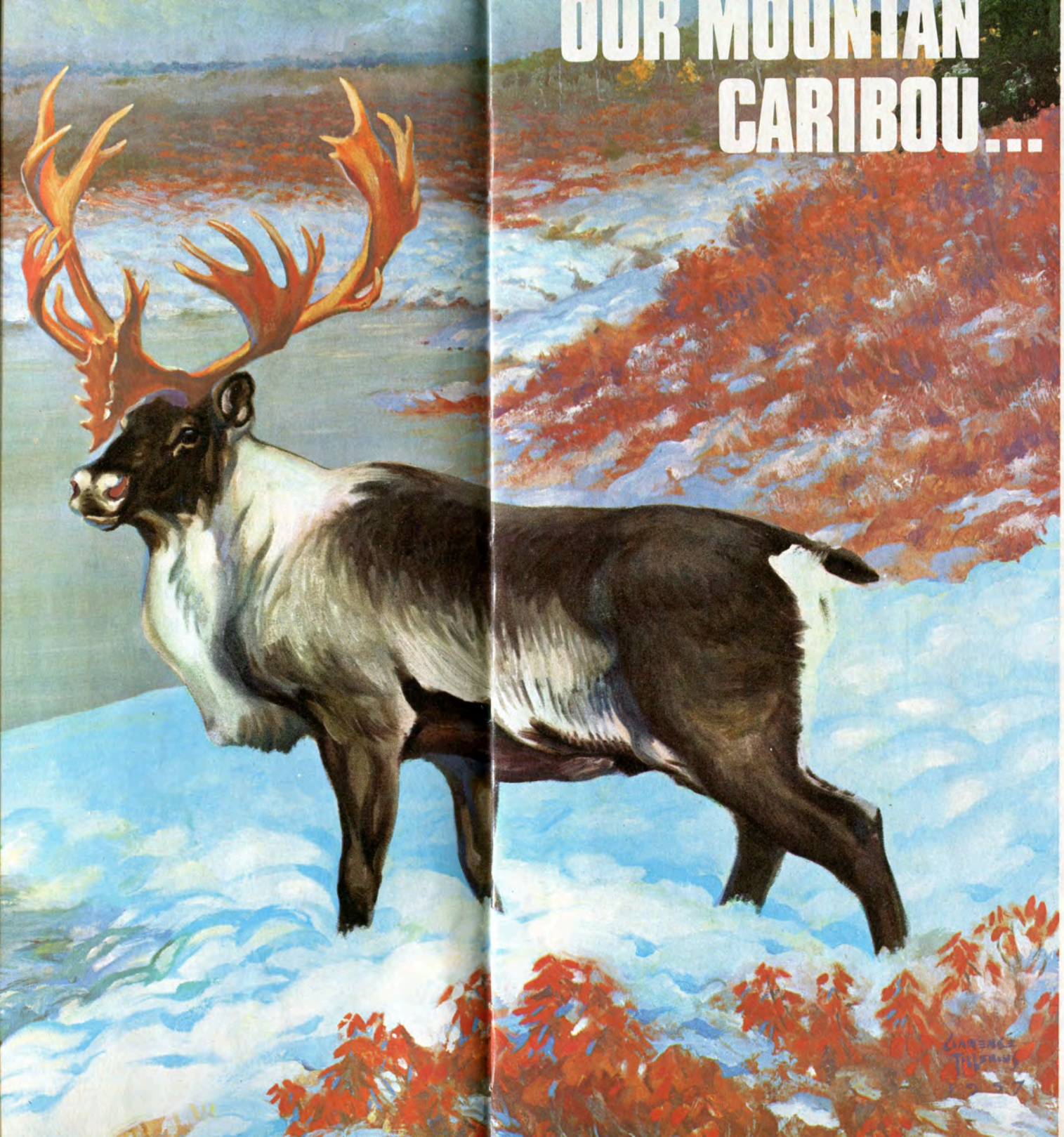

ENDANGERED SPECIES?

by LEE HARDING

Our mountain caribou can still be saved. This statement might surprise some people who didn't know the caribou were in trouble. Yet they are and each year there are fewer and fewer mountaintops with caribou. The problem is not new.

Caribou have been in trouble since before 1954 when R. Yorke Edwards, after spending many winter months snowshoeing through the wilderness of Wells Gray Provincial Park, published a paper entitled, "Fire and the Decline of a Mountain Caribou Herd." They have been in trouble since before 1938 when distinguished Canadian mammalogist R. M. Anderson wrote that ". . . mountain caribou. . . are extremely scarce on most of their former range in central and southern British Columbia." And they have been in trouble since before the 1920's when a whole subspecies, the Dawson caribou of the Queen Charlotte Islands, became extinct. The caribou of British Columbia, in fact, have been in trouble since white men began making changes in the environment of this province.

A bright note in this gloomy tune is that last year might be termed the beginning of caribou management in British Columbia, although interest in our caribou had been building for some time. Several years ago the B.C. Fish and Wildlife Branch began curtailing hunting on southern ranges where populations were low. Then in 1973 the Branch created new positions of Regional Habitat Protection Biologists. The task for some of these biologists — for instance M. L. "Marty" Beets of Williams Lake and Ken Sumanik of Nelson — is largely to preserve the habitat of dwindling mountain caribou herds.

Another biologist, Ralph W. Ritcey, who had collaborated with R. Yorke Edwards in the late 1950's, is still studying caribou in Wells Gray. In January 1974 he presented a paper at the Short Course for Foresters, Forest Wildlife Ecology and Management at Vernon entitled, "Caribou and Forest Management in British Columbia." He began with the accusation: "The caribou is a species which requires mature or overmature coniferous forests for its winter survival. Therefore, forest management which has the objective of maximizing wood fibre production through the maintenance of young productive forests will result in lowered caribou populations." He ended with the challenge. "History does not deal

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Then in February 1974, David Freddy published his master's thesis for the University of Idaho. It is entitled, "Status

and Management of the Selkirk Caribou Herd," and is the first in-depth study to deal with logging practices in relation to British Columbia's mountain caribou. As an indication of the interest which had by then been shown in the plight of our caribou, his study was supported by the B.C. Wildlife Branch, the U.S. Forest Service, the Washington and Idaho Departments of Fish and Game, and eight conservation and sportsmen's organizations. (Mr. Freddy's thesis was the subject of the B.C. Wildlife Federation's Newsletter in the December issue.)

Why, then, did it take so long for us to become concerned about the caribou? Perhaps one good reason is that caribou are inhabitants of the area at and above timberline, and are rarely seen by people. We don't usually think of caribou as being specifically alpine animals because they occur throughout the northern forests of the prairies and the eastern provinces, the central barren-lands, the Yukon, and even the High Arctic islands. Yet in British Columbia, caribou are as at home in the alpine meadows as are the mountain goats and sheep — and probably more often seen there than either.

An oddball among the ungulates, caribou look strange and act more so. Their noses are covered with fur; their feet are so huge they can run across swamps or muskeg that would bog a horse or a man; and the females, unlike the more delicate members of the deer family, grow antlers.

Several species of arboreal lichens on which the caribou depend for winter food.

They also seem to lack commonsense. At times they ignore a person, even if he approaches closely. At other times they break and run when the intruder is still a mile away. And, at other times, they dash back and forth as if they can't decide which way to go.

While some behavior may seem irrational, much of it is highly stylized and has the purpose of transmitting messages to other caribou. Scientists have identified several postures that caribou assume in different situations. When a caribou

scents, sees or hears something that may mean danger, it often assumes postures called "head-up alert" or "alarm-urination". The former is exactly like it sounds — the head is held high and ears and nose cocked to receive more information. In the latter, the caribou extends one or both hind legs in an exaggeration of the actual urination position. These postures signal other caribou that danger is near.

When a caribou is much alarmed it may rear on its hind legs, whirl, and dash away. While this action alone is sufficient to alert other caribou, scent from interdigital glands between the hooves is left behind. This scent also transmits a warning. Caribou passing the same spot later may sniff the ground, whirl, and dash away even if they see no danger.

In British Columbia, all caribou are classed as woodland caribou of the species *Rengifer tarandus caribou,* although two geographic variations are recognized. These are the Osborn, which range in northern British Columbia as far south as the Babine and Omineca Mountains, and the southern variation, the mountain caribou. The Osborn have fared well, and in some areas above timberline I have been almost always in sight of them. Unfortunately, the mountain caribou may follow the Dawson sub-species into extinction if we are not careful. This race has two ranges. One is along the east side of the Coast Range and the other is in the Rocky Mountains, east to Wells Gray Park and the Monashee Mountains, and south in the Selkirk Mountains to our southern border. Throughout this area, populations have continued to decrease, slowly in some places, dramatically in others.

Why, then, have caribou continued to decline while deer, moose and elk have increased? Overhunting can be ruled out as a causative factor in the caribou decline. We know this because while most of the caribou harvested are males (seventy-four per cent of the resident kills, even a higher proportion of non-resident kills), the sex ratio of caribou populations has remained relatively constant. If hunting were having an appreciable effect, the ratio would be unbalanced in favor of female caribou. The answers, therefore, lie in the natural history and biology of the caribou, although there are still more questions than answers.

Game populations vary in response to habitat changes, and British Columbia has seen considerable alteration of its ecological balances in the last hundred years or so. Generally speaking, deer, moose and elk benefit from fires or logging which create better habitat by encouraging new growth of their food plants. Caribou, however, have different needs.

In summer they occupy the alpine country near or above timberline. There they graze on a wide variety of sedges, grasses, flowers and brush. In fall they travel downslope to winter in heavy, mature timber, feeding mainly on lichens. Lichens — and there are many types — are actually two plants, fungi and algae, that grow together in a symbiotic relationship. The ones that grow on trees are termed arboreal lichens, and they form the bulk of the winter diet for mountain caribou. Most heavily used are species in the genus *Alectoria,* easily recognized as Old Man's Beard, a pale green or black, stringy, moss-like growth on the trunks and branches of trees.

Throughout their range in British Columbia, caribou employ different seasonal movements to take advantage of local conditions. Their wintering areas are in large part determined by the availability of arboreal lichens. South of Fort Nelson, for instance, there is one population of caribou that annually migrates many miles. In fall they leave their timberline meadows and travel for days to the

spruce-muskeg lowlands where lichens are more abundant. Their route takes them across the Alaska Highway, where they must run the gauntlet of hunters lined up along the road.

In Wells Gray Provincial Park, biologists R. Yorke Edwards and Ralph W. Ritcey found that caribou there exhibit an unusual, double migration pattern. As the snows deepen in October, they leave the alpine meadows, arriving at the valley floor in November. They stay until mid-January, feeding on arboreal lichens. Then, as snow becomes dense enough to support their weight, they climb to the Engleman spruce-subalpine fir forests near timberline, where arboreal lichens are more abundant. In April, however, they again return to the lowlands, where by this time melting snow has made available the ground vegetation. They stay until about June, when they climb to their summer pastures above timberline.

Our southernmost caribou, those in the Selkirk Mountains near and across the U.S. border, were shown in Mr. Freddy's thesis to employ a more normal migration pattern. In October they move into the forest zones at elevations of 4,600 to 5,000 feet. As with other areas, arboreal lichens are of prime importance during winter and early spring. In March, they return to the high country, occupying the upper spruce-fir forest zone and the non-forested alpine country for the duration of summer.

Where I live on Upper Arrow Lake in the northern Selkirk Mountains, I have seen caribou in winter as low as 1,500 feet. Here a common arboreal lichen is the foliose (leaf-like) type, and there is little doubt that these, as well as *Alectoria*, are important to the few remaining caribou of these mountains. As in other areas, by summer the caribou have moved to near or above timberline.

I recently mentioned to a neighbor that I had seen a caribou track on a large, logged-over area some miles away. My friend, who has lived here for half a century, commented, somewhat cynically, "One caribou track. There used to be hundreds in there, before they logged." We went on to discuss the few caribou that are seen each winter, crossing the road to melt like grey ghosts into the cedar-hemlock forest. "It's funny," he recalled, "we've never seen them this low. It's only in the last few years that they've started coming down here.

Before, they always stayed up above the old burn." He was referring to the forest fires of about sixty years ago which raged extensively in the lowlands of this area.

Why, then, did caribou avoid the recently logged area and also a burned area for sixty years after the fire? The answer is the caribou's dependency on lichens in winter. In fact, they depend on them to such a degree that, as biologist Gary J. Schroeder wrote: "A major portion of caribou management is revealed as little more than insuring an adequate supply of forage lichens."

Ensuring this supply of lichens is not always as easy as it sounds. Forest fires and logging are particularly damaging since before lichens can return, a new forest must grow and attain some degree of maturity. Lichens have a very slow growth rate — about 14 mm, or approximately one-half inch, per year — so that the whole process may take 60 to 100 years or more. Mr. Freddy found that the southern Selkirk caribou wintered in stands of spruce-fir timber at least 126 years old.

In Wells Gray park between 1926 and 1940, approximately 380 square miles of potential caribou winter range — some seventy per cent — were destroyed by fire. By the 1950's the once-numerous caribou herds had been reduced to only a small remnant. These survivors avoided burned areas, wintering in three small remaining patches of mature cedar-hemlock.

With forest fires becoming more extensively controlled, logging remains the prime threat to British Columbia's caribou. Unfortunately, aside from the studies mentioned, very little solid information is available upon which to base management programs. This is partly because caribou are difficult to find, let alone study. Small bands are scattered over large areas, on inaccessible mountaintops in summer and in snowbound valleys in winter.

With regard to the Wells Gray herd, biologist Ralph Ritcey notes that since the 1930's, regrowth has improved winter ranges. The result is that the caribou population is now at least double that of the late 1940's. However, he cautioned that "Logging of remaining winter range outside the park is presently the greatest threat to the caribou of Wells Gray Park. I believe that a combination of logging outside the park and a few serious fires within the park could again reduce numbers to almost a precarious level. With the establishment of the nature conservancy within the core of the park, the future of at least some caribou is well secured. However, since many of the park caribou winter out-

side the park boundaries, we must ensure that peripheral winter ranges are protected. Our efforts to date haven't been too successful and logging is currently threatening timber stands which constitute major winter ranges at the headwaters of the Mad and Raft Rivers. We probably will be able to preserve some of the remainder of this range by negotiating with the Forest Service for protective action."

With regard to this negotiating, there has fortunately been a change in attitude among government employees. A few years ago co-operation between government departments was minimal. Now the B.C. Fish and Wildlife Branch and the B.C. Forest Service are on speaking terms, and biologists throughout British Columbia are discussing caribou management with timber managers.

Mr. Freddy's study of caribou in the southern Selkirks so overwhelmed the B.C. Forest Service that they hired him to begin implementing his own recommendations. One of his suggestions was to eliminate clear-cut logging in potential caribou wintering areas in mature spruce-fir forests above 4,600 feet. Since caribou used areas along streams or lakes and in basins with a slope of thirty-five per cent or less, these were the areas of principal concern. Clearcut logging could therefore be acceptable on hillsides, particularly those with more than thirty-five per cent slope.

Mr. Freddy also recommended that within caribou wintering areas "... selective or small patch cutting should be utilized to harvest mature spruce-fir timber. Consideration should

be given to maintaining forest cover between cut areas and along (caribou) movement routes." He also suggested that the timber harvest be shifted to merchantable immature spruce-fir stands; that is, those forests less than 126 years old. This would leave the mature forests for the caribou.

Logging contributes to the demise of caribou in ways other than by destroying their habitat. Caribou have long been known to frequent logging operations where they eat arboreal lichens on the felled trees. The resulting combination of ready road access plus easily-found caribou is attractive to many hunters, regardless of whether caribou hunting is legal. Ernie Simmons, a timber contractor operating near Trout Lake in the northern Selkirk Mountains where hunting seasons were closed several years ago, told me of a herd of caribou that wintered along a creek near one of his cutting areas. "There used to be dozens of caribou hanging around the log deck all winter," he reported. "Those guys from Nakusp kept coming up after them. Last winter there were only four left."

Another place caribou get into trouble with people is along highways. Earlier I mentioned a herd that migrates across a firing line on the Alaska Highway. With regard to the Selkirk herd, the Southern Trans-Canada highway accounted for nearly as many deaths — from poaching or collisions with cars — as there were calves born during the two years of the study.

There is no doubt, then, that mountain caribou are in trouble. The Osborn caribou, too, are susceptible. There is already some logging in their range and there are the proposed huge industrial plans for northwestern British Columbia, including more logging, mining and power developments. But this development doesn't need to destroy the herds. With planning we can have development and caribou. By identifying the places where damage occurs, the ways in which caribou can suffer at the hands of men — poaching, road kills, winter kill because of loss of habitat — biologists can seek to protect the herds from further destruction. By knowing the details of the life history of each herd — what they eat, where they go and when — the Fish and Wildlife Branch is able to co-operate with the logging industry and with the B.C. Forest Service to develop timber-use programs which are not detrimental to caribou. This was best summed up by Mr. Ralph Johnson, the Nelson District Forester, in a recent issue of *Forestalk*, a B.C. Forest Service periodical: "The forests contain a number of resources. Increased or excessive emphasis on one often results in limitations or losses to another, but by striking a fair balance among all values, each can survive and prosper in its own way."

Although caribou sometimes seem a caricature, at other times they are the epitome of antlered game — the great stag with white mane and high, spreading antlers defending his harem against all aggressors. To see a group of caribou grazing alpine flowers against a backdrop of jagged peaks and blue glaciers; to watch them silhouetted at sunset, walking single-file along a broken sky-line; to see an antlered female, her shaggy coat bleached grey by frost, suckling a black, wobbly-legged fawn; to see these first-hand gives one an unforgettable sense of awe at the bounty of British Columbia's wildlife heritage.

There is a sense of history, of national pride in the caribou. They alone gave sustenance to whole cultures of native peoples; their meat fed the voyageurs, the fur traders and the Klondikers as they opened up Canada's vast wilderness; and their likeness, in a token of our esteem, appears on the Canadian twenty-five cent piece. Conservationists will welcome the day when loss of habitat is no longer a threat to our mountain caribou. ■