



Division of Tourism

## Caribou: Nomads of the North

The Western Arctic Herd has recovered from its tailspin in the 1970s, and biologists aim to keep it healthy.

It was a quiet afternoon and the hunter sat watching the river, at rest after having set up camp. He had killed caribou here the past several years, and he hoped for the same good fortune this season.

As he rested, the hunter noticed a large boat coming down the river. The man standing in the bow was no hunter. He carried no gun. Instead, he held what appeared to be a large television antenna. Another man was bent over some equipment in the back of the boat. As they approached, the hunter could hear fast, high-pitched beeping sounds, to which the man in the bow seemed to respond by holding the antenna in various positions.

The boat slowed and turned to hold its position in the current, and the men seemed to be very excited about something. One of them brought out a long wooden pole and began probing the river bottom. When he pulled it out, he had on the end of it what looked like a large dog collar. This was clearly what the men had been after, because they put away their equipment and headed back up the river.

What were they up to? Had he asked, the hunter would have learned that they were caribou biologists with the Alaska Department of Fish and Game (ADF&G), working on one of

their annual management projects. But even for them this last maneuver was a bit unusual.

One day earlier, a group of biologists had come to this same spot to lasso caribou as they crossed the river and put radio-equipped collars on them. As one particularly energetic caribou was pulled alongside the boat and a biologist reached down to slip the collar around its neck, the animal gave an extra strong jerk and the collar slipped from the biologist's hands. It happened so fast that all he could do was watch as it sank in the murky water. The collar was given up for lost.

The next day, however, one of the biologists decided to fly over the river just once to see if he could pick up a radio signal from the lost collar. Sure enough, as he neared the river he began to hear beeps. He went back to town, got a boat, some help, and the necessary equipment and headed downriver. When the receiver indicated they were atop the collar, he got out a long pole and after probing a few minutes, pulled the still functioning collar from the water. Who would have believed that it could have survived such an accident and still transmit through ten feet of water? Least of all the hunter, to whom this entire operation must have been a mysterious interlude in his hunt for the nomadic caribou.

The caribou (*Rangifer tarandus*) is one of Alaska's most valuable wildlife resources. Since the time of early man, caribou have been an important source of food and clothing for arctic and sub-arctic peoples. Modern man continues to recognize the practical, cultural, and aesthetic values of this majestic animal, and wildlife managers in Alaska are trying to ensure that caribou populations remain healthy.

Alaska's largest caribou herd is the Western Arctic, which roams the state's Interior west of the Transalaska Pipeline and north of the Yukon River. Current estimates put the size of the herd at approximately 175,000 animals, and surveys show that it is increasing at an annual rate of about 10 percent.

Caribou are well adapted to their arctic environment and can tolerate wider ranges of variability than any other hoofed mammal, or ungulate. The name caribou comes from the Micmac Indian word *Xalibu*, meaning "the pawner," which describes the animal's habit of digging through the snow to reach buried plants. The caribou's hoof is long and broad with sharp edges and is used as a pick to break crusts and shovel snow away from food.

Even in the most severe weather, caribou are seldom bothered by cold. The animal's coat consists of a tight outer layer of long, brittle, guard hairs, which cover the inner layer of fine curly wool. In the winter the caribou's entire metabolism and physiology adjust to poor nutrition. The basal metabolic rate, that is, the calories the animal burns while at rest, drops by 25 percent or more, and growth usually ceases from November until April.

The caribou's most important adaptation to the northern environment is its ability to subsist on lichens. These primitive plants grow well on the poor soils of the tundra and provide a relatively abundant supply of energy. In addition to lichens, caribou eat plants such as sedges, horsetails, and low-bush cranberries. Unlike the barren-ground caribou in Canada, caribou of the Western Arctic herd rarely winter in the taiga,

preferring the windier open tundra.

Probably the most exciting, yet least understood, behavior of the caribou is its annual migration. Each year this animal travels thousands of miles, braving wolf attacks, spring rivers filled with ice blocks, and storms. No one knows exactly what makes the caribou migrate so consistently every spring and fall or why they return to the same calving area each year. Some biologists think that increasing daylight following the long, dark winter probably has a physiological effect on the caribou. Changes in snow cover may also be an influence.

Although no one is certain what triggers the migration, we do know how and where animals of the Western Arctic herd move. Although deep snow can delay migrations, female caribou usually begin to move north to their calving grounds along the middle of the Utukok River drainage in April, traveling as much as 20 miles a day. At the same time, caribou that winter on the North Slope and in the Brooks Range begin to drift west toward the calving grounds. Non-productive females and young males usually drop out before reaching the calving area, and mature males remain on the winter range several weeks after the cows depart. For the Western Arctic herd, calving normally peaks between June 2 and 10. During this time, thousands of calves are born each day, and within two weeks nearly all the births have occurred. Calves can stand and begin suckling almost immediately. They grow rapidly, nourished by the richest milk of any land animal, milk that contains 20 percent fat.

After calving, females move west and begin to meet up with the rest of the herd. Large aggregations of males and females of all ages form in the northern drainages and foothills of the western DeLong Mountains. By the first half of July, tens of thousands of animals have gathered.

In late July and early August the caribou begin a general movement east and north, dispersing over the entire coastal plain and the northern foothills of the Brooks Range. But by August, some animals are already beginning to move toward their winter ranges, and by September they are well on their way. The number of caribou using a particular winter range can vary substantially, and one individual will not necessarily winter in the same area each year. The three main wintering areas for the Western Arctic herd are the Selawik and Buckland River drainages, the arctic coastal plain, and the central Brooks Range. For the past two years, large numbers have also wintered on the eastern Seward Peninsula.

By mid-October, most caribou have reached their winter ranges and are ready to breed. Physiological changes alter the appearance and behavior of mature bulls. Their necks swell and they stop eating almost completely. Their livers degenerate, becoming yellow and mushy. The meat of rutting bulls can be rank and inedible. Most breeding takes place within a week or less. Even though females outnumber males, each dominant bull fertilizes an average of ten cows. Strong competition and fighting among bulls may cause serious injuries and death.

Caribou remain on winter ranges until March when, once again, the great spring migration begins. The grand cycle repeats itself as animals from all directions head for the calving area.

Men have fed and clothed themselves by hunting caribou

**Caribou dash across the Kobuk River, but some are pulled to a skiff and fitted with radio transmitting collars, which will help biologists monitor the well-being of the herd. ADF&G hopes to maintain at least 30 operating collars in the Western Arctic herd at all times.**



John Hyde

since the middle of the Ice Age. In most arctic and sub-arctic cultures, caribou supplied not only meat for humans and dogs, but also fat for lights and cooking, hides for tents, boat covers, sleeping robes, and footwear, and bone for needles, scrapers, fish hooks, and a variety of weapons.

Today, caribou remain important to people living throughout their range. For most of them, caribou is the primary source of red meat. The meat is either dried, frozen, or eaten fresh. Because outside sources provide for many of the people's needs, few use every part of the caribou anymore. But most of the meat is eaten, and hides are still used for sled pads, sleeping mats, and mukluks. Sinew is used for sewing mukluks and making crafts. Without the caribou, life for people in the western arctic region would be difficult. The caribou hunt itself is important culturally and provides a strong link to the heritage of Native Alaskans. Many non-Natives also hunt the Western Arc-

tic caribou, but they represent a small portion of the total take.

The Western Arctic herd has probably gone through many fluctuations in numbers. When it declined from 250,000 to about 75,000 in 1975, however, ADF&G, which is responsible for managing Alaska's caribou, felt that something had to be done to prevent the population from plunging any lower. In 1976, hunting was limited to one bull per person, and programs were begun to control wolves, including increased trapping and hunting of these predators. In 1982, the Board of Game adopted a policy of maintaining the Western Arctic herd at a post-calving size of at least 200,000 animals. The herd is expected to reach the goal this year. Factors that may have contributed to the regained health of the herd include decreased human and wolf predation and several mild winters.

In its plan for management of the Western Arctic herd, ADF&G has outlined three major objectives: 1 to protect and

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maintain the herd and the ecosystems upon which it depends; 2 to sustain the opportunity for subsistence and recreational hunting; and 3 to maintain a population of sufficient size to provide opportunity for viewing, scientific study, and maintenance of wild carnivore populations.

In order to achieve these objectives, game biologists conduct several management activities:

- Every two years an aerial photocensus is done to estimate the number of caribou in the herd.
- Each spring a composition count is conducted to determine the percentage of calves in the herd.
- Every June the calving grounds are surveyed to document the geographic extent of the calving area, because it can vary from year to year. From these surveys biologists can also detect any unusual circumstances such as a large calf die-off, disease problems, or unusual numbers of predators on the calving grounds.
- Annual composition surveys show how many males, females, and young caribou there are. These surveys are necessary to estimate the composition and health of the herd and to assess the potential for growth or decline.
- Reconnaissance surveys show the distribution and movement of the caribou and are done particularly to define wintering areas.

Information from all these studies is used to adjust harvest quotas and evaluate predation.

In 1979, game managers began using a tool that has proved very helpful, the radio collar. Radio collars were first used on animals by researchers in the early 1960s, but it wasn't until the late 1970s that they were of adequate quality to be useful on caribou. With the help of radio collars, biologists can now get a better indication of where the major aggregations of caribou are, since there is a good chance that each aggregation will have at least one collared animal. The radio signals can be picked up from as far away as 100 miles and can save days of searching.

During the 1983 spring composition surveys, biologists tracked radio-collared caribou to determine where to concentrate their efforts. They found that one-third of those with collars were in the winter range south of the Kobuk River, one-third were in the central Brooks Range, and one-third were on the arctic coastal plain. Based on these findings, survey money was allocated to these three areas. Without the help of radio collars, flying time would have been much greater and the search much more expensive.

In recent years, reindeer herders have become increasingly concerned over the loss of reindeer to migratory caribou. Reindeer and caribou are of the same species, and reindeer often join a migrating herd of caribou and wander away with them. To help minimize this loss, caribou managers have begun conducting winter reconnaissance flights to determine the proximity of caribou to reindeer herds. They then warn reindeer herders of potential conflicts. The use of radio collars is expected to aid in this project.

Currently, about 35 animals in the Western Arctic herd wear functioning radio collars. These collars were put on in the late

1970s by Fish and Game researchers who were studying mortality, movements, and habitat preferences of the caribou. Current management strategy is based on those studies. Now caribou managers have begun another collaring program. In September, 1983, 10 Western Arctic caribou were collared as they crossed the Kobuk River near Ambler. Biologists plan to collar 10 animals each fall to maintain at least 30 functioning collars within the herd. The lifespan of a transmitter collar is approximately 40 months.

The radio collar carries a small pack containing a battery and a transmitter that sends out a high frequency pulse at intervals of one second. Since each collar has its own frequency, the operator of the radio receiver can identify which caribou the signal comes from. The receiver is usually carried in an airplane and is connected to directional antennas. Although signals can be picked up at 100 miles in ideal conditions, the normal range is 20 to 30 miles.

Several methods have been used to capture caribou in the past, including flying in by helicopter and shooting them with tranquilizer darts. The easiest and cheapest way, however, is to catch the caribou as they cross major rivers. Using this method, caribou are caught with a rope and pulled alongside a riverboat. The collar is slipped on and the animal is released. Of course accidents, such as dropping the collar while trying to put it on, can happen. Caribou can be particularly hard to handle in shallow water where they can get their feet on the bottom. But despite the kicking and struggling, once the collar is on, the animal is soon on its way with no ill effects. No evidence exists that radio collars themselves harm the caribou in any way.

As this collaring effort is continued and more data are gathered, wildlife managers will have a greater knowledge upon which to base their decisions. And, the Western Arctic caribou herd will have a better chance of remaining healthy and numerous. ■

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### FACTS ABOUT CARIBOU

- Few bulls live beyond 10 years. Mortality among bulls is much higher than among females. Almost all herds contain two or more females for every male.
- Caribou locate food by smell. As they walk along they thrust their noses into the snow searching for favored plants.
- A caribou herd is generally defined as a group sharing a common calving area.
- Current regulations allow hunters five caribou of either sex on a harvest report and additional caribou by registration permit in increments of five.
- Caribou are excellent swimmers. Their hairs are hollow, providing buoyancy as well as insulation, and their broad hooves provide a large surface for propulsion.

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