

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 archaeologists, 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 construction¹. 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.

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 stabilizes 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.