Project Caribou

An Educator's Guide to Wild Caribou of North America

Project manager:

Remy Rodden, Yukon Renewable Resources

Consultants:

Darielle Talarico, Arctic Vision, Whitehorse, Yukon

Principal writer:

Kirsten Madsen, Whitehorse, Yukon

Original illustrations:

Jennifer Staniforth Doug Urquhart Tanya Handley

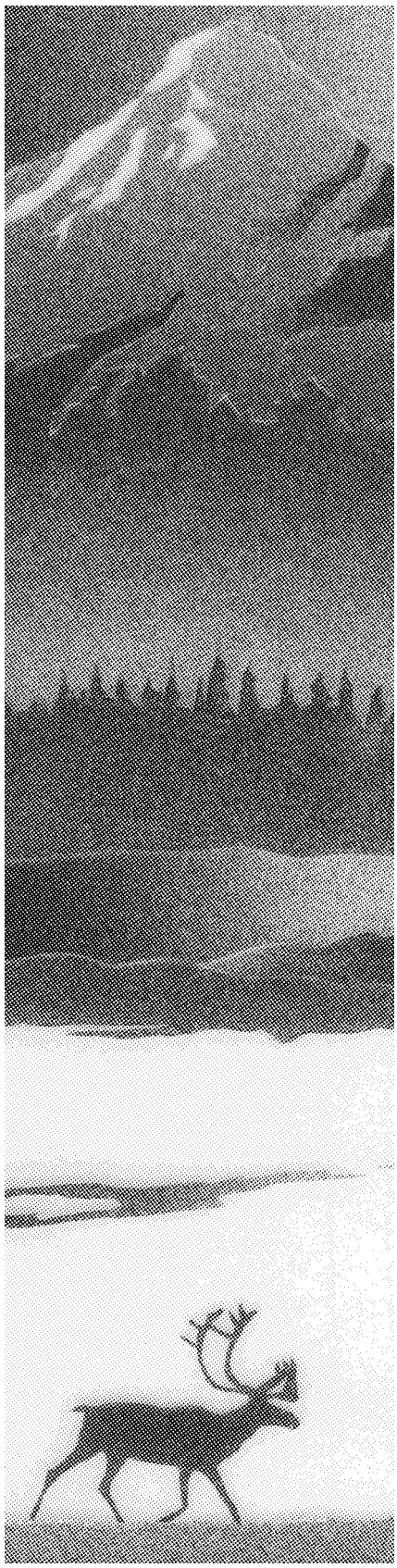
Cover: Joyce Majiski

Editing and production:

Walker LeBrun Creative Services, Whitehorse, Yukon

For more info: **www.projectcaribou.org**

Conservation Education Coordinator
Yukon Department of Environment
Conservation, Protection and Public Education Branch
Box 2703, Whitehorse, Yukon Y1A 2C6
(867) 667-3675 or 1-800-661-0408
fax (867) 393-6206
remy.rodden@gov.yk.ca



Environment Canada (Canadian Wildlife Service—Yukon)

Beverly and Qamanirjuaq Caribou Management Board

Case Study

The Qamanirjuaq Caribou Herd: An Arctic Enigma

Prepared by Leslie Wakelyn

Range and ecosystem

Every year for thousands of years, Qamanirjuaq caribou have migrated from calving and post-calving areas on the tundra, south to the wintering grounds, and back north for the next calving season. The year-round range of this barren-ground caribou herd has been identified by surveys conducted sporadically over the past 60 years. The total area used by the Qamanirjuaq caribou herd during this period spans more than 1,000 km from north to south, from north of Baker Lake, Nunavut, to south of Brochet, Manitoba (see Beverly and Qamanirjuaq caribou range map on page 118). The range extends about 500 km east to west, from the west coast of Hudson Bay inland across the southern Kivalliq (formerly known as Keewatin) region of Nunavut and northern Manitoba, and includes part of southeastern Northwest Territories and northeastern Saskatchewan. The western boundary of the Qamanirjuaq range is not well defined, as there is substantial overlap of Qamanirjuaq and Beverly caribou range, especially winter range. Qamanirjuaq caribou do not use all of their range in any particular year, as their movements and range use patterns vary according to weather and other factors.

The Qamanirjuaq herd returns to the same general area for calving each year, although not to the same specific location. As a result, the traditional calving grounds (the total area known to be used for calving over many years) are much larger than the area used in any particular year. The Qamanirjuaq herd's traditional calving grounds (approximately 28,500 km^2) are located in the Qamanirjuaq Lake area of Nunavut's Kivalliq region, extending from about 60 to 240 km inland from the west coast of Hudson Bay, and from Maguse Lake to just south of the east end of Baker Lake (about 230 km). Annual calving areas used by Qamanirjuaq caribou have been located by surveys in 25 years between 1963 and 1994. Calving ground surveys conducted between 1989 and 1994 located calving Qamanirjuaq caribou in the east-central portion of the traditional calving grounds, east of Qamanirjuaq Lake, but most surveys between 1977 and 1988 found many caribou calving west of Qamanirjuaq Lake. That is why the entire traditional calving grounds, not just the area used for calving in one year, is important to the herd over the long-term.

The Qamanirjuaq winter range consists primarily of forested lands in northern Manitoba and tundra in Manitoba and Nunavut. Segments of the herd have often wintered on the tundra during the same year that other caribou groups have lived in the forest. In most years between 1972 and 1982, the majority of the Qamanirjuaq herd wintered on the tundra in coastal regions of Hudson Bay. In other years, much of the herd has wintered close to communities in northern Manitoba. In the winter of 1998/99, however, Qamanirjuaq caribou were found in Manitoba only in the far northwest corner of the province, and all the satellite-monitored caribou wintered farther north than in recent years.

Unique characteristics

The range use and movement patterns of the Qamanirjuaq caribou herd are neither consistent nor predictable. Variability in Qamanirjuaq range use patterns has caused much concern for biologists and wildlife management agencies over the years, and has frequently resulted in limited access to caribou for hunters from different parts of the range. Substantial changes in seasonal caribou distribution between years has caused much hardship in the past for aboriginal people dependent on Qamanirjuaq caribou as their primary food source. Before people moved to communities and used snow machines for hunting, famine resulted when the herd did not return to areas in which people had hunted them for many years. Even in modern times, hardship can result when caribou do not winter near communities. For instance, the 1998 Manitoba harvest of Qamanirjuaq caribou was the lowest since 1990, as it was necessary for hunters from northern Manitoba communities to travel long distances (10 to 22 hours by snow machine) to harvest only a few caribou.

One mystery that has never been solved concerns the large fluctuations in the numbers of calving Qamanirjuaq caribou that were observed during surveys conducted in the 1960s to the 1980s. Surveys in the

1960s and 1970s indicated that the population was declining sharply, but in 1982 and 1983 biologists found an unexpectedly large number of calving caribou, which indicated that the herd size was much larger than previously believed, and that it was actually increasing. Biologists had explained the apparent decline as a consequence of over-harvesting, but hunters did not agree with this interpretation. No simple explanation for the confusing survey results has been established, although it is likely that the answer has something to do with changes in Qamanirjuaq caribou distribution.

Cultural and social significance

Many Dene and Inuit historically depended on Qamanirjuaq caribou for much of their food, clothing and shelter. Caribou were used so much by the Inuit of the Kivalliq region that the people were given the name "Caribou Eskimo" by Europeans. The people known as the Ahialmiut group of Caribou Inuit subsisted almost entirely on caribou year-round, unlike other Inuit groups that depended at least partially on harvest of animals from the sea. The ancestors of the Ahialmiut had moved inland from coastal areas in what is now the Kivalliq region of Nunavut. When the Dene joined the fur trade, and consequently stopped following caribou onto the tundra each summer, the Ahialmiut moved farther inland, pushing south to the tree line by about 1850. They spent spring and summer inland, where they intercepted caribou travelling north in the spring, and had summer camps on the calving grounds.

Other groups of Caribou Inuit lived inland during winter and travelled to the coast in the spring, where they stayed through the summer. In the early fall, they returned inland to hunt caribou and make caches for the winter. Groups of families hunted caribou at water crossings during their southward fall migration, and cached caribou and fish under large rock piles on high points of land, so they could be found easily. Kivalliq Inuit relied primarily on caribou during the winter months, and winter food supplies that they cached saved many people from starvation when caribou were scarce. These people were successful inland hunters, although they were subject to famine in years when caribou wintered primarily in the southern forest, rather than on the tundra, or when they were unable to cache sufficient food supplies in the fall.

Regular trade between Caribou Inuit and Europeans began in the early 1900s, after which time Inuit lifestyles began to change. White fox trapping became popular in the Kivalliq region, as it was easy and profitable to check trap-lines while hunting caribou. The Inuit maintained a lifestyle of hunting and trapping while living in family groups on the land, and continued to rely heavily on harvesting Qamanirjuaq caribou. However, following years of hardship in the late 1940s and 1950s, many people started moving into communities, and were encouraged by government to do so to allow their children to attend school and to have access to medical care at nursing stations.

In spite of the change in lifestyle associated with community living, use of Qamanirjuaq caribou continues to be very important for sustaining the culture and traditional lifestyles of Dene, Metis and Inuit across the caribou range. The herd is harvested regularly by residents of nine communities in Nunavut, northern Manitoba, and northern Saskatchewan. Caribou still provide much of the food for families living on caribou range, as well as materials for traditional clothing and special tools. Both subsistence and commercial harvesting of Qamanirjuaq caribou are important to communities on the range.

An Inuit legend about the origin of caribou

(Told by Kibkarjuk, from "Observations on the Intellectual Culture of the Caribou Eskimos" by Knud Rasmussen)

Once upon a time there were no caribou on the earth. But then there was a man who wished for caribou, and he cut a great hole deep into the ground, and up through this hole came caribou, many caribou. The caribou came pouring out, till the earth was almost covered with them. And when the man thought there were caribou enough for mankind, he closed up the hole again. Thus, the caribou came up on earth.

Historical and current status

The population size of the Qamanirjuaq herd was estimated to be well over 100,000 on the basis of surveys conducted in the late 1940s and mid-1950s.

Calving ground surveys in the 1970s indicated a population decline, with estimates of fewer than 50,000 adult animals in the herd. By the late 1970s, biologists were concerned that the population decline could drive caribou numbers so low that harvesting would no longer be possible, which would have serious consequences for the many hunters and families that depended on Qamanirjuaq caribou as their main source of meat.

Hunters did not agree that the herd was declining, however, and believed instead that it was actually increasing. We know now that herd size was likely much higher than surveys in the 1970s indicated. Surveys in 1982 and subsequent years confirmed larger herd sizes and an increasing trend, with more than 200,000 adult caribou by 1985, and almost 500,000 by 1994. Although current survey techniques, such as photographic surveys, provide better estimates of herd size than earlier methods, population estimates still contain a degree of uncertainty.

Current and future threats

Mineral exploration and mines are currently the greatest threat to Qamanirjuaq caribou, as exploration activities continue to increase on the caribou range, including the calving and post-calving areas. For example, between 1991 and 1998 five mining companies submitted applications to the federal government for mineral exploration on the Qamanirjuaq herd's traditional calving grounds. With the creation of Nunavut in April 1999, the Nunavut Impact Review Board took over responsibility for screening applications for land use permits and leases from the federal government, including activities on Qamanirjuaq caribou range. In the absence of any coordinated strategy or policy for protection of caribou calving and post-calving areas in Nunavut, it is likely that exploration activities will continue in these and other areas on the caribou range, which will probably lead to proposals for mine development. All phases of the mineral extraction process (including exploration, construction, operation and abandonment) are of potential concern, although it is difficult to predict and accurately assess the possible negative impacts of these activities on Qamanirjuaq caribou.

Feasibility studies were proposed in 1999 for transmission lines and roads from northern Manitoba to communities on the west coast of Hudson Bay, and for hydro generation facilities just north of the Manitoba border. This proposal resulted from economic development agreements between the governments of Manitoba, Nunavut and Canada. These projects will undergo further assessment (engineering, environmental and socioeconomic) before decisions are made concerning whether to proceed with development of roads, transmission lines and hydro dams. Once a commitment to develop these facilities is made, construction would occur over a 5- to 10-year period.

These proposed facilities are all located on Qamanirjuaq caribou range and could have significant consequences for the herd. The proposed roads are of greatest concern, as they could increase unregulated harvest of caribou, act as barriers to caribou movement, and reduce habitat availability. There is a high potential for significantly greater harvest levels resulting from the increased access to caribou range that a road would provide. All-weather roads along the Hudson Bay coast could affect caribou movements during spring migration, as the proposed road corridor intersects with the herd's primary migration corridor between winter range and the calving grounds.

The proposed hydroelectric development could affect movement of Qamanirjuaq caribou during spring and fall migration. The herd may need to make long detours if traditional water-crossing sites become impassable because of changes to water levels and stream flow characteristics that result from hydro dams. Access roads inland from the coast may cut across traditional migration routes (which parallel the coast), and could also potentially create seasonal barriers to caribou movements.

A rapid increase in the number of hunters on the Qamanirjuaq caribou range could mean that unlimited hunting of caribou will not always be possible. Careful sharing of the caribou resource will likely be necessary some time in the future to ensure that the Qamanirjuaq herd continues to be abundant and productive, so that caribou are available for present and future generations.

Management and study

The Beverly and Qamanirjuaq Caribou Management Board (BQCMB) was established in 1982 to coordinate management of the Beverly and Qamanirjuaq caribou herds. The BQCMB consists of representatives of communities from across the range of both herds, and of the governments of Manitoba, Saskatchewan, the NWT and Nunavut (which replaced Canada in 1999). The Board's responsibility is to make recommendations to government and conduct projects for conservation and management of the caribou herds and their habitat. A report and map atlas on CD-ROM published by the BQCMB in 1999 provide information for impact assessment and land use planning on Qamanirjuaq and Beverly caribou range. (For more information on the BQCMB's projects refer to the Beverly caribou case study in this guide.)

An optimum herd size of 300,000 and a crisis level of 150,000 animals were established by the BQCMB in the 1987 management plan. If the Qamanirjuaq herd size declines below the crisis level, recommendations for emergency action for management and protection of the herd will be submitted by the BQCMB to the Nunavut and Manitoba governments.

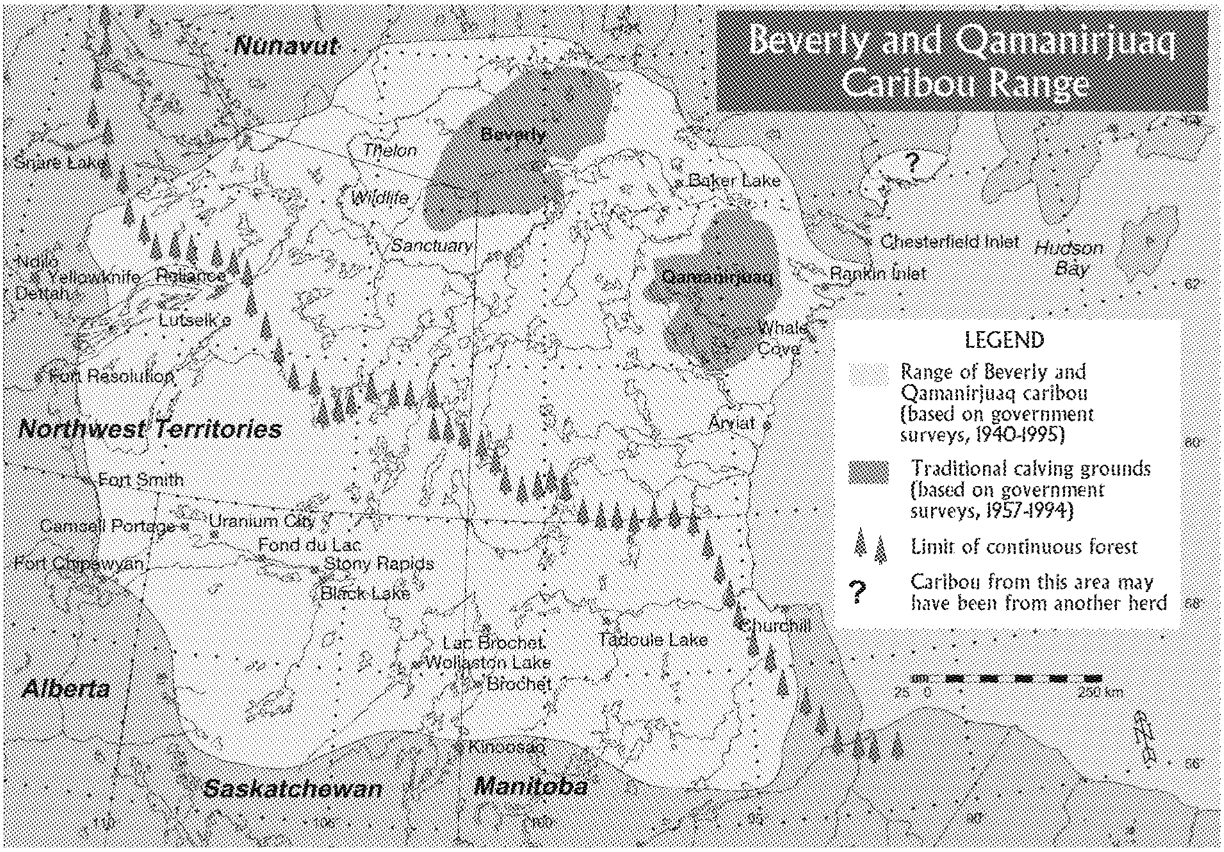
The distribution and movements of up to ten adult female Qamanirjuaq caribou have been monitored since 1993 using radio-collars which are tracked by satellites. The results of this study have added much to our knowledge of the herd's recent distribution and movement patterns, and of the overlap between the Qamanirjuaq and Beverly caribou ranges. For instance, one of the caribou that was collared in April 1995 on Qamanirjuaq winter range (where it overlaps with Beverly winter range) travelled to the Beverly calving grounds each spring from 1995 to 1997, but wintered with the other collared Qamanirjuaq caribou in the southern NWT. (The other collared caribou had travelled to the Qamanirjuaq calving grounds with the rest of the Qamanirjuaq herd each spring.) This indicates that caribou from these two herds mix on the winter range. The satellite-monitoring study has also confirmed that the Qamanirjuaq herd travels north of Chesterfield Inlet in some years; in the spring of 1998, two Qamanirjuaq caribou collared near Rankin Inlet travelled north of Chesterfield Inlet. Although it was generally believed that Qamanirjuaq caribou may have ranged up to 100 km north of Chesterfield Inlet in historical times, before the satellite-monitoring data were available, no one was sure how far north Qamanirjuaq caribou travelled. The satellite-monitoring study is enthusiastically supported by hunters from Nunavut and Manitoba.

For further information:

Beverly and Qamanirjuaq Caribou Management Board
3565 Revelstoke Drive
Ottawa, Ontario
Canada K1V 7B9
Phone: (613) 733-2007
Fax: (613) 733-1304
E-mail: bqcmb@cyberus.ca
Web: www.arctic-caribou.com

Regional Wildlife Biologist (Kivalliq Region)
Department of Sustainable Development
Government of Nunavut
Box 120
Arviat, Nunavut X0C 0E0
Phone: (867) 857-2828
Fax: (867) 857-2986

Wildlife Manager (Northeast Region)
Manitoba Department of Conservation
Box 28
59 Elizabeth Drive
Thompson, Manitoba R8N 1X4
Phone: (204) 677-6644
Fax: (204) 677-6359


Beverly and Qamanirjuaq Caribou Range
Nunavut
Snare Lake
Thelon
Wildlife
Sanctuary
Beverly
Baker Lake
Chesterfield Inlet
Hudson Bay
Rankin Inlet
Qamanirjuaq
Whale Cove
Ndilo
Yellowknife
Dettah
Reliance
Lutselk'e
Fort Resolution
Northwest Territories
Arviat
Fort Smith
Camsell Portage
Uranium City
Fond du Lac
Fort Chipewyan
Stony Rapids
Black Lake
Lac Brochet
Wollaston Lake
Brochet
Tadoule Lake
Churchill
Alberta
Kinoosao
Saskatchewan
Manitoba
LEGEND
Range of Beverly and Qamanirjuaq caribou (based on government surveys, 1940-1995)
Traditional calving grounds (based on government surveys, 1957-1994)
Limit of continuous forest
Caribou from this area may have been from another herd
250 km