



caribou
STATE OF THE NATION

Caribou are an iconic Canadian species, yet their populations are declining across the country. Their struggle is a measure of our national efforts at stewardship

PETAR MATHER

By Jake MacDonald

IN THE SPRING OF

1534, Jacques Cartier sailed to North America, searching for gold and a shortcut to China. As he explored the east coast of what is now Canada, Cartier gazed at the rocky outcrops and primeval forests and famously dismissed the whole country as “the land that God gave to Cain.”

Cartier may have been unable to recognize the extraordinary riches laid out before him, but successive explorers came to understand that Canada was a northern Eldorado — its coastal waters boiled with life, its wild animals bore luxuriant fur worth a fortune in Europe, and its thick forests stretched for thousands of kilometres. The continent’s most abundant “cervid” (deer) species was the caribou. In those early days, caribou ranged from sea to sea, and to the south of what is now the American border. No wonder that the likeness of a majestic bull caribou was eventually selected for our 25-cent coin — like the beaver, the caribou has become a symbol of Canada.

In recent years, however, Canada’s caribou have been disappearing. In the Arctic, the Bathurst herd, which was estimated at 470,000 in a 1986 survey, has declined to 35,000. The most recent survey of another great population of caribou, the Beverly herd, indicated that it had plunged from 270,000 in 1994 to 124,000 in 2011. The George River herd in Quebec has dropped from a million to 20,000 animals. In the West, six of the 13 herds in the Rocky Mountains have declined to less than 50 caribou, and the caribou that once roamed the Maritimes are extinct. Scientists predict these downward

trends will continue for the indefinite future. What exactly is going on?

That’s not an easy question. Part of the challenge stems from the fact that, despite their range, there is really only one species of caribou — *Rangifer tarandus* — an extremely adaptable deer that lives in a great variety of habitats. Scientists do recognize various subspecies, but there’s so much overlap and interbreeding between the various populations that many believe it’s more helpful to divide Canada’s caribou into two major types: migratory and sedentary caribou. Migratory caribou live in large groups on the tundra, and move south into the fringes of the boreal forest in wintertime. Sedentary, or “woodland,” caribou live in small, scattered groups throughout the boreal forest, and spend most of their lives in the same area. Both, however, are in steep decline, but for different reasons, some natural and some human-made.

In the case of migratory caribou, a landmark 2011 report called *The Conservation of Caribou in Canada: An Uncertain Future*, determined that while climate change, insect harassment, hunting and predation are stressors for these northern caribou, the principal cause of their decline has been food shortage. Like snow geese, which are currently at such high numbers they are damaging their Arctic nesting habitat, migratory caribou follow a boom-and-bust cycle driven by the availability and scarcity of food — that is, lichen. And as Steeve Côté, a Quebec-based biologist and one of the authors of *The*

Conservation of Caribou, explains, “Lichen takes many years to grow. When caribou reach the top of their cycle, they overgraze their food source and a massive die-off occurs.”

There is optimism in the scientific community that northern migratory caribou populations will probably rebound when their food supply regenerates. But Côté emphasizes that the exact timing is still uncertain. “We have only been studying caribou for about 40 years, and it theoretically takes about 70 years for the boom-and-bust cycle to repeat itself.”

Meanwhile, the outlook for the sedentary herds of

WHAT ARE THE CHANCES?

Calf survival rates in Newfoundland are below levels to prevent population declines.



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GOING, GOING...
Human activity in caribou habitat can drive the animals away. Predation (below) is another factor in falling populations.



Even when caribou have a good supply of food, they usually retreat when bulldozers begin pushing roads into their habitat

the boreal forest is darker. These caribou, often identified as woodland caribou, are also in steep decline, but food availability is not the primary issue. As development has crept north into the wilderness, woodland caribou have declined. In a number of different studies using radio-collared animals, it was shown that caribou abandoned an area when roads were cleared and timber harvesting began. In most cases, forestry is actually good for moose and deer populations because “second growth” provides more food than mature timber. But even when caribou have a good supply of food, they usually retreat when bulldozers begin pushing roads into their ancestral habitat.

A second factor, scientists explain, is that forestry activity not only increases the population of browsing animals like deer and moose, it also increases the population of predators. Wolves, the main predator of caribou, can cover longer distances and search for prey with less effort by using bush roads and travelling the edges of partially cleared forests. “Unlike northern caribou, which sometimes gather together in large migratory groups for security, sedentary caribou space themselves widely to avoid predators,” says Côté. “It’s costly and difficult for wolves to travel many miles through deep snow and sparse forest searching for caribou. But when deer and moose popula-

tions increase, wolves become more numerous. A caribou is slower than a deer and easier to kill than a moose, so wolves will go after caribou when opportunity allows.”

Caribou are also slow to reproduce, and even marginal losses to predators will push a small herd of woodland caribou into slow decline. In British Columbia, sedentary mountain caribou have declined to the point that some herds are on the brink of extinction, and the provincial government has embarked on a controversial wolf cull to try and preserve the few animals that remain. Some environmentalists argue that it’s unjust to blame wolves for the decline of caribou. Chris Genovali, executive director at Raincoast Conservation Foundation, says we have to remember these two species have lived in balance for thousands of years. “Humans are changing the landscape, and that’s the real cause of caribou decline. Whether it’s through logging, building roads or degrading habitat, humans are creating a landscape where it is easier for wolves to predate on caribou.”

Most scientists and wildlife managers who support the wolf cull (which is usually carried out by shooting wolves from helicopters) agree that predator control won’t fix the ultimate problem of degraded habitat. Caribou need large areas of undisturbed old forest. Canada’s 1.2-billion-acre

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BOREAL CARIBOU ARE INTRIGUING, SENSITIVE ANIMALS. WE CAN'T USE DOLLARS TO JUSTIFY DEVELOPMENT ACTIVITIES THAT ARE GOING TO PUSH THEM OVER THE BRINK

boreal forest is one of the largest pristine ecosystems in the world, and it provides habitat for many other species. The decline of woodland caribou suggests that the long-term, self-sustaining viability of the boreal forest is itself at risk. Woodland caribou are the north country's dominant indicator species, and the rapid decline of this majestic animal forces us to consider whether we are prepared to sacrifice the overall integrity of the boreal forest ecosystem on behalf of forestry, mining, backcountry recreation and other forms of wilderness exploitation. Scientists try to stay out of politics, but experts like Steeve Côté assert that the survival of caribou (and the boreal forest) is ultimately a public policy issue. As Côté puts it, "Citizens need to educate themselves about woodland caribou, because whether they survive is really up to the voters."

A look at the trends suggests that unless we have a national examination of the issues and some kind of public debate, the future is not promising for woodland caribou. Protecting habitat costs money, and while most citizens agree that iconic animals like the caribou should be conserved, voters will no doubt want to know the price tag before pressuring their governments to keep industrial developers out of old-growth forest. It seems completely unrealistic to argue that to protect caribou we can't develop the North. But how can we protect the forest to preserve its integrity as a self-sustaining ecosystem? And what constitutes "protection"? In some cases, woodland caribou may even be comfortable with human activity if it preserves forest habitat and deters predators.

Some studies indicate that even a small herd of woodland caribou requires 10,000-15,000 square kilometers of "undisturbed habitat," that is, forest that has not been logged over or burned for at least 50 years. Some basic mathematics suggest that we therefore need to set aside about half of Canada's intact boreal forest as a permanent preserve, protected from logging, mining, road-building and perhaps even "non-consumptive" recreational activities like heli-skiing and snowmobiling.

More than 1,500 international scientists, most environmental groups, some First Nations and even some business leaders recently united under the banner of the International Boreal Conservation Campaign to launch a public debate and let politicians know this is a crucial issue. It might seem far-fetched that cash-strapped northern communities and

revenue-hungry provincial governments will ever agree to shutting down development in half of Canada's boreal forest, but it's arguable that a vast, intact northern forest may one day be recognized as a lucrative asset. As habitat destruction continues apace in Africa, India and South America, a Canadian decision to protect the boreal forest might turn out to be a brilliant investment. Like the fast-disappearing Brazilian jungle, Canada's boreal forest has performed valuable service by removing carbon from the atmosphere, and its rivers and lakes contain a major portion of the world's fresh water. Its ecotourism potential is still largely undeveloped, and although the average Canadian voter will never see a wild caribou, those who have spent time with the animal insist it is a species worth preserving.

Andrew Manske is a documentary filmmaker who has spent many cold, solitary, difficult months searching for both Arctic and woodland caribou with his camera. "If you spend any time with caribou, you very quickly fall in love with them," says Manske, who was profiled in the January/February issue of *Canadian Wildlife* for his work on wolverines. "They are not only incredibly beautiful, they are wonderfully adept at surviving in a harsh environment. When people talk about 'protecting' caribou it gives the wrong impression, because they are not frail creatures that need coddling. They are incredibly tough, much tougher than a human being. They have flat feet and they can easily outrun a wolf in spruce bog. It's only when people show up with bulldozers and start building roads and survey lines that the advantage shifts in favour of the wolf. Caribou don't need our protection. They'll do just fine without our help. We only need to stay out of their way and stop wrecking their habitat."

Manske hopes that northern migratory caribou populations will rebound when their habitat conditions improve. But he says it's worrisome that scientists haven't studied northern caribou long enough to be certain that the current population nosedive isn't related to climate change or some other larger systemic problem. "Even the native people who have lived with these animals for thousands of years are perplexed by the decline," he says. "Hunting pressure, changes in vegetation and shorter winters could all be having an effect. A warming climate may be increasing the insect population, and fly harassment is a serious problem for pregnant caribou. The trouble is, we just don't know."

Manske's greatest concern, however, is for woodland caribou. "Once they're gone, they're gone," he says. "It's like the northern cod. We comfort ourselves thinking that species will rebound after we've wiped them out, but it doesn't work that way. Boreal caribou are intriguing, sensitive animals, and I don't think we can use dollars to justify development activities that are going to push them over the brink. Our ancestors could plead ignorance, but we can't. We have the scientific evidence and we know these animals are disappearing. Our grandchildren have the right to inherit a Canada that has healthy boreal forest and caribou, and we don't have the right to take that away from them." 🐾