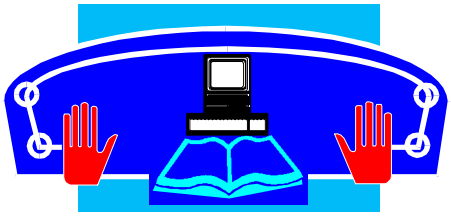


Arctic Wildlife Sketches;barren-ground Caribou;second Edition

Type of Study: Species Biology Wildlife Products, Nwt Wildlife General

Date of Report: 1984

Author: Gnwt-ren Res

Catalogue Number: 5-1-1

Barren-Ground Caribou

Rangifer tarandus groenlandicus

New-born calf.

Distribution

Four subspecies of caribou are distributed in different areas throughout the Northwest Territories.

Woodland caribou ***(Rangifer tarandus caribou)*** inhabit the boreal forest regions on the southwest and northwest shores of Great Slave Lake, the Mackenzie River drainage, and the regions as far north as **Colville** Lake and the upper Anderson River. They also range through the forests and alpine tundra of the MacKenzie Mountains.

Peary caribou ***(Rangifer tarandus pearyi)*** range throughout the arctic archipelago as far north as **Ellesmere** Island. Their distribution is generally restricted to the arctic islands, among which they migrate seasonally.

Grant's caribou ***(Rangifer tarandus granti)*** are found mainly in Alaska, although one herd (the Porcupine) ranges into the northwest corner of the Northwest Territories.

The fourth subspecies is the **barren-ground** caribou ***(Rangifer tarandus groenlandicus)***. They range over the tundra from Hudson Bay to the east end of Great Slave Lake and north through Great Bear Lake up to the arctic coast around **Paulatuk.** They are also found on **Baffin** Island. Of the four subspecies, barren-ground caribou are the most abundant, have the highest economic importance and are the most intensively hunted and studied. Four major mainland herds of barren-ground caribou have been identified in the Northwest Territories.

A caribou herd is defined as a group of animals which calve in a traditional location distinct from the calving areas of other herds. The **Bathurst herd is found north** of the western end of Great Slave Lake all the way up to **Bathurst** Inlet. The **Beverly** herd is located in the central Northwest Territories, ranging from the east side of Great Slave Lake and Lake **Athabasca** in Saskatchewan to the Back River northwest of Baker Lake. The range of the **Bluenose** herd extends from Great Bear Lake to the arctic coast. The **Kaminuriak** herd ranges along the coast of Hudson Bay north to Chesterfield Inlet, and south into the northern part of Saskatchewan and Manitoba, and as far inland as Dubawnt Lake.

Other barren-ground caribou populations have been tentatively identified in north **Baffin,** south **Baffin,** Boothia Peninsula, and the northeastern mainland.

Some writers believe the word "caribou" was derived from the **Micmac** "xalibu" which means "the pawer". Early explorers called the animals reindeer, which was sometimes shortened to "deer". **Inuit** call the caribou "tuktu" or "tuktuk". **Chipewyan** Indians say "et-then", **Dogribs** "ek-we", and to the **Slavey** Indians the caribou are "ekwe".

Caribou vary in size according to their subspecies. Barren-ground caribou (adult males) average about 110 cm high at the shoulder and 110 kg in weight. Generally, woodland caribou are larger and heavier, while **Peary** caribou are smaller.

Caribou have long legs ending in large, broad and sharp-edged hooves which give good support for travel over snow or muskeg and good traction on ice or rock. In winter, the pads of the hooves shrink and become horny, and hair between the toes forms tufts that cover the pads, so that the animal walks on the horny rim of its hooves, protecting the fleshy pads from contact with the frozen ground.

The **colour** of a caribou's coat varies seasonally with the **moult.** In spring and early summer, adult males begin **moulting** and appear patchily black until short dark brown summer hair replaces the old coat. In full summer **pelage** caribou are very dark with a light flank stripe, white belly and white bands above the hooves. In winter, white-tipped guard hairs grow over the summer hair, giving the animal a silvery appearance.

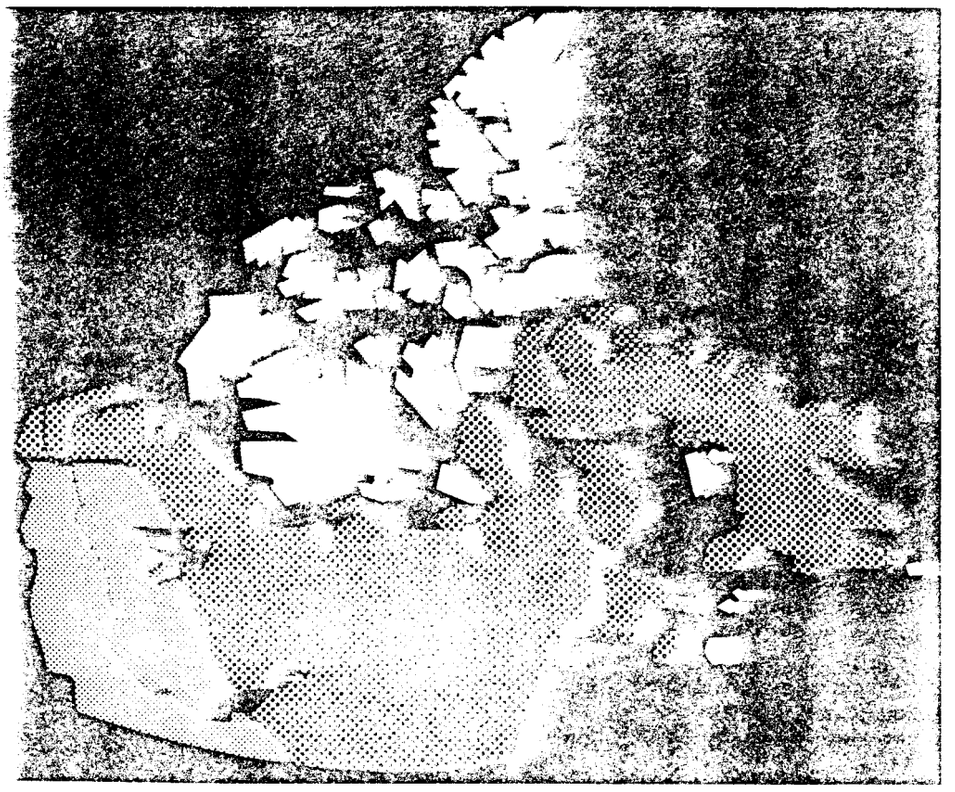
The exceptional warmth of the winter coat is the result of individual hairs which are hollow. The air cells in the hair act as an insulating layer to conserve body heat. Fur covers the entire animal. The large blunt muzzle is **well-**

furred, and the short broad ears are also furry. Thus caribou are well able to withstand the most extreme temperatures of their habitat in winter.

Both male and female caribou have antlers which are shed and re-grown every year. Adult males begin to shed their antlers in early November after the rut, while females usually lose them after calving in June. Calves develop their first antlers in fall when they are about 3 months old and carry them until May or June of the following year.

Caribou are generally silent animals except after calving and during the rut. After calving, cows communicate with their young in short grunts. Males vocalize during the rut with a snoring, bellowing sound. Sometimes a startled caribou will emit a breathless snort as it leaps on its hind legs before running off. Another sound which caribou make, though not vocal, is the sharp clicking noise which emanates from the movement of the tendons and bones just above the hooves. This noise is heard most clearly on calm cold days as large groups of animals journey across the tundra.

Caribou have several gaits. When migrating, they move with a leisurely, but determined walk covering as much as 20 to 65 km a day. Under easy traveling conditions over hard-packed snow or ice they can walk at about 7 km/hr. When startled, a caribou runs in a loose, even trot. The head is held high and the tail erect. If the animal becomes extremely alarmed such as when pursued by wolves or dogs, or harassed by low-flying aircraft, it will break into a gallop. The hind legs are set far apart, swinging in front of the forelegs and the head is extended foreward.

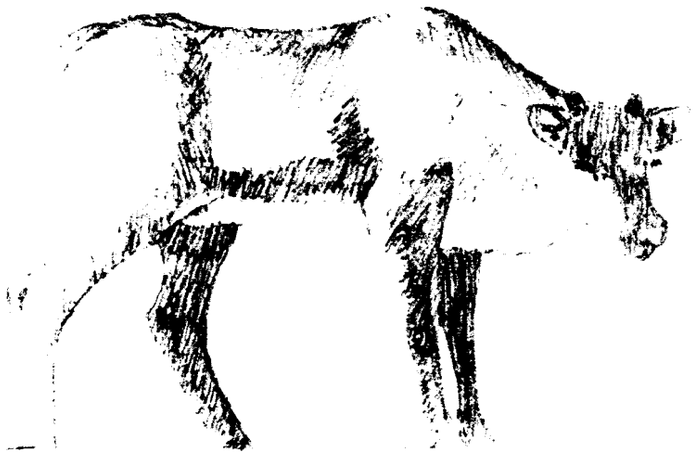


Distribution of caribou subspecies in the N.W.T.

Barren-ground caribou

Woodland caribou

Caribou are excellent swimmers. The hollow hairs of their **pelage** enable them to float high in the water and their broad hooves propel them along at speeds of about 3 km/hr. In short spurts they have been clocked at 10 km/hr. At water crossings, caribou normally select narrow, if not always easy, stretches, but they can swim for long distances and have been observed crossing parts of Bathurst Inlet which are up to 10 km wide.



Keith Taylor

Barren-ground caribou herds in the N.W.T. Main herds:
1. Bluenose 2. Bathurst 3. Beverly 4. Kaminuriak
Other populations tentatively identified:
5. Northeastern Keewatin 6. Be
7. South Baffin.
8. Porcupine herds

In early spring when long hours of daylight return to the Northwest Territories, barren-ground caribou begin to move in a great northward migration. Individuals band together, and each small group joins another and another until long lines of caribou are moving steadily to their calving grounds, which may be as far as 700 km away.

By the time the herds pass the last stunted trees of the northern forests and spread out over the still frozen barren-lands, they may number in the thousands. Cows and yearlings lead the way, while bulls lag behind. Even in mid-May, when temperatures soar and small lakes are breaking up, groups of bulls still linger not far from treeline, grazing their leisurely way northward to the barrens.

Meanwhile, the cows have forged ahead. Their urgency to reach the traditional calving ground is so great that nothing can hold them back. Even if calves are born along the way, they may be left behind as the cows continue on with the herd. When the animals reach the calving grounds, they divide into smaller groups, and spread out over an area which may be as much as 10,000 km' for the larger herds.

The calving grounds are often located in high, rocky, windy areas which seem to be most unlikely spots for the birth of new calves. It is not known exactly why such inhospitable places are chosen but several advantages have been suggested. The area may be far from predators such as wolves, many of which remain near treeline to den. Mosquitoes and blackflies hatch there later than in areas closer to treeline. A high exposed spot may be drier than surrounding lowlands. Finally, all calving grounds seem to have a common factor in that they offer the lichens, sedges, grasses and forbs necessary for caribou to forage on during the spring and early summer.

Most calves in the Northwest Territories are born during the first 2 weeks of June. On individual calving grounds births usually occur in the same time period of about 5 days with all calving finished in 3 weeks.

When the females are close to calving, they band together in groups. A cow about to give birth lies down on a dry patch of ground and goes into labour. Within minutes the calf is born. Caribou produce only one calf at a time and the female devotes all her attention to it, licking it, sniffing it and learning its characteristics. At the same time, the calf learns to recognize its mother from all the other cows.

Caribou calves are precocious and can stand and suckle within a few minutes of birth. In an hour a calf can follow its mother, and in a few days it can outrun a man. As soon as the calf can keep up with its mother, it begins to associate with other cows and calves. It is most important now that a strong cow-calf bond has been established, for the calf must be able to distinguish its mother in a herd of milling animals. Cows usually search diligently for calves

lost along the trail, and in most cases are able to find them. Life ends quickly for calves which are not found, for they cannot survive without their mothers and the safety of the herd.

As more and more cows, calves and yearlings group together in "post-calving aggregations", the herds begin to approach the sizes that seemed to early explorers to be "numbers beyond counting". By early July, huge herds of thousands of caribou are moving across the tundra. Tales were told of caribou herds in the millions, and it must have seemed that the animals stretched as far as the eye could see and were indeed limitless, but it is likely that early estimates were greatly exaggerated.

The formation of large post-calving aggregations usually coincides with the arrival of black flies and mosquitoes on the tundra. It is thought that caribou behaviour at this time of year is governed largely by the need to seek relief from insects. The herds often travel into the prevailing winds and stop for temporary respite on wind-swept ridges and patches of ice and snow. Near the sea, caribou travel to the shore for the cold wind which blows off the ice, and some may even wade into the water. During the days which are too hot for mosquitoes, the caribou rest and feed, moving on in the evenings when insects reappear.

During the summer, the caribou suffer much stress. Hordes of blackflies and mosquitoes torment the animals, preventing them from feeding in peace and taking a great toll on energy reserves. Calves especially suffer at a time when they require energy for growth and development. Insects also may drive the animals to frenzied stampeding in which many are injured and calves become separated from their mothers.

Other problems arise from predators. On the calving ground, very young calves are susceptible to grizzly bear attack. Wolves are also present on the calving grounds and when the herds begin to move, follow along with them. One reason for the formation of large herds may be for protection against wolves. Many animals are better able to sense the approach of danger than a lone caribou. If a wolf appears within the herd, one animal in an alert posture informs others of the danger and the herd flees as a group.

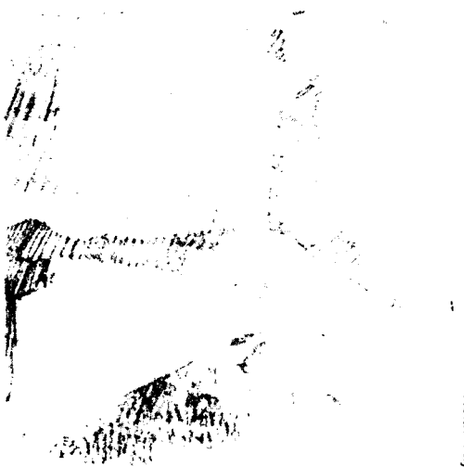
Wolves attack caribou in several ways. A pack may cut off an animal from the herd and then close in with a sudden rush. Two or more wolves may run relays after a herd to weaken a selected animal, or the wolves may set up ambushes, with one or two animals chasing the caribou and others lying in wait further along the direction of the chase. A healthy, alert caribou can easily outrun a wolf and its chances of escape are usually excellent. But a caribou which has been singled out by wolves, possibly because it lagged a few seconds behind or because it showed some weakness, will often fall victim.

Water crossings are another danger for the caribou herds. Rivers and lakes which were frozen during the spring migration are open in midsummer, becoming swift and treacherous torrents. The herds are wary at water crossings and many caribou amass at the edge waiting until some determined animal takes the plunge and strikes out for the far shore. The entire group then follows behind until the lake or river is a mass of swimming caribou.

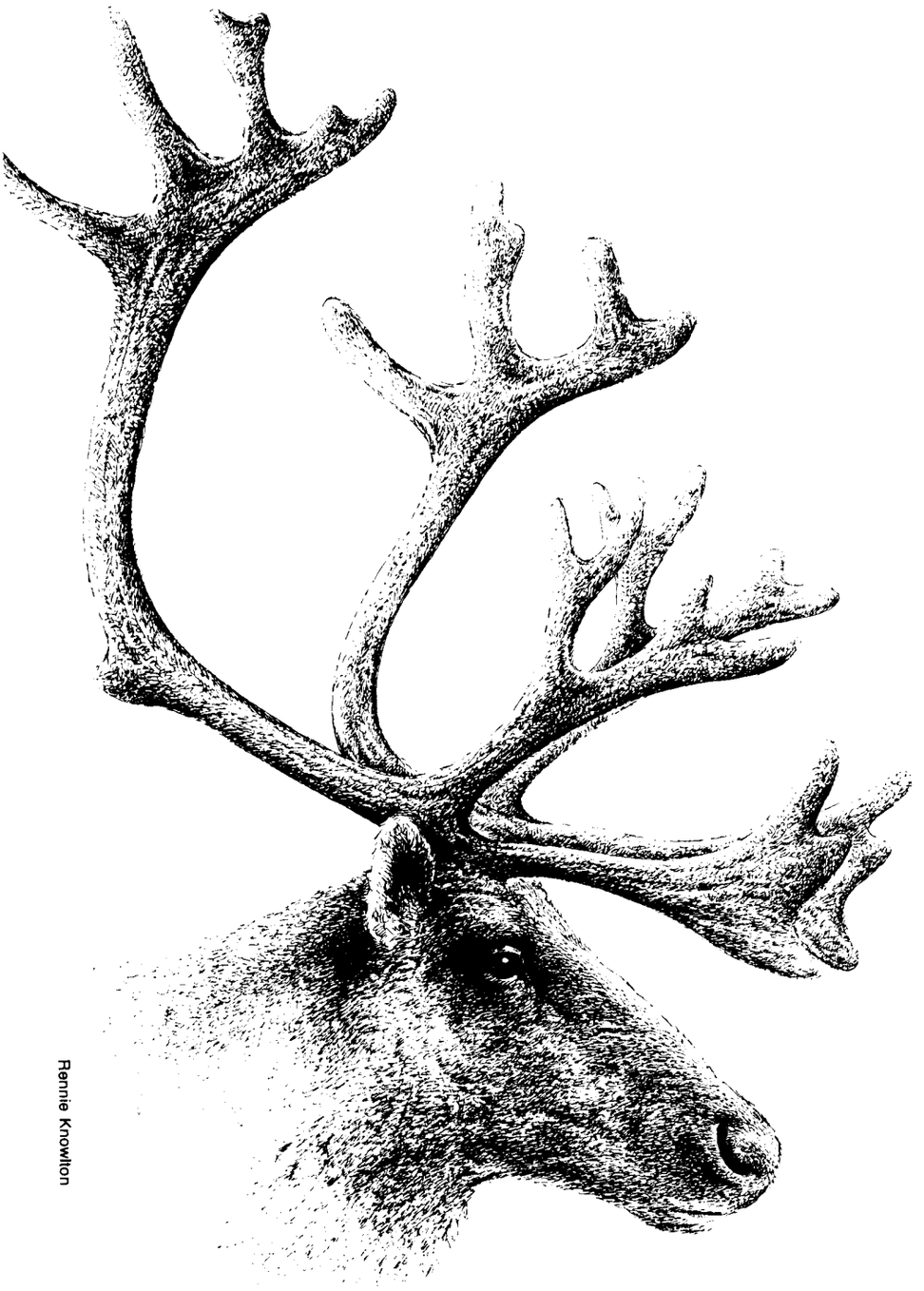
By mid-August, summer on the barrenlands is nearly over and the caribou begin to move leisurely back southward. The large herds have become numerous small bands, constantly moving, joining together and splitting apart. The caribou drift about near the treeline, spread out over thousands of square kilometres until mid-October and early November when the rut occurs.

The rut is spectacular in its intensity. The bulls are in their prime with glossy new coats and antlers polished and smooth from being scraped against young trees. Their flowing white manes swing back and forth as they threaten and challenge each other.

The battles rage for 2 or 3 weeks until about mid-November. By the time they are over, winter has settled on the north and the migration continues in earnest into the forest.



Keith Taylor



Rennie Knowlton

Winter is spent foraging for food in the forest. Lichens are the mainstay of the winter diet, supplemented by dried horsetails, sedges, willows and birch twigs. Caribou use their excellent sense of smell to lead them to lichens under the snow, and their broad hooves to clear feeding craters.

Not all caribou winter in the forests. Some, such as those found in the Wager and the Melville areas, remain year-round on the tundra; and much further to the north, the small Peary caribou spend all their lives on the arctic islands. Generally, tundra wintering caribou travel to snow-free areas of hilly country where they feed on lichens, sedges and purple saxifrage. In winters of light snowfall, they remain in the valleys and lower slopes where food is more abundant.

To the original inhabitants of the land and to the first explorers, the caribou herds seemed limitless. Stories of endless flowing rivers of animals were common and even as late as 1912, E.T. Seton, traveling across the arctic by canoe, wrote of 30,000,000 caribou. Later, more accurate studies, based on usable range size, show such numbers to be impossible. Regardless however of the extent of exaggeration of early figures, there is no doubt that the great herds have declined and have withdrawn from many traditional ranges.

Several factors contribute to caribou mortality and have varying degrees of importance in the overall decline. Some authors have suggested that the herds may be cyclic with regular long-term fluctuations in numbers. Others have discussed overgrazing and subsequent abandonment of ranges during years of a population high. Destruction of winter range by fire may also deflect caribou from traditional wintering areas. Winter starvation may also occur if caribou are unable to obtain sufficient forage on burned-over ranges.

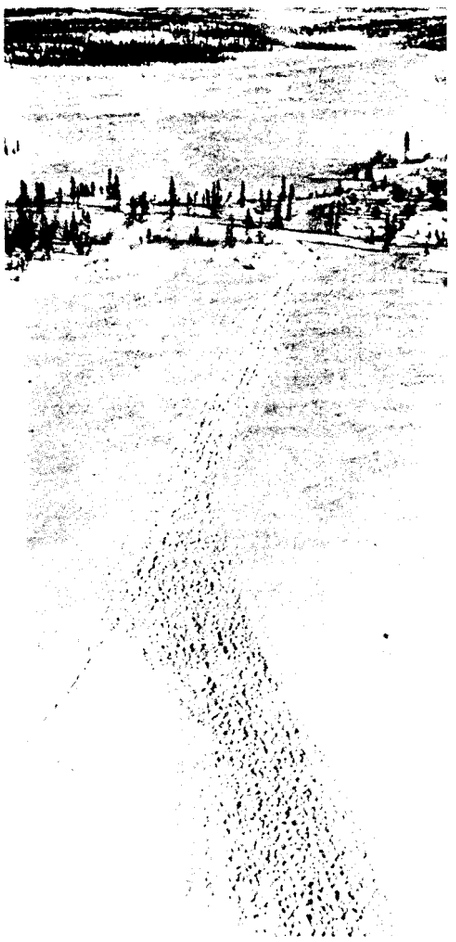
Adverse weather conditions may cause starvation. In most winters of cold, dry and loosely packed snow, caribou forage without much difficulty. But if the winter is unusually mild, or if freezing weather follows rain early in the winter, an icy crust may prevent the animals from easily obtaining food. A secondary result of poor nutrition in cows may be a reduced calf crop the following spring.

Poor weather on the calving grounds can severely affect a new calf crop. Newborn calves may die directly from exposure to the cold, wet conditions. They may become separated from their mothers in blizzards or be trapped in deep snow. In strong winds, a newborn calf may simply be unable to stand up and feed, and therefore die from weakness.

Wolf predation is responsible for many losses, both on the calving ground and later on. It is estimated that in some instances wolves may kill 20-30070 of calves and 5% of adult caribou per year.

Accidents resulting in crippling injuries are common among caribou and account for a number of deaths in each herd. The main cause of accidental death is drowning, particularly during migrations across dangerous ice and treacherous rivers.

Finally, hunting must be considered in relation to caribou numbers. Barren-ground caribou have always been important to the inhabitants of the Northwest Territories. Both Inuit and Dene relied on caribou not only as a main source of food, but for all the necessities of life. Hides provided clothing, sleeping robes, dog harnesses and tents; bones were fashioned into needles and utensils; antlers became tools, and clothes and moccasins were sewn with the sinew from the back of the caribou. All parts of the animal were used and those who lived by hunting the caribou were truly "people of the deer".



When the caribou followed age-old routes and arrived in expected places at the right time, life was good for the caribou eaters. But if caribou unpredictably changed their path, death and starvation stalked the land. When they did come, in seemingly endless numbers, they were killed with the abandon of people who have known starvation. And if in those days caribou were wasted, the consolation exists that the overall effect on the health of the herd was probably insignificant. Today, when the stresses on caribou are much greater, there is no latitude for wastage.

A knowledge of caribou numbers is essential to management, but exact counts are neither possible nor necessary. Estimates of the number of pregnant cows on the calving ground can be used to determine whether a herd is stable, declining or increasing, but provide only crude approximations of total herd size. In the past, caribou population counts have suffered from inaccuracies resulting from deficiencies in survey techniques. Over the last 5 years, however, considerable improvement has been made, and biologists are now able to gain a better understanding of numbers and ranges of caribou herds.

	Total population estimate	
Herd	Visual	Photographic
Bluenose	*30,000*- 50,000	*50,0113*- 80,000
Bathurst	85,003-120,000	160,0(X)-220,000
Beverly	120,000-160,000	150,000-240,003
Kaminuriak	100,000-140,0CM3	180,000 -280,000
Northeastern Keewatin	106,OLX-134,O(X3	... -

One of the ways surveys have been improved is through the experimental use of aerial photography, a technique which is probably more accurate than the traditional visual surveys. Aerial photographic surveys suggest that there are presently many more caribou than were previously thought. Our conclusions about recent population trends, however, remain the same--that although numbers have recently stabilized, caribou were generally more numerous in the past.

While there are few restrictions on hunting by native people, resident sport

hunters are allowed only two barren-ground caribou yearly (in some cases three). Non-resident hunters are also allowed two animals, but they must be hunted in different locations and the services of a licenced outfitter must be obtained. Residency status for sport hunters is obtained after 2 years--the strictest such requirement in Canada.

Since disturbance from industrial development may interfere with caribou during critical periods such as calving and post-calving, mining companies have been restricted in their activities at those times in certain Caribou Protection Areas. Because wolf predation can cause substantial caribou mortality, control programs have been considered, though none attempted since 1970.

To avoid friction caused by misunderstandings, public awareness programs are being undertaken to foster greater understanding among those with an interest in the resource. One recent innovation has been the formation of the Beverly -Kaminuriak Caribou Management Board, which is composed of native users and government representatives. Acknowledging that both groups share responsibility for the fate of the two herds, the Board meets regularly to collaborate in management decisions and to promote conservation education. One of its major projects is the development of an ambitious school program. Another is the publication of a newspaper, *Caribou News*, six times a year.

The concept of board management appears to have great potential. It may soon be applied to other herds and with luck provide the elusive missing element to the effective management of caribou in Canada's north.

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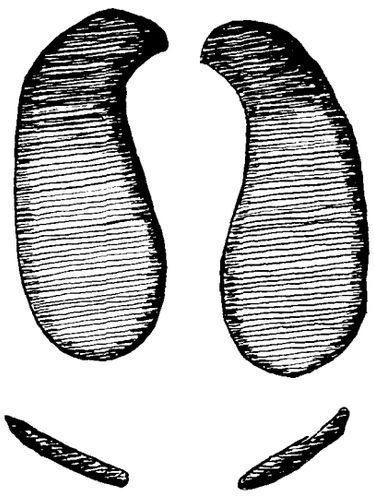

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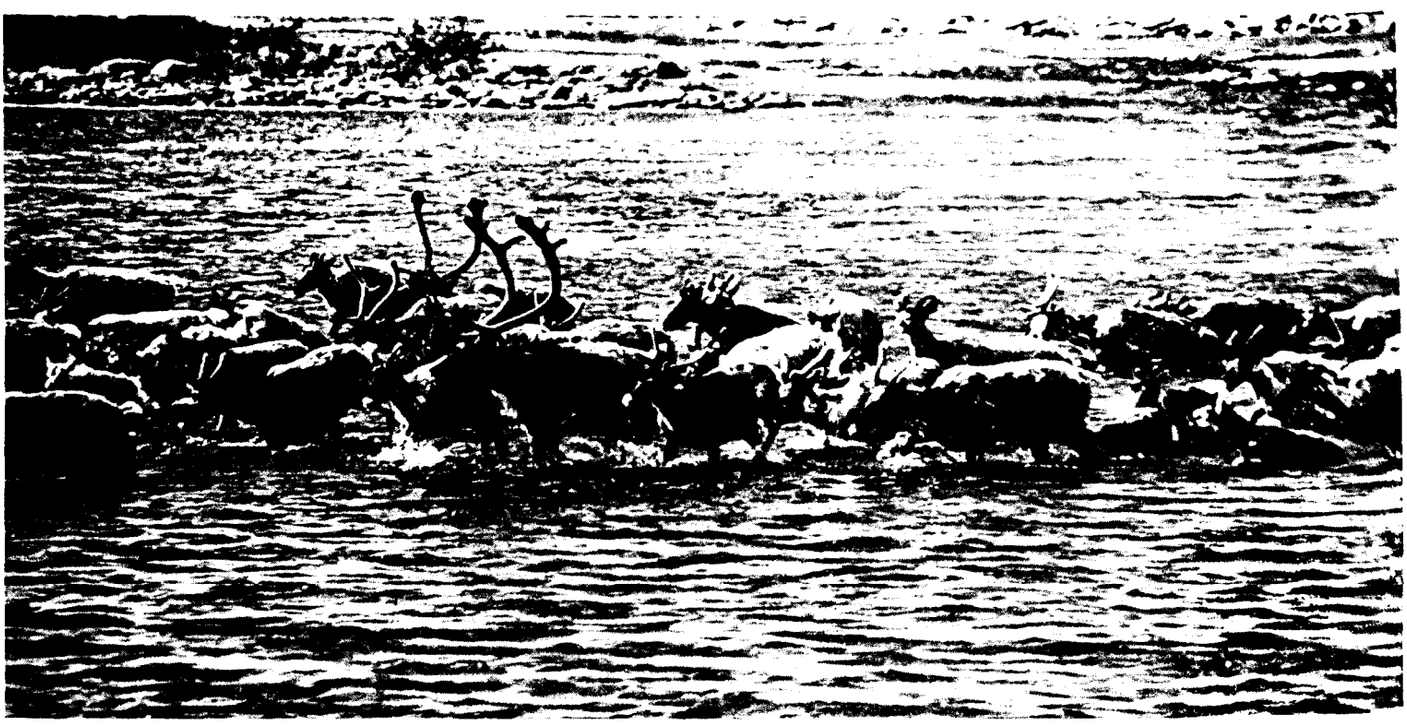

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