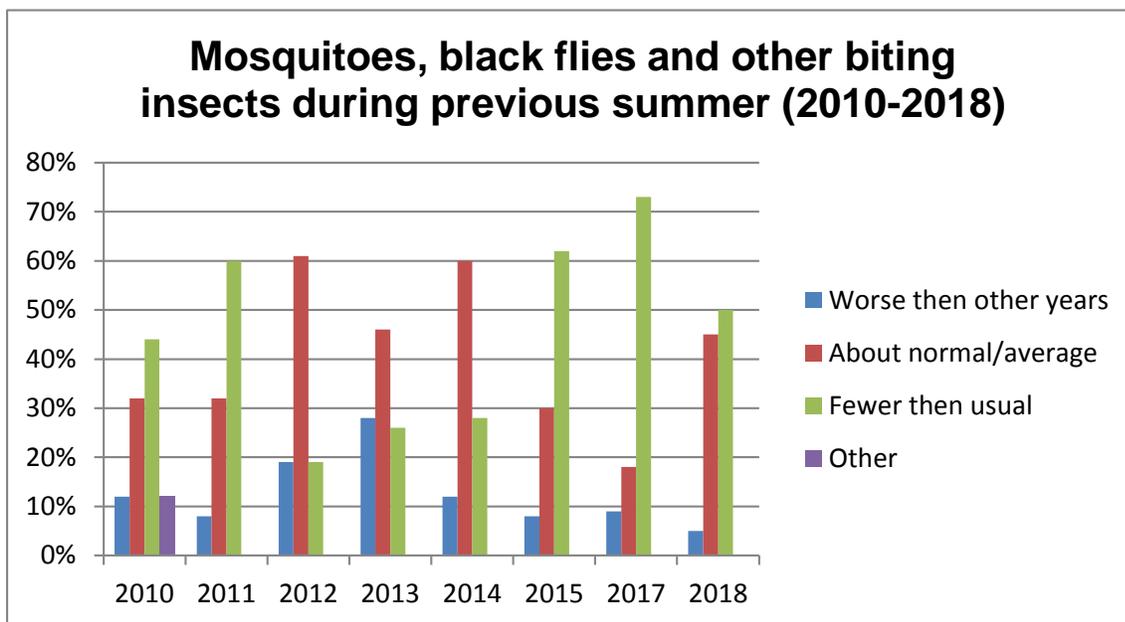


Figure 31. Relative abundance of insects of note to caribou, 2010-2018, from Aklavik and Fort McPherson harvesters. Credit: ABEKS, 2019.

They also seek areas where the wind is too strong for flying insects. “You know in the summer the winds over the Willow River, winds [that help the] caribou stay away from mosquitoes.”⁶¹⁷ The summer winds

⁶¹¹ Benson 2011

⁶¹² Gwich’in Elders 1997

⁶¹³ Gwich’in Elders 1997

⁶¹⁴ Gwich’in Elders 1997

⁶¹⁵ Gwich’in Elders 1997

⁶¹⁶ Joan Nazon 1996 in Benson and Ernst 2017

⁶¹⁷ Alfred Semple, Potential Heritage Conservation Zones interview, 2007

around Red Mountain are also known to provide relief and caribou will seek this area out for this reason.⁶¹⁸ Caribou will also go into the wooded areas to escape from bugs, and to stay close to bodies of water. They can go into the water to escape from insects, if needed.⁶¹⁹

Caribou diet and feeding behaviour

Caribou eat both lichens and grasses.⁶²⁰ "...in the summer they eat lot of hay, grass and lichens... Just the caribou lichens I guess. Willows."⁶²¹ Caribou will eat grasses around lake edges and like moose, sometimes will eat green plant material from the bottom of lakes as well.⁶²² Caribou also eat berries.⁶²³ Caribou will also eat yellowberries, both the berries and the plants. They are known to eat berries in August.⁶²⁴

Caribou eat muskrat push-ups. Push-ups are piles of frozen vegetation that muskrats build up on lakes, as sheltered breathing and eating stations.⁶²⁵ Sometimes, caribou will clean a frozen lake completely, by eating all the push-ups.⁶²⁶

If a hunter comes upon an area where the moss on the ground has been disturbed, dug up, and tossed around, then caribou were at that location feeding. Dried moss indicates that it's been a while since the caribou passed through, and live, damp moss means the animals passed through recently.⁶²⁷

The caribou's winter diet is low in salt, and they can seek out salt licks for this reason. They also seek out sulphur to eat, according to Robert Alexie Sr.⁶²⁸ "And there's one place that lime, coming out of that creek, the caribou in love with that."⁶²⁹

This Richardson Mountains provide good pasture for caribou.⁶³⁰ They eat grasses on steep ridges in the mountains, where they also sleep at night.⁶³¹ They also use the high locations to scout for danger, "Sometime one or two caribou on top of that hill there. They rest up. From there they watch for enemy... That Jimmy Husky told me that."⁶³²

Caribou eat during the day, and they sleep at night. They also spend time chewing their food again, like domesticated cows do.⁶³³ If they are not being bothered or aren't migrating, they'll stay in one place to

⁶¹⁸ Alfred Semple in Benson 2007a

⁶¹⁹ Gwich'in Elders 1997

⁶²⁰ Gwich'in Elders 1997

⁶²¹ Freddy Frost in Katz 2010: 26

⁶²² Gwich'in Elders 1997

⁶²³ Woody Elias, Gwich'in TK of Grizzly, 2012

⁶²⁴ Woody Elias in Katz 2010: 27

⁶²⁵ Katz 2010

⁶²⁶ Gwich'in Elders 1997

⁶²⁷ Gwich'in Elders 1997

⁶²⁸ Katz 2010

⁶²⁹ Alfred Semple, Potential Heritage Conservation Zones interview, 2007

⁶³⁰ Amos Paul, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V01 Aklavik April 2 1975

⁶³¹ Gwich'in Elders 1997

⁶³² Alfred Semple, Potential Heritage Conservation Zones interview, 2007

⁶³³ Gwich'in Elders 1997

eat.⁶³⁴ If they clean an area out of food, they'll move on to another area where food is more abundant.⁶³⁵ They won't return to this area the next year, either. They will wait until the food in area has grown back.⁶³⁶

During the winters, caribou can smell the food they prefer through the snow as they're walking. If the snow is deep, they'll dig to get through it and graze.⁶³⁷ They'll excavate areas of snow to feed in, and they'll also dig beds for themselves.⁶³⁸ This is known as "cratering". Later in the winter, if other caribou come back to a cratered area, they will find it to be devoid of food.⁶³⁹

Caribou are very selective about what they will eat, and will avoid areas where there is no food or areas where, for example, there is muskox urine over the forage. The caribou's sharp sense of smell can detect the muskox urine or other changes or contaminants to their food, and they will avoid contaminated areas.⁶⁴⁰

Caribou moss or lichen is an important food for caribou, and is considered one of the reasons that caribou taste the way they do. Consumption of caribou moss is also the reason why caribou are so healthy for Gwich'in. Caribou moss is known as uudeezhu' in the Gwich'in language.⁶⁴¹

Caribou and other animals

Porcupine caribou are not the only caribou that are found in Gwich'in traditional lands. There are other herds of barren-ground caribou found to the east of the Mackenzie River delta. There are also boreal woodland caribou and mountain woodland caribou. The following table summarizes the differences between the woodland caribou, Porcupine caribou, and Bluenose caribou to the Gwich'in.⁶⁴²

Table 6. Comparison between Porcupine, Bluenose, and Woodland caribou

	Species name	Gwich'in community	General location	Notes
Porcupine caribou (subspecies of Grant's caribou)	<i>Rangifer tarandus granti</i>	Very important for Fort McPherson and Aklavik, also used by Tsiigehtchic and Inuvik residents by travelling up the Dempster Highway.	Migrates from Arctic Coast into Yukon mountains, migrating by Fort McPherson and across the Dempster Highway to the west.	Most important caribou for Gwich'in. Easier to hunt than Woodland due to regular movement in large herds.

⁶³⁴ Gwich'in Elders 1997

⁶³⁵ Gwich'in Elders 1997

⁶³⁶ Gwich'in Elders 1997

⁶³⁷ Gwich'in Elders 1997

⁶³⁸ Gwich'in Elders 1997

⁶³⁹ Gwich'in Elders 1997

⁶⁴⁰ Wishart 2004

⁶⁴¹ Andre 2006: 136

⁶⁴² From Benson 2011

Bluenose caribou (several herds of Barren-ground caribou)	<i>Rangifer tarandus groenlandicus</i>	Occasionally used by Tsiigehtchic residents, rarely others. Was used more in the past when migration brought it closer to Tsiigehtchic.	Migrates from the coastal areas of the Inuvialuit Settlement Region in the summer/calving time, into Sahtu area.	Used by Gwich'in although not as often as Porcupine caribou, due to access constraints.
Boreal woodland caribou	<i>Rangifer tarandus caribou</i>	Inuvik and Tsiigehtchic, mainly. Also used occasionally by Fort McPherson in recent years, rarely by Aklavik.	West of the Mackenzie Delta and in the Peel Preserve.	Dispersed in small groups among a large territory.
Mountain caribou	<i>Rangifer tarandus caribou</i>	Some use by Fort McPherson and Arctic Red River.	In the mountains at the headwaters of the Arctic Red River, and there are several herds in the mountains in the Yukon.	Smaller herds than barren-ground caribou, but not dispersed like boreal woodland.

Dall sheep are considered a secondary food source by Gwich'in harvesters, if caribou are scarce. Sheep and caribou do not tend to mix.⁶⁴³

Woodland caribou

When the Porcupine Caribou Herd migrates further away from Gwich'in communities, Gwich'in hunters sometimes turn to other animals to hunt, including moose and boreal woodland caribou.⁶⁴⁴ The Teet'it Gwich'in also used mountain caribou herds.⁶⁴⁵ It is also possible that some Porcupine caribou have started living like boreal woodland caribou:

Abe Peterson has heard that some Porcupine caribou have crossed the Mackenzie River and become essentially woodland caribou. He heard that they crossed the Mackenzie around Six Miles, which is six miles below Tsiigehtchic (Oct 14 2010).⁶⁴⁶

Moose

Moose do not like being around Porcupine caribou due to the noise.⁶⁴⁷ The area around Hart River supported a large population of moose during the time when the caribou were migrating further to the east. When the caribou returned, the moose disappeared.⁶⁴⁸

⁶⁴³ Koizumi Lambert 2012

⁶⁴⁴ Benson 2011

⁶⁴⁵ Kritsch, Jerome, and Mitchell 2003

⁶⁴⁶ Benson 2011: 12

⁶⁴⁷ Gwich'in Elders 1997

⁶⁴⁸ Gwich'in Elders 1997

Muskox

Muskoxen used to roam in Gwich'in lands, but due to hunting pressure during fur trade, they disappeared. In recent decades, the Greenland muskoxen re-introduced to Alaska in the 1930s are spreading into the Richardson Mountains across Gwich'in lands used by the Porcupine caribou. These animals were seen in the NWT by Gwich'in harvesters starting in the late 1980s. Both the Yukon and NWT governments enacted protections for muskoxen with little consultation with Fort McPherson and Aklavik. On at least one occasion, a Gwich'in harvester who hunted a muskox had the meat taken away by the Yukon government. Many Gwich'in harvesters and elders feel that muskoxen compete with caribou, and that this is affecting caribou negatively. The muskoxen eat the food that caribou need, and they also chase caribou away from the areas where they want to travel and feed through their behaviour and strong scent. The competition between caribou and muskox, along with the government's position on protecting muskoxen for non-Indigenous values (tourism and guided hunts), may be exacerbating the negative perception of muskox among the Gwich'in.⁶⁴⁹

Caribou predators

Caribou have many predators. The relationship between caribou and moose and their key predators (wolves, grizzlies, and even wolverines) is complex and intertwined. It is a system which must be in balance to function well:

Right now [in 2010], I think [boreal woodland caribou calf survival] would be good. I say that because whenever we travel there is very little wolves, you hardly see wolves, like the predators, you hardly see them. So I think their calf survival would be good. Before, when there was lots of caribou, there is lots of wolves, lots of bears, lots of wolverine so I think it would be a little harder then... The Bluenose [Caribou Herd] does not come in [to an area used by boreal woodland caribou] anymore, so, I think maybe last year we might have got four wolves. Where usually we get 10 or 12, you know. I think the wolves are more after moose in that area. There is quite a bit of moose in there. But before, when the Bluenose were all in there, there was bears, and lots of wolves, and lots of wolverine.⁶⁵⁰

Grizzlies

Grizzlies are a concern to both caribou, as a predator, but also to Gwich'in harvesters as a scavenger. Grizzlies will approach a carcass, even if the human hunter is still there.

In October, father and Fred went to visit the people before freeze-up. When they found the people they learned that they were getting a lot of meat for the winter. They were about to return home when the old people warned them it was dangerous for a person to travel alone this time of the season. They advised him to keep away from where they

⁶⁴⁹ Wishart 2004

⁶⁵⁰ James Firth in Benson 2014b

*had killed caribou because the grizzlies always cleaned up what had been left of the meat.*⁶⁵¹

They will also destroy a hunter's cache to get at caribou meat, if they can. A single grizzly can destroy a cache of up to 18 caribou. They take the meat but leave the bones.⁶⁵²

Caribou are considered an important food source for grizzly bears – so important, in fact, that declining caribou is considered a threat to grizzly bears.⁶⁵³ Grizzlies kill caribou but also scavenge from wolf-killed (and hunter-killed) caribou.⁶⁵⁴ Gwich'in harvesters in Aklavik felt that scavenged caribou from wolf kills or hunted caribou made up far more of the grizzly's diet than caribou that the grizzlies hunted and killed themselves.⁶⁵⁵

Grizzlies use several styles of hunting. They can be ambush hunters, and will kill their prey, including caribou, at water crossings or at other locations. They use brushy willows to hide.⁶⁵⁶ Caribou can outrun a grizzly, so in some cases the bears will focus on sick or young animals. However, they are capable of hunting healthy adult caribou, and can even pick out good, "fat" or healthy caribou to hunt.⁶⁵⁷ They'll stalk caribou if the vegetation cover or landscape is adequate, or corner animals and bite and swipe at them until they die from blood loss. Grizzlies can also deliver a killing bite across or under the neck.⁶⁵⁸ Caribou are a preferred food for grizzlies, above even ground squirrel.⁶⁵⁹

Although they are usually alone, grizzlies can share a carcass or eat in proximity to each other. Sometimes grizzlies may even hunt together.⁶⁶⁰ If they kill a caribou, they'll often cache part of the carcass, or in some cases they'll leave the entire carcass, returning later when they need food. Gwich'in hunters know grizzlies are around when they see and smell these caches.⁶⁶¹

Grizzlies and wolves, if pressuring caribou, can make caribou more "wild". Wild caribou flee much more easily.⁶⁶² Like wolves, there may be two types of grizzlies: those that follow the caribou herds at least part of the time, and those that make their home in one area.⁶⁶³ The grizzlies who follow the herd as it migrates seem to follow for at least for part of the migration route.⁶⁶⁴ Grizzly bears have been increasing in number or visibility in the last decade or two.⁶⁶⁵

⁶⁵¹ Sarah Peters, COPE story, "1909 – How People Lived Between Peel River and Dawson"

⁶⁵² Bullock, 1987

⁶⁵³ Benson 2014a

⁶⁵⁴ Benson 2014a

⁶⁵⁵ Lambert Koizumi 2012

⁶⁵⁶ Benson 2014a

⁶⁵⁷ Benson 2014a

⁶⁵⁸ Benson 2014a

⁶⁵⁹ Bullock 1987

⁶⁶⁰ Abe Peterson Gwich'in TK of Grizzly 2012

⁶⁶¹ Benson 2014a

⁶⁶² Abe Peterson Gwich'in TK of Grizzly 2012

⁶⁶³ Abe Peterson Gwich'in TK of Grizzly 2012

⁶⁶⁴ Benson 2014a

⁶⁶⁵ Abe Peterson Gwich'in TK of Grizzly 2012

Changes in Gwich'in caribou hunting practices may be benefitting grizzlies. More and more of the carcasses are being left behind, which is a change from the traditional practice of leaving a kill-site very clean. With gut piles and meat available for scavenging, grizzlies are well-fed.⁶⁶⁶ This has led to grizzlies being a problem for hunters. Gwich'in hunters know to clean a freshly-hunted carcass quickly and keep watch, because grizzlies can come after hearing the gunshots and try to steal the meat. Some grizzlies can be scared off, but in some cases hunters must abandon their kill or kill the grizzly for safety.⁶⁶⁷

Hunters regularly see grizzlies when hunting in the fall, as the grizzlies are fattening up for the long hibernation ahead. They are starting to get ready to den:

Bears follow caribou movements into the late fall when densites are chosen. They are known to start construction of the site, then continue rummaging for food (weather permitting). Upon returning, a bear may make several (circular passes, to ensure no animal or man has discovered the den.⁶⁶⁸

In the spring, some hunters see them, and others say they are not around.

They're probably just around when the caribou are there you know. In the fall time anyway. Spring time, I haven't seen any grizzly bears around in the spring when you see the caribou. Well, caribou could, caribou are...probably just coming out of their den maybe. When the caribou pass.... [In] April.⁶⁶⁹

Wolves

Wolves are an important predator of caribou.⁶⁷⁰ In areas with caribou, caribou are wolves' preferred prey.⁶⁷¹ Unlike "territorial wolves" who establish and defend a territory, the wolves mentioned most by Gwich'in in reference to Porcupine caribou actually follow the herd around.⁶⁷² They are even known to move ahead of the caribou herd, anticipating the herd's arrival.⁶⁷³ Migrating wolves have been studied much less than territorial wolves.⁶⁷⁴ Wolves will hunt caribou year-round.⁶⁷⁵ If caribou numbers decline, wolves may shift their focus to moose or even rabbits or other small prey.⁶⁷⁶

Wolves are intelligent and hunt in groups. They tend to focus on the weak caribou or calves that they find at the edge of the herd.⁶⁷⁷ They surround a group of caribou and communicate with each other

⁶⁶⁶ Benson 2014a

⁶⁶⁷ Benson 2014a

⁶⁶⁸ Bullock 1987

⁶⁶⁹ Eddie McLeod, Gwich'in TK of Grizzly, 2012

⁶⁷⁰ Benson 2014a

⁶⁷¹ Katz 2010

⁶⁷² Katz 2010

⁶⁷³ Woody Elias in Katz 2010

⁶⁷⁴ Katz 2010

⁶⁷⁵ Katz 2010

⁶⁷⁶ Katz 2010

⁶⁷⁷ Gwich'in Elders 1997

through body language and vocalizations, including howling.⁶⁷⁸ They often hunt in groups of five or six wolves.⁶⁷⁹ Wolves occasionally drive a small group of caribou over a cliff, which kills the caribou or breaks their legs, allowing the wolves to kill them.⁶⁸⁰ Wolves also run caribou into deep snow, sometimes chasing the caribou in shifts to tire them out. The wolf in front will break trail through the snow for a while, and then another wolf will take over when they get tired.⁶⁸¹ The wolves will chase a caribou until the caribou is too tired and the wolves catch up. Wolves will then bite at the back end of the caribou, biting through tendons until the caribou succumbs to injury or blood loss. The wolves will also kill the caribou if they go down, by biting their throats.⁶⁸²

*I seen the animals, them wolves. I used to go hunting with dog team way over in Rock River. You see them, they're going to surround the little caribou herd. One will stop here and these two will over here, and they'll just go right around that caribou and then slowly go down to it and whichever one is not going to be in that caribou herd, they get him. Well they get it, might be female or male.*⁶⁸³

Once they kill a caribou, they will eat the tongue and liver first.⁶⁸⁴ Like grizzlies, wolves will cache food for eating later.⁶⁸⁵ Wolves following a large group of caribou may take quite a few caribou. A very large pack could hunt a few caribou a day.⁶⁸⁶

Wolves do not necessarily go after old and sick caribou. They also hunt for cows and animals in good shape. Wolves, like people, prefer good, healthy meat. In the 1970s, Freddy Frost saw wolves killing more caribou than they could eat at the calving grounds.⁶⁸⁷ There may be behavioural differences here between migrating and territorial wolves, and territorial wolves may target sick or old caribou. Another exception may be wolves who are themselves old or sick, who leave their packs. They may target ill caribou out of necessity, or even wander into a community and kill and eat dogs.⁶⁸⁸

Migrating wolves stop following the caribou herd in order to have puppies of their own. They give birth around the same time that caribou do. During this time, the wolves will rely on smaller prey.⁶⁸⁹ The population of wolves is either stable or increasing over the last few decades.⁶⁹⁰

⁶⁷⁸ Freddy Frost in Katz 2010

⁶⁷⁹ Gwich'in Elders 1997

⁶⁸⁰ Gwich'in Elders 1997

⁶⁸¹ Gwich'in Elders 1997

⁶⁸² Gwich'in Elders 1997

⁶⁸³ Gwich'in Elders 1997

⁶⁸⁴ Katz 2010

⁶⁸⁵ Katz 2010

⁶⁸⁶ Freddy Frost, Caribou – Wolf-Vegetation Food Chain Project, 2009.

⁶⁸⁷ Freddy Frost in Katz 2010

⁶⁸⁸ Katz 2010

⁶⁸⁹ Katz 2010

⁶⁹⁰ Lambert Koizumi 2012

Caribou have a few ways to protect themselves against wolves. They can fight back, with their antlers or hooves. However, they run faster than wolves, and running is their preferred strategy to avoid being killed and eaten.⁶⁹¹

Smaller predators, including wolverine and lynx

Wolverines, lynx and eagles will also hunt caribou.⁶⁹² Eagles pick up calves quite easily and carry them away. Both wolverine and lynx hunt older and sick animals.⁶⁹³ Eagles sometimes work in pairs to lift and drop a calf until it dies.⁶⁹⁴ Wolverine are generally scavengers but have been known to kill caribou, and caribou calves. They can hide in trees and ambush caribou, holding on to their backs and chewing the neck and blood vessels there. Wolverine can also walk on top of crusty snow when caribou fall through, allowing them to get closer.⁶⁹⁵ They can also grab and hold on to a caribou's throat, like a wolf might.⁶⁹⁶ Wolverine will, along with wolves and grizzlies, follow the caribou herd on its migration, although they may be considered to be following the wolves in order to scavenge their kills rather than a primary hunter of caribou.⁶⁹⁷ If caribou are numerous, there will be many wolverines as well.⁶⁹⁸

*They can kill caribou just like nothing, but they don't bother it. You know one year lynx got too thick, way back about 1901, lynx were killing caribou. They jump on the caribou and they cut this cord behind their neck and they are just dead. They eat only the ears, they eat only the ears and they leave it like that. Lots of people found caribou that time with no ears, it was lynx.*⁶⁹⁹

Elders tell of how even weasels could hunt caribou in the past.⁷⁰⁰

Caribou and smaller animals and birds

Although ravens aren't known to hunt animals, they will scavenge from caribou carcasses, and can be seen waiting around a wounded caribou.⁷⁰¹ They also follow the herd, to feed on carcasses left by hunters and predators.⁷⁰²

According to Mary Husky, there were usually many rabbits available during a time of caribou scarcity.⁷⁰³ However, others say that the two species are plentiful at the same time.⁷⁰⁴ When food is scarce, rabbits have been seen chewing on the remains of fish and caribou meat, "[s]ome Elders in Aklavik said that

⁶⁹¹ Gwich'in Elders 1997

⁶⁹² Gwich'in Elders 1997

⁶⁹³ Gwich'in Elders 1997

⁶⁹⁴ Gwich'in Elders 2001

⁶⁹⁵ Benson 2014b

⁶⁹⁶ Fred Koe, Gwich'in TK of Wolverine project, 2013.

⁶⁹⁷ Benson 2014b

⁶⁹⁸ Gwich'in Elders 2001

⁶⁹⁹ Thomas Mitchell, 1998, Tsiigehtchic, in Gwich'in Elders 2001

⁷⁰⁰ Gwich'in Elders 2001

⁷⁰¹ Gwich'in Elders 2001

⁷⁰² Gwich'in Elders 1997

⁷⁰³ Mary Husky, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V40 Aklavik February 23, 1976

⁷⁰⁴ Gwich'in Elders 2001

they have seen geh [rabbits] picking at vadzaih (caribou) meat and luk (fish). It appears that when food is scarce, geh will chew on just about anything.”⁷⁰⁵

Smaller birds like songbirds can act as messengers, and bring news to the Gwich'in about caribou nearby, among other messages.⁷⁰⁶

*Some old people was telling me stories about that bird, he says he is real special bird. If there is caribou nearby he comes around and makes some kind of noise and the old people know what kind of noise they make. Us we never Learn that, we just heard a story and that's it. Sometimes he just make noise and close by there is caribou. People use to watch, look around all the time on the mountains and they live in the mountains and when you be mean to it he is danger too. Because if you be mean to that bird it will think to you that you're going to be bad luck and it turn out that way cause you're mean to it. He is trying to be mean back to you. He will just make you starve or get hurt or anything. So you're not supposed to laugh at it or be mean to it.*⁷⁰⁷

In times past, people could also ask the owl:

*Well, today you know you have plane survey that you could know where the caribou is, them days it was not like that. And just by maybe Jijuu Mary Husky used to tell me when they see that owl, she say they talk to that owl. She say they talk to the owl [Gwich'in, English translation as follows: which way is the caribou?] they ask that owl. And if he turned his head, certain way, they know that's, that's the way. Sometimes it don't move it head, sometime it don't, just stay like that. Soon as if he move his head looking up that way, everybody start getting exciting about going so....*⁷⁰⁸

Ptarmigan can also indicate that caribou are nearby, but because they are avoiding caribou.

*Ptarmigan feed on berries in the mountains, but move down into river valleys to avoid migrating vadzaih herds. When many ptarmigan suddenly appear along the creeks and rivers, people know that vadzaih are travelling through the area. Some ptarmigan follow vadzaih in winter to feed on berries that are dug up from under the snow.*⁷⁰⁹

For this reason, seeing ptarmigan congregate can also be a sign that the caribou migration will soon pass by an area.⁷¹⁰

⁷⁰⁵ Gwich'in Elders 2001: 31

⁷⁰⁶ Gwich'in Elders 2001

⁷⁰⁷ Mary Kendi 1998 in Aklavik, in Gwich'in Elders 2001: 141

⁷⁰⁸ Annie B. Gordon, Potential Heritage Conservation Zones, 2007

⁷⁰⁹ Gwich'in Elders 1997

⁷¹⁰ Wishart 2005

Threats to Caribou and the Gwich'in-Caribou Relationship

The health of caribou and the caribou herds is not a sure thing, and the Gwich'in have always been integral in managing the health of the caribou and the land needed by the caribou to survive.

Hunting and Behaving in Inappropriate, Non-Gwich'in Ways

The threat of non-Gwich'in harvesters was recognized as far back as the 1970s and before. Sarah Peters warned that caribou would not be available if there was overharvest.

Different people used to come to our country, but by God's help we still used to get all kinds of wild meat and berries. Things gradually changed with the animals. We still get caribou and moose plus other animals, but not like it used to be years back. In the future, there will be more people coming into our country.⁷¹¹

It is not only non-Gwich'in harvesters who may be hunting in inappropriate ways. Many factors, from the forced removal of children to residential schools to participate in the wage economy, to the imposition of wildlife regulations in conflict with Gwich'in ways and rules have broken down traditional knowledge-sharing and traditional harvesting, leading to changes in hunting practices even within Gwich'in families.

For the many years that we have been living in the North here, and we make our living off the land here and our children go to school down here and if they can't make their way out of school we take them out -- if they drop out of school we take them into the country and learn them the bush life and that way they carry on their living, but if they do ruin the country our children will never have the chance to learn anything. I can see this, that point of very -- we get all our fish from the coast and the lakes up in this area and all our caribou and birds go nesting and have their young down around the coast and the way the pipeline is going to run is going to cut off our caribou route and it is going to affect the nesting grounds for the birds out on the coast and all this we have in mind, that we really like the changes could be made if possible.⁷¹²

In today's modern Gwich'in communities, the Renewable Resource Councils work with the Gwich'in Renewable Resources Board and other departments and organizations to ensure that traditional harvesting practices and other rules are being practiced. Social and cultural breakdowns and lack of education can harm caribou.⁷¹³

Caribou are wise animals who know what is going on in their whole habitat. Disrespectful harvest practices may drive caribou further from Gwich'in communities.⁷¹⁴ Even the practice of leaving gut piles and not cleaning up a killsite properly may alter a caribou's migration, as the presence of many grizzly

⁷¹¹ Sarah Peters, COPE story, "The Way People Used To Live"

⁷¹² Mike Pascal, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V11 Fort McPherson July 8 1975

⁷¹³ Wray 2011

⁷¹⁴ Gwich'in Elders 1997

bears scavenging the sites could cause caribou to select a different migration route.⁷¹⁵ Once they have chosen a different migration path, the caribou may not decide to return to their old migration trails for a long time. The land becomes less inviting over time:

Today Aklavik is still there and it's still good for fishing but the caribou...children did not know too much about how to treat animals with respect. It was not respected so now they change their route rather than going in their old trails they change their trails to more further to the west. They used to go south closer to Aklavik on the mountains. Now they have a trail more far...to the west. It will be hard for them to take their old trail up again. They are afraid to return to their old trail because of the disrespect shown to them by young people who don't know how to hunt for food. They do not respect the animals that they kill for food. But we are still hoping that they will take up their old trail again.⁷¹⁶

The component of learning from Elders is a key part of the message. Respect of Elders and cross-generation learning is not separate from appropriate hunting.⁷¹⁷

Sport hunters may hunt selectively for large bulls, which may alter herd dynamics in ways that traditional hunting practises do not. And they hunt during the rut in early October, which is also contrary to traditional rules and may affect caribou reproduction.⁷¹⁸

Although hunting in non-Gwich'in ways is a prime concern, the Gwich'in are also wary and concerned about other behaviour which may be disrespectful towards caribou.⁷¹⁹

Exploration and Development

Development like road-building, oil and gas, and mining may affect caribou in many ways. The effects may not be immediate, as indicated by Mary Vittrekwa in the mid-1970s during the Mackenzie Valley Pipeline inquiry, "On this land of ours we have caribou. ...The caribou is good to eat, we have always had it as one of our main food. Now, after the pipeline is built if it ever gets built, the caribou may stay around for a while, then disappear altogether."⁷²⁰

...there's so much traffic on the [Dempster Highway] now. Lot of big trucks. I watch it, at one time, there's about 200, 300 caribou [on their] way across. About couple miles across I guess, on the flat. Big truck coming down and all that caribou move, you know. After that big truck pass. That's disturbing the herd. And, you can't close the highway down too. Well, once or twice, around other side of the border - caribou, so much caribou - never mind traffic, it just go, go, you know. And caribou is very smart, they

⁷¹⁵ Phillip Blake, Gwich'in TK of Grizzly Bear Project, verification session notes, 2012

⁷¹⁶ Mary Kendi, Elder's Biography Project, Tape 25

⁷¹⁷ Gwich'in Elders 1997

⁷¹⁸ Kofinas 1998

⁷¹⁹ Wishart 2004

⁷²⁰ Mary Vittrekwa [Vittrekwa], Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V11 Fort McPherson July 8 1975

know. And, like that highway is a big, big disturbance, you know to...caribou, especially.

⁷²¹

Fears about the effects of development are not new. Seismic exploration and other development already had Gwich'in Elders worried by the mid-1970s. "One of the thing they mentioned, I don't think that we are ever again going to kill caribous [in the same way as we did in the past]. Even right now part of our country is badly damaged."⁷²² Seismic work around Husky River, upriver from Aklavik, made the area inhospitable for caribou and other game.⁷²³

Pipeline development could alter the caribou's migration, making the harvest of caribou much more difficult for Gwich'in. Shifts in migration and distribution cause the Gwich'in to use more time and resources to access caribou, and also make dangerous situations such as getting stuck on the land more likely.⁷²⁴ Shifts in migration that aren't related to the caribou's other needs, like finding good forage and safe travels may also affect caribou negatively.

*There's two things the caribou going to go past, but, it's up to this wild animals to go past the pipeline and highway, and these animals are wild animals, they don't see pipeline, or, they don't see highway in their life, so for sure the caribou whenever they, come up in the fall time, or comes down, and the highway and ah, and the pipeline, that's one going to change the caribou route. So the caribou, ah, might change their trail. Instead of coming this one way every year. So, that's what people are really scared of.*⁷²⁵

Sound pollution is also a potential issue. For example, the noise from compressor stations may directly impact caribou and cause them to leave an area.⁷²⁶ The sizeable camps that are needed for large-scale development may also impact caribou and cause them to leave an area.⁷²⁷ And noise can contribute to cumulative effects: the noise, air pollution, and dust pollution from the highway also affects caribou directly and through the food near the highway, which they eat.⁷²⁸

The threat that development causes to caribou is not just theoretical. Jane Charlie travelled on the land with her husband in the early 1970s and saw what development can do to caribou, the plants and other feed that caribou need to stay healthy, and the rivers as well.

And I'm the one that goes in the bush, every year. We never miss and I don't believe them saying they never spoil the land. This spring in April, I went out in the bush. I went with my husband every day to haul caribou and my husband showed me where they had

⁷²¹ Robert Alexie, 2004, Black City Ethno-archaeology Project, Interview 5

⁷²² Mary Firth, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V11 Fort McPherson July 8 1975

⁷²³ Lazarus Sittichinli, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V40 Aklavik February 23, 1976

⁷²⁴ John Itsi, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V12 July 9 1975

⁷²⁵ Neil Colin Delta Report Dene Mapping Project Tape 73

⁷²⁶ Doris Itsi, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V12 July 9 1975

⁷²⁷ John Kay, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V13 Fort McPherson July 10 1975

⁷²⁸ Woody Elias in Katz 2010

*a camp and where they dynamite. It was quite a big place, not one caribou track was on that part. Outside of that part it was just tramped-with caribou tracks.*⁷²⁹

Johnnie Charlie, also speaking in the mid-1970s, had a cabin near where an oil well was drilled. Despite the wellsite being left alone for four years, the caribou did not return to the spot. Charlie was unsure if the smell of the development was perhaps noticeable by the caribou, even years afterwards and even under the snow.⁷³⁰

The placement of linear developments such as pipelines is important to protecting caribou, and so decisions should be made in co-ordination with Gwich'in harvesters and Elders. Some routes and locations will have more effect than other routes, on both Gwich'in use and the animals who live there.⁷³¹

Even the presence of people may be enough to cause the caribou to change their migration route. Lazarus Sittichinli remembered how the gold rush affected the caribou, as told through an interpreter:

*He says when the white people came down here for that Gold Rush they travelled all over, but he says them days there was no engines. He said everybody had to work or paddle down or whatever. He says the caribou was coming up this route here, but he says so many people working summer and winter, he say the caribou took another route and went down across the other way towards Old Crow. He said there were people were up the river and then there were some on the Porcupine River, he said there was no caribou to be seen that winter...*⁷³²

When caribou are naturally scarce, such as during times when their migration route takes them far from the Gwich'in lands, other animals are abundant, such as rabbits or ptarmigan. However, when development impacts caribou availability, this is not the case.⁷³³

Leaving any industrial waste or garbage behind, along with clearing the land and altering the land for seismic lines, roads, and pipelines can affect caribou. In the past, developers just left garbage and their camps were not cleaned appropriately. Researchers also sometimes leave items in the ground or water, which can affect wildlife.⁷³⁴

I don't know why they want to do that, leave things like that laying around the road on the country, even tearing all them bushes, piling it on one side of the road. Sometimes I see a caribou or moose have to go around and walk long ways before they're going to

⁷²⁹ Jane Charlie, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V13 July 10 1975

⁷³⁰ Johnnie Charlie, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V13 July 10 1975

⁷³¹ Andrew Stewart, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V13 July 10 1975

⁷³² Lazarus Sittichinli, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V40 Aklavik February 23, 1976

⁷³³ Mary Husky, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V40 Aklavik February 23, 1976

⁷³⁴ Julienne Andre, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V47 Arctic Red River March 13 1976

*cross the road. I see lots of places where they got their camp, their sewer, their everything, it's there melting away, I see it.*⁷³⁵

Oil spills will also affect caribou, as they do not clean their feet in the same way dogs can. If they walk through the oil it may harm their hooves.⁷³⁶ Traditional practise means that the land is kept 'clean', which the caribou can sense using their sense of smell. Unclean lands may cause caribou to shift in their migration for years.⁷³⁷

Caribou need fresh water, and polluted water may be part of the reason that the herd migrates away from an area.⁷³⁸ For this and other reasons, pipeline breaks and spills are particularly worrisome.⁷³⁹

*I live many years. For many years -- I live here all my life. I remember what used to happen. And in the winter, when it's cold, people used to go over the mountain; come back, start spring -- in the springtime. And people used to hunt muskrats out on the land. I remember all that; all this within on our land. And on our land we have caribou. Right now just across the river, amongst the lakes and around the foothills are mountain -- are caribou. All that, if it continues -- if this pipeline continues, it's built under the land, all that -- if they put that land -- pipeline under the land, if it break and there's oil spill, is that going to be good for the caribou? All this I would like to see be taken care of really well on the land or under the land. When I see it on TV, when I see a pipeline being built and all that I see, I speak because of seeing that. My friends, try to get yourself prepared. This is what I wish for.*⁷⁴⁰

Development Controlled by Non-Gwich'in

Gwich'in fear that development may have direct consequences, such as changing the environment needed for caribou to flourish. But they also fear that unintended consequences may harm caribou, and the consequences are more likely when there is not adequate consultation and inclusion of Gwich'in in the development process.

Although the signing of the Gwich'in Comprehensive Land Claim Agreement in 1992 enshrined many rights for the Gwich'in in the way development proceeded in their traditional lands, the issue of development in Gwich'in territory is still problematic. Territorial, state, and federal governments and developers do not always agree with the Gwich'in about how development should proceed, or even if it should proceed at all.

⁷³⁵ Julienne Andre, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V47 Arctic Red River March 13 1976

⁷³⁶ Jerome Andre, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V47 Arctic Red River March 13 1976

⁷³⁷ Kofinas 1998

⁷³⁸ Kofinas 1998

⁷³⁹ Mary Teya, Mackenzie Valley Pipeline Community Hearings, Hearing Order GH-1-2004, Volume 42, December 5, 2006

⁷⁴⁰ Eunice Mitchell, Mackenzie Valley Pipeline Community Hearings, Hearing Order GH-1-2004, Volume 42, December 5, 2006

In 1976, Alestine Andre (Gwichya Gwich'in, from Tsiigehtchic) clearly outlined how decision-making was removed from Gwich'in control and the resulting environmental and cultural fall-out in her submission to the Mackenzie Valley Pipeline Inquiry in 1976.⁷⁴¹

My name is Alestine Andre, I am 25 years old and like all the young native northerners who have already spoken before you, I was born and raised here and like them, I am concerned about the future of the people who live here and what will likely happen to our future people once the pipeline is built.

I too have been through the regular channels of education and hostel system. My first grade in a mission school in Aklavik in 1958 and the rest of my education to grade 12 in the hostel school system.

Things in general in those days looked good; well run, well managed. Then I started seeing what has happened in regards to the way things have gone on in the past and how these same things were still going on silently now-a-days. For what has happened, my people have had to suffer. We have been through a great deal since the white man has literally deposited themselves on our land, carrying on with no shame.

At the signing of treaty 8 and 11, was at the time Indian chiefs and counsellors who couldn't even understand English, let alone read it. It was understood by chiefs that they were signing a peace treaty. Simply a peace treaty between the whites and the natives. No giving up of rights to the land was mentioned. Complicated English wording was used in regards to the treaty at the time.

We were always a peaceful tribe, minding our own business, too kind-hearted to newcomers and strangers. We were always willing to help our own kind, plus the others. This was our nature. We naturally went out of way to help people. We were too kind and not harsh enough about the activities being carried out on our land and into our everyday lives.

Ever since the government moved into the Northwest Territories and even before then, when they ruled from Ottawa, our future has been continually planned for us; decisions being made on our behalf in Ottawa by people who knew best -- who thought they knew best.

Back then, we were never involved. I say never, because that was what it was. When we were involved, the big sophisticated words went over our heads and we didn't understand because they used political language. What common person could understand such a language? English is bad enough and they damn well knew it too. That we didn't understand what they meant, which made their case stronger and [gave them] more reason to go ahead with development. Then they turn around and say "sure, we consulted with the people" putting themselves in the clear.

⁷⁴¹ Alestine Andre, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V47 Arctic Red River March 13 1976. Edited for relevance and brevity.

Today, all we have to show for their decision-making back then in their elaborate, executive offices down south is scars of seismic lines, a Dempster and a half finished Mackenzie highway, more low[-cost housing] rentals, seismic wires [left as waste and wrapping around] on caribou heads yet; alcohol problems, family problems, the highway running through our land, our settlements, hunting area and trapline.

Did we ever tell the government we wanted scarred-up land with lines running all over, highways running every which-way, low rentals, wires on caribou heads, alcohol? Did we ever ask them for this?

No.

Instead in their so-called learning, they thought it best for us to save themselves and their economy. I can say a pretty damn good long-range planning for the benefit and interests of southerners the expense of northern ecology and native way of living. They made damn sure the control didn't get into our hands, development flowing into our land. We were never told what was coming or asked whether we wanted it or not. They went right ahead and did what they pleased to feed their so-called "personal comforts".

They did it nice and slowly so it won't be too noticed. They didn't cater to our needs or bother to see if it would affect us. Finally, today, we are saying "this is our land", which it is and you hear thunder rumbling in the distance. The land was always here. We were always here and there's thousands of us buried in the soil of this land. Many more of us will be born here and many more will be buried here. ...It is therefore from our hearts where the constant ache is that we speak to you today in this tone of voice and concern...Our children will be born here and they in turn, have to make a living for their families.

What kind of life are they going to have? It's a very dangerous game, being played down south when people who were in the game, when big decisions were made, can easily retreat to Florida and suntan Themselves and relax with not a care in the world. Meanwhile, people are suffering as a result of their decisions...

As native people of this land, we have unwritten laws and regulations. It was always there, passed from generation to generation and the people knew it well, nothing written down on paper...

Our lives and futures dangling from an already broken thin piece of string being held by a few who only want power. If we were to let them go ahead with the pipeline and further development without consulting us and listening to our views, or having control, you will have in your hands a bunch of wild Indians, mad Indians.

Already, we all know we will suffer. We will be pushed aside if all this goes on without us being involved in our own future for a change... Sure, development means money, but what kind of life for people barely living off old age pensions, unskilled people and people who just want to

be left alone, the people who live in small communities? What kind of life is in store for these people when, naturally, with the pipeline, the price of everything will skyrocket, shoot out of sight for these people? Will they be happy?

What right has the government to let the people come onto our land freely? While they get richer, we are still about where we were before they tiptoed here.

For once, we want control. We need control before we lose everything like the tribes down south. We want to be able and we are quite able to control our lives and our own future. We can control the flow of development, flow of outsiders, our own education...We can control our own commercial businesses, own housing system. We can control our future.

We want the control before there is too many of you to push us aside and control the government, the money and the resources from our land; before a powerful few will control the people. We want a strong say in the development of this land. Sure, it's fine to say that a pipeline hasn't damaged areas in southern Canada where pipe is running. Sure, it's fine to say that, but this is the north with its 50 to 60 below winter temperatures and permafrost year-round. Why else are we concerned?

We can control development at our own pace. We want to be able to control game laws, with native people getting full rights in regards to trapping and hunting and with limits on outsiders getting big game license, sports fishing license. Native people have always had a law in regards to the land and its animals. They only killed how much they needed and when an animal was killed, they use every part of it. Nothing went to waste. We want the control on this so we can retain and save the animals for the future. Otherwise, as years go by and more and more outsiders are licensed, overkilling will result with extinguished species of animals. We have to be very careful...

So, if they think they can easily come up here, screw our minds up and push us around, I think maybe they should think about it again. We will not be taken that easily any longer. Native people have put their foot down on what they have said. We don't value our land for the resources in it.

In addition to direct harm to the environment and the animals through development, development can also have unintended and secondary impacts. For example, the construction of the proposed Mackenzie Valley Pipeline, if it goes ahead, might impact the other barrenground caribou herds and the boreal caribou north of the Mackenzie River. These affects, especially when compounded with climate change, may cause harvesters to change harvesting patterns and hunt more Porcupine caribou.⁷⁴²

Developers Contravening Gwich'in Practices and Conditions

A related threat is when development happens in ways that contravene Gwich'in traditional knowledge and direction. Gwich'in knowledge can be provided to developers through reports or other

⁷⁴² John Snowshoe, Mackenzie Valley Pipeline Community Hearings, Hearing Order GH-1-2004, Volume 42, December 5, 2006

environmental impact assessment avenues. It can also be indirectly or directly transmitted to developers through licence requirements, comments on land-use applications or water applications, and through similar channels. When developers place a greater weight on scientific studies, there can be damage to caribou.

Two years ago there was, I think an outfit by the name of G.S.I. or something that was going some seismic work into the Richardson Mountains, and at that time I was sitting on the Settlement Council of Aklavik here and they asked us if they could work into the Richardson Mountains, that's around the Fish River area and back up there into the mountains. The council said that at that time there was a herd of caribou there all winter, so the council said that they don't recommend it to them that they don't go in there until the caribou move south; and they gave us their promise that they were going to wait until the caribou moved out, but here again their promise was broken. They worked right among the caribou herd, vehicles, track vehicles; and then they also said that the explosives that they were going to do on these seismic lines wasn't going to affect anything, the charge wasn't that heavy, it was a light charge, and this was again, I found, untrue.⁷⁴³

Predation and competition

Grizzly and wolf predation is considered an important threat for caribou. Gwich'in hunters have noticed that the caribou's behaviour is changing due to increased predation. They are becoming more cagey, more likely to flee. The presence of many predators may also be a part of the reason why caribou are migrating further from the Gwich'in communities, into Alaska.⁷⁴⁴ There are more wolves than in the past.⁷⁴⁵ Grizzlies may shift their distribution in response to berry availability, which can have impacts on the other animals they eat.⁷⁴⁶

Some Gwich'in harvesters feel that competition with muskoxen for feed will impact, or is impacting, Porcupine caribou.⁷⁴⁷

Climate change

Climate change affects caribou in complex ways, through the entire life cycle and food system. The threat from climate change is a gap which should be addressed in later stages.

Participants from all regions perceived a decline in numbers of caribou and moose, and attributed this to climate-related changes in migration patterns caused by warming temperatures, increased forest fires and reduced access to food sources. For example, caribou's access to food sources was reported to be limited by ice formation under the snow preventing them from breaking through the ice with their hooves to reach the

⁷⁴³ Fred Greenland, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V40 Aklavik February 23, 1976

⁷⁴⁴ Benson 2014a

⁷⁴⁵ Benson 2014a

⁷⁴⁶ Benson 2014a

⁷⁴⁷ Spak 2001

*lichen; as a result, caribou were reported as being thinner than previously. In addition, biting insects (mosquitoes, warble flies and bot flies) that harass caribou make it difficult for the animals to feed*⁷⁴⁸.

One way in which climate change is affecting caribou is through an increase in insects. Warming temperatures and changes in the onset of spring and winter means that insects are both spreading beyond their normal distributions and are more numerous. Both changes can negatively affect caribou.⁷⁴⁹ The warming climate is also changing seasons and perhaps drying out the land, and therefore affecting the caribou's food.⁷⁵⁰

Changes in the caribou's ecosystem is also a threat. For example, willows and shrubs are growing in places they did not grow in the past.⁷⁵¹ Very dry summers are hard on caribou as a lack of rain causes the lichens and grass to dry up.⁷⁵² Climate change is also affecting the land in ways which make travel across it harder, for both caribou and people. In November, for example, the creeks are still open, when they used to be frozen.⁷⁵³

Wildfires / Forest Fires

Fires are a concern for caribou, and pipeline development (along with climate change) may result in more fires burning in the area.⁷⁵⁴ Caribou will avoid burnt areas for decades, until the lichen re-grows. It also affects migration routes.⁷⁵⁵ For example, the area around Hungry Lake, which used to be an extremely important gathering area for Gwich'in families, burnt in or before the early 1960s. Caribou hadn't returned there by 2010, nearly 50 years later.⁷⁵⁶

Caribou wildlife management research, biologists and collaring

Some Gwich'in feel that caribou collaring is an inappropriate practice, and that it changes the way the collared caribou behaves. A collared caribou may result in the animal getting chased out of their herd and possibly targeted by wolves.⁷⁵⁷ Gwich'in elders interviewed in the mid-1990s also said that capturing caribou and putting collars on them was disrespectful.⁷⁵⁸

In addition to the issues with collaring, other wildlife management decisions have negative effects for caribou. The case of muskoxen protection and reintroduction in particular is seen as worrisome and threatening. "When wildlife biologists explain their actions by describing them as experiments (as in the case of the introduction of muskoxen), elders often react negatively. The whole idea of experimentation

⁷⁴⁸ Kuhnlein et al. 2013: 116

⁷⁴⁹ Benson and Ernst 2017

⁷⁵⁰ Katz 2010

⁷⁵¹ Robert Alexie Sr. in Katz 2010

⁷⁵² Gwich'in Elders 1997

⁷⁵³ Freddy Frost in Katz 2010

⁷⁵⁴ Julienne Andre, Mackenzie Valley Pipeline Community Hearings (Berger Inquiry) V47 Arctic Red River March 13 1976

⁷⁵⁵ Katz 2010

⁷⁵⁶ Robert Alexie Sr. in Katz 2010

⁷⁵⁷ Woody Elias in Katz 2010

⁷⁵⁸ Gwich'in Elders 1997

with animals and particularly with anything that might influence caribou is considered to be gambling with extremely high stakes.”⁷⁵⁹

Generally, lack of co-operation between knowledgeable Gwich'in and wildlife biologists and regulators can be problematic for caribou. For example, the use of caribou collaring to find various groups of caribou to do a population count may leave parts of the herd, who have migrated to another area, uncounted.⁷⁶⁰

As noted above, the bull-only harvest may be causing unanticipated issues. Bulls may be changing their migration routes or migrating more slowly due to hunting pressure, which may cause unknown effects in the future. The harvest of large bulls may change the genetic diversity of the herd, and the behaviour. Cows are more appropriate to hunt in certain seasons and in certain contexts.⁷⁶¹

Discussion and gaps in caribou information

The Porcupine caribou herd and the Gwich'in live inter-related lives, and the Gwich'in have comprehensive knowledge (only some of which has been previously recorded and therefore available for this report) about the herd. The Gwich'in also have extensive traditional use of the herd, both in the past and today. There is no way to overstate the importance of the herd to the Gwich'in. The lack of specific, targeted Gwich'in knowledge studies about caribou is an important gap, as caribou are a keystone species in every sense of the phrase. This list is not comprehensive; topics and questions will need to be vetted and prioritized by Gwich'in knowledge-holders. This list is data gaps made evident by a literature review; they are not specific to proposed development.

The gaps in caribou information cluster under a few themes, which can also be further clarified through community verification. Examples of the types of questions that could be discussed in workshops and interviews are also included.

Theme one: Climate Change

- How adaptable are caribou, in the face of development and climate change?
- What are the differences in caribou's health between seasons and between sexes? How is a changing climate changing this?
- How is climate change affecting caribou? How will the cumulative effects of climate change and development affect caribou?

Theme two: Cumulative Impacts and other Threats and Effects

- How are caribou changing in response to cumulative effects?
- How is the land changing?
- How is Gwich'in harvest changing?

⁷⁵⁹ Wishart 2004: 143

⁷⁶⁰ W. Charlie in Wray 2011

⁷⁶¹ Wray 2011

Theme three: Gwich'in Caribou Stewardship Principles & Practices

- How were caribou traditionally managed, and what are the best ways for all stakeholders to work together to ensure traditional caribou management happens in the current context?
- Harvest details are a gap: How and where are Gwich'in hunters hunting? When?

Theme four: Caribou Behaviour and Health

- Harvesters are aware of the roles and social behaviour of caribou within a herd, a topic which has not been explored through research.⁷⁶²
- The specifics of the traditional rule indicating that harvesters should allow leaders to pass should be clarified: is it a specific season/location?
- What are the differences in caribou's health between seasons and between sexes? How is a changing climate changing this?
- What parasites are typically found on and in caribou, and what are the life-cycles of these parasites? How are they changing? How do they affect caribou?
- What are the changes in the caribou's range and migration routes?
- Caribou behaviour in a general and specific sense is a gap
- Caribou's particular intelligences are well-known but not well-studied.

Theme five: Habitat, Habitat Change, and Habitat Use

- Critical and important habitat.
- How has the land changed?

Theme six: Gwich'in Culture and Language

- A more complete assessment of Gwich'in legends and stories to identify themes which would allow for non-indigenous people to fully understand their importance.
- Since knowledge about caribou in all aspects is embedded in the Gwich'in language, and a linguistic assessment of caribou knowledge held and transmitted in the language has not been carried out, this is a gap.

Detailed Methodology

To identify primary and secondary sources of Gwich'in knowledge of Porcupine caribou, the Department of Cultural Heritage (DCH) used two main search processes.

First, we used our in-house search software (ISYS Search Software) which has a comprehensive index of the DCH's digital archives. These archives contain the reports, transcripts, and all other documents from projects conducted by the Gwich'in Social and Cultural Institute/Department of Cultural Heritage and our research partners since 1992, in addition to the research materials from many other ethnographic projects. The digital archives also contain copies of many ethnographies, theses, dissertations, reports, and other publications that relate to the Gwich'in.

⁷⁶² Kofinas 1998

Second, we used outside search engines to identify sources about which the Department was previously unaware. These outside sources included the NWT Discovery Portal⁷⁶³, Aurora Research Institute Compendia⁷⁶⁴, the Arctic Science and Technology Information System (ASTIS) database⁷⁶⁵, and Google Scholar⁷⁶⁶. Search terms included various combinations of Gwich'in, Traditional Knowledge, and Caribou. Only sources which included knowledge from Gwich'in NWT communities were included in this report, and to be fully understood, the knowledge from neighbouring communities should be considered in conjunction with this report.

Sources used

Both primary and secondary sources were used to prepare this report. Due to the importance of caribou to the Gwich'in, there are many interviews, books, publications, and reports that include caribou information. The Committee on Original People's Entitlement is a collection of stories recorded in the 1970s and 1980s, and includes both real-life accounts and legends. The COPE stories, as they are known, have provided a key source for this report, especially relating to use of caribou in the past. The Department of Cultural Heritage of the Gwich'in Tribal Council (previously known as the Gwich'in Social and Cultural Institute) conducted over a hundred projects both in partnership with other researchers and on their own, in the Gwich'in Settlement Area between the early 1990s to today. Many of these include information about caribou. Several projects were focussed on caribou, and others collected caribou information incidentally. These projects range from place-names projects to ethno-archaeology to oral history to life history to traditional knowledge of wildlife projects. To see a full source list, including an annotated bibliography, see *Appendix 1: Primary sources* and *Appendix 2: Bibliography (annotated) of secondary sources*, at the end of this report.

Caveats and Limitations

This report is focussed only on the previously-recorded traditional knowledge and oral history about Porcupine caribou found in sources available to the Department of Cultural Heritage, Gwich'in Tribal Council. There is a much richer body of knowledge held by the Gwich'in about the whole ecosystem within which caribou live. For example, knowledge of weather systems, plants, the water cycle, and much more, all of which impacts and is impacted by caribou. However, including this knowledge was beyond the scope of this project, so only caribou-specific knowledge and stories were included.

Gwich'in traditional knowledge about caribou is strongest for the times and places they interact with caribou. For example, this means that caribou calving grounds and calving/summer behaviour are not considered by the Gwich'in to be a topic about which they have extensive knowledge.

Not all traditional knowledge and stories about caribou held by the Gwich'in have been recorded in available sources. Much information is held by Gwich'in participants, and is passed along orally between generations and between people. Also, traditional knowledge as a body of knowledge is ever-growing

⁷⁶³ <http://nwtDiscoveryportal.enr.gov.nt.ca/geoportal/catalog/search/search.page>

⁷⁶⁴ http://nwtresearch.com/sites/default/files/traditional_knowledge_compendium_web.pdf and <http://data.nwtresearch.com/>

⁷⁶⁵ <http://www.aina.ucalgary.ca/astis/>

⁷⁶⁶ <https://scholar.google.ca/>

and changing, and the most up-to-date information is likely not included in the sources available, which date to as early as the 1930s.

Fur trade and colonial management regimes have been impacting Gwich'in-caribou relationships and knowledge transmission for generations. Although the Gwich'in are flexible and forward-thinking in their adoption of the various management tools available to them, there has been a schism that will affect modern use and modern knowledge of caribou.

Additional knowledge about caribou has been documented incidentally during many meetings, such as public meetings, Porcupine Caribou Management Board meetings, Renewable Resource Council meetings, in the Gwich'in Harvest Study, and so on. These meeting notes often contain current observations about caribou and how Gwich'in currently harvest. They were not included in this report.

Appendices

Appendix 1: Primary sources

Black City Ethno-archaeology Project. 2004. Transcripts on file, Department of Cultural Heritage, Gwich'in Tribal Council, Fort McPherson.

Dene Mapping Project. 1973-1985. Transcripts and Delta Report. Dene Nation (previously National Indian Brotherhood). Yellowknife. On file with Department of Cultural Heritage, Gwich'in Tribal Council, Fort McPherson.

E. Cass Collection, Gwich'in Language Centre, Fort McPherson.

Ehdiitat Gwich'in Place Names Project. 1999. Transcripts from interviews and workshops. Gwich'in Social and Cultural Institute (Department of Cultural Heritage, GTC). Fort McPherson.

Elder's Biography Project. 1999-Present. Transcripts and stories. Gwich'in Social and Cultural Institute (Department of Cultural Heritage Gwich'in Tribal Council). Fort McPherson.

Elder's Workshop on Traditional Forestry. 1998. Leslie Main Johnson, anthropologist. Transcripts on file at Department of Cultural Heritage, Gwich'in Tribal Council.

Land Research Files. 1970-80s. Gwich'in Language Centre, Fort McPherson.

Life Long Ago. Gwich'in Elders/Gwich'in Language Centre. n.d. (1980s and 1990s?). Life stories and legends collected from Gwich'in Elders. Gwich'in Language Centre, Fort McPherson.

Gwich'in Environmental Knowledge Project (GEKP). 2000 to 2008. Gwich'in Renewable Resources Board, Inuvik. Transcripts on file, Department of Cultural Heritage Gwich'in Tribal Council, Fort McPherson.

Gwich'in Traditional Caribou Skin Clothing Project. 1998. Video Logs. Gwich'in Social and Cultural Institute (Department of Cultural Heritage Gwich'in Tribal Council). Fort McPherson.

Gwich'in TK of Grizzly Bear Project. 2012. Interview transcripts and workshop notes on file, Department of Cultural Heritage Gwich'in Tribal Council. Fort McPherson.

Gwich'in TK of Wolverine project, 2013. Interview transcripts and workshop notes on file, Department of Cultural Heritage Gwich'in Tribal Council. Fort McPherson.

How to Clean a Porcupine. N.d. Gwich'in Language Centre, Fort McPherson.

Potential Heritage Conservation Zones Project. 2007. Interview transcripts with Aklavik Elders. Gwich'in Social and Cultural Institute. Transcripts on file, Department of Cultural Heritage Gwich'in Tribal Council, Fort McPherson.

Sarah Simon. n.d. Starvation Story as written by Mrs. Sarah Simon in her Diary. Typed and Edited by David Anderson. Gwich'in Language Centre, Fort McPherson.

Gwich'in Knowledge of Porcupine caribou: State of current knowledge and gaps assessment. March 2019, Department of Cultural Heritage, Gwich'in Tribal Council.

Stories Of Easter Carnival In The Olden Days. 1995. Stories and manuscript on file, Gwich'in Language Centre Fort McPherson, N.W.T.

Teet'it Gwich'in Place Names Project Phase III. 2008. Transcripts on file, Department of Cultural Heritage Gwich'in Tribal Council, Fort McPherson.

Tombstone Oral History Project. 1999. Interview transcripts and notes on file, Department of Cultural Heritage Gwich'in Tribal Council. Fort McPherson.

Vegetation -> Caribou -> Wolf Food Chain Project. 2009-2010 Aurora Research Institute and Gwich'in Social and Cultural Institute. Transcripts on file, Department of Cultural Heritage Gwich'in Tribal Council, Fort McPherson.

Appendix 2: Bibliography (annotated) of secondary sources

Alexie, Elaine. 2015. "Nakhwanh Gwich'in Khehłok lidilii - We Are Our Own People" Teet'it Gwich'in Practices of Indigeneity: Connection to Land, Traditional Self-Governance, and Elements of Self Determination. A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of MASTER OF ARTS in the Department of Political Science. 138pp.

Access/confidentiality: Public

Link to digital version:

https://dspace.library.uvic.ca/bitstream/handle/1828/6486/Alexie_Elaine_MA_2015.pdf?sequence=1&isAllowed=y

Summary: Contains information about Gwich'in use of caribou within a philosophical framework. This thesis examines the practices of Indigeneity, acts of Indigenous social and cultural traditions stemming from Teet'it Gwich'in land-based culture in the Northwest Territories. By emphasizing Teet'it Gwich'in philosophy, this project illustrates how Teet'it Gwich'in practices of Indigeneity are rooted in their social, physical, and cultural relationship with the land, which are central to Gwich'in self-determination. This thesis demonstrates traditional Teet'it Gwich'in self-governance practices are driven by cultural and social norms rooted in traditional knowledge, as well as contemporary Gwich'in-Canada relations. Utilizing knowledge collected from Teet'it Gwich'in elders, these first-hand accounts show the connection between Canada and the Teet'it Gwich'in through state policies that impede Teet'it Gwich'in self-determination. By examining these challenges to their cultural practices, Teet'it Gwich'in worldviews rooted in land-based practices is considered the basis for Gwich'in self-determination rooted in the physical and cultural landscape of Gwich'in lands.

Andre, Alestine 2006. Nan t'aih nakwits'inahtsih (The Land Gives Us Strength): The Medicine Plants used by Gwich'in People of Canada's Western Arctic to maintain Good Health and Well being. A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Interdisciplinary Master of Arts in the School of Environmental Studies, University of Victoria. 146pp.

Access/confidentiality: Public

Link to digital version: <https://dspace.library.uvic.ca:8443/handle/1828/1258?show=full>

Summary: Has information about caribou harvest, but also the plants and ecological conditions caribou need to survive.

An ethnobotanical research carried out by Gwich'in people from the Northwest Territories in July 2002 documented traditional plant knowledge. Ruth Welsh, Gwich'in Elder and Plant Specialist, identified 96 plants from traditional camp sites in the Gwich'in Settlement Area. Of this total, 34 plants are used traditionally as medicine plants to treat and heal skin and eye conditions, internal, respiratory, nasal and urinary problems, common colds and flu, as well as broken limbs, insect bites, stings, burns and to maintain good health. Prominent medicine plants are birch (*Betula papyrifera*), poplar (*Populus balsamifera*), juniper (*Juniperus communis*), black and white Spruce (*Picea mariana* and *P. glauca*), tamarack (*Larix laricina*), willow (*Salix* spp.), plantain (*Plantago major*), wintergreen (*Pyrola gradiflora*), wormwood (*Artemisia tilesii*), yarrow (*Achillea millefolium*) and horsetail (*Equisetum arvense*). Documented too are the Gwich'in, English, Latin, and common plant names as well as cultural knowledge about the Gwich'in traditional way of life on the land.

Arctic Borderlands Ecological Knowledge Co-op Databases (<https://www.arcticborderlands.org/>).

ABEKS. 2019. Reports from the 2018 Season. ABEKS. Whitehorse, Yukon.

Access/confidentiality: Confidential. Access to DB only with community permission and ABEKC approval.

See form, here: https://docs.wixstatic.com/ugd/ee3e9e_a421e3c104f642ab80d4c3ee46e15bdc.pdf

Link to digital version:

https://docs.wixstatic.com/ugd/ee3e9e_d74f17a0eae14a8ab22789a444ea3b95.pdf

Summary: Includes information gained from annual community meetings, and includes information on porcupine caribou, plus their predators, any interactions with other animals, and other topics relating to caribou (i.e. climate change).

n.b.: Permission to use Aklavik and Fort McPherson data was obtained for this report.

Benson, K. 2012. Teet'it Gwich'in, Gwichya Gwich'in, and Ehdiitat Gwich'in Journeys to Old Crow: Oral History About Trails, Meeting Places, and Diverse Travels. Report submitted to the Vuntut Gwitchin Government Heritage Branch. Fort McPherson: Gwich'in Social and Cultural Institute. 33 pp.

Access/confidentiality: Public

Link to digital version:

https://gwichin.ca/sites/default/files/gsci_benson_2012_tg_gg_eg_trails_to_old_crow.pdf

Summary: Report about family connections between Old Crow and Fort McPherson, and summarizing traditional trails between the communities. Contains information on caribou harvest locations across this area.

Benson, Kristi 2007. Ehdiitat Gwich'in Heritage Sites: Potential Heritage Conservation Zones. Submitted to Gwich'in Land Use Planning Board and Protected Areas Strategy (PAS). Report on file with Gwich'in Social and Cultural Institute.

Access/confidentiality: Public

Link to digital version:

https://gwichin.ca/sites/default/files/gsci_benson_2009_report_heritage_sites_glupb_final.pdf

Summary: Information from elders about important sites in the Ehdiitat Gwich'in traditional use area, including areas where caribou were harvested. Further information on traditional use and ecological knowledge also relating to caribou.

Benson, Kristi 2007. Heritage and Cultural Places in the Gwich'in Settlement Area - A list created for the Gwich'in Land Use Planning Board. Report prepared for the Gwich'in Land Use Planning Board. Report on file with the Gwich'in Social and Cultural Institute.

Access/confidentiality: Confidential, may be obtained from the Department of Cultural Heritage

Link to digital version: n/a

Summary: Contains a list of Gwich'in place names and heritage sites, with information about why each site is important to the Gwich'in. Includes harvesting areas and areas of importance to caribou.

Benson, Kristi 2010. Gwich'in Traditional Knowledge: Woodland Caribou, Boreal Population. Report prepared for the Gwich'in Renewable Resources Board and Environment Canada. Report on file with the Gwich'in Social & Cultural Institute. .34 pp and 3 appendices

Access/confidentiality: Public

Link to digital version:

https://gwichin.ca/sites/default/files/gsci_benson_2011_gwichin_tk_of_boreal_caribou.pdf

Summary: Gwich'in ecological knowledge of boreal woodland caribou. Some general caribou information which will relate to the Porcupine herd.

Benson, Kristi 2014a. Gwich'in Knowledge of Grizzly Bears. Report prepared for the Gwich'in Social and Cultural Institute / Gwich'in Renewable Resources Board. 48 pp and 2 appendices.

Access/confidentiality: Public

Link to digital version: https://gwichin.ca/sites/default/files/gsci_benson_2014_gwichin_tk_grizzly.pdf

Summary: Gwich'in ecological knowledge of grizzly bears, an important predator for caribou. Much of the information about caribou – grizzly interactions relate to the Porcupine herd.

Benson, Kristi 2014b. Gwich'in Traditional Knowledge: Nèhtrùh (Wolverine). Report prepared for the Gwich'in Social and Cultural Institute / Gwich'in Renewable Resources Board. 40 pp and 2 appendices.
Access/confidentiality: Public

Link to digital version:

https://gwichin.ca/sites/default/files/gsci_benson_2014_gwichin_tk_wolverine_report.pdf

Summary: Gwich'in ecological knowledge of wolverines, but contains numerous references to caribou, especially relating to caribou-wolverine interactions (but not exclusively on that topic).

Benson, Kristi and Crystal Ernst, 2017. Gwich'in Knowledge of Insects. Report prepared for the Gwich'in Renewable Resources Board, 2017. Report on file with the Gwich'in Tribal Council Department of Cultural Heritage. A part of the Nin Nihlinehch'ì' – Èì' hàh Guk'àndeht'inahtii (Animals at Risk – animals we are watching closely) 2012-2017 Project. 27 pp.

Access/confidentiality: Public

Link to digital version:

https://gwichin.ca/sites/default/files/gsci_benson_ernst_2017_gwichin_knowledge_insects.pdf

Summary: Gwich'in knowledge of insects, including important parasites on caribou.

Insects are a very important part of the natural systems of the Gwich'in Settlement Region, and all across the north. With northern landscapes changing rapidly due to climate change, Gwich'in participants and scientists are worried about the health of insect populations, and the effects on the environment if insect populations do change dramatically. The Gwich'in Renewable Resources Board (GRRB) and the Department of Cultural Heritage (DCH) of the Gwich'in Tribal Council held a workshop and verification sessions to share Gwich'in and scientific knowledge about insects, and to build on the information already recorded in the DCH's digital archives. This report, funded by the GRRB and the NWT Species at Risk Stewardship Program, is based on the information shared in the workshop and gathered in previous projects, and will be used by the GRRB and their partners to make better decisions about managing Gwich'in wildlife in the future.

Berger, T. (1974). Mackenzie Valley Pipeline Inquiry – Community Hearing Transcripts. Ottawa: Government of Canada.

Access/confidentiality: Public.

Link to digital version: n/a

Summary: Has general information about barren-ground caribou, with likely some information on Porcupine herd as well.

Bullock, Sam. 1987. Questionnaire Summary Traditional Use Of Grizzly Bear In The Richardson Mountains N.W.T. 5-16 OCTOBER, 1987. Department of Renewable Resources Government of the N.W.T. GRRB Library Database 394.

Access/confidentiality: unknown.

Link to digital version: n/a

Summary: (From introduction) Native hunters in Aklavik and Fort McPherson were interviewed from October 6 to 10, 1987 as part of the continuing research on grizzly bears (*Ursus arctos*) by the Department of Renewable Resources (Inuvik Region). I attempted to record historical data on traditional use, behaviour and habitat use by bears. Hunters best suited to answer the questionnaire ranged from 40 to 60 years of age. Information gathered was grouped into five categories: The traditional of bear hunting; Habitat use observations; c) Bear-People conflicts; Folklore; and e) Hunter comments.

COPE [Committee for Original Peoples Entitlement]. ND. COPE Stories. Unpublished manuscript on file with Gwich'in Tribal Council Department of Cultural Heritage. 800pp.

Access/confidentiality: with permission.

Link to digital version: n/a

Summary: (From NWT Archives) "In the 1960s and 1970s, a group of concerned individuals began a project to record the legends and life experiences of the Inuvialuit, Gwich'in (Loucheux) and North Slavey (Hareskin) people. Two of the leaders of this project were Nellie Cournoyea and Oblate priest Father Lemeur. To help finance the project, a deal was arranged with the Canadian Broadcasting Corporation (CBC) in Inuvik, where Nellie Cournoyea was working. The plan provided a small remuneration for the person interviewed to be paid out when the recording was broadcast. The recordings were intended to be used in various communities as research material for school curriculum, to preserve the legends and life stories of the elders and to help promote native language literacy."

Fafard, Melanie and Ingrid Kritsch 2003. Teet'it njik/Tshuu tr'adaojjich'uu: At the Heart of the Teet'it Gwich'in Cultural Landscape. Application for the Designation of a National Historic Site. Submitted on behalf of the Teet'it Gwich'in First Nation to the Historic Sites and Monuments Board of Canada. Report on file, Gwich'in Social and Cultural Institute, Tsiigehtchic, Yellowknife, NT. 34 pp.

Access/confidentiality: Public

Link to digital version:

https://gwichin.ca/sites/default/files/gsci_fafard_kritsch_2003_teeelit_gwichin_nhs_nomination.pdf

Summary: Some mentions of caribou, information on Gwich'in use of Porcupine herd's wintering area. Application for the Designation of a National Historic Site. Submitted on behalf of the Teet'it Gwich'in First Nation to the Historic Sites and Monuments Board of Canada, 2003. Report on file, Gwich'in Social and Cultural Institute, Tsiigehtchic, Yellowknife, NT. 34 pp.

Gotthardt, R.M. 2007. Preliminary Summary of Heritage Values in the Peel River Watershed Planning Area. Report on file with Gwich'in Social and Cultural Institute and Yukon Heritage Resources Unit. 22 pp. Updated from 2005.

Access/confidentiality: Archaeological report, so confidential.

Link to digital version: N/a – contact Yukon government

Summary: Heritage values summary for Peel Watershed Planning. Contains references to traditional use and other information, including archaeological information.

Greer, Sheila (1999/in prep.) Ehdiiat Gwich'in Place Names Research. Report prepared under contract for Gwich'in Social and Cultural Institute, Tsiigehtchic, N.W.T. 137pp. Report on file, GSCI, Tsiigehtchic, NT.

Access/confidentiality: Public

Link to digital version:

https://gwichin.ca/sites/default/files/gsci_greer_1999_ehdiitat_place_names_0.pdf

Summary: Includes many place names from traditional Gwich'in use in the mountains, indicating use and for some . Report prepared under contract for Gwich'in Social and Cultural Institute, Tsiigehtchic, N.W.T. Report outlines 202 Gwich'in and English place names along with their translation and associated oral history information. Some overlap with Teet'it Gwich'in place names. Spelling of names needs to be verified and draft text edited.

Greer, Sheila 1996. The Gwich'in of the Northwest Territories: Bibliography of Sources Related to Archaeology, History, Oral History, Traditional Culture and Land Use Patterns. Bibliography prepared

under contract for Gwich'in Social and Cultural Institute. Bibliography on file, Gwich'in Social and Cultural Institute, Tsiigehtchic, N.W.T. 187pp.

Access/confidentiality: Public.

Link to digital version:

https://gwichin.ca/sites/default/files/gsci_katz_2004_mackrnatural_value_biblio.pdf

Summary: Bibliography of sources, no TK per se.

GRRB. 2009. Gwich'in Harvest Study Final Report and Harvest Database. Gwich'in Renewable Resource Board. Inuvik, NT, 164 pages.

Access/confidentiality: Public (report); confidential and with permission from GRRB only (Database)

Link to digital version: http://www.grrb.nt.ca/pdf/GHS/Harvest_Study_Report_FINAL09Web.pdf

Summary: Contains information about numbers harvested. The database also has location information, about where people harvest caribou, which relates to both traditional use and caribou ecology.

Gwich'in Elders. 2001. Gwìndòo Nành' Kak Geenjit Gwich'in Ginjik (More Gwich'in Words About the Land). Gwich'in Elders. 184pp.

Access/confidentiality: Available for purchase from GRRB, not confidential

Link to digital version: N/A

Summary: Includes incidental information about traditional use of caribou and biophysical info as well, especially where interactions occur. The caribou chapter is in the first book.

Hare, Greg and Ruth Gotthardt. 2012. 2008-09 Overview Archaeological Assessment of the Peel River Watershed. Cultural Services Branch, Whitehorse, Yukon. Permit Nos. 08-08 ASR Final Report & 09-06 ASR (DRAFT)

Access/confidentiality: Archaeological report, so confidential.

Link to digital version: N/A – approach Yukon government.

Summary: Some ethnohistorical information about traditional/historic use of caribou in the area.

Katz, Sharon. 2010. Traditional Knowledge on Caribou Ecology: Vegetation -> Caribou -> Wolf Food Chain. Aurora Research Institute, Inuvik. 54pp.

Access/confidentiality: Public

Link to digital version:

https://gwichin.ca/sites/default/files/gsci_katz_2010_final_caribou_ecology_report_2010.pdf

Summary: Includes TK about interactions between wolf populations, caribou, and feed/forage conditions.

This study is a part of a study on contaminants in a northern terrestrial environment.

It is well recognized that a wealth of traditional knowledge (TK) exist about the ecology of caribou, and that TK may illuminate the contaminants' study. On the other hand, a lot of TK has never been documented yet.

Kofinas, G. (1998). The costs of power sharing community involvement in Canadian Porcupine caribou co-management. Ph. D., University of British Columbia.

Access/confidentiality: Public for non-commercial use

Link to digital version: <https://open.library.ubc.ca/cIRcle/collections/ubctheses/831/items/1.0088701>

Summary: (From abstract) Co-management arrangements are commonly framed with the theoretical assumption that community management systems function with a minimum of transaction costs and government-community power sharing lowers overall costs of management. Commonly overlooked

both practically and theoretically are costs to communities. This dissertation investigates the involvement of three northern indigenous communities in a wildlife co-management arrangement to delineate community costs of power sharing. The subject of the study is the internationally migratory Porcupine caribou Herd, Canada's three primary Porcupine caribou user communities (Old Crow, YT, Aklavik, NT, and Fort McPherson, NT), and the resource regime established by the Canadian Porcupine caribou Management Agreement and The Agreement between the Governments of Canada and the United States for the Conservation of Porcupine caribou. Using multiple sources of evidence and drawing on the ethnographic method, the study documents emergent communication linkages between co-management boards and communities, analyzes locals' perceptions of caribou management information and scientific research activities, identifies patterns of interaction between researchers and hunters, and illustrates the constraints of choice available to hunters of the Canadian ' Porcupine caribou co-management system. Presented is an account of the "1993 Caribou Crisis," a critical co-management incident in which hunters confront caribou researchers and face the dilemma of violating cultural traditions in order to stop proposed hydrocarbon development. Fundamentally, the study examines the consequence of interfacing authority systems and power dynamics of a formal co-management arrangement. The study also points to the limitations of rational choice perspectives when conducting institutional analysis, and the need to consider group identity, perspectives on uncertainty, and styles of learning when delineating transaction costs. From a more applied perspective, delineating anticipated and incurred community transaction costs of power sharing brings attention to the impediments to local involvement, how community members invest their energies in a co-management process, and who and by what method they bear the costs of shared decision making. Porcupine caribou user communities make sacrifices when seeking to exercise authority in shared decision-making. The transaction costs of co-management associated with community involvement come at the price of time commitments and imposed schedules, restructuring of former traditions of leadership, and engaging with government agencies in bureaucratic processes. Internalizing authority in caribou management means that community members and leaders must decipher new information, interact with a host of players, engage in lobbying, and become involved in conflicts which are at times turbulent and controversial, as well as divisive to community. In some cases, the costs of power sharing are perceived to violate customary and traditional institutions regarding human-human, and human- caribou relations and in turn, undermine the well-being of the caribou resource and the relationships of those who depend on it.

Kofinas, G., Lyver, P., Russell, D., White, R., Nelson, A., & Flanders, N. (2003). Towards a protocol for community monitoring of caribou body condition. *Rangifer*, 23(5), 43-52.

Access/confidentiality: Public

Link to digital version:

Summary: Some information on body condition in caribou and how harvesters traditionally categorize caribou.

Kritsch, Ingrid 2000. Gwich'in Historic Sites in the Upper Blackstone River Area as Recorded during the Tombstone Park Oral History Project. Report prepared for the Heritage Branch, Department of Tourism, Yukon Government. Report on file, Gwich'in Social and Cultural Institute, Tsiigehtchic & Yellowknife, NT. 26pp.

Access/confidentiality: Obtain report with permission through the Department of Cultural Heritage.

Quotations from report with standard credits.

Link to digital version: n/a email ssnowshoe@gwichin.nt.ca

Summary: Report prepared for the Heritage Branch, Department of Tourism, Yukon Government. Report on file, Gwich'in Social and Cultural Institute, Tsiigehtchic & Yellowknife, NT. Report presents Teet'it Gwich'in oral history information provided by Mr. Walter Alexie during the documentation of Gwich'in historic sites in the upper Blackstone River area by road and by helicopter in July 1999. This information assisted the Tombstone Steering Committee in recommending the final boundaries of the Tombstone Territorial Park which was traditionally used by three First Nations: Teet'it Gwich'in, Tukudh Gwich'in and Tr'ondek Hwech'in. The project was a partnership between the GSCI, Tr'ondek Hwech'in First Nation, Yukon Heritage Branch and Yukon Renewable Resources.

Kritsch, Ingrid 2001. "The Gwich'in Traditional Clothing Project." In: Fascinating Challenges: Studying Material Culture with Dorothy Burnham. Judy Thompson, Judy Hall and Leslie Tepper, in collaboration with Dorothy K. Burnham. Mercury Series. Canadian Ethnology Service Paper 136. Canadian Museum of Civilization. pp.107-111

Access/confidentiality: Public

Link to digital version:

https://gwichin.ca/sites/default/files/gsci_kritsch_2001_fascinating_challenges_article.pdf

Summary: Another source describing the traditional caribou skin clothing project. Collection of articles on the Canadian Museum of Civilization's ethnographic collections from the Northern Athapaskan, Arctic, Plateau and Easter Woodlands regions of North America. The article by Ingrid Kritsch (GSCI Research Director) describes a cultural enhancement project being carried out by GSCI in partnership with the Prince of Wales Northern Heritage Centre and Canadian Museum of Civilization that repatriates skills and knowledge needed to replicate 19th Century Gwich'in traditional caribou skin clothing currently housed at the Canadian Museum of Civilization and the Smithsonian Institution.

Kritsch, Ingrid and Karen Wright-Fraser 2002. "The Gwich'in Traditional Caribou Skin Clothing Project: Repatriating Traditional Knowledge and Skills." In: ARCTIC 55(2): 205-211.

Access/confidentiality: Public

Link to digital version:

<http://arctic.journalhosting.ucalgary.ca/arctic/index.php/arctic/article/view/704/730>

Summary: Another discussion of the traditional caribou skin clothing. This article describes the replication of a 19th century Gwich'in traditional man's caribou skin outfit from the collections of the Canadian Museum of Civilization (CMC). There are currently no examples of such clothing in the Gwich'in Settlement Area or in the NWT. Since December 2000, Gwich'in seamstresses have been replicating five copies of one of the outfits at the CMC for the four communities in the Gwich'in Settlement Area and for collection and display purposes at the Prince of Wales Northern Heritage Centre in Yellowknife.

Kritsch, Ingrid, Sarah Jerome, Eleanor Mitchell 2000. Teet'it Gwich'in Heritage Places and Sites in the Peel River Watershed. Draft report on file, Gwich'in Social and Cultural Institute, Tsiigehtchic, N.W.T. 196pp.

Access/confidentiality: Public

Link to digital version:

https://gwichin.ca/sites/default/files/gsci_kritsch_jerome_mitchell_2000_teetlit_gwichin_place_names_0.pdf

Summary: Although to Gwich'in ecological knowledge about caribou is included, this report outlines traditional use of the herd's wintering area.

This report is in two parts: Part one summarizes the cultural history of the Peel River watershed and the

heritage resources within it from a Gwich'in perspective. Part two is a database containing 392 place names recorded for the Teet'it Gwich'in traditional land use area. The report presents detailed oral history information on approximately 100 of the places named in the area of the Peel River between Fort McPherson and the Wind River. Information is drawn from oral history interviews carried out by the GSCI with Teet'it Gwich'in elders in Fort McPherson in 1996, archival oral history data in the Gwich'in Language Centre, and information from the published literature.

Kuhnlein, Harriet, Margaret McDonald, Dina Spigelski, Elizabeth Vittrekwa, and Bill Erasmus. 2009. Gwich'in traditional food for health: Phase 1. In, Indigenous peoples' food systems: the many dimensions of culture, diversity and environment for nutrition and health: chapter 3, pp45-58.

Access/confidentiality: Public

Link to digital version: <http://www.fao.org/tempref/docrep/fao/012/i0370e/i0370e04.pdf>

Summary: From Abstract: The objective of the research described in this chapter is to present the food system and nutrition situation of the Tetlit Gwich'in community, and to understand many of the nutritional and cultural circumstances that lead to planning an intervention to promote health through improved food use. The Tetlit Gwich'in reside in a First Nation community in the northern Northwest Territories of Canada. Several research studies have taken place in partnership with this community and the Centre for Indigenous Peoples' Nutrition and Environment since the 1990s. As a result, this effort to document the Tetlit Gwich'in food system has been welcomed and considered successful. Within the larger Dene community, the Gwich'in in this region recorded 50 species of traditional animal and plant foods, all of which are wildlife foods, and many parts are edible and enjoyed. Nevertheless, market foods are available in this Arctic community, and in early 2000 approximately 33 percent of adult energy was derived from traditional Gwich'in food, but children's diets contained much less traditional food (about 6 percent of energy). Caribou and several species of fish were popular in all seasons. Children's diets were found to contain more than 40 percent of daily energy from fat and sweet foods, but the small amounts of traditional meats and fish ensured adequate protein, iron, zinc, copper and vitamin B 6 . Calcium, vitamin D, vitamin A, vitamin E, magnesium and fibre were probably inadequate for both adults and children. Results of anthropometry studies revealed that the incidence of overweight and obesity in adults was more than 50 percent. Traditional Gwich'in food holds many cultural attributes, and community members were aware of the healthy, low- fat properties of their food. Women responding to interviews (n = 69) said they would like to have more traditional food if it was easier to get. At the same time many said they could not afford to buy all the food they needed from the stores. The community is poised to engage in an intervention that will make more traditional food available, and improve purchasing habits of higher quality market food.

Kuhnlein, Harriet, Lauren Goodman, Olivier Receveur, Dina Spigelski, Nelida Duran, Gail Harrison, Bill Erasmus, and Tetlit Zheh Community. 2013. "Gwich'in traditional food and health in Tetlit Zheh, Northwest Territories, Canada: phase II", in, Indigenous Peoples' food systems & well-being | Case studies | Gwich'in. Chapter 7: pp101-120

Access/confidentiality: Public

Link to digital version: unknown

Summary: From Abstract: The First Nations Gwich'in community of Tetlit Zheh in the Northwest Territories of Canada has been undergoing a nutrition transition. Studies conducted in the mid-1990s indicated that the majority of the Gwich'in diet consisted of store-bought (market) food, a high proportion of which was calorie-rich but nutrient-poor. As part of the Indigenous Peoples' Food Systems for Health Program, Tetlit Zheh agreed to participate in activities to increase the consumption of traditional (local) food and healthier market food. Pre-intervention assessment was carried out in winter

(February to March) 2006 among youth aged ten to 15 years and young women aged 20 to 40 years. Compared with the overall Canadian population, data indicated a similar proportion of overweight/obese youth, but a greater proportion of overweight/obese women. Compared with overall Canadian youth, Tetlit Zeh youth spent similar amounts of their leisure time with television or computers. The majority of women were assessed as moderately active, and youth reported having participated in a wide range of physical activities throughout the year. The most important traditional food species consumed by youth and women were caribou, moose and whitefish. The majority of both youth and women consumed at least one traditional food item regularly. Post-intervention activity assessments were not conducted because external forces precluded the documentation of behaviour and food consumption change. Climate change and other factors that reduced access to traditional food species, and a sharp increase in market food and fuel prices (2008) were important challenges.

Kutz, S., A. Veitch, M. Branigan, C. Lambert, W. Wright, B. Elkin, J. Bayha, G. Guthrie, and Program Northwest Territories Cumulative Impact Monitoring. (2005). Using hunter observations and ecological knowledge together with science to understand past and current occurrence of wildlife diseases in the North: project report, March 31, 2005.

Access/confidentiality: Public

Link to digital version:

Summary: Some information on caribou in general, in particular relating to parasites and disease.

Lambert Koizumi, Catherine. 2012. Dall sheep (*Ovis dalli dalli*), grizzly bear (*Ursus arctos*) and wolf (*Canis lupus*) interactions in the Northern Richardson Mountains, Canada. A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Doctor of Philosophy In Ecology Department of Biological Sciences, University of Alberta, Edmonton, Alberta.

Access/confidentiality: Public

Link to digital version: <https://era.library.ualberta.ca/items/137adbda-82c9-41d6-bb3d-5764d2ef3a12>

Summary: (Abstract)

Mountains, Canada. After reviewing the status of this Dall sheep population, I investigated its interactions with grizzly bears and wolves –mostly the indirect effects of predation; using satellite telemetry, habitat utilization analyses, $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ stable isotopes, behavioural observations, and the documentation of Gwich'in and Inuvialuit Traditional Ecological Knowledge (TEK).

At the spatial level, Dall sheep were in close association with grizzly bears in intensively used areas, although wolves were more likely to be encountered elsewhere. Individual predators also showed various levels of spatial associations with Dall sheep. Based on stable isotope analyses, both predators have a remarkably diverse diet and consume Dall sheep, albeit not predominantly. Animal sources composed most of the grizzly bear diet, with vegetation and aquatic browsers (beavers and moose) constituting the two most important consumed groups. Aquatic browsers constituted the wolves' principal food, followed closely by mountain mammals (arctic ground squirrels, caribou and Dall sheep). At the behavioural level, the habitat utilization patterns of rams appeared to be guided by foraging needs, whereas ewes were predominantly influenced by predator avoidance. In early summer, ewes foraged longer, were more vigilant, rested less, and exhibited less dominance behaviour than rams, which were exposed to higher predation risk and stayed in smaller groups. TEK complemented and enriched this research, notably regarding historical population trends, habitat utilization, and predator-prey relationships. Ultimately, this thesis highlights the complexity and plurality of factors affecting Dall

sheep behaviour and their interactions with grizzly bears and wolves. It also emphasizes the individual variability within each species and the several predator avoidance strategies used by Dall sheep to reduce their vulnerability. Although my research was not designed to assess the role of predation in driving this population, historical data stress the imminent contribution of harvest to past abundance fluctuations. More frequent monitoring would help disentangling the effects of various factors on this population.

Lyons, Natasha, 2007. Repatriating Traditional Gwich'in Skills and Knowledge 2006—2007: Report on a Pilot Project with Gwich'in Elders from Fort McPherson. Report prepared for the Gwich'in Social & Cultural Institute. Report on file with the Gwich'in Social & Cultural Institute. 23pp.

Access/confidentiality: Public

Link to digital version:

https://gwichin.ca/sites/default/files/gsci_lyons_2007_repatriation_pilot_project_report_final.pdf

Summary: Summary of workshop with Teet'it Gwich'in elders about traditional skills. Includes information about use of caribou skins for traditional crafts and items.

National Energy Board (NEB) (2009). Transcripts from the Joint Review of the Proposed Mackenzie Gas Project. Calgary: National Energy Board.

Access/confidentiality: Likely public.

Link to digital version: <https://apps.neb-one.gc.ca/REGDOCS/Item/View/395552>

Summary: Information about barren-ground caribou in general, some relates to Porcupine.

Osgood, Cornelius. (1970) [1936]. Contributions to the Ethnography of the Kutchin. Yale University Publications in Anthropology 14. New Haven: Human Relations Area Files Press.

Access/confidentiality: Public, but copyrighted.

Link to digital version:

Summary: The second classic ethnography of the Teet'it Gwich'in. Some information on seasonal use and harvesting.

Padilla, Elisabeth and Gary Kofinas. 2010. Documenting Traditional Knowledge of Caribou Leaders for the Porcupine caribou Herd in Dawson City, Old Crow, & Fort McPherson. Report to the Porcupine caribou Management Board. December 1, 2010. 46pp.

Access/confidentiality: Public

Link to digital version: <http://www.uaf.edu/files/rap/Caribou-leaders--Report-to-the-Porcupine-Caribou-Management-Board.pdf>

Summary: Information about Porcupine caribou behaviour.

This study documented the traditional concept of “caribou leaders”, which has been used as a basis for a hunting closure along the Dempster highway (PCMB 2000). Traditional ecological knowledge has been acclaimed as an essential tool for sustainably managing resource harvest (GNWT 1993, Moller et al. 2004, Davis and Wagner 2003). Knowledge of leaders of caribou has been expressed by indigenous caribou hunters and reindeer herders across the Circumpolar North. In this study interviews about caribou leaders were conducted in three of the Porcupine caribou Herd (PCH) user communities, including Dawson City, Fort McPherson, and Old Crow (Canada) with Elders and hunters of Porcupine Caribou. Added insight was obtained from six interviews with Seward Peninsula (Alaska) reindeer herders who have experience with the Western Arctic Caribou Herd

(WAH).

Padilla, Elisabeth. 2012. Caribou Leadership: A Study of Traditional Knowledge, Animal Behaviour and Policy. MSc, University of Fairbanks, Fairbanks Alaska.

Access/confidentiality: Public

Link to digital version: <http://www.uaf.edu/files/rap/Caribou-leaders--Report-to-the-Porcupine-Caribou-Management-Board.pdf>

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Parlee, Brenda, Alestine Andre, and Ingrid Kritsch. 2014. "Offerings of Stewardship: Celebrating Life and Livelihood of Gwich'in Women in the Northwest Territories." In, Native Peoples, Canadian Experience. C. Roderick Wilson and Christopher Fletcher, Eds. 4th Edition. Oxford University Press. 220-243.

Access/confidentiality: Public

Link to digital version:

http://www.academia.edu/11574956/Offerings_of_Stewardship_Celebrating_Life_and_Livelihood_of_Gwich_in_Women_in_the_Northwest_Territories_with_Brenda_Parlee_and_Alestine_Andre

and

https://kuldoc.com/download/offerings-of-stewardship-celebrating-life-and-livelihood-of-gwichin-women-in-the-northwest-territories-with-brenda-parlee-and-alestine-andre-5978cb141723ddc7c3c115ed_pdf

Summary: Discussion of gendered subsistence, including hunting and use of caribou products by Teet'it Gwich'in women.

Parlee, Brenda, Natasha Thorpe, and Tanice McNabb. 2013. Traditional Knowledge: Barren-ground Caribou in the Northwest Territories. Unpublished manuscript on file, Faculty of Native Studies, Faculty Agricultural Life and Environmental Sciences, University of Alberta Edmonton, Alberta.

Access/confidentiality: Public.

Link to digital version: http://srrb.nt.ca/index.php?option=com_docman&view=document&alias=1349-tk-of-barrenground-caribou-parlee-thorpe-2013&category_slug=relevant-documents&Itemid=697

Summary: Information about caribou across the NWT: traditional use, biology, habitat, behaviour, and more. A heavy focus on biophysical TK with a lot of information about threats.

Profeit-LeBlanc, L. 1994. Tsaih Tlak Njik: Bonnet Plume River and Mary Vittrekwa Transcript. Letter report prepared for the Heritage Branch of the Yukon Government. 20pp.

Access/confidentiality: Public.

Link to digital version: n/a

Summary: Report about Bonnet Plume River area and transcript of interview with Mary Vittrekwa.

Gwich'in Elders (Raygorodetsky, G.) 1997. Nanh'Kak Geenjit Gwich'in Ginjik. Gwich'in words about the land. Gwich'in Geographies Ltd., Inuvik. 212 pp.

Access/confidentiality: Available for purchase from GRRB, not confidential

Link to digital version: N/A

Summary: Has a chapter on caribou, including overview of many topics from traditional use to habitat and ecology, etc.

Slobodin, R. 1962. Band Organization of the Peel River Kutchin (No. 55). R. Duhamel.

Access/confidentiality: Public

Link to digital version: N/A, for purchase

Summary: The classic ethnography of the Teet'it Gwich'in, including use of caribou and the caribou's wintering grounds.

Spak, S. 2001. Canadian resource co-management boards and their relationship to indigenous knowledge, two case studies. Doctoral dissertation, University of Toronto. National Library of Canada.

Access/confidentiality: Public

Link to digital version: <https://tspace.library.utoronto.ca/bitstream/1807/15959/1/NQ63584.pdf>

Summary: Dissertation about co-management boards comparing GRRB and another co-management board, the Beverly and Qamanirjuaq Caribou Management Board (BQCMB).

Species at Risk Committee. 2017. Species Status Report for Porcupine caribou and Barren-ground Caribou (Tuktoyaktuk Peninsula, Cape Bathurst, Bluenose-West, Bluenose-East, Bathurst, Beverly, Ahlak, and Qamanirjuaq herds) (*Rangifer tarandus groenlandicus*) in the Northwest Territories. Species at Risk Committee, Yellowknife, NT.

Access/confidentiality: Public

Link to digital version:

http://www.nwt-species-at-risk.ca/sites/default/files/bgc_and_pch_status_report_and_assessment_final_apr1117_0.pdf

Summary: This report (along with related species status reports including Boreal caribou, Grizzly Bear, and possibly others) from the Species at Risk Committee has collated information about caribou and other animals, including traditional use, biology, habitat, behaviour, and more. A heavy focus on biophysical TK with a lot of information about threats.

Thompson, Judy and Ingrid Kritsch 2005. Yeenoo Dàì K'è'tr'ijilkai' Ganagwaandaii: Long Ago Sewing We Will Remember. Mercury Series. Canadian Ethnology Service Paper 143. Canadian Museum of Civilization. 61 pp.

Access/confidentiality: Public, but must be purchased.

Link to digital version: <https://www.historymuseum.ca/boutique/product/yeenoo-d/>

Summary: The book outlines Gwich'in use of caribou skins for clothing.

A three-year collaboration between the Gwich'in, the Canadian Museum of Civilization, and the Prince of Wales Northern Heritage Centre results in a revival of skills and knowledge employed in making

traditional clothing of caribou skin. Over 40 seamstresses create five reproductions of an elegant nineteenth-century summer outfit from the collection of the Canadian Museum of Civilization. This richly illustrated book is an indispensable resource on Gwich'in culture and heritage, and on modern partnerships between museums and First Nations. This Mercury Series publication can be ordered by calling 1-800-555-5621; by e-mail to publications@civilization.ca; by internet to <http://www.cyberboutique.civilization.ca>; or by writing to: Mail Order Services, Canadian Museum of Civilization, 100 Laurier Street, P.O. Box 3100, Station B, Hull, Quebec J8X 4H2.

Wishart, Robert. 2005. *Living on the Land: Teetl'it Gwich'in Perspectives on Continuities*. A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Doctor of Philosophy Department of Anthropology, University of Alberta. 235 pp.

Access/confidentiality: Likely public (it's a thesis?), available from the DCH.

Link to digital version: N/A

Summary: Information about the importance of caribou and the use of caribou, ecological perspectives, and more.

This is a thesis about continuities. It results from field research focused on contemporary practices of natural resource use by Teetl'it Gwich'in living in and around the community of Fort McPherson, Northwest Territories. I describe and theorise about several layers of continuities as they are talked about and acted upon by elders living, as they say, "on the land." There have been multiple, continual attempts by outside agents to define, categorise, and, indeed, colonise the Gwich'in and their country according to external ideas in counterpoint to Gwich'in discussions about the proper relationship between people and the land. Gwich'in resistance not only points out the flaws in these foreign agendas but also makes use of a continuity in the Gwich'in ethos of living on the land: I have come to consider, following Bahktin, that Gwich'in activities and words be thought of as "tasting" of their social history. This history of continuity and resistance has been aptly commented on by the elder Thomas Koe as "that stuff--nothing new."

Wray, Kristine and Brenda Parlee. 2013. *Ways We Respect Caribou: Teetl'it Gwich'in Rules*. *Arctic*: VOL. 66, NO. 1 (MARCH 2013) P. 68 – 78.

Access/confidentiality: Public

Link to digital version: <http://pubs.aina.ucalgary.ca/arctic/Arctic66-1-68.pdf>

Summary: Summary article from Wray's thesis work. Information about TG traditional use of caribou, mainly Porcupine herd caribou. Focus is on traditional practices.

Debates about respectful caribou harvesting have arisen during the most recent cycle of caribou population decline in the Western Arctic. One aspect of this debate has been focused on younger harvesters, who are perceived by some leaders, elders, and wildlife management officials as lacking in knowledge and skills for respectful harvesting compared to previous generations. Guided by previous research in northern Canada, we examined this issue through a collaborative study (2007 – 10) in the Teetl'it Gwich'in community of Fort McPherson. This paper uses the common pool resource concept of "rules" (verbalized by research participants as "ways we respect the caribou") as the lens for exploring how knowledge about traditional practices of respectful harvesting varies with age. Rules for respectful harvesting were documented through semi-structured interviews with Teetl'it Gwich'in elders and used as a guide for assessing the knowledge of active harvesters ranging in age from 19 to 70. While the rules spoken by younger generations show some degree of simplification, there is generally a good match between the rules spoken by elders and those spoken by all generations of active harvesters. Although the depth of knowledge around each rule was not assessed, the results seem to illustrate continuity in key aspects of Teetl'it Gwich'in knowledge and skills for caribou harvesting. Further research is needed, however, into the mechanisms and processes of continuity, with particular attention to how traditional

knowledge and skills are being adapted to meet the needs of current and future generations.

Wray, Kristine. 2011. Ways we respect caribou: Hunting in Teet'it Zheh (Fort McPherson, NWT). A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Master of Science in Rural Sociology Department of Rural Economy, University of Alberta. 168pp.

Access/confidentiality: Public for non-commercial

Link to digital version: <https://doi.org/10.7939/R37H1K>

Summary: Thesis from work with Fort McPherson in particular about cultural practices regarding hunting and sharing caribou.

The Porcupine Caribou Herd is the focus of multiple stakeholder groups, all of which have different ways of understanding and valuing caribou. This thesis focuses on the knowledge and perspectives that the Teet'it Gwich'in of Teet'it Zheh (Fort McPherson, NWT) bring to Porcupine caribou co-management. This paper-based thesis has two major aims: first, to explore how the Teet'it Gwich'in construct knowledge about caribou; and second, to explore Teet'it Gwich'in rules-in-use with respect to caribou hunting. A comparison is made between Gwich'in methods of knowledge construction and rules-in-use with those of the Government of the Northwest Territories (GNWT), and the Porcupine caribou Management Board (PCMB), with the intent of understanding difficulties in co-management. The thesis offers the concept of the Gwich'in Knowledge Complex, a knowledge complex created from multiple sources of information about caribou, including scientific information (mainly from the PCMB and the GNWT) as well as Traditional Knowledge.