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JOURNAL

CARIBOU STORIES

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Xàgots'eèhk'ǫ̀ Journal is a Northern-based and open access journal that publishes work in multiple genres on topics important to Northern peoples, and aims to share, strengthen, and celebrate Northern Peoples' relationship to land, languages, cultures, and ways of life.

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Xàgots'eèhk'ǫ Journal , Vol. 2, Issue 2, (Winter 2023/2024)
https://xagotseehkojournal.com

Xàgots'eèhk'ǫ
JOURNAL

Table of Contents

Xàgots'eèhk'ǫ Journal , Vol. 2, Issue 2, (Winter 2023/2024)
https://xagotseehkojournal.com

Ikwe Ts'eha: We Will Canoe to the Barrens

John. B. Zoe

In the 1960s, in the fall, these words were uttered by the leadership to get hunters and supporting members to prepare all gear, tools and equipment to start paddling to the barrens to meet the caribou for meat, hides and other parts for manufacturing tools, games equpiment, clothing and gear.

In pre-contact times, in the fall, based on knowledge transfers and direct experiences, people had to be at certain places and time to initially intercept the caribou in the barrens. If the caribou were missed, then it meant going further to other proven areas and sometimes further, increasing risks.

After contact, with the introduction of foreign methods of early explorers, followed by the trade and church, eventually governments and non-renewable resource developers and tourism all needing access, the impact was not immediate.

Warning signs have become detectable now that the authority capabilities have been devolved to the people in the North through negotiations with Indigenous Nations who are taking their rightful place in how the Territory is run.

Most trading posts have become corporate communities and administration centers, hence names of communities starting with 'Fort' in the front or 'K'o' in the end for the Indigenous languages. People of the land still relied on the migration and settled in areas where caribou and other game were plentiful and built communities, hence 'Lake' at the end for English and 'Ti' in the Indigenous languages.

Ikwe Tse'eha has not been uttered except for a few times in the last 50 years or so. Lots of things have changed also in the last half centurey, with the old population and their ways swept to the side, and focus concentrated on the implementation of western development values and how the two systems can complement each other in implementation.

Dialogue is more important among the people of the North where consensus is much more real if practiced on common issues like caribou rather than "gotcha" methods. We could do research, not only to seek answers but to learn from one another, about things like bush programs, arts, storytelling and the looming global impact of climate change in the areas that we live.

Take for instance the new Aurora College journal "Xagot'seeko" a place of page space to share our experiences in many different ways to bring focus to a noble animal that has sustained us Northerners for many decades.

Mahsi to the many Northerners who have stepped up and made a contribution to this issue in the pages of Xagots'eehk'o.

John B Zoe *is a Behchoko resident and Honorary Doctorate of Laws with the University of Alberta.*

Xàgots'eèhk'ǫ̀ Journal , Vol. 2, Issue 2, (Winter 2023/2024)
https://xagotseehkojournal.com

On the Cover: Looking Towards Safety

Angus Beaulieu

What I see I paint. This painting is about the caribou. The caribou is central to the way of life for us, to our Tłı̨chǫ way. There are so many things that you can make from all parts of the caribou. I wanted to use my work to draw attention to that.

This painting also goes back to a school trip to the barrenlands that I went on. Our whole class went to the barrenlands for caribou hunting. Our Elders were there for us, guiding us, teaching us how to skin the caribou, how to cut the caribou into parts, and many other lessons. I got up early one morning and I went out to get wood. I brought in some wood, made a fire inside the tent, and I went outside again to get water to put to boil. Then I see caribou! Across from where we were camped, there were lots of caribou slowly walking. Then they all stopped behind the leader. The caribou leader is looking ahead, towards safety. It was amazing to see the caribou standing like that, looking to safety from, say, a wolf or a bear or something else, with all the other caribou following behind. The caribou in the painting is just like how I see it in my mind. I memorized how the caribou was standing there, and I painted him just like that. But instead of seeing him from the side, I painted it so the caribou is looking right out of the canvas.

Angus Beaulieu *is Tłı̨chǫ from Behchokǫ̀, NT. He paints landscapes, wildlife, and cultural activities in a style that is truly his own. He has mastered the look and feel of the northern sky, and the patterns of shadow and light on the landscape. As a young child, he watched his grandmother decorating homemade mitts with flower patterns. Over time he learned to make the flower patterns too. Later, he taught himself to sketch and paint, pushing himself to learn how to paint colours and textures and the look and layout of things. His uncle, Archie Beaulieu, told him to practice and to look at the land: by looking at the land, Angus learned everything he knows about colours.*

Xàgots'eèhk'ǫ Journal , Vol. 2, Issue 2, (Winter 2023/2024)
https://xagotseehkojournal.com

The Boy in the Moon

Story by Johnny Semple
Introduction by Sharon Snowshoee

Yi'ennoo Dài', a long time ago ...

So begins the Gwich'in story about *Tsuk*, the Boy in the Moon, a story from long before the coming of Europeans to Gwich'in traditional lands.

At this time, the Gwich'in lived on the land, moving with the seasons and relying on resources such as caribou and other animals, birds, fish, and plants for food, clothing, tools, shelter, and medicine. Our way of life came from long experience and observation while living on the land, and stories passed down orally through the generations. Of all the animals, caribou have long been central to our lives. Indeed, we are still referred to as the 'caribou people' because of our special relationship with them. This goes back to the days when animals and humans could talk to each other and change form. When it came time for humans and animals to separate, this close relationship remained and is reflected in our belief that every caribou has a bit of human heart in them, and every human has a bit of caribou heart. It is because of this that we have partial knowledge of what the other is thinking and feeling. This makes it critical that we always show respect to the caribou.

This respect comes with expectations and obligations in how we hunt and treat caribou – never making fun or playing with them, never wasting the meat, and sharing what we hunt. Today, caribou remain central to our communities and are an important source of food and clothing. Caribou also provide the babiche and sinew used to make snowshoes to hunt and travel in winter. We share our caribou meat through kinship and other social networks which extend beyond our immediate communities. There are many old-time stories about caribou. One of the most important is 'The Boy in the Moon,' which speaks to the importance of sharing.

'The Boy in the Moon' tells the story of a young boy named *Tsuk*, perhaps not even more than a baby, but a special baby born with medicine power. He saves his people at a time of hunger and distress, and then travels to the moon with his puppy. They are still seen in the face of the moon today. If the pack on *Tsuk*'s back is full, this means a good hunt to come, and a winter of plenty. But if his pack is empty, then hardship and hunger are to be expected. At the time of lunar eclipses, and the full moon of the spring and winter solstices, *Tsuk* gives his message to the Gwich'in. If the tidings were good, celebrations with song and dance would ensue. But if the message was bad, the people could turn to *Tsuk* for help in finding the caribou herds which he could see from his vantage point on the face of the moon above.

Many versions of the narrative have survived. All versions are honoured and respected as told. The one we give here is from Johnny Semple, a Gwich'in elder who lived from the late 1800's to the middle of the 20th century, experiencing the Klondike Gold Rush, the opening of Gwich'in lands to automobile traffic from the south, and television.

(A long time ago) – there was a very old couple who had a son born to them and this was very strange to the people. It was a winter without meat and the people were half starving and getting worried. Every medicine person tried to bring caribou but with no luck. By this time there was nothing to eat. The small boy, who was not even ready to talk, spoke up to his old father.

"Father, let me work with my medicine. It's winter and the people will starve."

His father was amazed to hear a small child speaking so well, so he answered, "Oh, my son, you're just a baby, people will only laugh at you."

Still, the small boy wanted the people to know that he could bring caribou, never mind if the people laughed at him. So the old man went out and spoke to the people.

"Just a few days ago this child was born and now he wants to work with his medicine to bring caribou." The people agreed. "He's just a small baby but make a big fire at the end of the camp and I will bring him there as he says and he will walk around this fire." The people were willing to do as they were asked. The old father brought his son to this fire place and took him out from under his fur coat. The small boy had a coat, pants and hat made for him out of one marten skin.

The small boy was put down on his feet by the fireplace and started walking around the fire singing a medicine song. As he reached into the snow, a caribou head appeared and then disappeared again.

He told the hunters, "This morning when you go out hunting, you will all see and kill lots of caribou. There will be one special fat cow and whoever kills this fat cow will give me the fat of the caribou. If I receive it, there will be lots of caribou and there will be no starvation ever."

The men went hunting and their families moved after them. When the women and children got to where the men were, the men had killed a lot of caribou and everybody was happy. The small boy asked his father to carry him around to see all the caribou that were killed.

It happened that the little boy's greedy uncle had killed the fat cow. The boy told his father, "This is the caribou that I want the fat from," so the old father left him there by the caribou and went to cut his caribou.

The old greedy uncle started saying mean things to the child while he was cutting up this fat caribou, saying, "You say you have medicine. You're no medicine person. Who do you try and make people believe you are?"

After cutting the fat caribou up, he cached it and didn't give the child any fat. Just then the old father came back and picked his son up and carried him away. The small child started to cry. Other hunters offered caribou fat to the boy but he only wanted that special caribou fat. While his father packed him and pulling the front part of the caribou home, the boy cried all the way home. He went on crying late into the night when all at once the greedy old uncle spoke out. "Send him to the moon. Why he is keeping everyone awake with his crying?"

The boy asked his father what was said and the old father answered, "Oh, it's just that silly old man, pay no attention to him."

The little boy said, "I heard. I heard it and I will." The little boy told his parents that he would be leaving and left a message with them. He asked his mother if she had a white tanned skin and she had one. The boy told his parents to keep one shoulder blade of caribou inside of this skin and just cut pieces of meat off to eat, every morning it would be whole again.

"Tomorrow morning all the caribou which were killed will all vanish again and there will be no meat and no caribou," he also told his parents. "You people will only live so long but I will be on the moon as long as there's a moon and stars in the sky. And when it is a good winter with plenty of meat, always remember my song and be happy, dance, and make a feast, be thankful for the meat. I will always be watching down on everyone."

He took a little bag of caribou blood and a small dog with him and disappeared.

Early the next morning, the hunters went back to where the caribou were killed to haul them in. When they got there, there was no sign of anything, not even a speck of blood. There was no meat and the people were starving to death. Only the old parents of the small boy lived by keeping the meat their son told them to save until they came to a place where there were a lot of caribou. They lived until they passed away of old age.

Johnny Semple

Johnny was born about 1888 to Peter and Annie Simple at Vittrekwa Creek (Vittrekwaa Teetshik) on the Peel River upstream from Fort McPherson in the Northwest Territories. At this time Gwich'in families moved seasonally to different places and lived in skin houses. Skins were sewn together, hair on both sides, to shape a house for living in the winter with a fire in the middle and smoke coming out of the top of the house. It was common for legends and stories to be told nightly.

About this time, Archdeacon McDonald was teaching the bible to people which he translated into Gwich'in with the assistance of his Gwich'in wife, Julia Kutuq, and provided services and taught school in the skin houses. Johnny, who was in "Loucheux" school was able to read his bible and hymn book in Gwich'in.

Johnny started trapping at the age of 10 with his parents and other families in the canyon of the Blackstone River. After his parents died, Johnny stayed in Dawson, and worked and travelled all over this area. Johnny recalled Dawson City as a very noisy town around 1910. There was no television or automobiles, but there were phonographs, pianos, and violins. Johnny, not married yet, worked at various jobs and remained observant of the many changes happening throughout the north.

Johnny became a guide, a trapper, as well as a pilot on the river boats. He went on trips by dog team to Mayo, Dawson

and other mining places with Reverend Toddy. Sometimes he was a lay reader for him during church services. He and his young nephew, Peter Henry, met the Barz brothers on their travels in the Bonnetplume River area. One time, he agreed to make a trip and was supplied with horses, packs and everything he needed. He and his horses boarded a steamboat that was to let him ashore a hundred miles away. He met Bishop Stringer on the same steamboat who informed him his travel would bring him through rough country. In the winter months Johnny went trapping and caribou hunting around Van Choo (Hungry Lake) and beaver hunting around Edrii Njik (Hart River) with John Martin in the fall.

In 1918 Johnny married Alice, daughter of Caroline and Charlie Ts'ee gei (Ts'ee gei means 'young porcupine'). Together they had five children. They stayed in Mayo before moving to Dawson City, and then to the Blackstone River area. They eventually settled in Aklavik where he became a lay minister for the Anglican Church.

Between 1900 and 1960, Johnny travelled to many growing towns and places on the land in the Yukon, Alaska, and Northwest Territories including along the Yukon River, the Snake River, Bell River, and to hot springs in the Yukon to treat his rheumatism. He travelled by dog team, steamboat, horseback, and by snowshoes.

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Xàgots'eèhk'ǫ̀ Journal , Vol. 2, Issue 2, (Winter 2023/2024)
https://xagotseehkojournal.com

Looking back: The Fort Rae Heritage Project

Photos and captions provided by the NWT Archives

In 1978, a skills workshop in Behchoko (then called Fort Rae) brought together about a dozen women who worked to produce traditional objects, specifically for museums and other collections. By April 1978, five months after the project started, the group had scraped and processed about 300 caribou skins, making them into clothing, tents, and other traditional items. Many of these items were purchased by the Prince of Wales Northern Heritage Museum and are still on display today.

These images are part of the Native Press photograph collection at the NWT Archives and were originally published in the Native Press newspaper on April 14, 1978.

Photo credit: CREDIT: NWT Archives/Native Communications Society fonds - Native Press photograph collection/N-2018-010: 5196, 5197, 5198, 5199, 5200

Photographer: Tessa Macintosh

Do you know this person? Some of these women remain unidentified today—if you recognize someone, let us know!

A group of women, including (left to right) Madeline Mantla, Madeline Nedli, Melanie Washie, Berna Nasken, Liza Koyina, Melanie Wedawin, unidentified, and Annie Black, display a winter tent made of caribou hide.

Liza Koyina and Madeline Mantla carry hunting bags made of dehaired caribou skin and pull a sled made of caribou hide.

An unidentified woman wears a caribou hide jacket and hood, created as part of the Fort Rae Heritage Project.

A group of unidentified women sew tents.

Annie Black and Madeline Mantla sewing with hide.

Xàgots'eèhk'ǫ́ JOURNAL

Xàgots'eèhk'ǫ́ Journal , Vol. 2, Issue 2, (Winter 2023/2024)
https://xagotseehkojournal.com

In the Hoofprint of History

Glen MacKay

As told to Jessica Davey-Quantick

ABSTRACT

The NWT is dotted with historical evidence of caribou, from caribou fences maintained for millennia to rings of slowly defrosting caribou dung around alpine ice patches, rich with artifacts. Territorial Archaeologist Glen MacKay tells us more about what we can learn, and why we need to act now to protect this incredible history.

WHAT IS A CARIBOU FENCE?

Caribou fences (also referred to as drive lanes) were hunting structures that Indigenous hunters used to entrap and kill many caribou at a time. They were typically linear structures used to drive caribou towards places where they could be easily killed by hunters. Some fences were designed to drive caribou towards hunters concealed in blinds or towards water bodies where hunters waiting in canoes or kayaks could spear the caribou as they were driven into the water. Other fences were designed to drive caribou into corral structures where they would be entrapped in a maze of snares. In forested environments, caribou fences were built with wood poles and brush; on the tundra they were more typically built with lines of stone cairns, or more rarely, continuous rock walls. Based on the knowledge of Northern Indigenous peoples, ethnographic and archaeological evidence, caribou fences or drive lanes could be several kilometers long, with some examples that were tens of kilometers long.

Indigenous hunters often employed caribou fences to intercept the spring and fall migrations of caribou herds. These were times when caribou were moving in larger groups, allowing hunters to kill many at a time. Scheduling the hunt in such a way provided hunters with large amounts of meat to feed their families, but also other critical resources such as hides for clothing and lodge coverings, bone, antler, and sinew for tool manufacture, and other products.

As part of the Shúhtagot'ine Cultural Landscape Project (SCLP), our research team, consisting of archaelogists, Shúhtagot'ine (Mountain Dene) Elders from Tulita, remote-sensing specialists and dendochronology experts, has been conducting research at a caribou fence in the Mackenzie Mountains known as KjRx-1, which was used by Shúhtagot'ine hunters to harvest northern mountain caribou. The main fence at this site is over 800 meters long and ends in a corral structure (Figure 1). It was built with heavy timbers propped up end-to-end (Figure 2).

WHO MADE THEM? HOW LONG AGO?

Indigenous caribou hunters throughout the circumpolar world used fences to harvest caribou. In the Northwest Territories, the ancestors of Dene and Inuvialuit built caribou fences to intercept both migratory tundra caribou and northern mountain caribou. Fences built with stone cairns persist on the land for far longer than timber fences, which eventually rot away, but archaeologists believe that both types of fences have probably been used for several millennia. The remnants of wood caribou fences that can still be seen on the land today were likely built within the last few hundred years. At KjRx-1, our team has attempted to date the construction of the fence using dendrochronology (tree-ring dating). We have found that this fence was used up until the late 1800s. We believe that Indigenous hunters in the NWT probably used caribou fences up until the time that they had consistent access to high-powered rifles and ammunition through the fur trade.

ARE THERE MORE WE DON'T KNOW ABOUT?

There are about 30 records of caribou fences in the NWT Archaeological Sites Database, including both wood fences and drive lanes made with lines of stone cairns. We believe that there are likely to be remnants of many more fences on the land that have not yet been recorded by archaeologists because there are large areas of the NWT where no archaeological surveys have been conducted.

HOW DO YOU FIND THEM?

We hear about caribou fences in a variety of ways. Archaeologists have found several fences through archaeological survey projects. For example, an archaeology survey on Sahtú (Great Bear Lake) in the 1970s recorded seven wood caribou fences in the vicinity of Edaííla (Caribou Point). We revisited one of these fences in 2018 and were still able to trace the timber fence line over nearly 3 kilometers. Indigenous Elders often have knowledge of fence sites that they have seen or heard about, and Indigenous geographical place names can also provide clues for the locations of caribou fences. For example, a Gwich'in place name – Thał njik – translates as "caribou fence creek", indicating that this would be a good place to look for caribou fences. KjRx-1, in the Mackenzie Mountains, was reported to us by a renewable resources officer, who noticed it from the air, and several fences have also been reported by bush pilots that have seen them from the air during their travels.

WHAT'S IMPORTANT ABOUT CARIBOU FENCES?

Caribou fences are important because they tell us about the communal hunting practices of Indigenous societies. These are places where several bands that lived separately for most of the year came together annually to build or repair fences and conduct hunts to amass meat and other resources to store for the winter (fall hunt), or to replenish their stores at the end of a long winter (spring hunt). The main fence and corral at KjRx-1 contains nearly 1,200 large timbers, indicating that a lot of labor went into its construction[1]. Ethnographic descriptions suggest that caribou hunts using fences were also labor-intensive, requiring many hunters to be stationed to kill the caribou, but also many people to drive groups of caribou along the fence towards the kill sites.

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1 *"Alpine Ice Patches and Shúhtagot'ine Land Use in the Mackenzie and Selwyn Mountains, Northwest Territories, Canada" (2012) by Andrews et al. https://journalhosting.ucalgary.ca/index.php/arctic/article/view/67230.*

Figure 1

Artist's interpretation of the KjRx-1 caribou fence, located near Moosehorn Pass in the Mackenzie Mountains. Caribou were driven along a fence on a high terrace and then forced down a steep bank into a corral. Artwork by Rae Braden.

WHAT CAN THESE HISTORIC SITES TEACH US ABOUT THE ETHNOGRAPHIC RECORD AND CARIBOU MANAGEMENT?

As noted, we can learn a lot about communal hunting practices and Shúhtagot'ine land use from historic wood caribou fences, and alpine ice patches have given us a window into how people made use of high alpine areas in the past. Caribou fences may be of interest to biologists that are trying to understand how caribou migration routes have changed over time. Due to the labor involved in building caribou fences, it is usually reasonable to infer that they were built in places where many caribou tended to pass by year after year. Some caribou fences can also indicate the presence of special habitat features. For example, KjRx-1 is built near a mineral lick that is frequented by both caribou and Dall sheep. Biologists may also be interested in tracking the decline of alpine ice patches, which are a component of the summer habitat for northern mountain caribou.

HOW CAN WE PROTECT THEM?

The first step to protecting caribou fences is to create accurate maps of their locations. Our team is using drones to map and make very high-resolution aerial photographs of the fences and their landscape settings. Accurate spatial data helps us to ensure that they are avoided by ground-disturbing activities that could be happening nearby, and to monitor for climate change impacts like wildfires in the years ahead. We would be very interested in hearing from land users who have seen caribou fences on the land, so that we can make plans to work with NWT communities to map and record them.

HOW IS CLIMATE CHANGE AFFECTING THEM? ARE THEY IN DANGER FROM FOREST FIRES?

Scientists predict that climate change will lead to increasingly severe wildfire seasons in the boreal forest. The fire seasons that we experienced in the NWT in 2014, and again last year, may occur even more frequently as the planet warms. Many of the wood caribou fences that we know of are in forested environments and consist of dry timber that would burn up instantly in a forest fire. This is one of the main reasons we are working to create detailed records of these important cultural sites.

Figure 2

Remnants of the KjRx-1 caribou fence. KjRx-1 was built from heavy timbers laid end-to-end and propped up on the root structures of adjacent timbers. Most of the fence has collapsed but we believe that it likely stood 75-100 cm high, forming a continuous barrier for caribou. Photo by Tom Andrews.

Figure 3

Alpine ice patch KhTe-2, located in the Selwyn Mountains near the NWT-Yukon border. Many caribou trails lead to the ice patch and it is ringed by a black band of dung deposited by many generations of mountain caribou. Photo by Tom Andrews.

THE FENCES AREN'T THE ONLY THING YOU'RE FINDING THOUGH RIGHT?

Alpine ice patches are another kind of ancestral caribou hunting site, which are found in northern alpine areas. We have been studying ice patches in the Mackenzie and Selwyn Mountains in collaboration with Shúhtagot'ine Elders from Tulita since 2005. Ice patches are areas of perennial ice that form on north-facing slopes in high alpine areas (Figure 3). Some ice patches have persisted on the land for several millennia, but they are now rapidly melting with climate change. Northern mountain caribou seek out ice patches in the summer to cool down and get away from insects. For Shúhtagot'ine hunters, ice patches were predictable places to harvest caribou in the summer months.

AND YOU'RE FINDING ARTIFACTS THERE TOO? WHAT CAN WE LEARN FROM THEM?

Yes, hunters sometimes lost their weapons when hunting at ice patches, and they became encased in the ice. Due to their frozen contexts, these artifacts are incredibly well-preserved, often including wood, sinew, and other organic components (Figure 4). This kind of preservation is quite rare in Subarctic archaeological sites, where typically only the stone parts of artifacts persist over time. This has enabled us to learn a lot about the materials and techniques used to construct arrows, throwing darts, and even ground-squirrel snares. The organic components can also be directly dated using radiocarbon dating. Dating of ice patch artifacts in Yukon Territory has shown that bow-and-arrow technology replaced throwing dart technology approximately 1,200 years ago.

Figure 4

Archaeological artifacts collected from melting ice patches in the Selwyn Mountains: a) Detail of a complete arrow (approx. 340 years old); b) Broken throwing-dart point with attached sinew (approx. 2400 years old); c) Detail of a ground squirrel snare (approx. 1000 years old). The ground squirrel snare was found at the edge of an ice patch, suggesting that hunters might have set snares while they were waiting for caribou. Photos by Susan Irving.

ONCE THESE DEFROST, DO THEY BEGIN TO DETERIORATE?

Once artifacts melt out of the ice they are exposed to the elements – the organic components dry and crack and eventually fall apart and are blown away by the wind. Outside their frozen contexts, organic artifacts are also prone to microbial action, which can degrade them very rapidly. We try to monitor melting alpine ice patches every year or two to collect artifacts that have melted out so that they can be cared for by a professional conservator. We bring the artifacts to the Prince of Wales Northern Heritage Centre, where a conservator stabalizes the organic components of the artifacts by drying them very slowly. The artifacts are then stored in a climate-controlled storage space.

CARIBOU THEMSELVES LEFT SOMETHING BEHIND AT THESE SITES TOO, CORRECT?

As perennial alpine ice patches melt, they are revealing the huge amounts of caribou dung that accumulated in the ice over hundreds or thousands of years of caribou using the ice patches as summer habitat. Melting ice patches are ringed by a thick, black band of caribou dung, and surveying ice patch sites for artifacts requires archaeologists to traverse through thick layers of wet, composted dung. Scientists have used dung frozen within ice patches to reconstruct the diets of mountain caribou through time by analyzing pollen, plant fragments, and ancient plant DNA preserved in the dung.

Glen MacKay *is the Territorial Archaeologist with the Culture and Heritage Division of the Department of Education, Culture, and Employment, Government of the Northwest Territories. He has worked at the Prince of Wales Northern Heritage Centre in Yellowknife since 2005. Glen's current research project is the Shúhtagot'ine Cultural Landscape Project (SCLP), which he co-leads with Shúhtagot'ine Elder Leon Andrew. The project team is studying caribou fences, alpine ice patches, and Shúhtagot'ine geographical place names in the central Mackenzie Mountains. The SCLP is supported by the Canadian Mountain Network.*

Xàgots'eèhk'ǫ́ Journal , Vol. 2, Issue 2, (Winter 2023/2024)
https://xagotseehkojournal.com

ʔekwǫ̀ Kwı̨ı̨
Tłı̨chǫ Traditional Methods used to Harvest Caribou

Sally Ann Gon (nee Zoe) and Allice Legat

"A long time ago when the caribou did not travel the trails to this area, the Tłı̨chǫ were starving. A man had a dream and the next day he walked straight to the barren lands and invited the caribou to follow him to this land ..." (Romie Wetrade)

ABSTRACT

This paper was first released on March 31, 1995 based on research Elders initiated due to changes in ʔekwǫ̀ (barren ground caribou) behaviour. It is being published here because, if caribou are to come back and become sustainable, the authors of this paper think it is imperative that documented knowledge of Indigenous harvesters needs to be recognized and shared.

This paper shows Tłı̨chǫ Elders of that time had intimate knowledge necessary to manage themselves as well as to manipulate ʔekwǫ̀ in specific ways during specific seasons – to protect the herd, by and for the people who depend on it. This is still relevant today.

The original document was prepared by Dogrib Treaty 11 Council with support from Dene Cultural Institute for use by the Dogrib Renewable Resources Board and The Department of Renewable Resources GNWT. It was updated by Tłı̨chǫ Government for this Journal. The update (August 2023) revises some of the terms and community names, to change them from English to Tłı̨chǫ with explanations if not in original report. The exception to this is organizations from the past, such as the Dogrib Renewable Resources Board and Dogrib Treaty 11 Council.

To copy, share, or otherwise use any information in this report you must get written permission from the Tłı̨chǫ Government. And, if you use any images or maps from this report, please credit the artist Sally Anne Gon (nee Zoe).

BACKGROUND

During 1993-94 Tłı̨chǫ Elders commented that ɂekwǫ̀ were not following their usual caribou trails. Elders think it may be due to the plastic ties used by prospectors to stake claims. These plastic ribbons are tied to trees and flutter in the wind. Elders think the caribou are afraid of the fluttering ribbons, which causes ɂekwǫ̀ to move away from them. Elders also think that since there are so many ties fluttering in the bush, the caribou have become confused, causing them to go in all different directions.

In 1994, community researchers working on research projects suggested by Elders, claimed that Elders know this because they traditionally used the movement of trees and material to get caribou to go where they wanted them to go.

Researchers hypothesized that if movement could be used to redirect caribou during the traditional hunt, and if plastic ties fluttering in the bush can cause confusion when they are placed randomly, then movement may work to help keep ɂekwǫ̀ away from past, present, and future mine sites.

In February 1995, the Dogrib Renewable Resources Committee (DRRC) proposed that preliminary research be conducted to document Tłı̨chǫ knowledge of how people in the past manipulated caribou movements. The Department of Renewable Resources, GNWT provided funding for preliminary research, which would take place over five weeks in February and March 1995. They agreed there is a critical need for concrete information associated with Tłı̨chǫ knowledge of ɂekwǫ̀ behaviour and migration.

The need for information arose from increased mining activity in the Tłı̨chǫ region and the desire to keep caribou away from both active and inactive mines and the associated tailing ponds. There is much to suggest that Elders' knowledge of caribou behaviour should play an important role in developing a management plan during the next few decades, as territorial and federal governments continue to encourage mining activity. The objectives for the preliminary research were to:

- Document methods used to redirect caribou movement.
- Document locations where specific methods were used.
- Document which methods were used at specific times of year.
- Compile information on who made the decision to redirect caribou and why.
- Translate the information into English for future education purposes.
- Transcribe the information into Tłı̨chǫ for future education purposes.

The first four objectives were met in a preliminary fashion. But the research team was unable to transcribe the information into Tłı̨chǫ. Transcripts will be completed in the new fiscal year. We note here that by the late 1990s these same Elders did not want any information given in Tłı̨chǫ to be translated and transcribed in English, as they thought this would cause young people to forget important land concepts and knowledge. They did want the information to be transcribed in Tłı̨chǫ so in the future people could read what they had to say as well as listen to what they had said.

METHODOLOGY

For the purposes of this project, the Dogrib Renewable Resources Committee chose to use the Gamètì research team, who were then working on documenting Elders' knowledge on traditional governing systems. This team was used because they were working with Elders on decision-making and some of those interviews focused on caribou.

The research team in Gamètì used the Participatory Action Research (PAR) method. This method ensures ownership by community Elders, who are holders of traditional knowledge. This method also ensures that community members receive on-the-job training as researchers. The research is usually directed by the Elders' Community Advisory Committee (CAC), consisting of Elders chosen by all other Elders in the community. In this case the CAC and DRRC took specific roles to direct the project.

The CAC provided all policy direction, selected the researchers, offered advice on which Elders are the most knowledgeable on any given subject, and approved the release of reports prepared by the staff. The DRRC provided direction on which topics they need information and selected the community to carry out the research.

Due to time, there were several modifications to the method. Professional translators Celine Football and Madeleine Chocolate were hired to help with translation. This allowed Community Researcher Sally Anne Gon (nee Zoe) and Principal Investigator Allice Legat to concentrate on discussing the topics with Elders.

Group and individual interviews were conducted. Sally Anne Gon continually returned to Elders David Chocolate, Madeleine Drybone, Andrew Gon, Harry Simpson, Amen Tailbone, Rosalie Tailbone, and Romie Wetrade to clarify information – specifically place names.

The report was verified by the CAC and Elders interviewed. First, the report was interpreted verbatim to them. This process took five hours over two days. Additional information was incorporated into the report.

The report was then read to all Elders of Gamètì who verified the contents. This second reading took three hours. During the first reading senior / oldest Elders clarified points. And during the final reading several younger Elders told their own stories. Harry Mantla and Harry Simpson, both young Elders, expressed how they were glad to be learning from the old people again because they both felt they had all but forgotten many of the details – such activities as ɔekwǫ̀ kwı̨ì required them to know if using this harvesting technique.

CHALLENGE TO THE RESEARCH

As with much community-based research, the schedule / timing of the researchers and funders was not always in tune with the reality of the people living in the community. Two of the most crucial weeks of the five-week research period were when most of the people in Gamètì made a traditional trip to Deline, the first spring trip in four years.

The schedule also caused other difficulties.

- Not enough time to document, understand, and report on Elders' collective knowledge about re-directing caribou to preferred harvesting sites. In order to understand methods used to redirect caribou it is also important to understand why these techniques were used and to understand how caribou were viewed spiritually and how caribou behaviour was perceived.
- Not enough time to fully discuss concepts and verify translations associated with redirecting caribou.

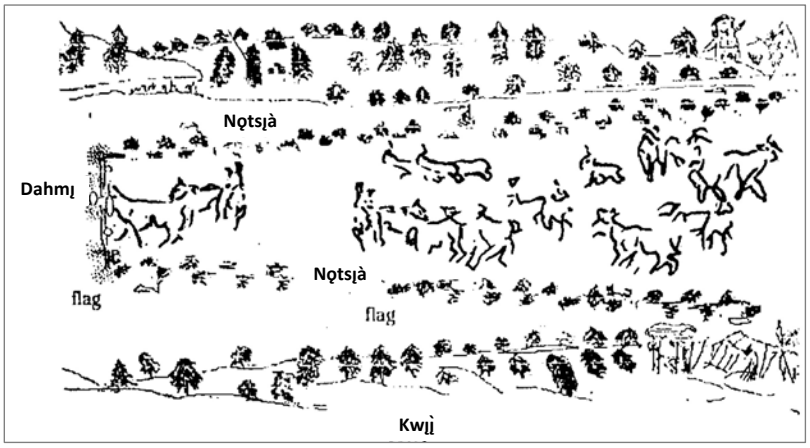
Another challenge was using topographic maps of the places where kwı̨̀ (caribou funnel and snare) were constructed. Older Elders know the details of the land intimately and what takes place in any given miniscule location, but they cannot read maps. For this reason, it was necessary to record the information of the oldest Elders and then use younger Elders, who know the locations of the places, to mark the places on the maps.

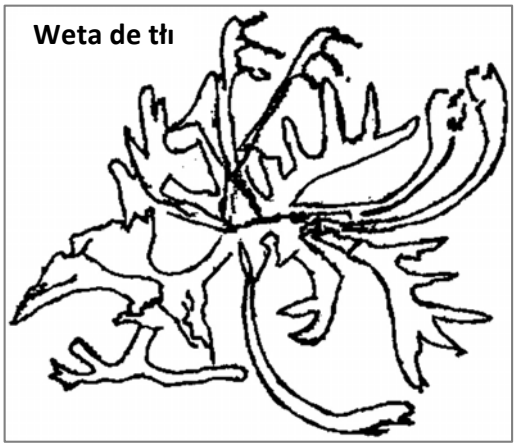
RESEARCH RESULTS

The research results include drawings made by Sally Ann Gon. Elder Amen Tailbone made Sally Ann redo her drawings over and over until she got it right. This was important to the research and to 'getting it right', and knowing the information before going on the land.

These drawings introduce the Tłı̨chǫ technologies used to redirect caribou.

- **Kwı̨̀** is a funnel shaped structure used to drive caribou towards a set of caribou snares known as dahmı̨.
- **Nǫtsı̨à** are the sides of the kwı̨̀ where the flags and ribbons are put to flap in the wind.
- **Weta de tłı** are rattles made of caribou antlers.





The research results discuss the caribou in relation to the kwı̨ì – a description of the parts of a kwı̨ì, their size and geographic location, the decision-making process associated with building a kwı̨ì, and how the Tłı̨chǫ acquired their knowledge of the caribou.

Limitations to the research mean that this paper does not describe the Elders' spiritual understanding of caribou and the relationships and responsibilities associated with killing caribou. Nor does it discuss the importance of this communal hunt to the Tłı̨chǫ society.

In general, the research team found that waving flags, ribbons, or trees, and the sound of howling wolves were used in the spring to redirect caribou, whereas rattles were used in the colder fall months and winter.

NǪTSĮÀ

Nǫtsı̨à are the sides of the kwı̨ì – the fence-like structure that funnels caribou to the dahmı̨ – a set of caribou snares. The nǫtsı̨à varied in size but were often several miles long. They were constructed by pounding spruce trees into snow-covered open areas such as a frozen lake or the barren lands in spring. The spruce trees were placed in a zigzag fashion, rather than in a straight line. Spread among the spruce trees were sticks with flags or ribbons attached. At least one pair of sticks with ribbons was placed near the ends of the side opening of the kwı̨ì. Another set was placed about mid-point down the nǫtsı̨à. And a third set was placed some distance from the dahmı̨.

All aspects of the nǫtsı̨à were designed to scare the caribou, redirecting them to where the people wanted them to be. The fearful reaction of the caribou in the spring to movement, perceived movement, and sound was used to the Tłı̨chǫ advantage. The nǫtsı̨à were only built in the spring.

> *At this time, the caribou's eyes become blind from the snow. It was said there was a lot of snow blindness back then. Because [in the spring where there are heat waves] it seems like they're seeing two things, so if there are any nǫtsı̨à the caribou don't go near them. … for that reason [the people used trees and flags that move in the wind].*
>
> *… where there are dark things set on the lake, [the caribou] will not go near them. That's why they [our ancestors] made nǫtsı̨à. In the … [springtime] the caribou are afraid of the nǫtsı̨à and in the winter they're not afraid of the nǫtsı̨à. At the time when the caribou begin to migrate, the nǫtsı̨à looks as if there's something moving … because the trees look as if they're moving from side to side, and they look like it's something walking. … so they're afraid of it.*
>
> *… a stick … with a ribbon … it blows in the wind … [and] the caribou are afraid of it. They do that for that reason. (Romie Wetrade, 03/16/95)*

During spring the lack of wind was not a problem. In fact, the Tłı̨chǫ name for the period of time that coincides with March can be translated as the 'time of the winds'. And the time that coincides with April can be translated as the 'time the sun dances'. The wind, heat waves, and apparent snow blindness of the caribou combines with the movement of the nǫtsı̨à and creates a confusing environment for them. Amen Tailbone explained that to capitalize on this situation and increase the probability of caribou not escaping, Tłı̨chǫ constructed the nǫtsı̨à so that the trees were not in a straight line. This causes the trees to appear like a crowd of people to the caribou, whose sight was affected by the heat waves and snow blindness.

All Elders explained that there is a lead caribou who guides the other caribou back to the birthing grounds. For this reason, the nǫtsı̨à was placed on well-known caribou trails where it was most likely the lead caribou would go.

> *When the lead caribou goes into the nǫtsı̨à the others follow. (Amen Tailbone, 03/10/95)*

Once the lead caribou entered the areas of the nǫtsı̨à, the caribou were caught by the fact that they were trying to avoid danger. When the caribou ran into one side of the nǫtsı̨à, they turned slightly but continued following the leader. If they turned too much, they eventually ran into more movement from the other nǫtsı̨à. They turned again.

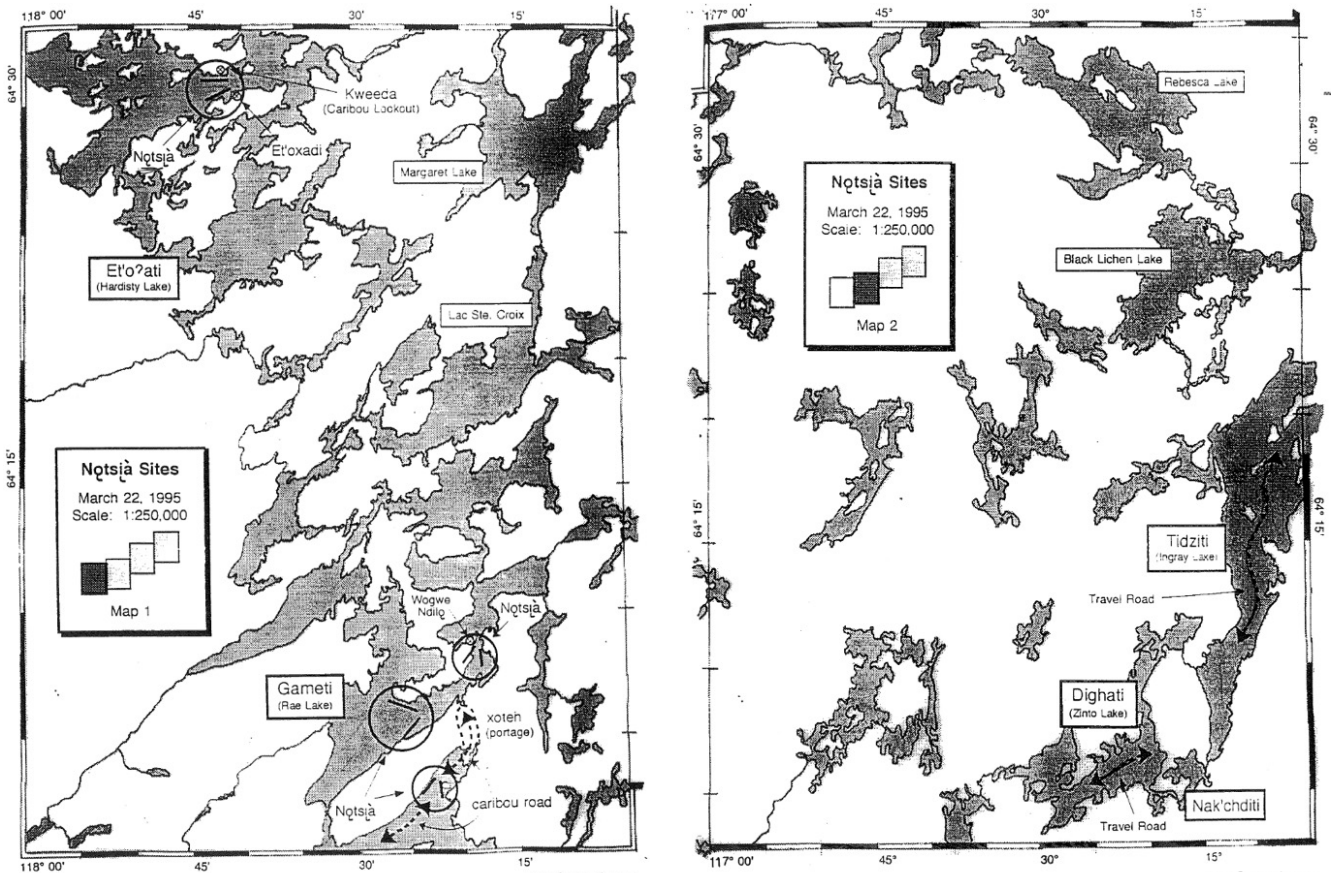
> *… if the caribou started to turn completely around the people who stood blocking the wide entrance area of the kwı̨̀] … started walking next to each other and they howled like wolves. The caribou kept moving because they were afraid. That's how our ancestors did it. (Romie Wetrade, 03/16/95)*

The sound and movement from the hunters kept the caribou from turning back and they were eventually snared by the dahmı̨ – the snares set at the narrow end of the kwı̨̀.

> *We don't mean that our ancestors always did this. Only when the caribou migrate. … they may kill them like that once a year and sometimes not at all. In the late summer when the caribou migrate back to the barren lands they'll hide from the caribou and wait for the caribou. When the caribou begin to migrate, they move all at once and they swim at once. When they begin to swim, they [our ancestors] used a birch canoe to canoe after them. They spear them in their rib cage. They would pierce them through and take the caribou out of the water and bring the caribou there [on the land]. (Romie Wetrade, 03/16/95)*

SIZE AND LOCATION OF NǪTSỊÀ

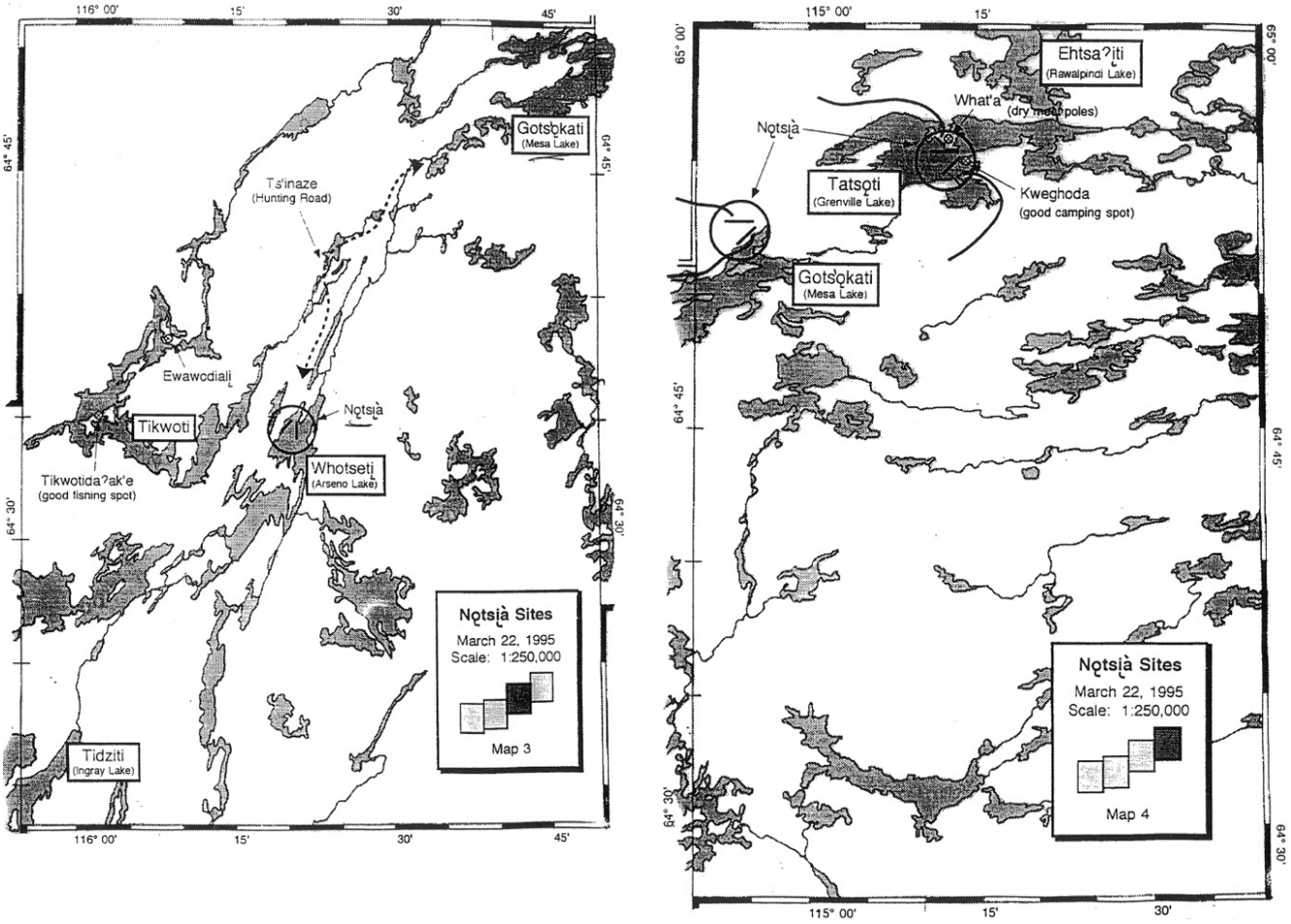
Nǫtsı̨à varied in size depending on their location. Nǫtsı̨à located in the boreal forest were often placed in bays or beside land masses where the land features could be used to help with funneling caribou toward the dahmı̨ (see maps 1 and 2). Elders explained that the nǫtsı̨à on the frozen lakes, where the majority of Tłı̨chǫ built their kwı̨ì, were large because they didn't want the caribou to walk past.



> *They know [the general area] where the caribou are going to migrate and they know where the caribou trails are. They made the nǫtsı̨à structure all the way across because they didn't want the caribou to go the other way [and miss the dahmı̨]. (Dave Chocolate, 03/21/95)*

Amen Tailbone describes coming across the remains of a very large nǫtsı̨à north of Gots'ǫkàtì (map 4).

> *I cannot make up stories and talk about it. Over at Gots'ǫkatì [Mesa Lake] … there's a tı̨da [long narrow lake] … There's lots of hills and we paddled to the shore. After we paddled to the edge of the barren land we camped there. It was fall. There was no wood so we went up the hill to get wood. Spruce trees don't grow side ways and those logs did that. … [Our ancestors used to pound] the spruce trees down [into the snow] for the caribou and then the spruce trees [would die] and start to fall over. … it was like that all over the hill … and we used to take wood from it. we took the big logs and that's how I came to see [the remains of the nǫtsı̨à].*
>
> *That old nǫtsı̨à wasn't on water [frozen lake]; it was on the land. And they had the spruce trees standing and the structure was maybe one mile. (Amen Tailbone 03/05/95)*



According to Amen Tailbone (03/05/95 pers. comm.) this particular nǫtsı̨à may have been the one used to funnel herds moving from the southwest to the northeast, as well as those herds moving from the northwest to the southeast, just before their migration route turns northeast again. The research team remains uncertain as to the location of this particular nǫtsı̨à as Elder Amen Tailbone was uncertain as to whether he was describing the nǫtsı̨à north of Gots'ǫkàtì (Mesa Lake) or another one north of Tatsǫ̀tì (Grenville Lake).

According to Gamètì elders, the seven most important locations for nǫtsı̨à can be found on maps 1, 3, and 4. These locations were also important for other survival reasons, such as important locations for finding birch to use for building canoes, and for fishing, so the people could eat if the caribou chose a different trail. As Romie Wetrade explained …

> *… wherever there were [caribou] trails people lived there. … but some of them we're not too sure about. But the ones that we know and the ones that were told to use we can talk about them. Just like over here, my dad had said, "over there they used to make dahmı̨ for caribou and the people used to get together … and they made a dahmı̨ and they killed a lot of caribou here … [at] Wogwe Ndilǫ. They know that [where the caribou will travel] and that's why when the caribou migrate back to their birthing ground they camp here [Gahmı̨tı] throughout springtime, and they would make birchbark canoes. … that's why they would camp out here waiting for the caribou [to go through]. That's the way the stories are and that's how I heard the stories about it." My dad said that.*

And over there [Wogwe Ndilǫ] there's a good spot for fishing and it is also where they know the caribou will migrate. So that's where they prepared everything for the caribou. It is where the fish are when it gets warmer and where there's lot of fishing spots. They knew all that. And if there's now caribou they would get together to stay through springtime [to do fishing throughout the spring].

They lived at the camp until they finished making canoes and after they finished making canoes they would paddle [to another spot]. That's what they did a long time ago. The people did not stay in one place only. (Romie Wetrade, 03/05/95)

The structures built in the boreal forest were much smaller than those located on the barren lands, where the nǫtsı̨à were often several kilometers long (see map 4).

DECISION TO BUILD A KWı̨̀

The decision to build a kwı̨̀ and the incredible work it took to build the nǫtsı̨à was made by the group. To make sure this decision was right for the group, all individuals present were part of the discussion. They discussed where to place it and whether it was necessary. But the most knowledgeable person, usually an elder, made the final decision and gave the instructions.

Concerning the make of a dahmı̨, whenever it gets warm, the people sit and talk to each other and they make a naawo [agreement] and then they wait for the animal [caribou]. … Those who were elders and knew about the things of the past would sit with the other people in the group and they would discuss it first. And then they would get ready for the caribou. …

We're not talking about a few people. Many people were involved, helping each other. All who are capable of working, they all help in making the naawo and then they wait for this animal because that is all they live on. Whoever knows spoke, and they believe one another. That was how they worked.

… they lived according to an elder who possessed that knowledge. … and using this knowledge, while sitting together [and discussing] they made a decision. … whoever was an elder and who knew and lived by this knowledge, that one was like a k'awo [boss or camp organizer]. … they regarded him as a k'awo for as an elder he had a lot of knowledge. They worked according to this. (Romie Wetrade, 03/06/95)

They discussed it among each other. … there was lots of discussion about it. sometimes these structures were not put up because the caribou did not always migrate on those trails. (David Chocolate, 03/21/95)

WETA DE TŁI

Whereas the movements of ribbons, flags, and swaying trees, and the sound of wolves caused the caribou to move away, the weta de tłı drew the caribou toward its sound. This device was used in the winter when the caribou and hunters were in small groups or alone and when it was necessary to draw the caribou closer.

[The weta de tłı is a rattle made from] caribou antlers [which are] all cut off and all tied up with strings.

We walked [when we] hunted and we carried a small bundle of antlers all tied up together in our pack sack. If we saw a caribou, we made a racket with the caribou antlers. And … if the caribou hears it, the caribou comes to us. (Amen Tailbone, 03/10/95)

At the verification meeting Andrew Gon stated that this device was only used in the very cold weather. The other elders seemed to agree. But the research team was unable to determine if they meant the coldest part of the year or if they meant the coldest part of the rutting season, because Elders also explained the weta de tłı sounds like caribou fighting during the rut.

The sound drew the caribou toward the hunters, who used spears and arrows or snares in the bush. And before the wide-spread use of skidoos, it was used in recent times to draw the caribou toward hunters using guns.

Elder Madeleine Drybone also mentioned that the yigǫ was used to call caribou. This is a toy made of caribou hooves that the player tries to swing onto a bone peg. The men disagreed with Elder Madeleine Drybone. And the research team was not able to go back and discuss it with her. It is possible that since the yigǫ makes a loud rattle sound, it was used by women in camps when they were alone. Certainly, the weta de tłı was used by women. As one young woman said, "I remember my mom sitting in camp and if she saw a caribou, she would rattle this big bundle of caribou antlers to draw the caribou towards us."

ACQUIRING THE KNOWLEDGE

During one of the later interviews, Sally Anne Zoe asked how their ancestors first learned about using movement and sound to redirect the caribou.

> *[their ancestors did not have guns or skidoos] … so how were they going to kill an animal? … they observed the animals. They used their minds. And they found ways to survive on the caribou. I know this from listening to [the stories of my ancestors]. (Romie Wetrade, 03/16/95)*

The elders stressed that by watching the caribou their ancestors learned that the caribou are social animals who like to be with each other during migration to and from the north. They also like to be together in the barren lands. But they move in smaller groups when they winter among the trees. Caribou choose a leader and the other caribou follow the leader. So, if the leader goes into the kwį̀ , so will the others. They also noticed that the caribou had a hard time seeing in the spring due to a combination of snow blindness and seeing double because of the heat waves. And that they are attracted to the sound of antlers knocking against each other.

Elder Amen Tailbone asked his own questions about why caribou might move through a nǫtsı̨à under certain situations.

> *A caribou, if we chase a caribou, even if there are clothes hanging, it will wander past. … it does that too. Even so … in late summer some caribou wandered to where there was a point. It was a point with a short portage and there … we canoed ashore, and at the point where there were caribou, and there, they were about to go into the water, so we walked towards them. … but then at the point we noticed some caribou jackets, blankets, and things like that which were hanging. About six [items] that had straws sticking out of them and they appeared like they were people standing. Despite that, the caribou ran ashore. We shot at them so the caribou ran ashore.*

> *… the caribou ran in between them and that's how it was. I know for I saw with my own eyes and that's what I'm talking about. I don't talk with uncertainty. What do you make of the information anyway? (Amen Tailbone, 03/10/95)*

This statement seems to mean that Amen Tailbone was telling Sally Anne Zoe that to understand the caribou you have to ask questions when they behave in a way that you do not expect them to behave. Why were they acting in that way? He was also explaining to her that movement does not seem to work as well in the summer as in the spring when the snow is bright.

Another example of this is when Amen Tailbone explained to us that the caribou are currently traveling in a wide arc to the west, away from the ice road.

> *Why do you suppose they are doing that? Because of the traffic on the ice road. This year there are a lot more big trucks for the diamond mines. So, the caribou will probably not come close to it. it looks like they are making a big arc. (Amen Tailbone, 03/30/95)*

As Amen Tailbone demonstrates, that becoming and being knowledgeable involves using it information for solving problems, and provides baseline data with which to make predictions and hypotheses. He also stresses the importance of observing and questioning when you see something that does not make sense or is not consistent with past behaviour.

SUMMARY AND CONCLUSION

Historically the Tłı̨chǫ used sound and movement to redirect caribou to specific locations. But caribou were not redirected to keep them safe, as in keeping them away from pollutants, tailings ponds, or large open-pit mines. Rather, the caribou were redirected towards an area where food, clothing, and tools were secured for the Tłı̨chǫ by harvesting as many caribou as needed.

Knowledge about caribou behaviour and how to move the caribou into particular locations has been remembered and transmitted to the next generation through oral narratives. The techniques used were not designed to change the migration routes, but to redirect the caribou away from one spot on the caribou trails to a more desirable spot for snaring or hunting. Decision-making included all members of the group and was never left up to one or two individuals.

Based on this preliminary evidence it appears that a management technique could be developed using sound and movement to keep the caribou away from past, present, and future mine sites, or any other undesirable or polluted area. Based on the statements made by the younger elders, that they are now learning from the very oldest members of their community, it appears important to have the very old involved in the design and decision-making process concerning caribou management.

Sally Anne Gon *was born in Behchokǫ̀ where she attended school until the family moved to Gamètì when she was thirteen. A few years later, she was a resident at Akaitcho Hall and attended high school at Sir John Franklin. Sally Anne also attended Academy of Learning where she took accounting. In 1993, when Gamètì elders initiated what came to be known as the Whaèhdǫǫ̀ Nàowoò Kǫ̀, Sally was asked by Gamètì elders to work as a researcher because she cared about the past, was considered an excellent listener, and she understood the importance of becoming knowledgeable by experiencing life and by what she had heard through Elders stories. As a community researcher, Sally Anne helped document, to name a few projects, Elders' knowledge on traditional governance, carıbou migration and the state of their habitat, impacts of the Rayrock Uranium Mine, and placenames as biogeographical indicators. Sally Anne was the first ın a Tłı̨chǫ community to enter many of Tłı̨chǫ placenames into a GIS – MapInfo. Sally Anne now lives in Yellowknife wıth her husband Bobby Gon and their three children.*

Allice Legat *is an anthropologist has made the NWT her home and worked wıth Tłı̨chǫ since the early 1990s. She completed her doctorate in Anthropology at the University of Aberdeen, Scotland and her post-doctorate at Trent University, Canada. Allice is interested in how the past informs present decision-making, especially in relation to the environment. Allice has been principal investigator on a variety of projects that focused on human-animal relations on the tundra, Canadian Shield, and the taiga plain. Most research that Allice has been involved with has been within Mǫwhì Gogha Dè Nı̨ı̨tł'èe. She worked wıth Sally Anne Gon and others on traditional governance (including rules and laws associated with wildlife), relationships between barren-ground caribou migration and their habitat, the impact of Rayrock Uranium Mine, place names, and the effects of climate change on community well-being.*

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The Ten Oh Two Selected Work

Caitlin Scarano and Megan Perra

These three visual pieces ("Each Spine," "Food in the Footsteps of Family" and "Let the Leaders Pass") and their corresponding poems are a selection from a collaborative exhibit, "The Ten-Oh-Two," between Megan Perra (visual artist) and Caitlin Scarano (poet). The exhibit, originally shown in the Bear Gallery in Fairbanks, Alaska in 2021, details a year in the migration of the Porcupine Caribou Herd (PCH) and the herd's intersections with human and other non-human animals through a series of narrative poems paired with visual art. Each pairing represents a different, intersecting aspect of the PCH's ecology.

The "Each Spine" pairing explores how history accumulates on a landscape, specifically how the shed female caribou antlers found in the Coastal Plain of the Arctic Refuge chronicle the history and significance of this region as a calving ground for the herd going back thousands of years.

The "Food in the Footsteps of Family" pairing demonstrates the bond between mother caribou and calf, a relationship of following that imitates the dynamic of the larger herd. While the herd forages where the snow is shallowest, the calf forages in the footsteps of its mother.

The "Let the Leaders Pass" pairing represents the connections between Gwich'in history and culture and the Porcupine Caribou Herd. The title is a reference to Indigenous hunting traditions in Inuit and Gwich'in communities where hunters allow lead caribou to pass before they begin harvesting animals. These traditions informed the "Let the Leaders Pass" hunting policy, which was implemented in the Yukon from 2000-2007 along the Dempster Highway. The pairing reflects the complexities of knowledge in this system, and the desire to live sustainably within it.

* *If you'd like to learn more about our collaborative process, please view our ondemand webinar, "Imagining the Porcupine Caribou Herd: A Dialogue between Wildlife Research, Art, and Poetry," available online at https://www.caitlinscarano.com/caribou-webinar*

EACH SPINE

"And sometimes too around there's some old antlers sticking out of the ground. When they look like they're sticking into the ground, they told us especially not to bother them. Whenever we bother old antlers, I believe it rains a lot because of it."
-Told by Kenneth Frank, Fairbanks, August 7, 2014 (1)

"The antiquity (1,629 and 3,157 cal years BP) of the shed female caribou antlers recovered from the Coastal Plain of the Arctic Refuge, paired with the geography of the PCH calving grounds today[…]indicates that caribou calves have been born in this region across at least several millennia." (2)

Morning full of bog stars. The tundra in her crown.
Each shed marks a birth. Each spine a death.
So tell me, what do you want to keep?
I walked here once, lived this latticework of bones.

Each shed marks a birth. Each spine a death.
I was a child—sickly, hunted. I had a mother.
I walked here once, lived this latticework of bones.
Fear that made a mammal out of me.

I was a child—sickly, hunted. I had a mother.
Death assemblages—female antlers and neonatal spines.
Fear that made a mammal out of me.
Layers of bones, ladder of bones to the center of the earth.

Death assemblages—female antlers and neonatal spines.
Accumulations of mourning.
Layers of bones, ladder of bones to the center of the earth.
Only some of us survived that year.

Accumulations of mourning.
Whole octaves of autumn light. The tundra turns red.
Only some of us survived that year.
Birds migrate south, songs of neither shame nor redemption.

Whole octaves of autumn light. The tundra turns red.
Morning full of bog stars. The tundra in her crown.
Birds migrate south, songs of neither shame nor redemption.
So tell me, what do you want to keep?

FOOD IN THE FOOTSTEPS OF FAMILY

> *"Caribou select areas of relatively shallow snow for winter feeding, and do so on at least two levels: broad area and microsite […] in areas of relatively shallow hard-packed snow, which is easily fractured into slab-like pieces, they can obtain access to vegetation with less expenditure of energy. […] At all levels, selection seems to operate toward progressively shallower snow depths." (7)*

Winter cracks from the chrysalis of autumn.
The earth will ask a question. The sky
will answer in snow.

A calf follows a path he was created for.
Born in late May, sheltered
by coastal plains. Bears, wolves, and golden

eagles eyed the watched-over calves.
Predators swamped with options.
Bonds blossom in calving grounds. He grew thick

on fat-rich milk. Protein hummed
through his body. Everything energized.
Winds off the Beaufort Sea shielded him

from the mind-numbing buzz
of mosquitos. Then, bots and warbles.
The dizziness of the herd's dispersal.

By fall, the whole world is movement.
He swims in single file lines across torpefying
rivers. Makes for wintering

grounds. Marches through the chaos
of rut. Seething scents, sounds
of aggression and arousal, his future.

But all that can wait.

His mother hoofs through snow
for bits of lichen, symbiosis
of fungi and algae. Gentle, her mouth
on the strands.

By now, he knows to mimic the gesture.

LET THE LEADERS PASS

A burning haibun, a form by torrin a. greathouse

"The Gwich'in and the Porcupine Caribou Herd have had a spiritual and cultural connection since time immemorial. Our identity is non-negotiable, we will never sell our culture and our traditional lifestyle for any amount of money." -Bernadette Demientieff, Executive Director of Gwich'in Steering Committee

Early autumn. The river will soon curl into ice. The light changes the angles of everything. When the first caribou come, the people let them pass. A procession of antlers across the fall-stunned tundra. Smell of rotting cranberry and wildfire on the wind. Termination dust on the hills. To survive is not noble, it is simply the work of living. Consonance of muscles, tendons, and ligaments. Powerlines tensed and untensed. Every micromovement across hundreds of boreal and permafrost-soft miles through winter in a warming world. Swathed by distance, the human imagination boils and blossoms. Can we live in a way that lets the landscape reveal itself? Can we live in a way that encourages what we value to return? Snow, knowledge, years– it all accumulates. The caribou graze and gather in the muskeg forests. If you could see it from above, the earth marked by trench lines, deep trails like scars through this drainage, the next drainage, and on and on. If you could see it all from above, you'd know they will cross every winter-haunted river in your mind, even if they cannot touch the bottom.

[redacted] autumn. [redacted] will [redacted] curl into [redacted] light [redacted] the angles of everything [redacted] the people [redacted] A procession of [redacted] [redacted] rotting [redacted] [redacted] hills. To survive [redacted] [redacted] is [redacted] the work of living. Consonance of [redacted] [redacted] Powerlines [redacted] Every micromovement [redacted] permafrost-soft [redacted] in a warming world. [redacted] [redacted] human [redacted] boils and blossoms. Can we live in [redacted] [redacted] the landscape [redacted]? Can we [redacted] [redacted] value [redacted] Snow, knowledge, years [redacted] The caribou [redacted] gather in [redacted] [redacted] you [redacted] the earth marked by [redacted] scars [redacted] [redacted] on and on. [redacted] you [redacted] [redacted] winter-haunted [redacted] your mind, [redacted] cannot touch [redacted] bottom.

Originally from Southside Virginia, ***Caitlin Scarano*** *is a writer based in Bellingham, Washington. She holds a PhD from the University of Wisconsin-Milwaukee and an MFA from the University of Alaska Fairbanks. Her second full length collection of poems, The Necessity of Wildfire, was selected by Ada Limón as the winner of the Wren Poetry Prize and recently won a 2023 Pacific Northwest Book Award. You can find her at caitlinscarano.com*

Megan Perra *is a wildlife biologist and visual artist originally from Portland, OR. She has an MSc in Wildlife Biology from the University of Alaska Fairbanks, and a graduate diploma in Visual Journalism from Concordia University in Montreal. She is currently pursuing her PhD studying caribou movement ecology at the State University of New York - College of Environmental Science and Forestry. You can find her online at @feral5creativeco.*

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Gwich'in Magic

Cynthia Pavlovich

A version of creation story says that at one time the Gwich'in and the Caribou were one. Not two separate beings, they became relatives and made an agreement. The land would sustain the caribou and the caribou would sustain the people. They would each keep a piece of the other's heart within themselves. In that way their lives and well being would be connected forever.

Once upon a time there was a little Gwich'in boy who was ready to start school. Like many children he was worried and anxious to leave his mother and home that was his safe place all his life up until now. When he went to school he would miss his mother, and feel very alone, so much so he just didn't want to go to school. So his mother, the clever woman that she was, thought up a way to keep them connected. She had a heart tattoo on her heart, and so she told her son the next, I have a plan, today I will draw a heart on your chest, the same as mine, on the left side of your chest, closest to your heart. Today I will draw a heart on your heart, the same as mine, on your left side of your chest closest to your heart. So she took out a pen and drew a small red heart on his chest in the same place as her tattoo was located. Then she explained to him: "We are connected always, I created you from the love I have within me and our hearts are tied to one another. When I place my hand on my tattoo, I can speak into your heart and I tell you many times a day, I love you, I believe in you, I miss you and will see you soon when I come to get you at school". The young boy answered back, "Yes, Momma, I can hear and feel your love right now."

"So," she continued, "You now have the special tattoo on your chest, so when you miss me you can put your hand over it, close your eyes and speak directly into my heart and to me, and I will always send that love right back to you. This is Gwich'in love magic, and it's the most special of all. It is powerful, it is ancient, and it can heal and protect you." So the little boy went to school and made it through the day, using his love magic to build his confidence and brave his first days of junior kindergarten in the catholic school.

Gwich'in magic is something I have told my children I possess. It's how I know when they are out of their beds. It's how I know who took the cookies or threw the toy out the window even without seeing. My youngest Gwich'in son used to try to say he was too scared to go to bed, or sleep alone in his bedroom, he was afraid of shadows. Of what could be under the bed. So I tell them no ghosts, or boogie men, or bad guys of any kind are allowed to come to our home. Nothing bad can happen here, because I use this Gwich'in Love Magic, and I use it to cast a spell over our entire home, yard and driveway so nothing bad can ever happen or no monsters can come here. There are never spirits in our home, nor monsters under the bed as they cannot even enter our protected area. But for little boys who don't want to go to sleep, there's a cousin, he's a big wolf, and he walks around at night, and if children do not go to sleep, then they must go to work. The big wolf will walk by, and collect those children who don't want to sleep, take them out on the land and make them pick garbage, or recycling and help to look after the earth which is our duty always. Or go help do chores for elders. And wouldn't you know it, that sweet little boy magically feel asleep unafraid of anything, and protected by the ancestors and the love that had for generations created the resilient Gwich'ins we see today.

Cynthia Pavlovich *is deeply rooted in Gwich'in values, As an intergenerational residential school survivor, Cynthia has found a unique way to connect her identity to her culture and strives to learn more and share more each and every day. A lifelong goal of her's is to learn Gwich'in and help to preserve it for future generations to come and she has been blessed with a spot in the Mentor – Apprentice Program to learn Gwich'in and now passionately writes children's books in Gwich'in translated into English & French.*

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Caribou Stories

Herman Gahdële

With support from Jess Dunkin and Anneka Westergreen

I

In the old days, people travelled all the time, following ɂetthën (caribou). Even though they followed the caribou, they didn't always have caribou. When there was no caribou, the people went hungry. Some starved. So they were always moving and looking for caribou.

Caribou make people move. They also make people happy. Even seeing one caribou track is like Christmas.

When ɂetthën start migrating, nothing stops them. Not bad weather, not anything. My granny told me that one year the caribou crossed Tu Nedhé (Great Slave Lake) from Bennie's Bay on the north shore of Tacheé Tłʼáázį (McLeod Bay) to Łétʼa Chogh (Shelter Bay).

Caribou can walk on thinner ice than people. Sometimes hunters will follow them thinking that if the ice can hold the caribou, it can hold them, but it can't. People have lost their lives like that.

If you come across caribou migrating, you don't bother the first ones. You let them go by because they are the leaders–they are usually two or three days ahead, making the trail for the others to follow–and you know there are more than enough that are coming behind them.

The people know when ɂetthën are coming. The elders know ahead of time if they will be earlier or later. They make sure they are in the right place at the right time. They don't have radar, but they know. There are other things that tell them, things like rabbits and ravens and fire and fish. This is knowledge that is gathered over time. It goes a long way back, from when the people first tasted caribou.

There are a lot of different signs. If you check your rabbit snare and there's nothing in it, but there are rabbit tracks just on one side of the snare, where the rabbit sat down, it means the rabbit saw the shadow of the snare and caribou is on this ground. That's a sign caribou will be in this area this winter.

Fire too will give you signs. Sometimes it will make different sounds, like a whistle. When my grandfather heard that sound, he would clap his hands and say, "Hey, hey, we're going to have fresh meat tomorrow." He saw that fire and he was just happy. That's why we always make offerings to the fire.

Wolves give us signs. If there are caribou coming, wolves will scratch the ground and piss. If there are people around they will make a certain howl. This howl makes people happy because it means caribou are coming. The wolves will also be happy and jump around.

Fish let people know that caribou are nearby by turning red, like blood, on the outside. If you've been putting nets in the same spot for a long time, you will notice the change in colour and you will know that something is going to happen in this area.

Some hunters say that if you shoot a ptarmigan and it runs wounded, leaving a blood trail, that means a caribou blood trail will come along here.

Ravens also help hunters. If we are out on the tundra and we see a raven, we stop to look at it and see what it does and where it goes. If it does somersaults and then flies over there, you need to follow, to see what's there.

There are other things too that happen when the caribou comes. Pregnant women experience things that tell us about the caribou.

This one time, my grandfather told me about the caribou.

Back when there were many, many people in our nation, they noticed the caribou did not come at their usual time. People started getting worried.

The people asked this old man who had supernatural power. He did this kind of thing, looked for things. He said, "Okay. I need a witness, people to come into my teepee. These people cannot be laughing people (people who laugh easily) because they cannot make a sound while they're watching me. It might disturb or hurt me during the ceremony." The people had to watch him because he would be travelling in the spirit world and did not know. This kind of person has a sacred drum in a really fancy bag that they only take out for ceremonies.

The old man started drumming. He is on a journey. He is gone, he is flying. He is looking. He runs into a fox. Owwww, ow, ow, ow. The witnesses inside the teepee know that he saw a fox. "Hey, he passed a fox," they say. "He's still travelling yet." Now he sees a raven. Cuuu, cockaloo, goo. "Hey, he saw a raven. He's still on a journey." Owwwwww, owwww. "He saw a wolf."

When he was telling the next part of the story, my grandfather would put his head down and make caribou sounds. Ugh, ugh, ugh. "Hey, he saw caribou," said the witnesses.

Then the old man went back to the teepee. He took his drum and put it back in the bag. And the witnesses said, "Setsíe (Grandfather), where is the caribou?" And he said, "Ptarmigan River."

That night the witnesses went home around evening time. When they got home they had a good laugh about all the sounds and actions they witnessed in the ceremony. It was so funny to see. By morning the people had fresh caribou. The young people went out to hunt and were home before dawn.

Holy smokes, they were powerful! No machines, no nothing. All they had was manpower, canoes, their legs, and packing. Then the people were happy.

These are all my grandparents' stories.

My grandparents are Jondis (aka John Baptiste, or J.B.) and K'ílí Mar (Marie). They are my father Pierre Catholique's parents. My grandfather's dad was Gahdële (single name). My grandfather was married in Deninu Kų́ę́. The Catholic priest made him take a surname. Catholique is a mispronunciation of Gahdële. Gahdële was known as a powerful medicine man. My great-grandmother is Deshulynn. She was known to hunt caribou by

snare and spear while wearing a handkerchief and a skirt. My late Uncle Eddy Catholique witnessed this as a child. We always said that that kind of action would make a good movie. Gahdële's grave is at ʔedacho Kué. I believe Deshulynn is buried in Łutsël K'é. I met her as a young child. She was blind and knew me by feeling my face.

My grandfather told me we are Denesotine people. (I'm not sure how to spell it but I think it has to do with the word sátsané, which means steel.) We are distinct from our relatives, the Dënesǫ́łıné people, in Saskatchewan. We share a language, also known as Chipewyan, with some differences.

Our people used to be 250,000 in the treeline area, now known Kaché, ʔedacho Kué, and the Thelon River area. In the winter all the families were spread around our people's territory. In the spring time everyone would move to the place where Łutsël K'é is now for the whitefish and ciscos. Before it was a formal settlement, it was one stop on the nomadic path.

One year Gahdële and the men of four families traveled from ʔedacho Kué towards Łutsël K'é by dog team. People knew by the season that they would be coming soon for supplies, so they were expecting him. One person waited on the trail for the travelling party and said, "Don't come here. Everyone is sick here. Turn around and go." They went back to their families at ʔedacho Kué for the summer and another winter with no supplies from the traders.

The next summer they went back to Łutsël K'é and all they could see were many falling down tents and skeletons. There were skulls on the shoreline. It looked like people were going into the water. There were already katina (white people) there working on things. They went to Nunalá Kué. There had been a big family there, but now there was only one old lady from the Clozie family, who was alive. That's how powerful she was.

That's how my family survived the epidemic. That's how we're here giving you stories today.

Gahdële and my grandfather never had a bank account. Instead they had skills and knowledge. They had the food that the land provided. They had the skills to provide for their family and all the other families. Not only was he doing that, all the other families were too. Money wasn't needed at all. All they needed was caribou meat to be shared with all the families. People travelled by dog team, sharing meat and sharing information. Every few years you would get an update on your people. They never had money but they lived like real human beings. If you had a fat caribou, you would have a good woman.

Today my people are based out of Łutsël K'é. We still go to where the caribou are in this area to harvest and spend time on our homelands.

My grandparents raised me, protected me. They loved me, and they were my teachers. I have their legend stories today.

II

I know a lot of stories about ɔetthën. I heard many of these stories from my grandparents. Their lives were spent following the caribou. Every season, they moved. There was no trapping then. They just followed the caribou by canoe and by dog team.

Artillery Lake is known in our language, Dënesųłıné yatıé, as ɔedacho Kué, the lake of the big caribou crossing/migration. The caribou cross through the lake, which is why we call it ɔedacho (big crossing).

These crossings are seasonal. In the fall time, ɔetthën travel through the southern part of the lake, Desnetche. In the spring time they travel through the northern part, Gaspa Kué Des (Ptarmigan River). We say, "Nelya, they are coming in." In our language nelya is like a great big group, moving non-stop, moving as one.

The caribou come across the lake at ɔedacho, but not for long. For one whole week, all you hear are their hoofs on the ground on that point as one after another they come from the barrens down to the lake. You hear "bum, bum, bum, bum," a great rumbling; and "ongh, ungh," the caribou sound; and the "click, clack" of the antlers, all rattling together. That's what you call nelya! When you say that word my people feel the whole picture.

In the old days, people wait on the other side. They harvest the caribou with canoes and harpoons. They take as much as they can for the winter. They cut up the animals right at the shore and then they put the meat on the shoreline so the water naturally splashes on it, adding layers of ice for greater preservation. The thick layer of ice also blocks the predators, like wolverine, fox, and wolves. Later on in the season, when the people are hungry, they come back for the meat.

On the south east side of ɔedacho Kué near K'ıchı Nué (Crystal Island), there are rocks piled about four feet high in the shape of an S and a U. With the S-rock you can jump on one side or jump on the other side, depending where the caribou are. The people hide between them and use bow and arrow to harvest ɔetthën.

People don't hunt by themselves. They work as a pack because it's hard to hunt. The fast runners chase the caribou towards the arrow man. Everybody knows what to do. Everybody depends on each other. One mistake and they all get hungry.

In the springtime, ɔetthën return to the tundra. We say, nah-us. They are turning, they are heading back.

In the old days, when people gathered twice a year to harvest together, they would also have great activities including drum dancing, hand games, Dene trade, and competitions.

There were hundreds, maybe even thousands of people that gathered at ɔedacho Kué. People from four different directions and nations: Łutsël K'é, Yellowknife, Behchokǫ̀, and Deninu Kų́ę́. There were teepees a long way down the shore on both sides of the esker. My granny said that it was just noisy. The gatherings happened at the two caribou crossings: Desnetche (fall time) and Gaspa Kué Des (spring time).

The competitions happen after the harvest, when there is lots of meat. My grandfather and others have big bundles of dry meat and fat, the meat made by their wives, mothers, aunties. They take the bundles way out. People line up on both sides of the esker to watch the competition. Using a bow and arrow, you get one shot to try and reach the bundles. If your arrow wobbles while it's flying, people laugh. But if it travels smooth and

straight, they know there is a good person behind that arrow. They say, That guy knows what he's doing. The closest arrow to the dry meat takes it all home.

Afterwards, the people start moving, spreading out to different places across our homelands for the winter (and for the summer). And then it would be silent again. This is what the caribou does to the people, makes them move, makes people happy and healthy and joyful.

The main road starts at Ekethacho (long portage) and spreads out into the tundra. People know where everybody is because they talked about it during the gathering. This way they can share meat if needed. The fall time gathering spot is where the Łutsël K'é people still gather today at Desnetche.

When the people hear the first thunder on the esker at Gaspa Kué Des, the whole nation yells. They put their arms up with fists clenching strongly and with their whole heart they yell, "Marsi choooo!" It means I made it through the cold winter with my family. Some cry because not everyone made it. They grieve for those who were lost. The yell means I'm happy I made it here today.

III

My granny told me stories about caribou all the time. Some of these stories—the Tom Thumb stories—were short little stories. When I was a boy, running around playing, my grandparents would say, "Hey. Come sit down and listen." They would tell me a short story or a long story and then say, "Okay, you can go again now."

In the old days, when caribou went past, sometimes the people would hear a baby crying. They would go out looking for it, but they couldn't find it, couldn't find what was crying.

One time, an old lady said, "Let me know the next time you hear it and I will go looking for it." The next time the people heard it, one of the young boys came to the old woman and said, "I can hear a baby."

So the old woman took her cane and she began walking, following the tracks of the caribou. She walked and walked and walked. And eventually she saw little Tom Thumb sitting in a caribou hoof print.

The old lady picked him up, put him in the thumb of her mitts, and brought him back to the people. The people looked at him and they saw that he came from caribou.

The old lady tried to give Tom Thumb away, but she couldn't. He would start crying or grieving.

She tried to give him away a few times, but it didn't work, so she kept him.

Little Tom Thumb could kill caribou. He would go into the caribou's nose and blood would shoot right out. Because Tom Thumb came from caribou, there was no problem with him killing caribou. He could kill caribou any way he wants.

That is one of the stories that I was told. This is another.

Every season, the nation would wait for the caribou to go by. One year, the caribou never came, so the people went looking for them. They found a trail, four feet wide, going straight south. There were no tracks on either side of the trail.

Tom Thumb said to the old woman, “We are going to camp here,” pointing to a small pond, “and we’re going to put nets in the lake.” He told granny to make a net out of a willow and set it in the pond. He caught a big jackfish. He said to the old woman, “We’re going to cut this up and then we are going to keep following these people on their journey as they search for caribou.”

I didn’t get any more details about what happened but I bet they ran into the caribou, haha.

Herman Gahdële *is a proud Denetsot’íne and member of the Łutsël K’é Dene First Nation. Herman grew up on the land in Thaidene Nëné, following the caribou. He did not go to English schools. Instead he gained expertise through “Dene university,” learning the survival ways of life with his grandparents, parents, uncles, and aunties, and the Elders of his community. Herman and his people continue to speak their language, live and travel on their lands (and Tu Nedhé), live with their sacred sites, make and enjoy ʔegëné (dry meat), laugh, share legend stories, harvest and cook on the fire, heal with land-medicines, and share Dene knowledge for the generations to come. Herman’s paid work includes trapping, health centre janitor, translator, x-ray taker, TB eradicator, and diamond miner. Since 2015, Herman has provided data to Ni Hadi Xa, a program monitoring the health of the land around Gahcho Kue mine.*

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Caribou Response to Wildfires

Geneviève Degré-Timmons and Emmanuelle Gendron

This artistic creation has emerged from an unexpected collaboration between a PhD candidate, Geneviève Degré-Timmons and a professional artist, Emmanuelle Gendron, where they explored the synergies between natural science and visual art to translate complex ideas into a cohesive science-inspired painting. This artistic pursuit represented an opportunity to help develop scientific imagination and to explore ways to enrich science communication.

In the Northwest Territories (NT; Denendeh), it appears that caribou (Rangifer tarandus caribou; tǫdzi in Tłichǫ Yatìi and mbedzih in Dene Zhatié) are selecting recently burned areas (1-10 years post-fire) and avoiding older (11-30 years) regenerating forests in the summer [1]. This raises the questions: Why are caribou using these early post-fire habitats; why and when do they cease to them; and does it increase their vulnerability to predation? To illustrate these research questions, Degré-Timmons and Gendron drew inspiration from photos taken during multiple field sampling campaigns (Figure 1A-C) and research outputs aimed at assessing post-fire caribou habitat recovery in the southern NT2,3,4, as well as from discussions of their shared experiences and connections to the Canadian boreal forest. Both partners were involved in all stages of the creation process; from jointly designing this artwork to producing it (Figure 1A-G).

Figure 1

A) Drawing inspiration from photos taken in a regenerating burn (Photo credit: G. Degré-Timmons); B) Ensuring that the color palette is realistic (Photo credit: S. Hébert); C) Creating a forest succession timeline from photos (Photo credit: E. Gendron); D) Co-producing the painting (Photo credit: S. Hébert); E) Challenging each other to work beyond their usual disciplines (Photo credit: E. Gendron); F) Using mixed media techniques to create a contrasting effect (Photo credit: G. Degré-Timmons); G) Illustrating how wildfires may influence caribou behavior (Photo credit: G. Degré-Timmons).

The painting depicts the post-fire forest regeneration process in relation to caribou habitat use (Figure 1G). Through this art-science partnership, they blurred the boundaries between science and art to co-produce a unique painting about expected caribou response to wildfires (Figure 1D). By gaining insight into the ecological process, Gendron was able to capture the mood and atmosphere of a landscape disturbed by wildfires, while also integrating more complicated concepts in her artistic practice as she guided Degré-Timmons (Figure 1D-F). By collaborating together, they challenged each other to work beyond their disciplines to generate this non-conventional research output (Figure 1E). They also used this opportunity to critically reflect on how working across disciplines can enhance learning and to encourage knowledge sharing. They view art as a useful tool to create emotional connections and convey the complexity of environmental change.

Geneviève Degré-Timmons *(she/her/elle) is a white settler who is grateful for the opportunity to conduct research and to participate with on-the-land camps in the southern Northwest Territories. She recognizes the importance of reciprocal and meaningful knowledge sharing. She lives in the Eeyou Istchee/Bay James regions (Québec), where she is pursuing her graduate studies remotely. Geneviève has a BSc. in Biology from the Université du Québec à Rimouski, a short graduate certificate in Geomatics from Université Laval and is currently pursuing a PhD in Forest Science at Université Laval.*

Emmanuelle Gendron *(she/her/elle) is a visual artist native of Longueuil (Québec). She currently resides in Chibougamau (Eeyou Istchee/Bay James regions), Québec. She describes herself as an artist-educator as she believes in the arts as a means of communication for a healthy society. She was recently awarded the Conseil des arts et des lettres du Québec – Artist of the year in Northern Quebec prize.*

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Caribou Hunting Stories and Sustainable Co-living

Shahidur Molla, Angelina Jerome, Joyce Conley, Jesse Israel, and Austin Van Loon

ABSTRACT

This work was created by students at East Three Secondary School in Inuvik, NWT, as part of the Experiential Science 30 course.

INTRODUCTION

Caribou (Rangifer tarandus) are large, hoofed animals of Holarctic taiga and tundra that belong to the deer family and usually have palmate antlers in both sexes. Caribou and reindeer are the same species. From hooves to the shoulder, male caribou typically grow between 2.3 to 4.8 feet. They are around 5.9 to 6.8 feet long. Larger male caribou can grow more than 3.9 feet tall. Males weigh between 143 to 529 pounds. Larger male caribou can be heavier than 550 pounds. Female caribou are smaller than males and grow between around 5.5 to 6.2 feet long. The weight range for female caribou is between 121 to 308 pounds (Afroz, 2022).

Caribou neck, mane, underbelly, rump, and hoof patch are creamy white in all seasons; however, the brown summer coat of the rest of their body turns greyish in winter. Caribou have thick fur coats to protect them from the cold harsh winters. Caribou hooves help them to walk through deep snow, tall branches, and soft ground; throughout the fall, the hooves grow sharp thick edges to break through ground ice in search of food. The caribou fur coats of the woodland caribou vary from white Peary to dark brown. The coats are dense with hollow hairs, which keep them warm in extreme cold weather conditions. In the Northwest Territories (NWT), there are five different subspecies of caribou. These include the Peary caribou, Dolphin and Union caribou, Northern Mountain caribou, Boreal caribou, and Barren-ground caribou (Environment and Climate Change, 2023c, 2023a). Peary, Dolphin, and Union caribou live in the northernmost, on the Arctic islands, and the mainland. The Northern Mountain caribou live in the Mackenzie Mountains, and they make seasonal migrations between the higher ground and forested areas in lower altitudes. Boreal caribou live in the boreal and taiga forest, and they move around but do not migrate seasonally (Environment and Climate Change, 2023a). Barren-ground caribou make long-distance migrations from wintering areas to summering areas north of the tree line (Environment and Climate Change, 2023b). The spatial distribution of the subspecies in terms of ecology is shown in Figure 1. Among all subspecies, the Boreal caribou are the most abundant and widespread subspecies in the NWT.

People co-exist with the land and wildlife across the Northwest Territories. Caribou are extremely popular in the NWT because they travel in large herds, which makes it easier to hunt. Most Indigenous people have a strong connection to caribou for their traditional living and healthy diet. Caribou also hold important spiritual and cultural significance to the Indigenous people who harvest them. An Indigenous elder, Albert Elias, explains the relationship between Indigenous and caribou. For instance, he mentions that Tuktoyaktuk was known as Port Brabant after British colonization; and in 1950, the Indigenous people reclaimed its traditional name "Tuktoyaktuk", which means caribou or resembling a caribou. It is particularly important for the people living in NWT to conserve caribou habitat and ecological balance.

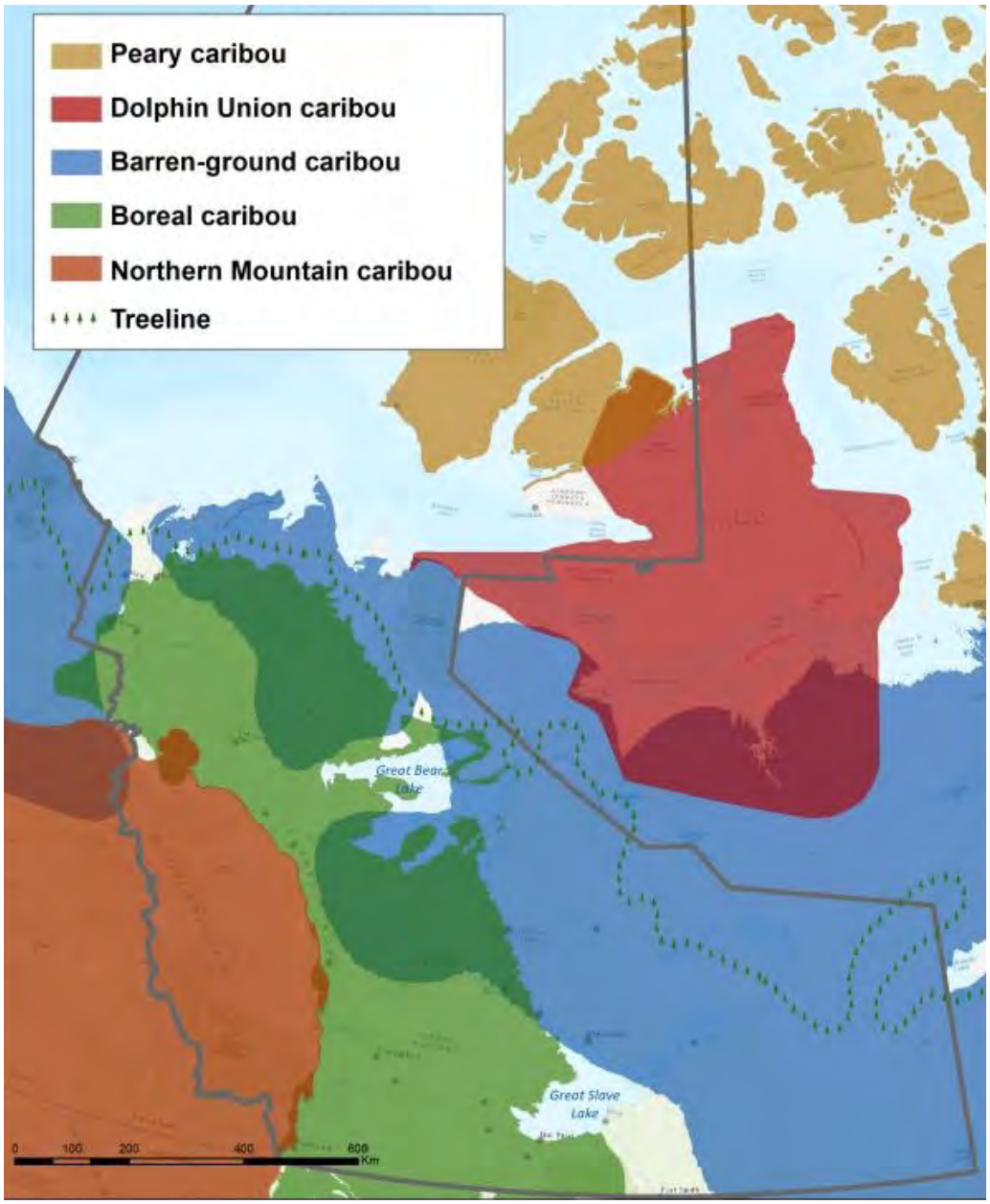

Figure 1

Ecological types of caribou in the Northwest Territories. Map by the Government of the Northwest Territories department of Environment and Climate Change.

CARIBOU HUNTING STORIES OF THE INDIGENOUS COMMUNITY

Since ancient times, caribou contribute to the lives and cultures of Indigenous Peoples in the Northwest Territories. The caribou have always been a great friend to the Inuit. They believe caribou are not only living on their land but also appear to them as a spirit. Some Indigenous communities believe that if they do not show respect to the spirit of caribou, it might become harmful to them (Alaska Extreme, 2023).

Caribou hunting has been in the Indigenous culture for decades, which play social and spiritual roles in maintaining kinship and community relationships (Viswanathan, 2023). Spears have traditionally been used to hunt caribou. The hunting nature has changed in recent years. The authors narrate their recent caribou hunting experiences with photographs or stories shared by their elders. The first story gives a first-hand account of Boreal caribou hunting with a family member near the Dempster Highway along the NWT and Yukon border. The other two stories are about Boreal caribou hunting at Aklavik, a hamlet located in the Inuvik region of the Northwest Territories.

STORY ONE

Elders in the Inuvik Native Band are always telling us to let the leaders of the herd pass first before we shoot the caribou for food. Every year as I am growing up, I see my father getting ready for caribou hunting. Every year I ask if I can go for caribou hunting with him and he always says “No”. However, there was one time my father let me go with him. I was eager and excited the night before the hunt. I spent that evening gathering things to be needed in the morning, such as, my hat, gloves, wind pants, jacket, warm socks, etc. On the day of hunting, my father woke me up early in the morning to eat breakfast. Before we left, my father picked up a bag of bannock from a friendly elder, saying “bannock is always good for the road, it keeps you full for a long time.” We left home, travelling along the Dempster Highway. As caribou herd migrate down their routes, they pass through the Dempster Highway. It usually takes about six hours of driving along the Dempster from Inuvik to reach the passing point of the caribou, and longer if the caribou is away from the highway. Driving the highway for six hours is usually long, but it is good to spend time with my father as he is always cheering.

As we passed the Northwest Territories and Yukon border, the clock moved back one hour. We were getting closer. We continued to travel down the windy road past the hill. On both sides of the road, it is an open valley before the mountains. My father instructed me to keep a lookout for caribou. Since it was my first caribou hunt, I asked my father so many questions about hunting. I wanted to know how long it will take to harvest a caribou, how to tell the age of caribou, and how does one feel when harvesting a caribou. He told me, it takes time to harvest a caribou since we are providing for our family. He explained that we must shoot a cariboo, skin it, cut it in parts, and haul it to the truck. He said, it is quite an experience. As my father and I were talking, he yelled “CARIBOU” and stepped on the brakes making me fly forward. At that moment all these happy, exciting, and scaring feelings hit me, it happened so fast. The next minute, I saw my father on the road pointing his gun at the caribou and heard a loud BOOM! He then reloaded the 230 and again, BOOM!

Figure 2

Boreal caribou hunting near the Dempster highway along the NWT and Yukon border (Photo Credit: Joyce Conley)

My father's facial expression was glorious when he saw the first caribou drop. He knew then that the family was going to eat well for the rest of the season. I jumped out of the truck and seeing my father's smile so big made my heart warm. His satisfaction was reflected by raising the hands up in the air and yelled "HELL, YES BABY, we got our food for the season." We both breathed heavily and got a drink of water. We then got the knife bag, meat bag, and sled out of the truck to use to get the caribou and harvest it. I cut the throat of the caribou (Figure 2). It was a Porcupine or ecotype of barren-ground caribou (Wikipedia.org, 2023).

STORY TWO

When Inuit spend the winter inland, they would start to leave the coast towards the beginning of September to go for the hunt. The weather is usually cooler by this time. The warble flies are gone and therefore, the meat is free of warble fly larvae. Caribou skins are at their best, too, as the hair is neither too thick nor too thin; they are at a perfect stage for making clothing and the skin texture is free of blemishes (National Park & Preserve Alaska, 2023). Caribou currently are in every way good for clothing and food, and because they are fat the meat is suitable for caching.

Figure 3

Boreal caribou hunting in Aklavik (Photo Credit: Angelina Jerome)

During nomadic times when Inuit men hunted on foot, they would sometimes leave their coastal permanent camps for some days to hunt caribou to get skins for clothing and to cache (i.e., store away the meat in a hidden place for future use (YouTube CA, 2023). The men who hunted caribou specifically to cache meat would select an area where there were rocks suitable for building the cache. There were several ways of caching meat. For example, after the caribou was skinned, one way was to leave the guts intact, although the head and legs were removed from the carcass. This kind of meat carcass was not cut up much. One had to puncture the belly with a knife to let all the air out. When the caribou was skinned, the hunter selected a suitable place and removed the bigger stones from the surface to form a hollow in which to place the meat. It was even better if, at the bottom of the hollow, where the meat would be resting, there were all medium-sized stones, to allow plenty of space for air to circulate once the meat was covered with stones. The hunters also had a way of making the cached meat to get at during the winter months when everything is frozen solid to the ground. According to one of the elders, the technique was, "before laying the meat in a hollowed-out spot, place a flat stone directly under the chest of the carcass. This is so the meat would be easier to pry loose when it was pulled from its place".

When it is a big hunt, twenty or more hunters are expected to go together, but at times there are only up to six people going for the hunt. There is not a lot of community hunting, but friends and family go together. There can be upwards of 20,000 caribou travelling together. As we saw the caribou, we followed and shoot. We separated the gut of the caribou by cutting and taking out the stomach, intestines, and colon. Then we loaded the rest part of the caribou into the toboggan and hauled it back into the town. Bringing the caribou back home, we skinned the fur, cut off the head, removed the entire skin from the meat to keep the meat clean, cut the antlers, cut off arms and legs, and started cutting off all the meat into pieces. It is observed that Inuit people of our community may save the skin and fur, and stretch it and use it for sewing or art.

Many Indigenous hunters still harvest caribou for the community and their families. The hunting stories I heard from my elders confirm that the caribou have always been important to the Inuit. Caribou provided food, shelter, clothing, tools, implements, and games. Clothing made from caribou skins are the warmest for northern winters. Hunting caribou is still very important to Indigenous people of Canada. I am fortunate enough to have many hunters in my family, including my uncles, father, and a brother. They hunt caribou in the Richardson mountains which is outside of Aklavik, in the Northwest Territories. The journey to the caribou hunting ground begins by driving from Inuvik to Aklavik by the ice road. Once in Aklavik, the hunters offload the skidoos (snowmobiles) from the trailer and get the food, gas, guns, ammunition, knives, toboggans and ensure they have all the proper winter gear in preparation for the hunt. The hunters then drive into the mountains with the skidoos. It may take 2-3 hours before seeing a herd of caribou. Figure 3 shows pictures taken during a Boreal caribou hunting in Aklavik.

Figure 4

Caribou hunting in the Aklavik Range (Photo Credit: Austin Van Loon).

STORY THREE

In February 2023, it was around -50C in the mountains near Aklavik. With my friends and family, I went for caribou hunting. It was about a one-hour skidoo ride to the hunting spot from Inuvik. When we arrived, there was a herd of hundreds of caribou. We shot twelve and skinned off, gutted, and cut meat in the freezing weather. We used to keep our hands warm inside the animal while working with the caribou meat. It took about 2-3 hours to complete cutting the meat and packing them in the truck. Figure 4 shows pictures taken during our caribou hunt in the Aklavik Range.

SUSTAINABLE HARVESTING

People living in the Northwest Territories could live well with the Boreal caribou by implementing a sustainable harvesting strategy. The Government of Northwest Territories (GNWT), Indigenous governments and organizations, and other co-management partners monitor the caribou population trends in the Dehcho, North Slave, and South Slave and in other regions of the Northwest Territories. According to ECC (Government of Northwest Territories, 2021), adult female survival and calf recruitment rates are measured on an annual basis to calculate a population growth index for increasing, stabilizing, or decreasing patterns. Information collected for Boreal caribou was used to develop population and harvest models by the GNWT in 2019 and to identify where sustainable harvest levels were focused across southern NWT (Rettie, 2020). The models show an increasing population trend of Boreal caribou in most areas of the NWT, and therefore, sustainable harvest can be continued to some levels.

Assuming the absence of any harvesting over 10 years, the Boreal caribou population trend was observed as stable in the Hay River Lowlands and Pine Point/Buffalo Lake areas, but is slowly decreasing in the Dehcho South and the Mackenzie River South (Rettie, 2020). Therefore, any level of harvesting in these areas might contribute to a further declining trend in the Boreal caribou population in the two areas. This information will guide working with co-management partners to conserve and recover Boreal caribou.

CLIMATE CHANGE AND CARIBOU

In the Northwest Territories, humans and caribou have been living on the same land and in the same ranges for thousands of years (Environment and Climate Change, 2023b). The living of humans and caribou in the same areas has made the caribou migrate due to all the constructions taking place on the land. The Northwest Territories has enormous mining resources and exploration of mines, along with deforestation and construction threaten the survival of the wildlife, including caribou. The changes in climate due to greenhouse gases and other increasing human activities are the main reason for the rise in temperatures, and the melting ice cap (National Geographic, 2023).

The Arctic is facing a great problem with climate change and is getting most of the effects of rising temperatures (National Geographic, 2023). The changes are forcing animals to find new places to live because the natural places where they live are being wiped out by the constant and rapid rising water levels (Mahdavi, 2023). In an interview with Canadian Broadcasting Corporation (CBC), Penn State University biologists Eric Post and Jeffery Kerby unravelled the links between sea ice loss, the timing of plant growth on land and caribou breeding. They discovered that as the Artic climate warms, plants are emerging earlier, and therefore, the land becomes less nutritious by the time caribou arrive for the breeding stage and giving birth (CBC, 2013). Therefore, the climate change has made it harder for the caribou to travel to their breeding grounds and is making them change their migration patterns. Caribou have been taking new travel routes, and it is probably traumatizing for them to travel longer distances up to 1,350 kilometers per year and along different routes (Bates, 2019). Climate change is making it harder for the caribou and every species on the planet, including humans, because we are losing land to live on every year. Therefore, climate change affects caribou's traditional ways of eating, breeding, and travelling. Observing the drop in caribou populations, scientists predict that after a million years or so, the caribou will face global extinction (Kylie, 2022).

BOREAL CARIBOU AT RISK

An estimated 6,000 to 7,000 Boreal caribou live in small groups across a large and continuous range, mostly in the intact boreal forest in the Northwest Territories (Environment and Climate Change, 2023a; Government of Northwest Territories, 2021). Caribou are harvested by both Indigenous and non-Indigenous people for food. However, there is limited information available on the total levels of harvest. It is observed that the Boreal caribou declined by more than 30 percent over the last few decades across Canada due primarily to the loss of boreal forest habitat and its fragmentation, including other anthropogenic activities like mining, seismic lines, forest harvesting, and industrial and urban development (Government of Northwest Territories, 2021). It was listed as a threatened species under the NWT Species at Risk Act in 2014, and an NWT Recovery Strategy was prepared to guide the recovery actions (Government of Northwest Territories, 2021).

CONCLUSION

Co-living of Boreal caribou and the Indigenous people of Northwest Territories is hundreds of years old. Caribou hunting is an integral part of the northern people. Caribou meat is the most important sources of protein for the Indigenous people, and they use the skins for clothing and handicrafts, from the past till today. Over the decades, studies show that the overall caribou population has declined in the Northwest Territories for several reasons, including climate change, mining, construction and seismic lines. The Government of Northwest Territories has taken measures to save the land and prescribed hunting models to keep the traditional living practices for a sustainable caribou population. An integrated approach to caribou recovery should begin with listening to community priorities. In land-use planning and extractive industry environmental impact assessment, Canada should collaborate more closely with Indigenous partners and respect Indigenous knowledge to improve caribou conservation planning.

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Co-Authors Angelina Jerome, Joyce Conley, Jesse Israel and Austin Van Loon graduated from East Three Secondary School in Inuvik, NWT in 2023. They worked on this project as a part of their Experiential Science 30 course. Participating in a job fair hosted by Aurora College, this project came to the group's attention and the students worked hard in sharing the Inuit community and their own caribou hunting experiences as well as historical co-living with the animal.

Lead Author Shahidur Molla earned several years of teaching experiences in Indigenous schools across Canada. He is a co-author of a book on nanotechnology and other papers. His current research interests lie primarily in the area of land-based education for the Indigenous students. He completed his Masters of Commerce in Australia under the World Bank Scholarship as well as a Masters of Science in Canada.

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Fate of the Caribou: Studying Caribou and Climate, with Communities

Anna L. Brose[1]*; Megan Perra[1]; Anne Gunn[2]; Eliezer Gurarie[1]; Chloe Beaupre

We sat halfway up a ridge, soggy with rain and cross-eyed from staring at the same bushes for three days. The valley below us, brimming with caribou only a few years ago, was empty. Doing our best to keep dry, we waited. Napping in shifts, we watched. But the valley floor was still except the rain-swollen river churning past.

On the fourth day of waiting to see caribou, I was dozing. Sick of wet feet, cranky because I'd eaten all the blueberries in the radius of our knoll, a nap seemed like a good way to pass the time.

Glassing for caribou on a tundra-covered ridge.

But just as my eyes closed, my friend grabbed my arm, so suddenly and forcefully my first thought was that he was having a heart attack. Alarmed, I followed his gaze and saw a bull caribou running – no, sprinting – down the middle of the valley. My friend scrambled for his glasses while dad and I tracked the caribou through binoculars. The bull didn't slow. Appearing in between thickets of willow, hounded relentlessly by a cloud of mosquitoes, the bull ran so hard his tongue lolled. The bull ran on and disappeared, just as silently as he had come, a ghost. Had he realized we were there or had something else – a distant sound or smell alerted him?

Six days of watching, waiting, praying, and the memory of the running bull was the closest thing we had to seeing caribou. Looking down the valley as we broke camp, I wondered where that bull was going. Caribou readily alter their movement and migration patterns, and a valley full of caribou one year may be vacant the next. But as caribou, landscapes, and their climate change, how will our relationships with caribou be altered?

Already, we see shifts in caribou movements and populations. Some herds that were once as numerous as the stars now dwindle. Their food is changing as warmer temperatures encourage more shrubby growth, but does that shade out the lichens? And what does that do to the mushrooms that caribou so avidly eat? We have already seen how shorter winters alter the timing of spring migration and when caribou reach their calving grounds (Gurarie et al., 2019). Just as the Tłı̨chǫ elders have been telling us, we are seeing the cascading effects of climate change, industrial development, and roads affecting the way caribou move, live, and die.

We are a group of researchers committed to working with Indigenous partners to investigate changes in caribou, grounded in concerns and observations from Elders, hunters, and Knowledge Keepers. With experts on caribou cycles, migrations, soundscapes (what caribou hear), and vegetation mapping using satellites, we use science to further our collective understanding of on-the-ground observations. Our project, called the Fate of the Caribou, while based at a U.S. university, is closely tied to what we have learned from discussions with the Wek'èezhìı Renewable Resources Board, Tłı̨chǫ Government, Government of the Northwest Territories, and North Slave Métis Alliance. We seek to understand shifts in caribou movements, their survival, and how they use their landscapes in the context of the communities that live with caribou.

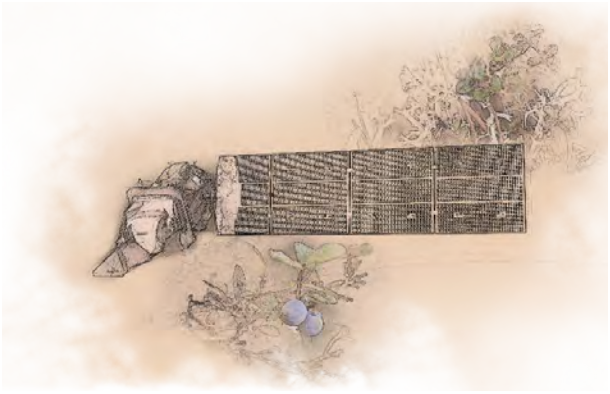
In the Northwest Territories, Elders and hunters know several large diamond mines and the associated roads are disrupting caribou movements and migration. One of our team members is partnering with the Wek'èezhìı Renewable Resources Board and North Slave Métis Alliance to use audio recorders to see how sound disturbance from mining traffic is altering caribou behavior and what the caribou hear.

Roads are also a concern for caribou in Alaska. In Alaska, locals are concerned that a new mining road is causing caribou to not migrate where and when they used to. We are using advanced mapping and computer models to demonstrate those changes, and to quantify how the road is affecting caribou survival. Using caribou movement data, we can show that caribou avoid crossing built-up roads, and may be more susceptible to predation or other mortality events when their migration stalls at roads.

An acoustic recording device, mounted to a post, can be used to monitor sound disturbance (i.e., trucks, aircraft) without disrupting caribou.

We have heard that warming temperatures and melting permafrost are leading to changes in the plant communities that caribou rely on. So we are using satellite imagery and computer programming to map those changes at a continental scale across northern Alaska and Canada. Using those maps, we can explore how caribou are responding to changes in forage availability.

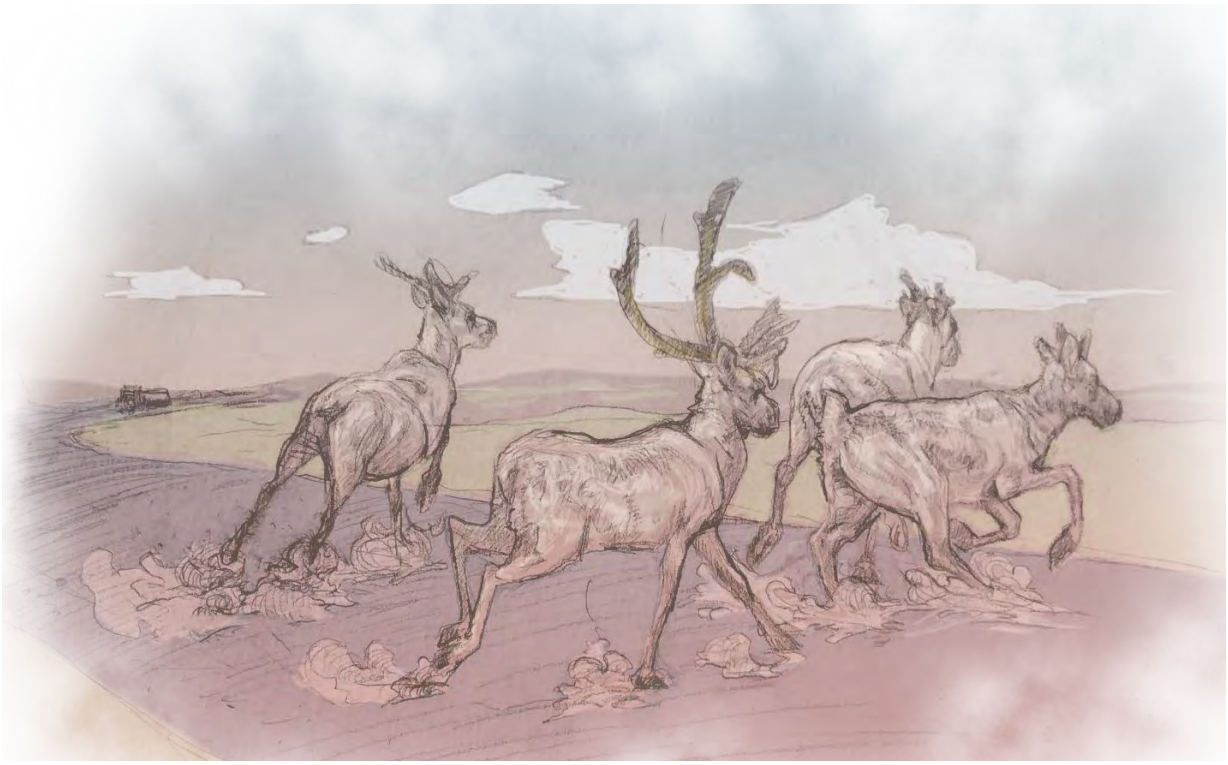
Our partners in the Northwest Territories and Nunavut have raised the alarm that earlier springs and more frequent rain-on-snow events are making it hard for female caribou to migrate to their calving grounds. We are using migration data and weather records to better understand this relationship across the years.



Images taken by the Landsat satellite, drones, and ground surveys can be used jointly to map changes in vegetation across large areas and times.

Understanding the relationships between caribou and their habitat is important from a scientific perspective, so governments and land stewards can make informed decisions. But at the Fate of the Caribou project, we know that those relationships go beyond government reports, and have real impacts on lives, relationships with the land, and livelihoods. We therefore ground our research in the knowledge that caribou are not wildlife to be studied, but the beating heart of the North.

To learn more about our team and work, email us, and check out FateOfTheCaribou.esf.edu.



Caribou cross a road as a haul truck approaches. Sketch by Megan Perra.

Anna Brose: *Anna grew up alongside caribou in Alaska before receiving a bachelor's in Wildlife Biology at Colorado State University. With extensive field experience across the United States, she has worked for several state and federal agencies in various wildlife research positions. She completed her Master's in Wildlife Ecology at the University of Wisconsin - Madison in 2021, where she studied elk habitat use in northern Wisconsin. Anna is a self-taught science communicator and illustrator, and is a wildlife artist on the side. She is affiliated with the State University of New York College of Environmental Science and Forestry.*

Megan Perra: *Megan is a PhD student in the Gurarie lab interested in how biological cues like soundscapes and interspecific vocalizations influence movement decision making in caribou. More simply: Do caribou eavesdrop on the soundscape to help them find good habitat patches? She completed her masters at the University of Alaska Fairbanks, where she studied caribou auditory physiology and the soundscapes of the Arctic Coastal Plain. She is affiliated with the State University of New York College of Environmental Science and Forestry.*

Anne Gunn: *After university in the UK and Ireland, Anne came to Canada to work in the Arctic – a dream realized in the 1970s. She eventually settled down with the Government of the NWT (1979-2006) as the regional biologist in the central Arctic and then the Caribou Biologist based in Yellowknife. Then by 2006, Anne continued with caribou but for aboriginal co-management boards and councils including the Wek'èezhìi Renewable Resource Board and Kivalliq Inuit Association. She is affiliated with the CircumArctic Rangifer Monitoring and Assessment Network.*

Elie Gurarie: *Dr. Elie Gurarie is a professor of quantitative wildlife ecology in the Department of Environmental Biology at SUNY - College of Environmental Science and Forestry. Dr. Gurarie develops novel approaches to understanding complex ecological processes, with a particular interest in animal movements, behaviors, space-use, cognition and links to populations and demography. After extensive field experience studying marine mammals in the North Pacific and wolves in Finland (and dabbling in dozens of other systems), it is now the Fate of the Caribou that keeps him up at night.*

Chloe Beaupre: *Chloe is a PhD student with Dr. Gurarie who's fascinated by animal movement behavior and survival. She's sleuthing the who, what, where, when, and why of caribou deaths in boreal and barren-ground caribou. She holds a dual masters (Master in Environmental Management, Master of Science in Ecology), from Western Colorado University, where she studied a slew of Colorado's ungulate species.*

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Spring Harvesting and Preserving

Johnny Tailbone

My mom usually tells us stories when she's sewing or working on cutting meat or fish for the drying rack. She was telling us about harvesting meat during the spring time when she was young, living with her aunt and uncle at Fabre lake. Her mom died when she was really young so she said she barely remembers her. She had two older sisters, one was sent to residential school and she never saw her again and the other married an older guy and she too passed on. Her father died during the great flu epidemic. She grew up living with her aunt and uncle and later on after her aunt passed on, her and the uncle lived with the son Germaine Tatsia and his wife. She said she learned all the traditional skills from her aunt and Liza, Germaine's wife. When the aunt was still alive they were harvesting caribou during the caribou migration at Faber lake.

The men hunted and brought the caribou meat back with the dog teams and it was a real busy for everyone. There is no end to work: every day meat is cut, even the bone is taken out of the ribs and the short end cut out with a knife for the drying rack and hung to dry and smoked with willows that are still green and the dry one with red inside. The men help with turning and hanging the cut up meat on the rack for drying. The meat is preserved for a long time using willows for flavouring the meat. The weather is getting warmer and the flies are not out yet so it was good for drying meat. The men also hunt for beaver and muskrats and we help with cleaning the skins before the skins are stretched for drying. Nothing is wasted even the ankle bone is saved for tools for scrapping the hides. The sinew from the backstrap is also dried to used as thread for sewing hides. The caribou head is also deboned and the meat is also hung to dry. The brain and the enzyme is extracted out of the skull and the back bones. It is then spread on cut out clothes and dried for using as tanning agents on hides. Whatever is left over is given to the dog so everything it used.

The hair on the hide is first cut off with the knives and the hides are separated. The ones with warbles are set aside for making babiche for personal use or for trading for goods. The good hide with less warbles is used for clothing and moccasins and mittens. After the hair is cut off they used the ankle bone split in half as a tool for scraping the hides on both side. The ankle hide is cut out right to the hoof part and also used after it is stretched and tanned for moccasins . When it comes to the bigger caribou hides, with the hair on them, men stretched and dried them for using as a rug or sleeping on during the cold winter months.

When all the meat is dried and tied together, they are hung to air out as sometimes they get over smoked. Now the bone crushing begins to extract all the grease out of the bones. They used a good surface rock and smashed up all the bones that have been collected and stored in the bags that they keep for saving. The smashed up bone is boiled in a big pail most of the day for grease extracting. The liquid evaporates from boiling and snow from the shaded area is collected and added to the pail as snow water is preferred for good harvesting of bone grease. Once the extracting process is completed they use a ladle or a big spoon to scoop out the grease into a stomach part from the caribou. Once the grease becomes solidified the stomach bag is sewn together for it to stay fresh and not lose its tasty flavour.

While the bones were boiling we simi cooked some dried meat to make pound meat to go with the bone grease a delicacy that elders love. We used a short handle axe and used the butt end and pound the dried meat against the rock until it all soft and fluffy like. They make bags for the pound out of the caribou hide with the hair cut off and the upper part for the closing is white or tan hide with a cut out strip or lace for closing the bag. All this work is preparing for a trip to Rae for the summer and meat will be shared with elders and relatives.

My mom said there's so much dried meat and we left some behind for when we returned in the fall. My aunt said that we have to find an island with muskeg and with lots of moss and build a small wigwam and pull up the moss until the permafrost is visible and placed some dried moss as a flooring and put the packed dried meat in there and covered it with lots of moss for protection from the heat and animals. She said after the summer is over we came back in the fall and the packed dried meat was just the way we left it, still good.

She was telling us this story when we were living at the end of Gameti and lots of caribou were migrating to the west. My sister mentioned that the villagers across must be making lots of dried meat, while we were having some fresh caribou meat given to us by uncle Paul Rabesca. My mom said harvesting caribou is lots of work and they will be fattened up during the spring migration. That's what started the story. Just out of curiosity I asked my mom about the thundering noises that we heard when living below the mountains during the summer. She said it's a big spiritual being living in the mountain called Goojee or Wayadee in Tlicho. I asked how she knew that and she said her Aunt Madeline Rabesca mentioned it in a story one time. Years later I read in the paper about her aunt's interview about how she acquired her gift the lion's medicine power and finally knew what my mom meant when she said Goojee, meaning the lion. Just sharing some of my mom's stories about all the hard work women do.

Men even make dried meat too on the trips to the barren land during the fall hunts long ago. Alphonse Quitte was telling my dad a story about how his dad old David Quitte tanned a moose hide one winter after their mom passed on when living on Hardisty lake and make them all moccasins and mitts . He used the old moccasins and mittens as pattern and just traced them and it was made for warmth even though it had no decorative things like bead or silk on them. Just sharing stories about life back then and it was harsh but the people were happy with whatever the land provided.

Johnny Tailbone *was born on the trapline at Hislop Lake 1953. He and his family lived in tents until they built log houses in Rae lakes in 1965. From 1958 until 1962 he was sent to residential school in Fort Smith. In 1963 he went to Fort Simpson for residential school. His dad, uncle and older brother taught him trapping and hunting living off the land.*

Xàgots'eèhk'ǫ Journal , Vol. 2, Issue 2, (Winter 2023/2024)
https://xagotseehkojournal.com

Changing the System

NWT Species at Risk Committee
As told to Jessica Davey-Quantick

ABSTRACT

Although Indigenous knowledge is sometimes 'integrated' into species assessments elsewhere, the strongly technical and quantitative nature of the process favours scientific knowledge, often to the exclusion of expertise from Indigenous knowledge systems.

In 2021, the Species at Risk Committee adopted a dual approach to species assessment. Each species is assessed using two separate sets of criteria—one based in Indigenous knowledge and the other in science.

Looking at the information in different ways, and fully considering each kind of knowledge, SARC arrives at a final status assessment based on a consensus among members and supported by criteria from either or both knowledge systems.

This unique approach allows for the information to be considered in the way that is most appropriate to each kind of knowledge. These assessments are used by wildlife co-management boards and governments, to inform decisions on managing species in the Northwest Territories.

In March 2023, the journal Biological Conservation published a paper by SARC members called "Equal Use of Indigenous and Scientific Knowledge in Species Assessments: A case study from the Northwest Territories, Canada." The paper has been drawing attention from across the scientific community and offers a new model for collaborative species assessment that could be adapted for use around the world. The dual approach has been used to assess polar bear, peregrine falcon, Peary caribou, boreal caribou, American white pelican and Dolphin and Union caribou.

Jessica Davey-Quantick sat down with some of the paper's authors including current or former Species at Risk Secretariat staff Claire Singer, Mélanie Routh, and Michele Grabke, and Aimee Guile, a conservation biologist for the Wek'èezhìı Renewable Research Board and a SARC member, to find out more about how the NWT is on the forefront of considering best available information from both Indigenous and scientific knowledge to better manage our species.

WHAT IS THE PROJECT EXACTLY?

Claire Singer: To us, this is a way of restructuring how we do assessments to ensure that all of our members can participate effectively in the assessment, regardless of the knowledge system they come from.

HOW DID IT HAPPEN? MAKING CHANGE IS NEVER EASY!

Claire Singer: "The impetus for the project began in fall 2019. We were talking about the assessment criteria at that time and a number of the [Species At Risk Committee] members were expressing concerns about the assessment criteria. Ultimately, we arrived at a point where nobody was really happy with the assessment criteria. The Indigenous knowledge holders at the table still felt like they couldn't really effectively participate because the conversations were still quite quantitative, still focused very much on percent decline over time, those types of metrics. And the scientific knowledge holders at the table were also feeling very uncomfortable with the criteria because the type of thresholds and types of criteria that they value so much had been taken away, so they were feeling very vulnerable. So we agreed that something needed to be done to address that to make sure that everybody could participate effectively.

So initially I started writing this as sort of a draft discussion document. I didn't really think anyone would accept it, I just wanted to put something together that would initiate a conversation and maybe allow the Species at Risk Committee to see which types of direction they could go in, that they didn't just have to stay in the way that it had been done before. That they could define a new process for themselves if they felt that that was needed."

SO HOW DOES THIS ACTUALLY WORK IN PRACTICE?

Claire Singer: "There's still many similarities to the initial quantitative criteria that are used internationally and nationally. So the way that we've set this up is there are essentially two parallel assessment processes that are undertaken. One is based in scientific knowledge, and that has that similar quantitative criteria, and then the other part of it is Indigenous knowledge criteria for assessment—that's the part that we built from scratch collectively together."

SCIENTIFIC KNOWLEDGE HAS, AS YOU SAY, QUANTITATIVE CRITERIA THAT ARE USED INTERNATIONALLY AND NATIONALLY. HOW WOULD YOU DESCRIBE INDIGENOUS KNOWLEDGE CRITERIA?

Claire Singer: "So instead of it being a percent decline over time for example we're shifting more to a system that allows for observations based on different types of criteria. So that could be harvesting success, the level of concern that is noted in communities and expressed at different levels of leadership, and the impact that it's having on harvesting and cultural activities and the like. We've tried to build it in a way that is suitable to each knowledge system without shoving a square peg into a round hole, like incorporating one into the other."

IT'S NOT THE FIRST TIME TRADITIONAL OR INDIGENOUS KNOWLEDGE HAS BEEN INCLUDED IN RESEARCH. WHY WAS IT SO IMPORTANT TO DO IT THIS WAY?

Claire Singer: "For me the importance of doing this was really related to the role of the Species at Risk Secretariat. Our job as the Secretariat is to provide all those services necessary for the Species at Risk Committee and the Conference of Management Authorities to be able to do their job. Within the legislation it's very clear that assessments have to be based on the best available information from both knowledge systems–so science and Indigenous knowledge. And that ties back to the development of the legislation and the land claim agreements. So we have this mandate to make sure that this happens, and we were faced with a board where everybody was unhappy. So to me very simply, the importance of doing it was that if the entire board was unhappy with the ways things were happening then clearly something needed to change so that we could allow them to function properly–all members function properly, not favouring just the scientists."

WHAT WILL CHANGE? WASN'T INDIGENOUS AND TRADITIONAL KNOWLEDGE ALWAYS INCLUDED IN THE WORK YOU WERE DOING?

Michele Grabke: "It's become a useful tool. I think what's really important is the Species at Risk Committee status reports have always included, where possible, a scientific knowledge component as well as an Indigenous and community knowledge component. And what SARC has developed in their use of the new criteria is that Indigenous and community knowledge component informs the criteria built on Indigenous community knowledge. And then the scientific knowledge component of the status report has the best available information that is applied in the scientific knowledge criteria. Whereas before both components were being funneled through this criteria that was really only applicable to one knowledge system. So I think it's been nice in that regard to be able to apply the best available Indigenous community knowledge appropriately. We're not trying to fit it within someone else's mould, you're not trying to fit it within the scientific way of knowing. It just gets to stand on its own."

Aimee Guile: "It's been very exciting using the new criteria. We are a group of scientific knowledge holders and Indigenous and traditional knowledge holders. But quite often our traditional knowledge holders aren't necessarily trained in Indigenous research. English is not their first language, so even though it's set up to incorporate the two knowledge systems, the world we live in doesn't necessarily allow for that. It was easy in the past for the scientists to kind of take over the conversation. It's easy to plug the numbers into the old criteria and then we interpret the traditional knowledge how our science brains interpret them. Having to have a focused conversation on just the traditional knowledge in itself has had a lot of value in kind of making sure we understand that world view and the status of the species from that perspective. And also getting the traditional knowledge holders on the same page. It's easy for them to just agree with us as we go through the steps, but when we have to just focus on traditional knowledge and interpreting those reports I think it's made a really big difference in making sure both knowledge systems are incorporated."

WHAT WILL THIS DO TO THE CONSERVATION OF SPECIES IN THE TERRITORY?

Claire Singer: "One of the criteria now specifies that a species can be assessed as at risk in the Northwest Territories if the way that it's changing, like declines in the population or changes in the range for example, are having an adverse impact on people's ability to engage in their traditional way of life. And that is very new and not parallel in science at all. Say you have an assessment recommendation at the end. That assessment recommendation, that single recommendation, can be substantiated from criteria from either knowledge systems or both knowledge systems. Which wasn't the situation before. I think that's really cool.

I do in the longer term hope that even though this is very specific to the species assessment process, that maybe it just gradually changes the conversation a little bit around biodiversity research in this area or in a broader area. Like I've been working in this type of field for many, many years now and over the course of my career I've heard a lot of people talk about this, I guess treating the Indigenous knowledge as anecdotal as long as there was scientific information. So instead of thinking of it as something to validate, or for hypothesis testing, [we think of it] as knowledge in and of its own right. And just gradually shifting that conversation a little bit, I think that would be a really big success."

IS THERE STILL MORE WORK TO DO, EXPLAINING THIS NEW MODEL?

Aimee Guile: "I think something that we've discussed a lot and we're just starting to work on, because these are still fairly new, is you really need to educate and communicate with the people doing the research about the criteria. And the kind of wording we're looking for in the reports. For instance there's a lot of research and monitoring that goes on on all of our caribou species in the NWT. So we get these big, big reports, but the ways the questions are asked and the knowledge is collected doesn't always fit the criteria that we've written.

Which is fine, being a scientists you don't always have everything, but if we can educate researchers on the types of results that we're looking for I think that will make the biggest difference."

THIS IS PRETTY UNIQUE WORLDWIDE, ISN'T IT?

Claire Singer: "We didn't find anybody else doing anything like this! We tried really hard to find other examples in the world when we started. Because when we first started writing, it was like, surely somebody else has had some good ideas in this respect that will save us some time, and there haven't really been that many initiatives like this that we've found. So we had to build it from scratch, as a result. Which worked out really really well for us. This particular idea came out of Nova Scotia. It was the only example that we could actually find of a concrete published idea for an alternative to doing species assessments. And it was enclosed in a critique of the federal *Species at Risk Act*."

DO YOU THINK OTHER JURISDICTIONS WILL FOLLOW YOUR LEAD?

Claire Singer: "We definitely hope that it will be applicable in other areas. It might not be exactly the same, recognizing that there is diversity in Indigenous knowledge across different regions globally, it might have to take other iterations. We also have to keep in mind that the structure we're working with here is quite different than in other areas. There's so much history in the NWT of people having done work on land claim agreements and on the collaborative *Species at Risk (NWT) Act*. We're working in a collaborative structure that other regions maybe just aren't in a place to, for lack of a better term, make this easy. But we have reached out to other organizations, just to let them know that we have been doing this and we would be happy to chat with

them if there is additional interest. Writing this paper is part of that outreach. Getting it into an international journal that tends to attract this type of an audience so that we can get the information out about this."

Michele Grabke: "I think another important thing, connecting to what Claire had said, it's not just about our species but also the way we do wildlife and species at risk work in the Northwest Territories. It's that comanagement structure that enables this way of thinking and being more open for that to be able to happen.

Our foundation is the Species at Risk (NWT) Act, and it's unique in that not all provinces and territories have their own act, but we do. And it's built in there, that co-management structure that we work with, the management authorities across the Northwest Territories and also that there is an Indigenous and community knowledge portion of our process. Without that foundation it's hard, it's not as easy to just make criteria. That is part of the greater problem: a lot of systems don't allow for this type of work to actually happen.".

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https://xagotseehkojournal.com

On Thin Ice: The Story of Dolphin and Union Caribou

Based on the species status report and assessment of the NWT Species at Risk Committee (April 2023)
Interpretation by Joslyn Oosenbrug, Species at Risk Secretariat

ABSTRACT

In April 2023, Dolphin and Union caribou became the first species to be assessed as Endangered under Northwest Territories species at risk legislation. The migration of this species twice a year across the frozen Arctic Ocean sets it apart from other caribou in the Northwest Territories and around the world. Impacts of climate change and ship traffic through the Northwest Passage are making the crossing more dangerous and numbers of Dolphin and Union caribou have plummeted since the 1990s. This is a summary of the current biological status of Dolphin and Union caribou and the findings of the NWT Species at Risk Committee that led to an assessment of Endangered in the Northwest Territories.

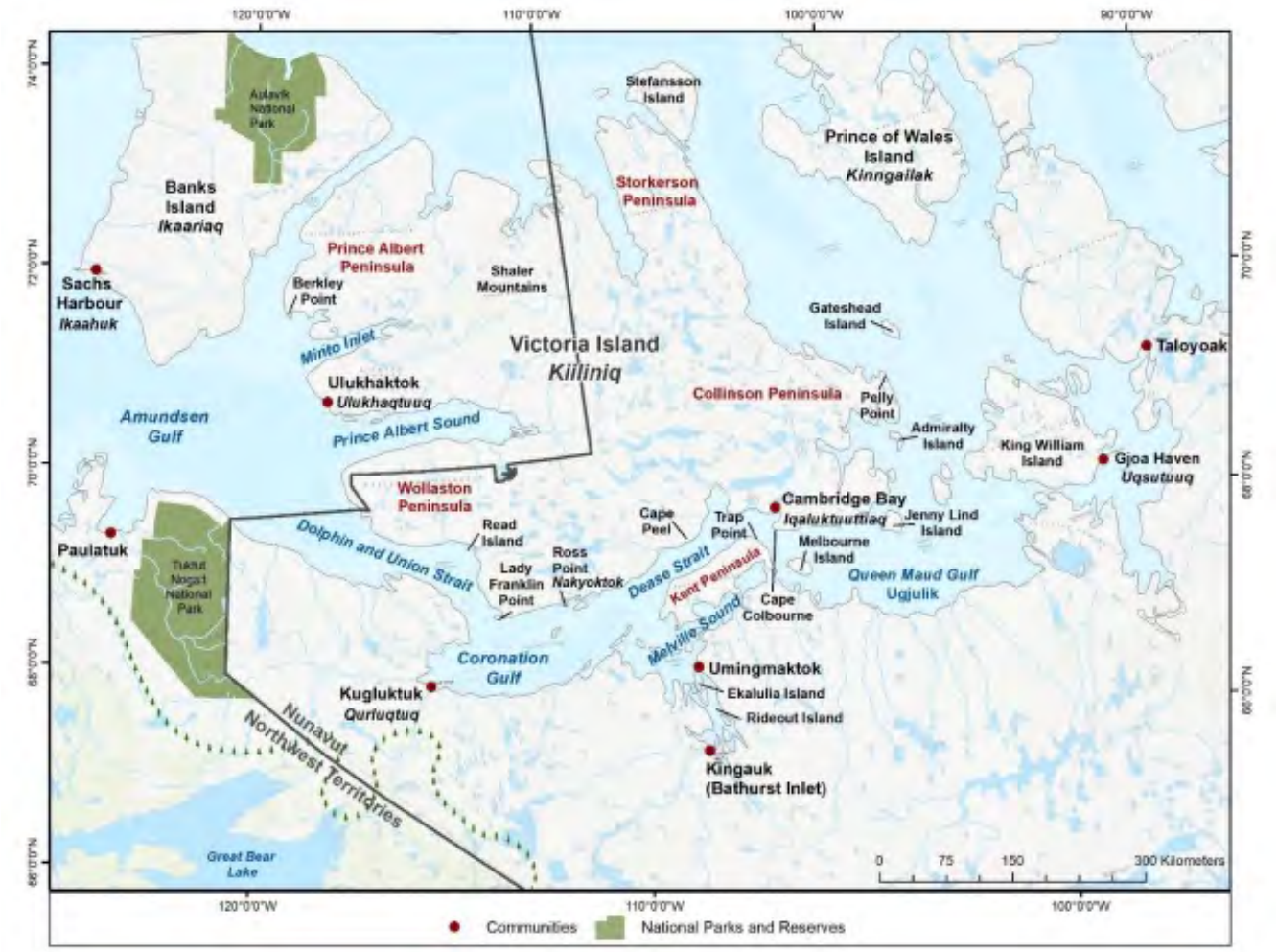
THE SPECIES

> *"My father and mother used to do a lot of hunting. In late summer, people used to harvest caribou when the fur was nice and thick. People would move to the narrow channels and people would wait for the caribou to cross. They would hunt for their food and for their clothing. We survived..."*
>
> - Lena Kamoayok [Umingmaktok] in Golder, 2003

Dolphin and Union caribou are named for the Dolphin and Union Strait they historically crossed twice a year in their seasonal migration between Victoria Island and the mainland. They are only found in the Northwest Territories and Nunavut and are often called 'island caribou' in nearby communities of Ulukhaktok, Kugluktuk and Cambridge Bay. Dolphin and Union caribou are slightly darker and larger than Peary caribou, which live on the Arctic islands to the north, and smaller than barren-ground caribou to the south.

Caribou and caribou cycles are inherently linked to Inuvialuit and Inuit identity and wellbeing and provide important country food for the communities within their range. Hunters from the NWT communities of Ulukhaktok and Paulatuk, and from the Nunavut communities of Cambridge Bay, Kugluktuk, Umingmaktok and Kingauk (formerly Bay Chimo and Bathurst Inlet, respectively) harvest Dolphin and Union caribou.

However, access to Dolphin and Union caribou has varied considerably over the years. In the last few decades their main migration route across the sea ice has shifted east, with caribou now crossing to and from Victoria Island at the Coronation Gulf, Dease Strait or Queen Maud Gulf.



Map of the Northwest Territories and Nunavut showing communities, protected areas, and features relevant to Dolphin and Union caribou (place names from Kuptana 2022). Map from the Species Status Report for Dolphin and Union Caribou in the Northwest Territories (2023).

THE MIGRATION

In the fall, Dolphin and Union caribou gather on the south coast of Victoria Island before crossing the sea ice to the mainland where they spend the winter. When the ice takes too long to form, or when population numbers are low, some Dolphin and Union caribou may abandon the migration and remain on Victoria Island during winter.

In the spring, pregnant cows lead the northward migration from the mainland to their calving areas on Victoria Island. When the calves are strong enough, the cow and calf join the rest of the caribou in their twice annual migration.

The journey between Victoria Island and the mainland is inherently dangerous. Some caribou die breaking through the ice while crossing to the mainland. Late freeze-up is occurring more often and affects not only the timing of the migration but also food availability, as caribou must wait longer on the south coast of Victoria Island to cross.

Caribou require at least 10 cm of sea ice to cross. In addition to the uncertainties of climate change, a projected increase in shipping traffic in the Northwest Passage is a concern for caribou as well as for harvesters. Passing ships may prevent or delay the formation of ice, increasing drownings and affecting the timing of caribou migration as well as compromising the safety of harvesters traveling on the ice.

THE ASSESSMENT

On April 18-21, 2023, the Northwest Territories Species at Risk Committee met to assess the biological status of Dolphin and Union caribou. This was the second time this group of experts had met to consider how Dolphin and Union caribou were doing—and a lot had changed.

When the Committee first assessed Dolphin and Union caribou in 2013, the most recent survey information available was from 2007. Results indicated there were about 27,800 caribou. This population estimate was lower than the 1997 estimate of 34,600 Dolphin and Union caribou. Considering this species only occurs in Canada's north and that Dolphin and Union caribou are vulnerable to sea ice changes and extreme weather events such as freezing rain—the Committee assessed Dolphin and Union caribou as a species of Special Concern. This assessment meant the species was showing signs of trouble and we should keep an eye on it. Dolphin and Union caribou were legally listed in 2015 under the *Species at Risk (NWT) Act* and a management plan was released in 2018.

Under the management plan, which was developed by partners in wildlife management on both sides of the NWT-Nunavut border, much work has been done to support Dolphin and Union caribou. Additional population surveys in 2018 and 2020 confirmed a serious decline was underway. Management actions were introduced, with harvest of Dolphin and Union caribou reduced in both Nunavut and the NWT and a voluntary ban on spring hunting in Ulukhaktok. Communities across the range are in regular communication with each other over the state of the caribou and ongoing management actions. Cambridge Bay has taken the lead on a number of measures to reduce threats from ship traffic, including an annual notice to mitigate the risks of icebreaking to people traveling on ice and caribou. Research and monitoring are underway, including community-based harvest sampling and reporting, collaborations with university partners on caribou health and distribution, and research on impacts to the population from climate change.

Despite all efforts, so far it has not been enough to halt the population's steep decline. The last aerial survey in 2020 estimated the number of Dolphin and Union caribou at about 3,800. That represents a decline of 89 per cent since 1997.

In assessing a species, the Species at Risk Committee looks at all the best available information from Indigenous and community knowledge and science to form its assessment. Looking at the information in different ways, and fully considering each kind of knowledge, the Committee reached the conclusion: Dolphin and Union caribou are in serious trouble.

The Committee assessed Dolphin and Union caribou as Endangered (by definition, a species facing imminent extirpation or extinction). It was the first time the Committee had assessed a species as being so close to the brink of disappearing since the inception of the *Species at Risk (NWT) Act* in February 2010.

The NWT assessment of Dolphin and Union caribou as an Endangered species aligns with an assessment by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC)—the national equivalent to the NWT Species at Risk Committee. In 2017, COSEWIC assessed the Dolphin and Union caribou as Endangered in Canada and proposed a federal uplisting from its current status of Special Concern on Schedule 1 of the federal *Species at Risk Act*.

THE RECOMMENDATIONS

> *"You know, in the fall time […] it's starting to freeze, but it also rains and when it rains it goes on the ground and it freezes over their feeding ground or the food that they eat […] They don't have nails to scratch, and they have flat feet and then to try and break the ice is difficult for them. So they go through great hungering at those times."*
>
> - Elsie Klengenberg (translated) from Hanke and WMAC (NWT), 2023

While the reasons for the continued decline are complex, the Species at Risk Committee identified the impacts of climate change as a major force in the decline and future risk to the population. Unstable sea ice conditions, freezing rain preventing caribou from accessing their food, and extreme weather are all expected to increase.

Other threats, including ship traffic, can be managed or controlled. Industrial activities and other human disturbances are other limiting factors for Dolphin and Union caribou. Local knowledge indicates an increase in grizzly bears, a new predator establishing itself on Victoria Island. In recent years, much research has focused on the state of Dolphin and Union caribou health and the prevalence and impact of diseases and parasites on individuals and populations of caribou.

The wellbeing of Dolphin and Union caribou is a serious concern for local communities. In 2021, Ulukhaktok implemented a voluntary maximum harvest of 50 Dolphin and Union caribou per year and a voluntary closure in the spring to allow pregnant cows to migrate and calve. Strict harvesting limits for Dolphin and Union caribou have also been implemented in Nunavut. These restrictions have a significant impact on the traditional and cultural connections to the land and to caribou for all communities sharing the range of this species and were main factors in the Committee's assessment of Endangered.

> *"When their numbers were higher and they were very healthy, [I'd harvest] anywhere from 15 to 20 [DU caribou], no higher. Last year was the first year I didn't shoot one. Since I've seen the number going down steadily… I haven't harvested over 10 [DU caribou] in the last 10 years… I've been avoiding hunting DU caribou… I saw them, but I didn't shoot them. Why? I was brought up by my parents and my grandparents to manage and help sustain wildlife. We were told that if you know that they're not in a healthy state, don't harvest them… because they'll come back… so I also heed and listen to those words and just abide by them."*
>
> - Elder Allen Niptanatiak from Hanke et al., in review

The next steps for Dolphin and Union caribou are up to the Inuit and Inuvialuit partners, hunters and trappers organizations, the Wildlife Management Advisory Council (NWT) and governments of NWT, Nunavut and Canada, which together manage for wildlife in the region.

Photo Credit: Kim Poole

In the NWT, public consultation is currently being completed on whether to list Dolphin and Union caribou as an Endangered species on the NWT List of Species at Risk.

If Dolphin and Union caribou are uplisted to Endangered, a recovery strategy will be required within one year of listing. This document will provide guidance to management partners and overall coordination to support the conservation and recovery of Dolphin and Union caribou.

The future of Dolphin and Union caribou will depend on a number of factors, many of which are complex and interconnected. To give this species the best chance of success will require significant commitment and collaboration of many different groups and jurisdictions at all levels of government. Communities are already taking action to reduce harvest and monitor ice crossings. All Canadians are invited to join in supporting the recovery of Dolphin and Union caribou for the benefit of the species, Canadian society as a whole, and the Indigenous communities that rely on the caribou.

With its assessment, the Species at Risk Committee provided a number of recommendations for the conservation and recovery of Dolphin and Union caribou:

- Implement and enforce protection measures for calving areas.
- Enforce ice breaking restrictions during migration periods.
- Improve communications on ship traffic and shipping management amongst data providers, NWT communities and organizations.
- Encourage and support communities to continue harvester education based on cultural teachings of Elders.
- Implement harvest sampling, monitoring, and reporting. Improve sharing of information between jurisdictions.
- Support monitoring and financial incentives for predator harvesting.
- Canada and the NWT must uphold and, if possible, exceed international climate change agreements including reducing greenhouse gas emissions at the local level. Climate change in the NWT must be addressed by implementing the 2030 NWT Climate Change Strategic Framework and Action Plan.

Photo Credit: Kim Poole

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Eating Caribou, Eating Sovereignty

Tiffany Ayalik

As told to Jessica Davey-Quantick

Tiffany Ayalik travelled with her production team across the NWT to learn about wild food, its cultural significance and the people who harvest it as part of the television series Wild Kitchen. Born in Yellowknife with family ties to Kugluktuk, she is an Inuk performer, musician and storyteller, who encounters caribou in many different ways—including on her plate.

WHAT IS FOOD SOVEREIGNTY?

"Food sovereignty and accessibility is a topic that I'm quite passionate about and have been very involved with even before I knew what the terms food sovereignty meant. Coming from a very active hunting family, and culturally being Inuk, our relationship to food was definitely directly linked to our survival. [Food sovereignty means] recognizing the inherent political choices, whether we're conscious of them or not, these issues are connected to. Who has food, who doesn't have food? Who is preparing and gathering or hunting or growing that food? Things that we do every day that we don't necessarily think about if we're in a more privileged position and how can we make sure that everyone is getting enough to eat?"

"Sharing food and sharing abundance is definitely an Inuit value, and making sure that sharing what you have with the community, especially with people who don't have access to food. I think that especially given the high cost of groceries and you know, not having the freshest things shipped up to the Arctic, you know the best food is what is local. And I always joke about before the 100 mile diet was trendy, that's how most people ate in the North!"

"Caribou has been an integral part of my diet, of my family's diet. Especially now that I'm a city Inuk living in Vancouver I definitely don't have access to the traditional foods that I want but can still support and see the importance of helping people maintain that and supporting hunters as best I can."

"Having access to traditional foods is not only a way to feed yourself but Inuit are so brilliant in their ability to have teachings and knowledge, not just about the animal themselves but everything that's connected to that food item. Understanding that culturally, traditionally there were many Inuit groups that would say you can't return to a hunting area or a camping area if you could see any signs of human activity to give the land enough time to regenerate and heal, even from a very modest footprint."

"We were the first herd monitors. We were the first census keepers. Part of the system. And I think it's a very western notion to separate humans from nature. We are a part of nature, so to have this idea that somehow we are separate allows us to do all sorts of horrible things because we don't look as ourselves as part of the system when we really really are."

"Looking at all of things, for example a caribou can offer and does offer to an Inuit family: that's a food source, that's a clothing source, that's a classroom, that's teaching people how to sew, that's teaching people how to make tools. 50 different things it gets used for, and all the traditional legends caribou stars in, all of the songs that are about caribou. It's not just a food thing you know: when you look at it holistically, it's a huge sort of cornerstone of our people. Especially for communities like Baker Lake who are landlocked communities, traditionally a huge source of their food is coming from caribou because they're not ocean people, they're inland. So just the concentric rings of influence and the importance that the caribou has for us is just sort of never ending."

"So I think broadly food sovereignty means a person's or a community's right or ability to access culturally relevant and healthy food on a daily basis. So if somebody is food insecure, it means that they don't have access to reliable, healthy, culturally relevant sources of food for them and their communities."

WHY IS WILD GAME LIKE CARIBOU SO IMPORTANT, IN 2023? SOUTHERNERS SOMETIMES WONDER WHY NORTHERNERS CAN'T JUST SWITCH TO FARMED MEAT, LIKE BEEF, OR PLANT BASED DIETS.

"[Beef] is a pretty, I don't know, diet coke substitute! That's a very simplistic and reductive solution that in the long term isn't better for our communities. The health toll, the carbon footprint, the economic toll, the cost of shipping- by the time beef gets up there, what's the throw away rate? What has gone bad in the meantime, how safe is that meat? And I feel like that's such a shortsighted and overly simplistic solution that people like to throw around. In the same breath people say 'oh plant based diet' and people don't understand, especially if they're coming from a urban context or a southern urban context, just telling a whole indigenous community, try and be plant based, how incredibly colonial that is."

"That mentality is what I and many people call 'colonial veganism'. That's just the new shape, the new type of colonialism disguised as some sort of environmentalism or animal rights. It's actually just furthering colonization of Indigenous peoples."

IS EATING CARIBOU RESISTANCE?

"Being allowed to have meaningful engagement in the management of caribou herds, in the decision making around how to harvest, in these non-tokenized roles: Inuit must continue to have a seat at the table for these conversations, while recognizing the millennia of conservation Inuit have been doing. And we are not the ones who are drilling for oil. We are not the ones who are doing destructive mining practices. We are not the ones who are blasting our ocean floor with sonar and wreaking havoc on marine life."

"So to recognize that we were doing a pretty good job of herd management up until colonization and industrialization came to the Arctic, and there are many amazing Inuit hunters who are doing really amazing

work in that area. It just needs to continue and it needs to be listened to when we tell people and development and government what is best for our lands and our bellies and our kids and how we feed them."

HOW DO YOU LIKE TO EAT CARIBOU?

"Oh my goodness! My favourite way is called quaq. It's just straight up frozen caribou dipped in China Lily soy sauce if you're a traditionalist, or Kikkoman if you're fancy. And there is nothing better than the pure taste of that. Every time I eat it I just feel like I'm going to cry because I miss having it as a regular part [of my diet]. Food is emotional! It's nostalgic and it instantly transports you to various times in your life. So that's my favourite straight up way to have it. Another way to have it is caribou dry meat, mipku. Dried caribou in the spring and fall before it's too warm, and it's nice and windy, with butter and salt. Nothing better. So those are my two favourite ways of having it."

HOW DO YOU FEEL ABOUT MORE MODERN TAKES LIKE CARIBOU AND KD?

"Amazing! I love a fusion. I think it's so fun. We're people living in 2023, and we have international palettes and ways of cross-pollination with other cultures, so I love it when traditional food can be reimagined into these spaces where it's more accessible for other people. It's just such a versatile food. It can be kind of hard to work with if you're thinking it's like beef. It definitely isn't. The grain is a lot finer, so I think it's more close to venison. And it's super lean so it's easy to burn, and it's easy to make tough if you don't know what you're doing. So reach out to your grannies and your aunties who know what they're doing and ask for some advice!"

DO YOU HOPE FUTURE GENERATIONS GET TO ENJOY THESE RECIPES TOO?

"I hope that future generations will be able to enjoy the abundance of caribou that we did when we were younger. That by the time they have kids they'll be well on their way to enjoying and imagining into this future for caribou, the massive healthy herd populations. And the ability to look back at the time we're in with dwindling herd numbers and say 'oh my goodness isn't it amazing that we've brought it back'. So it's less about the dishes and more about the beauty and the space where everyone is enjoying that abundance."

"TUK TUK STRUT"
Tiffany Ayalik

Tiffany Ayalik *Tiffany Ayalik is a multidisciplinary artist from Yellowknife, NT, whose work focuses on storytelling through the mediums of performance, music and filmmaking. After receiving her Diploma in Acting from Red Deer College, she continued her studies at the University of Alberta, graduating with a Bachelor of Fine Arts in acting. Her theatre credits include Zhaboonigan in The Rez Sisters (The Belfry Theatre), Sedna in The Legend of Sedna (BAM Collective) and Bobby in The Big League (Manitoba Theatre for Young People), among others, and she sang as a cultural representative for the Northwest Territories at the 2010 Olympics. She has travelled across Canada and performed in Greenland, Iceland, Norway, Finland and in Europe. Ayalik also lends her vocal talents to the musical duo PIQSIQ and is a member of the Juno Award winning Quantum Tangle, whose album Tiny Hands won Indigenous Album of the Year in 2017. When she isn't touring, performing or composing, Ayalik is a guest faculty member at the Banff Centre for Arts and Creativity, where she works with musicians, dancers and storytellers.*

RECIPES

DIANE BAILES' FRIED CARIBOU WITH GARLIC NOODLES (DELINE, NWT)

INGREDIENTS

- 1lb caribou
- 1 TBSP steak seasoning
- Flour
- Oil
- Salt and Pepper
- Spaghetti noodles
- Frozen or fresh peas
- ¼ cup softened butter
- 2 cloves garlic
- 1 TBSP parsley
- Parmesan cheese

METHOD

Cut caribou into stir fry strips. Add the steak seasoning and let marinate.

In a bowl, mix the flour with the salt and pepper. Add the caribou strips and coat well.

In a cast iron pan, heat oil on medium high. Add the caribou strips and cook in batches.

Meanwhile, fill a pot with salted water. Bring it to a boil and add spaghetti noodles. When they are al dente, drain and add a handful of fresh or frozen peas.

Fry the butter with the chopped garlic. Mix the noodles, the garlic butter, and the parsley. Top with caribou and serve sprinkled with parmesan.

> *"Caribou is so important in our daily lives at all levels. Caribou has been a staple in my family's life growing up in Deline. I love cooking with wild games and mostly every popular recipe I use is caribou rather then beef. Of course my kids loved having drymeat when they were growing up! Now that I have my own family, me and my husband have given opportunities to our children. They all have been part of hunting caribou and have had their first hunts."*

SALLY TAKOLIK'S CARIBOU SOUP (TALOYOAK, NUNAVUT)

INGREDIENTS

Author's note: "I don't usually measure while making stew so these are estimates."

- Caribou, cubed
- Onions
- Carrots
- Celery
- 2TBSP soya sauce
- 1 TBSP Maggi seasoning
- ¼ cup flour
- Beef OXO stock cubes
- Barley or Fusili pasta

METHOD

In a pot, fry the caribou with the onions, carrots, and celery. Add soya sauce, Maggil season, and any other seasonings to taste. Add the flour.

Add water to the pot with the meat. Add Beef Oxo according to the directions.

Add in the Fusili pasta or barley. Boil and simmer about an hour, or longer if you want the meat to be nice and tender.

When soup is done, add in 4-5 TBSP of butter for more flavour.

Serve with bannock.

> *"I grew up eating caribou, and love it. You can feed many people with the caribou soup."*

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Reality, Virtually

Casey Koyczan

As told to Jessica Davey-Quantick

ABSTRACT

Casey Koyczan is a Dene interdisciplinary artist from Denendeh whose work plays on all your senses. He's displayed around the world, from Finland, Columbia, Chile and Mexico to the Netherlands, the USA and the UK. Now, he's taking his work to a digital space: his series of walk cycles create literal characters, digitally, out of antlers, beading and caribou tufting. In June, 2023, he shared his thoughts on the future of Indigenous art and bringing traditional materials to the digital space in an interview with Jessica Davey-Quantick.

OK RIGHT OFF THE BAT: YOUR WORK IS GETTING PROGRESSIVELY WEIRDER AND I'M INTO IT. YOUR WORK HAS UNDERGONE A CREATIVE AND INTERPRETIVE SHIFT INTO THE DIGITAL REALM. WHAT'S GOING ON?

Since the pandemic I've been focusing more on my digital practice as it has been more accessible to the public. I still create physical art but nowhere near as much as I used to pre-pandemic. Within my installations I used a lot of earth materials, and now I'm capturing these materials with Light Detection and Ranging (LiDAR) scans and experimenting with them in a digital space; it seems like a natural evolution of my aesthetic because I've always loved working with materials from the land.

YOU'RE DEALING IN INDIGENOUS FUTURISM, WHICH HAS ALWAYS BEEN LINKED TO RESISTANCE WITHIN YOUR WORK. IS THIS INTENTIONAL? HAS YOUR PERSPECTIVE ON FUTURISM OR RESISTANCE CHANGED OVER TIME?

I like to think of Indigenous Futurisms as a way of seeing our people, places, and stories in the future; a way to remind ourselves and others that we always have and always will be here. My short film "Ełeghàà ; All At Once" is a representation of the past, present, and future of Denendeh that is experienced at the same time: the giant animals and legends of the past, the current landscape on the lake at my mom's cabin outside of Yellowknife, and the futuristic buildings of Yellowknife where the city has grown so much in size that it now stretches past Prelude Lake on the Ingraham Trail. I wanted to further expand on the futuristic elements so it features space stations that rotate in the sky, flying cars that are travelling in the sky, and an underwater city with transport tunnels as my depiction of Ole Slavey swims around you.

LET'S TALK ABOUT YOUR WALK CYCLE VIDEOS. HOW DID YOU DO IT?

I wanted to create characters that were inspired by Indigenous materials; to re-imagine them as surreal looking characters. The first piece I made in this way was "BEADWORK" which was inspired by a beaded

card holder that I was gifted after teaching a music workshop at the Tłı̨chǫ Annual Youth Conference. I used the photos to texture the character's skin, and implemented physics to a sort of star field of beads that the character is walking through as the beads ricochet and bounce off of it. These are created with a variation of tools but I mostly do my 3D / VR modelling in Gravity Sketch VR, and then bring everything together in Blender 3D.

I have just released my "DENTALIUM" piece online, and it's inspired by Dentalium shells. For this work I did quite a bit of research as honestly I didn't know exactly what the mollusk looked like before it just becomes the shell. To pay tribute to its natural habitat, I created an underwater landscape for the character to walk through. My next piece will be inspired by Caribou, Moose, and Deer antler and I'm in the process of modelling those in VR while at the same time brainstorming how the character will look and what environment it will live in and walk through.

HOW DID YOU LEARN TO DO THIS? WHAT INSPIRES THIS?

Ever since I was a kid I've been really inspired by Sci-Fi, especially by watching the Alien & Predator movies. I suppose this is the root cause of why I work the way I do, but in a technical sense I want to credit Davis Heslep and Jeremy Emerson for first getting me into VR when they lent me a gaming laptop and an HTC Vive VR headset from Western Arctic Moving Pictures (WAMP). To be honest my main reason for wanting to try VR was to play a game called "Super Hot", which kind of makes you feel like a superhero, but after playing that a bit they suggested that I try a program called "Tilt Brush", which I can describe as a virtual reality painting program. Immediately I started making creations that are inspired by Dene legends and animals from the North, and the first major breakthrough piece that I made was called "Raven Gods" which pushed the aspect of scale for me in a VR setting. At the time I knew it was a great way to work, especially living in Yellowknife where studio space is hard to come by; being able to create massive artworks within the confines of a 6' x 6' space just made sense to me.

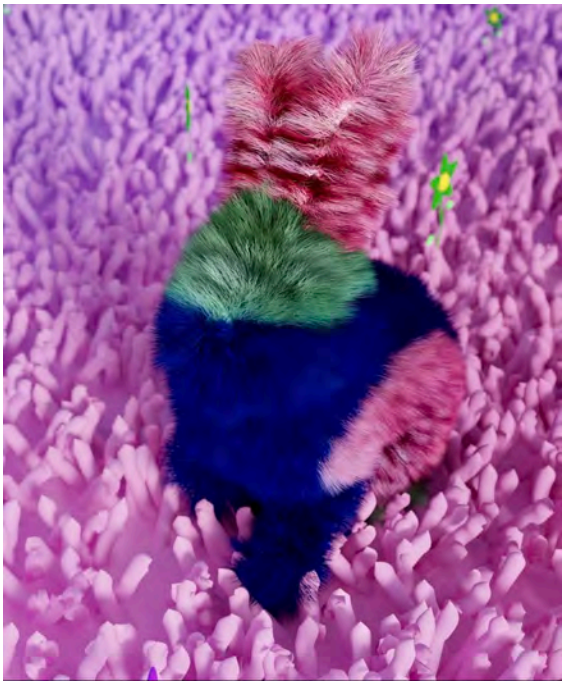


Photo Credit: All photos courtesy of artist

SOME OF THESE NEW WORKS ARE BEAUTIFUL, EVEN ADORABLE—ESPECIALLY YOUR TUFTING CHARACTER. THAT'S A BIG PIVOT FROM A LOT OF THE WORK YOU DID BEFORE. WAS THIS INTENTIONAL?

Yes, it was very intentional. Throughout my career I've always tried to push my limits; whether they be physical or mental, and this piece was a test to create completely out of my comfort zone, as the majority of my work has a sort of "dark" aesthetic. I felt that with the texture of tufting, that I wanted the character, the landscape, and the animals within the animation to all fit together in some way, so almost everything is textured with hair emitters and it really lends itself up to the cute, cuddly, and colourful atmosphere. After creating and posting this work I received a bunch of feedback and messages asking if I was okay because it was so different from previous work, and saying that it would make for a great kids TV show, so maybe at some point that will happen?

IT'S SO REALISTIC- IS IT BASED ON SPECIFIC REAL-WORLD TECHNIQUES? WHY REIMAGINE INDIGENOUS ART MATERIALS IN THIS WAY?

Mahsi, I try to find this balance between realistic and surreal with my creations; to sort of blur those boundaries in order to elicit various feelings and emotions for the viewer. My artwork has been a mix of material and technology for a long time, and I found this series was a great way to honour the materials that have had such a strong presence within my life. I really admire and respect artists that work with these materials in a traditional sense, so I suppose this is my way of working with them but with a different approach.

WHY BRING THESE NATURAL ELEMENTS—CARIBOU TUFTING, DRIFTWOOD, BEADING—TO A DIGITAL WORLD?

When you're working in a VR / 3D environment, you're not bound by the laws of physics; anything is possible and you can let your imagination run wild. That is something that really drives my creations and gets me thinking about what I'd like to see or experience that isn't possible in the real world.

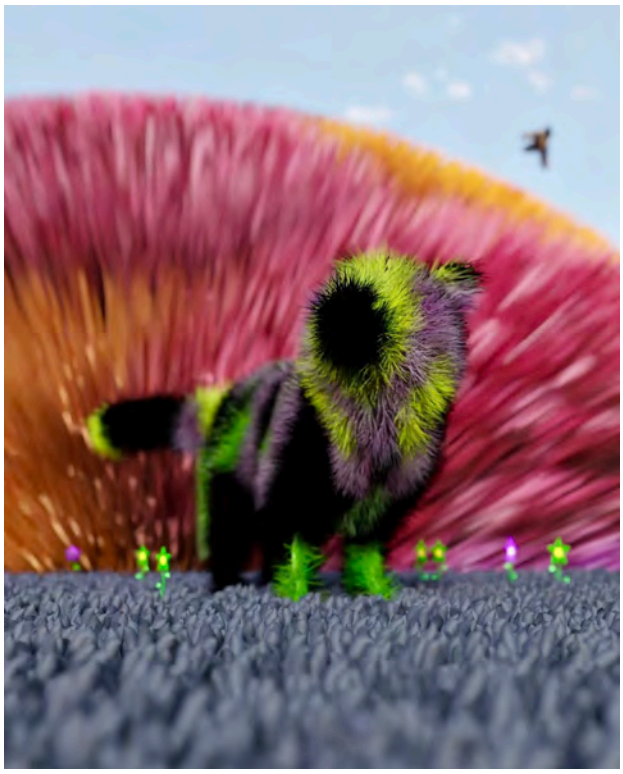
WHAT ARE YOU EXPRESSING WITH THE 3D CREATIONS YOU'RE WORKING ON?

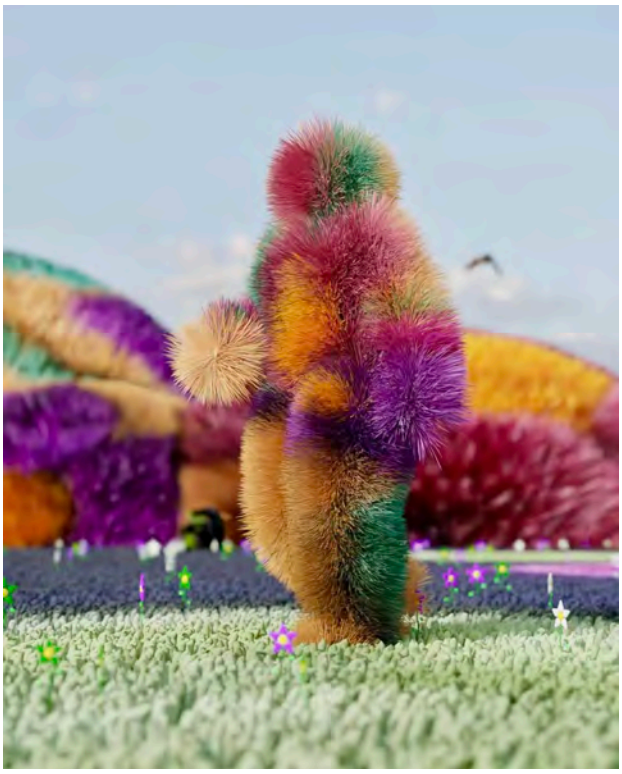
For my 3D work overall, I'm just having fun while expressing my ideas in various ways. It's also a way to assert that digital art is a real art form that belongs in galleries, exhibits, and is a big part of my career and livelihood.

DOES YOUR CONNECTION TO THE MATERIALS CHANGE GOING FROM REAL-WORLD SCULPTURE TO DIGITAL OR INTERACTIVE WORK?

Yes and no. Yes, in the way that you can actually touch, smell, and hear the materials; I love the smell of tanned moose-hide, and whenever it's around the first thing I do is take a big whiff of it and it brings me back to being a kid in Yellowknife. During an Indigenous Culture class within my BFA our professor brought in some moccasins that he purchased from a trip to the NWT and passed them around the class. When they got to me I buried my nose in them and a classmate exclaimed "Did you just smell that?!" and I just laughed with a big smile on my face.

No, in the sense that I try to treat the materials with the same amount of respect as I would within the real world, but it allows me to experiment with them much more in order to explore all of the possibilities.





WHAT ABOUT VIEWERS—HAVE YOU NOTICED THAT THE VIEWERS EXPERIENCE CHANGES FROM A TACTILE, REAL WORLD SCULPTURE TO A DIGITAL PIECE?

The experience is much different; with a real-world installation people are able to walk in and around it, they can feel the aura of the materials, they can feel the reverberations of the sound, they can smell the materials. That is something that isn't present within a digital work as they're mostly on a two-dimensional screen. However, that's what I really enjoy about VR, as you're able to put someone inside of your idea in order to give them a sense of what it's like to actually be there, albeit without being able to experience it with some of the bodily senses.

WHAT KIND OF REACTIONS DO YOU GET FOR THIS WORK? IS THERE ANY RESISTANCE TO TAKING THESE TRADITIONAL SKILLS, TECHNIQUES AND MATERIALS TO A DIGITAL SPACE?

The reactions that I get are mostly positive, I don't really experience any negative feedback because people understand my style and the willingness to experiment and evolve our culture; it's all about progression and inspiration. When I first started putting my Tilt Brush works out there Davis was hosting a VR workshop in Deline and asked if I can show elders "Raven Gods," I was hesitant as at the time I was wondering what elders would think of me working in this way, but agreed under the condition that he let me know what their reaction was afterwards. When the elder took the headset off they said "You know I didn't know what to think about VR at first, but if it's going to be used like this it's okay with me". To me that was one of the best pieces of feedback I've ever received as the respect of our elders is so important to us, and was also the biggest green light I needed in order to feel comfortable in pushing the limits of what our culture is and how it's perceived.

YOU'RE TAKING IT A STEP FARTHER, BRINGING THE VIRTUAL BACK INTO THE PHYSICAL SPACE WITH "ONEIROPHYTE" AT THE ART GALLERY OF SOUTHERN MANITOBA IN SEPTEMBER, 2023. FOR THAT SHOW, YOU'RE DOING LIDAR SCAN WORKS ON TREES THAT IMPLEMENT DIGITAL PHYSICS. WHAT IS THAT EXACTLY?

Doing LiDAR scans of trees and earth materials feels like a natural progression within my career in order to keep working with elements from the land. I am creating a physical installation made up of four computer screen monitors that will hang from the ceiling alongside pieces of driftwood. I am going to have a large circular piece of astro-turf / fake grass on the floor to invite people to stand on while they view the works on the screens. The screens will feature the various 3D LiDAR scans of trees and earth materials with different physics elements implemented into them and animated in order to elicit a sci-fi nature to the works. The installation overall is meant to serve as a futuristic garden or time capsule where people can view elements of nature from the past, even though we are in the present.

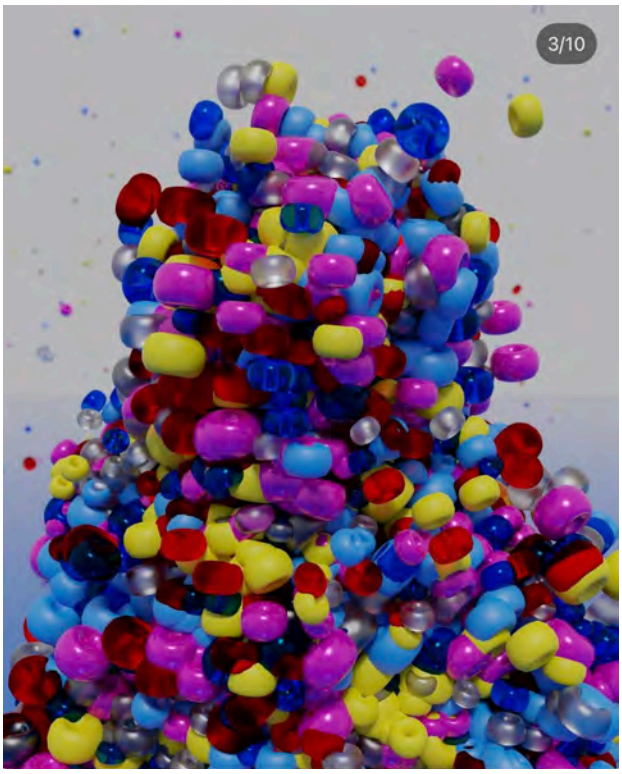
IN WORKS LIKE YOUR PIECE ĮNÌ ; SPIRIT, YOU'RE REALLY PLAYING WITH CONNECTION—IS IT POSSIBLE TO BRIDGE THAT GAP BETWEEN THE NATURAL WORLD AND HUMAN EXPERIENCE WITH THE DIGITAL?

"Įnì ; Spirit" was an artwork created specifically for the BACA Bienalle in Montreal, QC, where the title of the show was "Land Back". For this I wanted to showcase the aura's of the animals in the North and how their presence impacts nature in many ways; how they're so important and that they should be respected by all walks of life, as we are on their land and living in their ecosystems. We tend to forget that which is why taking the time to be in nature is such an effective healing practice for humans.

YOU'VE BEEN BOUNCING ALL OVER THE WORLD—VENICE, AMERICA, ALL ACROSS CANADA—WHAT ARE YOU HOPING VIEWERS TAKE AWAY FROM THE DIGITAL WORK YOU DO? DO PEOPLE OUTSIDE THE NORTH RECOGNIZE THE IMPORTANCE OF THE MATERIALS YOU'RE USING?

First off I want to thank all of the people that have provided me the opportunity and have helped me to showcase my artwork around the world, I could not have done it without them. I know as the artist I have a major responsibility in order to make the work, but it's the facilitators and grant writers who help to make it a reality. I have worked extremely hard at what I do, and I'm glad my efforts have paid off, as in many ways I still feel like that wild and uncontrollable Dene kid growing up in Yellowknife. I want the youth of the NWT to know that if you work hard enough and stay focused on what you are passionate about, that you're able to accomplish what you set your mind to.

When showing my work around the world, it's an expression not only of who I am, but where I come from. It's providing an opportunity to showcase our way of life and how we express ourselves through our artwork. Sometimes it takes some explaining as it can be confusing to some people, but it's important for us to take the time to explain. We shouldn't expect someone on the other side of the planet to know about who we are, and that patience is important because everyone is different and we all come from various backgrounds.



DO YOU THINK THIS IS THE FUTURE OF INDIGENOUS ART?

I don't think so, I know people will always create Indigenous art in a traditional sense in order to keep those teachings and techniques alive, and I have so much respect for that. However the way we showcase our artwork definitely has more of a digital presence as our Instagram accounts are basically our portfolios now. People still view my website but it seems like Instagram, Facebook, and other platforms are the first place people go to check out artworks. Accessibility is a big part of viewing artwork now, and I noticed a big shift to online sources since the beginning of the pandemic. I am getting into creating virtual tours (similar to Google Street View) as it's a great way for people from all over the world to have the opportunity to remotely visit gallery spaces.

Casey Koyczan *is a Dene interdisciplinary artist from Yellowknife, NT, that uses various mediums to communicate how culture and technology can grow together in order for us to develop a better understanding of who we are, where we come from, and what we will be. He creates with whatever tools necessary to bring an idea to fruition, and specializes in sculpture, installation, 3D/VR/AR/360, video, and audio works such as music, soundscapes and film scores.*

He has a Multimedia Production diploma from Lethbridge College, a Bachelor of Fine Arts degree from Thompson Rivers University, and a Master of Fine Arts degree from the University of Manitoba.

Follow Casey Koyczan on Instagram at @caseykoyczanart, on Facebook as Casey Koyczan / Casey Koyczan Art, and my website at www.caseykoyczan.com.

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The Promise We Made

Mason Mantla

"The Promise We Made" is a compelling and thought-provoking screenplay written by Mason Mantla. Set in a remote northern community, the story delves into themes of ancestral connections, environmental degradation, and the consequences of humanity's actions on nature. With a touch of the supernatural, the screenplay offers a unique perspective on the importance of honoring our relationship with the land.

The protagonist, Nazee, is a relatable and complex character who undergoes a transformative journey throughout the narrative. As a young Dene student, she initially appears disinterested in her studies and disconnected from her heritage. However, her encounter with the Caribou Woman sets her on a path of self-discovery and responsibility.

The screenplay effectively blends realism with supernatural elements, creating an intriguing and atmospheric tone. The animated cave paintings provide visually captivating moments that showcase the historical significance of the land and its inhabitants. The presence of the Caribou Woman as a spiritual guide adds a layer of mysticism to the story, reinforcing the importance of Indigenous traditions and wisdom.

The dialogue is well-crafted, allowing the characters to express their perspectives and engage in meaningful discussions. Nazee's interactions with the Caribou Woman reveal her internal conflict as she grapples with the weight of humanity's impact on the environment. The exchanges between Nazee and the Caribou Woman also provide opportunities for reflection on cultural heritage and the interdependence between humans, animals, and the natural world.

One of the screenplay's strengths is its ability to evoke a sense of urgency and consequence. The climactic moment, where the wolves descend upon the town, serves as a powerful metaphor for the price paid for neglecting our responsibilities to the environment. The final resolution leaves the audience contemplating the future of the community and the potential for redemption.

In conclusion, "The Promise We Made" is a thought-provoking and evocative screenplay that delves into the relationship between humans and nature. Through its engaging characters, mystical elements, and timely themes, the story serves as a reminder of the importance of honoring our ancestral connections and taking responsibility for our actions. Mason Mantla's screenplay holds great potential to captivate audiences and spark discussions on environmental stewardship and cultural preservation.

The Promise We Made

Written by

Mason Mantla

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FADE IN

INT. SCHOOL - DAY

Nazee, 17, a female Dene student plays with her braids during class. She zones out as the teacher speaks.

TEACHER
- further more. The population of the Bathurst caribou herd has dropped to a historical low. Over 80 percent of the caribou have been decimated due to multiple limiting factors. If we -

Who cares? What can she do about it thought Nazee. She looked outside the window and looked at the frost covered trees outside school limits.

She saw a woman. No wait. A caribou.

The Caribou Woman motions her arm beckoning Nazee to come hither.

CARIBOU WOMAN
Nazee.

Did anyone else hear this? Nazee looked around at her classmates. No? Only Me?

TEACHER
Nazee!

Nazee startles.

TEACHER (cont'd)
I asked you a question!

NAZEE
There are multiple factors that led to the decline of the caribou population. The decline was mostly driven by increasing negative trends in adult female and calf survival rates and possibly reduced fecundity possibly due to climate change and mining.

The teacher looks surprised that Nazee was indeed paying attention.

TEACHER
The research also shows that the effect of a constant hunter harvest on the declining herd was one potential cause for the recent accelerated decline in adult survival.

The brows on Nazee's head can't furrow any faster.

NAZEE
Yes but I dispute that.

TEACHER
What are your reasons for disputing peer reviewed published research?

NAZEE
Only what my ancestors tell me. That we have been harvesting the caribou since time immemorial and the only new factors are major mining operations in their calving grounds.

Beat.

NAZEE (cont'd)
Oh we also royally fucked up the earth and the caribou have paid the price.

Mic drop.

TEACHER
Nazee.

The teacher puts their hand in their face.

TEACHER (cont'd)
You can't say fuck in my class.

Nazee smirks.

EXT. TOWN - DAY

Nazee is walking home from school when she hears something from the woods.

She stops and listens as the world goes silent around her.

CARIBOU WOMAN
Nazee.

Nazee trails of the road and heads to the voice in the woods.

EXT. WOOD TRAIL - DAY

The trees open into a clearing. It looks like the a pathway into the woods. She sees footprints in the snow.

INVERTED SHOT NAZEE WALKING DOWN THE PATH

Nazee walks along the path for what seems like 5 minutes.

She comes upon a cave. Nazee peers into the cave and sees a pulsating blue light. She enters the cave.

INT. THE CAVE - DAY

The cave is covered in paintings depicting humans, caribou, and wolves.

In the center of the cave is the figure, Caribou Woman.

The spirit is dressed in a hide dress, has long dark raven black hair, and antlers on her head. A bright blue aura envelopes her.

Nazee grabs a large rock and hides behind her.

NAZEE
Who are you?

CARIBOU WOMAN
I am the spirit of the Caribou.

NAZEE
Why have you been following me?

CARIBOU WOMAN
This meeting has been etched in the fabric of time since the grandfathers went back into the land.

NAZEE
(incredulous)
I don't believe you. How do I know you're not just some nutcase?

CARIBOU WOMAN
We must follow ceremony.

The Caribou Woman points to a smoldering bundle of sage.

4.

Nazee picks it up.

NAZEE
What am I supposed to do with this?

CARIBOU WOMAN
You forgot. You all did.

The caribou woman points at the sage and then paints the air with her finger. The smoke magically follows the path of her finger and envelopes Nazee.

When the smoke clears the Caribou Woman has made her way towards the cave drawing.

Nazee follows.

NAZEE
Hey Lady, I asked you why are you following me? You know we just got 911 right?

CARIBOU WOMAN
There was once a time where the beings of the land lived in harmony.

INT. THE CAVE WALL - DAY (ANIMATED)

The animated caribou and the wolf figures start to move around the wall.

CARIBOU WOMAN
Then the humans came.

The animated human figures enter the scene.

CARIBOU WOMAN (cont'd)
But they had no defense. They were as powerless as calves and the wolves massacred them.

The animated wolf figures attack the animated human figures and blood spills from the walls.

CARIBOU WOMAN (cont'd)
The caribou saw this and took pity on the humans. They approached the wolves and made a treaty. If the wolves leave the humans be, then the caribou will offer some of their herd for the wolves to eat.

The animated caribou figures and the animated wolf figures meet. The animated caribou figures exit the scene and leave a few animated caribou. The animated wolves jump on the caribou.

CARIBOU WOMAN (cont'd)
Thus it was that humans were able to prosper and flood the earth with their number.

The animated human figures grow in multitude and take over the cave wall.

INT. THE CAVE - DAY

The caribou woman walks towards the center of the cave again.

NAZEE
I never knew.

CARIBOU WOMAN
Humans forget what should never be forgotten and tread on what should never be tread.

NAZEE
What do you want from me?

CARIBOU WOMAN
You are the descendant.

NAZEE
Of who?

CARIBOU WOMAN
Yamozha.

NAZEE
No. My mom is Alice and my dad is Johnny. We own a convenience store.

CARIBOU WOMAN
Only the blood of the lawgiver can step into these walls.

NAZEE
Look lady I think you have the wrong person here.

CARIBOU WOMAN
(angry)
Quiet!

The Caribou Woman grew slightly larger and her voice becomes dark and disjointed.

The bright blue aura around her turns to a dark navy.

Nazee falls backwards and throws the rock. It goes through the Caribou Woman.

CARIBOU WOMAN (cont'd)
We also made a treaty with the humans. But I guess you forgot that too? If you respected us. If you used all the parts of our body. If you gave us offering. We would continue to honor our treaty with the wolves.

NAZEE
It's colder than a witch's tit in here. I better get going.

CARIBOU WOMAN
But you pillaged our land, poisoned our water, and greedily took from our number until we couldn't give anymore but still you took.

NAZEE
I know. I know that we have been shitty towards your kind. I know that we could've, should've done better. If you let me out here alive I will try my best to make it right.

CARIBOU WOMAN
We have gathered here today in the sacred site of the Grandfathers. We have a representative of the Dene. The descendant of Yamo. Daughter of Alice and Johnny, Nazee. With all parties present we continue with the decision. To annul the treaty between the Dene and the Caribou due to malfeasance. Nazee do you have anything to say to this?

NAZEE
I uh -

CARIBOU WOMAN
The offending party has not made a credible defense. The treaty has been annulled.

The caribou woman walks towards the fallen girl.

NAZEE
I don't understand what does it mean?

CARIBOU WOMAN
Humans will never step onto these hallowed grounds again. We will stop protecting you. You will never ever see a Caribou in your lifetime. The wolves will come to call.

NAZEE
The wolves?

CARIBOU WOMAN
May the creator have mercy on your soul.

The Caribou Woman snaps her fingers.

The cave becomes blurry and wavy in Nazee's eyes. Then she is in the middle of town.

EXT. BEHCHOKO - DAY

Confused, Nazee looks around her. Everything seems normal. Was it all a dream?

Then she hears it. First a lonely howl on the horizon. Then a cacophony of howls respond. The multitude of voices as loud as jet engines.

Life stops in the town. People get out of cars to see where the noise is coming from. Office workers leave their complexes. Students run from their studies.

Then Nazee looks at the ice and finally sees it.

AERIAL SHOT THOUSANDS OF WOLVES RUNNING TO TOWN.

The howling continues once again and the bloodletting begins.

FADE TO BLACK

Mason Mantla *is a Tłı̨chǫ First Nations hailing from Behchokǫ̀, NT, Canada. He started working in the arts right out of high school. While employed with the local high school he was part of resiliency pilot project using film as an art based intervention technique to get youth to take more interest in their studies. Based on the success of the project he was hired by the Education Authority to deliver similar programming throughout the Tłı̨chǫ region. Using film, the youth were able to show their views on social and health issues in the Dene communities and create a dialogue about these sometimes taboo topics. Mason now works full-time as a freelance videographer.*

Xàgots'eèhk'ǫ Journal , Vol. 2, Issue 2, (Winter 2023/2024)
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Vadzaih - Caribou

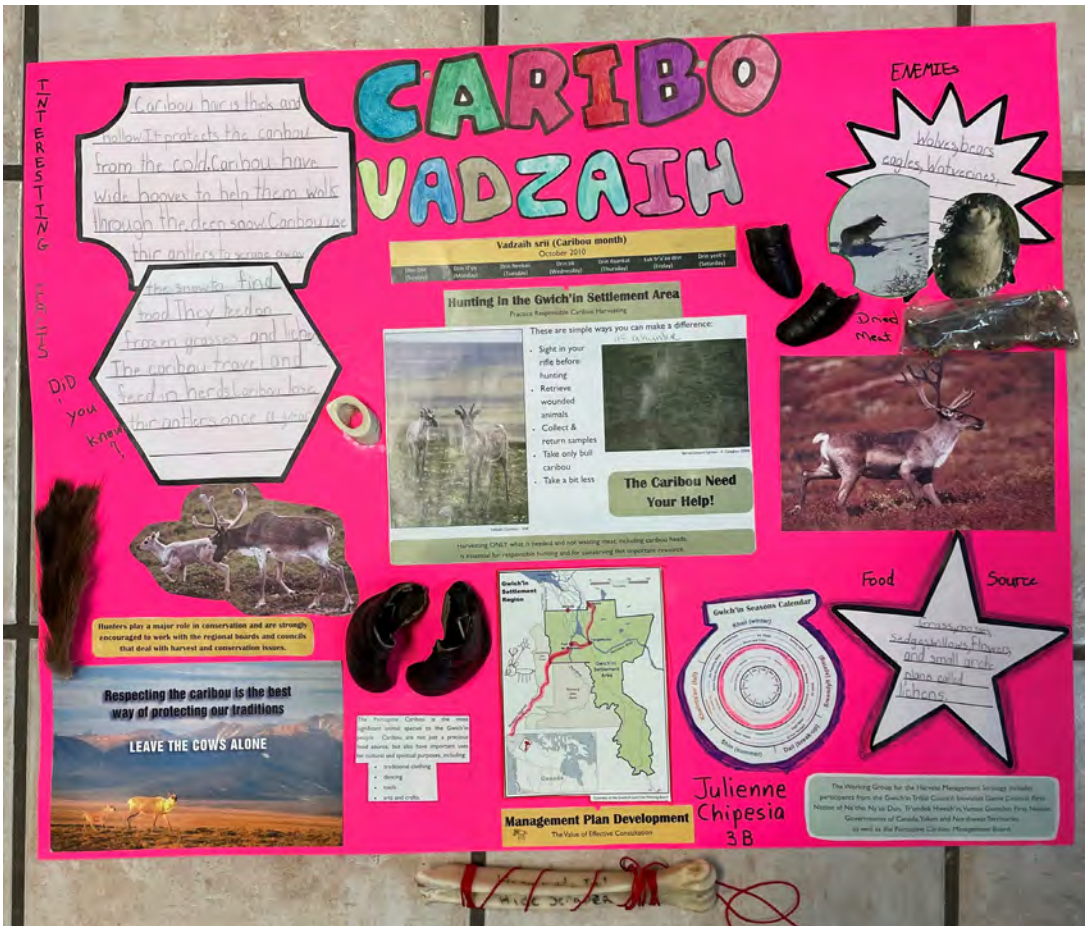
Wanda McDonald

It is an honor to co-edit the Xagots'eehk'q journal themed around Caribou with John B. Zoe.

Thanks to Jessica Davey-Quantick and the editorial committee that consists of many talented individuals who contribute their time and knowledge to making the Xagots'eehk'q Journal what it is.

Our initial discussion focused on how this edition would evolve and John B. Zoe spoke of the evolution of caribou from traditional times to present. It was up to the Co-editors and Jessica, supported by the Editorial Committee, to transpose our vision into a journal that reflects the Caribou from a traditional to modern context.

There are nine caribou herds in the Northwest Territories. Barren-ground caribou herds include: Ahiak, Beverly and Qamanirjuaq, Bathurst, Bluenose-East, Bluenose-West and Cape Bathurst, Porcupine and Tuktoyaktuk Peninsula. Caribou numbers range from 4912 to more than 115,000 thousand.



Our elders told us that since time immemorial, the caribou roamed the land and they spoke of stories where animals and humans were interchangeable, as described in Gwichya Gwich'in Googwandak *The History and Stories of The Gwichya Gwich'in*. There are similar traditional stories shared in the journal that provide the reader with messages from our past.

> *"Ts'ii deii people, ts'ii deii animals - This was a time when it was believed that everyone was the same - animals, birds, and humans. It was believed that a creature or human could change from animal to bird, human to animal, bird to human. It was also believed that with the change, animals and birds had the power to speak."* - Edward Nazon.

We have always been told from generation to generation that the caribou is very special and sacred and not to waste any parts of the caribou.

Traditionally, Northern Indigenous peoples were nomadic hunter and gathers, following the seasons and animals. The nomadic lifestyle did not require a lot of material items. With the introduction of religion, permanent housing and the wage economy, Indigenous peoples' nomadic lifestyle slowly changed from living on the land following the seasons and animals to residing in a community. This change in lifestyle contributed to less dependency on the caribou as the main source of food and materials for everyday living.

The traditional uses of all parts of the Caribou are listed below:

Antler – used for carvings

Head – used for soup, brains for tanning hides

Hide – used for tent, inside flooring, clothing, footwear, boat, babiche used for rope, twine and string - lacing for snowshoes, dog whips, harness, snares and drums

Body – used to make dry meat, bone grease and cooking meat

Intestines, organs – used as food and storage for bone grease

Hooves – preserved as an emergency food source and can be eaten

Bones – used for tools and bone grease

The caribou was fully harvested with the exception of the lungs and intestines. Modern times have changed the usage of caribou – we use plastic containers, canvas tents, metal tools, and alternative materials for clothing and footwear. Caribou is a preferred food source, bones are used for carvings, buttons, earrings and hides are used to make traditional drums.

Today, caribou is a supplemental source of food for those families who are able to hunt. Sharing caribou meat is still practiced however. The demand for caribou is increasing as the rising prices of food creates a food security issue. At the same time, rising prices to purchase gas, shells and maintain snowmobiles makes caribou hunting unaffordable for lower income families. On the land programs to help supplement the high cost of purchasing equipment, gas and building cabins are important programs to allow for community residents to pursue part time harvesting.

The introduction of major infrastructure development in the North such as highway corridors and major resource development activity have impacted and changed the northern landscape. Prior to development, the land was mainly used by the animals with little to no human disturbance. Industrial activities such as the discovery of oil, mining and infrastructure such as highway corridors have had an impact on caribou habitat and contributed to changes in migration patterns and reproduction.

Simultaneously, modern technology such as trucks, high powered snowmobiles, quads, satellite imagery and guns have lead to changes in hunting practices. Traditionally, we practiced the principles of “take only what you need, share, respect the land and animals.” However, there needs to be continuous messaging of “take only what you need” to avoid mass hunts and wastage of meat. There needs to be a common understanding of “individual versus collective rights as it relates to hunting” which in most cases are defined under the Comprehensive Land Claim agreements.

Climate change is affecting the environment and impacting caribou habitat, slumping, erosion, hot summers, forest fires, low water levels, longer seasons and excessive snowfall all contribute to changing caribou migration patterns.

In the present day context, caribou face the challenge of competing herds such as the reindeer herd which was introduced as an economic initiative. The muskox have migrated into caribou habitat across the Northwest Territories. Lichen is the main source of food for caribou. Once the Muskox pass through caribou habitat, caribou do not return for some time as the muskox dig up and eat roots of lichen and create a disturbance to the land. The reindeer herd is located close to Inuvik and has less of an impact as they are not free roam like the muskox.

The first Government of Northwest Territories *Game Act* in 1896 was the start of regulating wildlife in the North. Regulating wildlife was a foreign concept to Indigenous peoples as traditional practices were passed from generation to generation. Traditional practices were based on a balanced approach to managing and preserving the caribou herds for future generations.

Another significant historical event was the signing of Treaty 8 in June 1899 and Treaty 11 in 1921 followed by the signing of modern comprehensive land claim agreements between 1984 to 2003. The signing of these historical and modern agreements are significant to the management of caribou these agreements formally recognize Indigenous governments in the management of wildlife including caribou, and the ability to incorporate traditional knowledge into the various management processes.

With the settlement of modern comprehensive land claim agreements came the establishment of Co-management boards responsible to protect, manage and preserve wildlife including caribou. There is satellite technology that can track in real time the various caribou herds’ location which is another modern management

tool. Co-management boards consist of representatives from Indigenous, Territorial and Federal governments and provide a shared multi jurisdictional responsibility between the parties.

The Co-Management boards incorporate traditional knowledge into the management of caribou herds through the establishment of management plans and community input. The incorporation of traditional knowledge is critical and has the same weighting as scientific knowledge in the management and preservation of caribou for future generations.

The Gwich'in Renewable Resources Board has incorporated traditional messaging onto stickers "Let the Leaders Pass". This messaging is critical to preserving the caribou herd. Many of our past Gwich'in leaders spoke of protecting the Leaders of the herd and let them pass.

In summary, over a very short timeframe of roughly 100 years, major infrastructure and resource development, the introduction of permanent communities, changes to the political landscape such as the establishment of the Government of Northwest Territories wildlife act,, signing of treaties and settlement of comprehensive land claim agreement has had a significant impact on wildlife and caribou management. It is important that traditional knowledge practices are incorporated in the regulatory framework for the protection and preservation of wildlife including Caribou herds.

Development of the land, responsible management of muskox and reindeer herds are important.

A multifaceted approach on managing caribou as a renewable resource for future generations is critical. It is up to future generations to preserve the caribou herds by learning and applying traditional practices and principles such as respecting the land, animals and environment. Take only what you need, do not waste any meat, share with those families who are not able to hunt. Following responsible hunting practices is another important management tool. There are plenty of educational resources on hunting practices and educating young hunters available through the co-management boards.

We conclude the Xagots'eehk'q Journal with an in Memoriam to Elder Charlie Snowshoe, Tetlit Gwich'in who was a long time advocate for Caribou. It is hoped that Charlie's contribution to the preservation of the caribou will have a lasting effect in preserving and managing the caribou. Mussi

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Wanda McDonald is *a Gwich'in Participant and lives in Inuvik, NT. She was born in Fort McPherson, raised in Tsiigehtchic and moved to Inuvik. Her parents Emily and Shorty McDonald and Grandparents Joanne and Edward Nazon raised their family to understand the importance of a traditional lifestyle and the pursuit of an education. Wanda is currently employed as Residential Manager and volunteers with homelessness in Inuvik. She also is a Director at Large, Aboriginal Sports Circle Board, a Board Member at Large, Surface Rights Board and Member, Editorial Committee for Xagots'eehk'q Journal. Wanda's personal interests include creative writing, basic photography, scrapbooking, and maintaining a healthy lifestyle through exercise, distance hiking and cycling.*

Xàgots'eèhk'ǫ Journal , Vol. 2, Issue 2, (Winter 2023/2024)
https://xagotseehkojournal.com

In Memoriam: Charlie Snowshoe, Teetlit Gwich'in

Stephanie Irlbacher-Fox

Charlie Snowshoe, Teetlit Gwich'in (1934-2022). Photo: Ron Cruikshank.

Charlie Snowshoe was the first-born child to his parents Elizabeth & Edward Snowshoe on October 12, 1934 on an island around Road River. Charlie faced adversity from an early age as he was taken to residential school for several years of his life as well as losing his mother at the young age of 11 years old. Charlie's Jijuu Mary Snowshoe then took on the motherly role in his life and they developed a close bond.

Charlie married Mary Effie Pascal on July 8, 1960 at the St. Matthew's Anglican Church in Teetł'it Zheh. Mary Effie and Charlie celebrated their 62nd wedding anniversary this past summer and she stood by Charlie's side right until the very end. Charlie and Mary Effie had 9 children together: Winnie, Elizabeth (D), Norman, Stanley, Shirley, Elizabeth, Bella and Charlie "Geejam" Jr. (D) and Sheena. Charlie and Mary opened their home to foster children throughout the years; Jason and Rudolph Francis, Colleen Kangegana & Shyanne Gow were very close to Charlie's heart. Charlie and Mary had 31 grandchildren, 25 great-grandchildren and 2 great-great-grandchildren, totalling to 58 grandchildren. Charlie lovingly called everyone "my girl" and "my boy" whether they were blood related or not, it was a sign of respect and his love.

Charlie attended Adult Ed where he achieved a Grade 9 education. With that grade 9 level education, Charlie sat with top notch bureaucrats across Canada and the United States of America. In 1975, Charlie and Mary decided to give up alcohol and began working for the people as counsellors and chairperson of the society at the Peel River Alcohol Centre.

Charlie Snowshoe has received numerous awards for his work to preserve the Peel River Watershed. In 1992, he received the Commemorative medal for the 125th Anniversary of the Confederation of Canada. He was also awarded the Lifetime Achievement Award in Environmental Impact Assessment for Western and Northern Canada Affiliate of the International Association for Impact Assessment in 2007 and was also awarded the Gwich'in Achievement Award for Land and Environment in 2008. Charlie was ultimately recognized for his prestigious career and notorious legacy when he received an Indspire Award in Environment & Natural Resources in 2014.

Charlie would often sacrifice time with his family to travel and attend meetings to Protect the Peel Watershed and the Porcupine Caribou Herd. He was always advocating for water quality and preservation of the Porcupine Caribou Herd. He advocated for safe water especially from oil and gas development in Alberta. He also put great effort to protect the Arctic National Wildlife Refuge from Oil and Gas Development in the calving grounds of the Porcupine Caribou Herd. He went on lobbying efforts in the United States to educate the public and politicians on the negative effects oil and gas development will have on the Porcupine Caribou Herd. He travelled even in ill health because of his passion for protecting the environment and the wildlife.

Charlie also contributed to the Gwich'in Comprehensive Land Claim Negotiations, where he used his voice to represent his community of Teetł'it Zheh. Charlie's wish was for the young people was for them to get their education and to stand up for their rights and protect their land.

Stephanie Irlbacher-Fox*, PhD, is the Scientific Director for Hotıì ts'eeda. Getting to know Morris was one of the highlights during the two decades she worked with the community of Délı̨ne's self government negotiating team, and then as the implementation director who led the technical team that established the Délı̨ne Got'ine Government.*

Xàgots'eèhk'ǫ́ Journal , Vol. 2, Issue 2, (Winter 2023/2024)
https://xagotseehkojournal.com

Xàgots'eèhk'ǫ́ JOURNAL

Looking Ahead: Summer 2024 Edition

The theme for this issue has evolved as the Northwest Territories comes to grips with the experiences of wildfire evacuations and floods over the past few years, as well as ongoing systemic inequities in our context. Originally announced as Living Well, the theme has expanded, and contributions exploring Surviving and Thriving in the North are welcomed.

A conversation about living well in the North needs to understand how Northerners have and continue to survive and build meaningful lives in the face of past, present and future crises. Whether the challenges be local, national or on a global scale, the effects are being felt in the North. Resilience provides a strength-based lens to explore ideas and knowledge about how to survive and thrive in the North, while acknowledging the challenges. In this frame, contributions that explore all aspects of what it means to live well, to survive challenges, and to thrive in the North are encouraged.

Xàgots'eèhk'ǫ́ accepts submissions from across regions, disciplines, languages and genres. Scholars, artists, researchers, youth, community members, Elders and Knowledge Holders are invited to submit original work. This can be research papers and academic work, but can also include literature reviews, essays, photo essays, conference reports, stories, oral storytelling, creative works, interviews, biographies, art and more.

The journal utilizes a relational-review model, where the rigour of peer review is inclusive of Northern Indigenous knowledge and ways of knowing as well as scientific and academic knowledge. To do this, reviewers are experts from the academy as well as the community, and can include Elders, Traditional Knowledge Holders, artists and more, as best suits the piece being reviewed.

The Spring/Summer edition is co-edited by Dr. Jessica Dutton, Manager, Learning Health Systems, Community, Culture and Innovation with the GNWT Department of Health and Social Services and Dr. Candice Lys, Co-Founder and Executive Director of FOXY/SMASH. Dr. Dutton and Dr. Lys are both Research Associates at Aurora College.

For more information or to submit to the journal, please email **xagotseehko@auroracollege.nt.ca** *or visit* **https://xagotseehkojournal.com**.

CARIBOU STORIES

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