Hunger for Survival

A caribou herd's nomadic battle to prosper in a punishing land

They have known boom and they have known bust, but most of all, George River caribou – a massive and magical herd – have known the rigours of an endless, epic march

Article by Bramwell Ryan
Photography by Patrice Halley

His body half covered with ice, Serge Couturier shivers like a stuttering motion-picture frame. When he moves his arm, the tinkle of falling icicles rings and flutters away in the wind. For six hours, the biologist for the northern region of Quebec's Ministere de l'Environement et de la Faune has cruised and bathed in the two-kilometre-wide Koksoak River in northern Quebec. It is October, and in a few months, the rippling, stony land of Ungava Bay, dotted with bog and tiny, twisted trees, will be robbed of most vital signs, smothered by snow and ice. At that point, the thousands of George River caribou – the largest caribou herd in the world – will be hundreds, maybe thousands, of kilometres beyond Couturier's reach.

Earlier today, Couturier, a firmly built, quiet man with a restlessness ill-suited to desk work, stopped for lunch on the south shore of the Koksoak. Dressed in expensive down-filled clothing, robed in an orange life jacket, Couturier, along with his fellow researchers, had seen few caribou and now dismay was setting in. After gathering dry shrubs and twigs from the dying greenery to light a fire, the men gazed across the water, munching on fiery-hot chicken wings and bannock-like bread and sipping tea.

Waiting for caribou is routine for Couturier. Several times each year since 1984, he had traveled north in all seasons to track, count, photograph and capture George River caribou. The allure is simple: the animals represent the last great land-based migration on the continent. Treading an area equal to the combined size of Alberta and Nova Scotia, the caribou can travel up to 9,000 kilometres a year in search of food. Although there are 800,000 caribou in the George River herd, only four scientists are immersed in the movements of the animals. Of the two still involved in research, Couturier has more experience. His life as a wildlife biologist entails much more than data poured into charts; it requires the stamina to go fishing for caribou in water so cold that it burns.

It is easy and cheap to catch caribou in water. On land, a capture means shooting a net from a low-flying helicopter or firing a dart loaded with tranquillizing drugs. In rivers and lakes, the animals float like corks, thanks to the air sacs inside the caribous' hide. So no matter how deep the water, they are easy to spot, swimming high on the waves as if sauntering on a hilltop.

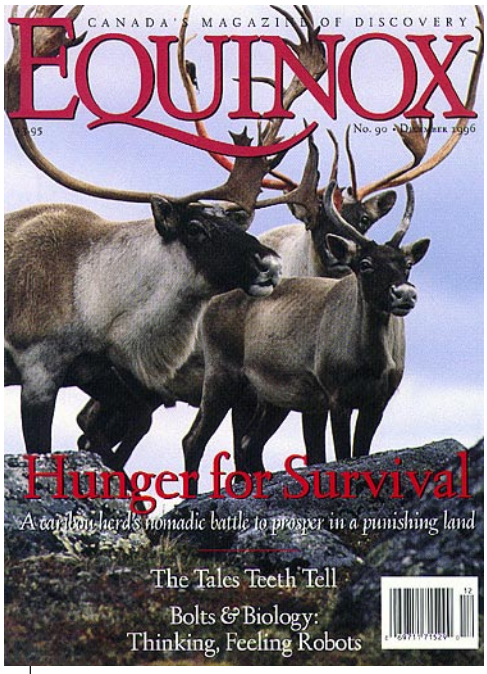
The day before, Couturier and his pilot, Jean-Yves Lacasse, had flown into the tiny village of Kuujjuaq, located five kilometres downriver. From what they saw from the air and from hunters' reports, they knew caribou had returned to the areas for the first time in six years. Thousands were sweeping southeast along the western shore of Ungava Bay and turning southwest through the village, looking for a place to cross the huge Koksoak.

Excitement grew among the workers. "Mon Dieu!" exclaimed Lacasse. "Here they come." Across the river, tiny blond dots were rushing over a hill and blending together into a wall of movement. The wall grew longer and longer and started moving southwest. Another shout went up. "There's more!" Two kilometres away, another wall of caribou raced over a ridge, heading northeast toward the first group, and within minutes they met. On the sandy show of the tiny bay, the congregation looked like a huge bowl of almonds being shaken. Suddenly the grey river water flashed white. The caribou had started to swim.

After gulping their steaming tea, the crew raced to shove the rubber Zodiacs away from the rocky, ice-encrusted shore. Couturier has the hardest job: to lean way out, plunge his fully clothed arm into the freezing water, and capture a caribou in a headlock. His targets are calves, but none of the animals appreciates the interruption. They kick and flail about, eyes bulging in fear and nostrils blowing hot steam. Couturier hauls one 60-kilogram animal into the unsteady vessel, measures its chest and foreleg, and staples a bright red tag to its ear. An expandable leather satellite collar is fastened around the animals' neck with steel bolts. Next he pulls the young caribou into his arms; with the boat bobbing in the waves, he steps onto a scale coated with ice and calf feces and tries to stay still long enough so that the pilot can take the reading.

Hours later, after collaring nine caribou, Couturier reflects on the day's work. "The calves are bigger than in previous years," he says, fiddling with his laptop computer, "but it's the lowest cow-to-calf ration we've ever had."

Fewer calves might not seem problematic in such a large herd, but to Couturier, it is continuing evidence that one of the most spectacular wildlife population explosions in recent history has come to a halt. This past fall, he estimates, there were just 22 calves for every 100 female caribou. Back in the mid-1980s, the average was 56 per 100. A figure of 35 per 100 is the population pivot point; less indicates a declining population.



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There is much talk in northern Quebec and Labrador about the decline of the George River herd, and blame frequently centres on human action. In Labrador, the culprit is Canadian Forces Base 5 Wing Goose Bay, launching pad for an average of 6,000 low-level training flights each year. Air force pilots from four countries hone their skills by flying up to 800 kilometres an hour at heights as low as 35 metres from the ground. Critics claim jet-inspired noise and fear are hurting caribou populations. In Quebec, the danger has a different source – the flooding by Hydro-Quebec of vast tracts of wilderness to create reservoirs. Twelve years ago, 10,000 George River animals drowned in the Caniapiscau River, an event widely blamed on Hydro-Quebec.

Until the wanderings of the caribou are fully understood, two big threats, as far apart as Montreal and Toronto, seem unlikely pincers for one population. The ceaseless circling of the Ungava Peninsula by the George River herd starts on the calving grounds west of Nain in June. Then the caribou swing south, west, and north looking for food. In late fall, they mate, and as winter howls they head west and south to the shores of Hudson and James bays. The movements are not predictable – where they go depends on how much food they find and on their need for relief from insects in summer and icy winds in winter. Moving in congregations of a dozen, each group is a drop that together makes a torrent of life on the land.

The George Rover herd is the largest of an elite group of caribou. Although 102 distinct herds exist in North America, just eight have populations that exceed 100,000 and none undertake treks that are as lengthy as those of the George River animals. Among herds living in the southern portion of then peninsula, none face the same survival threats as the George River caribou – namely, too many mouths to feed on too little food.

As Couturier's numbers indicate, the George River herd is on the verge of a substantial natural crash. In 1958, the herd was only 2 percent of its current size. But starting in 1970 through to the next decade, records were broken, with average yearly population growth rates of 15 to 20 percent. No one knows why those years were so good. Some researchers suggest favourable weather during the calving period; others point to fewer predators.

Early records vividly highlight the extent of the cyclical downturn in numbers. The first mention of the herd in print was in the 1860s in the papers of Moravians who set up their earliest missions along the Quebec-Labrador Peninsula. By 1890, the herd was huge, but over the next 20 years, the animals virtually disappeared. Once again, biologists such as Couturier can only shrug their shoulders over the cause of the decline. One possible explanation is the weather. During the early part of century, the world's average temperature increased, and warmer winters in the Ungava region mean more snow. The deeper the drifts, the more work caribou experience when digging for food. Records from the Moravian missions show that the number of caribou skins traded by aboriginal people in Labrador dropped from 13,569 in the decade 1894-1903 to none in the decade 1914-1923. In the middle of the century, George River animals became so rare that biologists suggested capturing a few caribou and penning them in a zoo to ensure the species survived.

Inuit and Innu history is scarred with memory of caribou scarcity. Daisy Watt, mother of Senator Charlie Watt, is a 75-year-old Inuit elder living in Kuujjuaq. When she was born in 1922, the George River herd was at the low point of the population cycle for a decade. "There wad no caribou at all, but my grandparents told me there used to be lots," she says, clutching a soft, smoky-smelling piece of caribou hide that she had recently tanned over a fire. "They disappeared, many people starved, and the hunters had to go so far to find the caribou. Some never came back." In fact, Watt was 48 before she even saw her first live caribou. When she was younger, the hunters, traveling by dog sled, voyaged so far southeast from the community clustered around the Hudson Bay trading post of Fort Chimo (now Kuujjuaq) that by the time they returned, the meat was in frozen slabs and most of it was already gone, eaten by the men and their dogs. "Back then, the caribou were always far away, but they were in very good condition, very fat," recalls Charlie Saunders, a 78-year-old Inuit hunter. "And they weren't moving as much. They have fat now, but not as much."

For centuries, the lives of the native people of northern Quebec and Labrador have been closely tied to the lives of the George River caribou. Human survival rose and fell according to the size of the herd. Innu of coastal Davis Inlet, for example, lived inland on the banks of the George River until the 1950s, when, with caribou numbers drastically down, the federal government moved the community to the coast.

Southeast of Kuujjuaq, sprawled across the border between Quebec and Labrador, is the locale that Inuit and Innu legend identifies as the home of the caribou. Today the area is known as the calving ground for the herd. It is a windswept expanse of plateaus nestled in rolling hills about 799 metres above sea level 150 kilometres west of Nain. Every year for millennia, female caribou have returned to this spot to give birth to a solitary calf. The high elevation means greater winds and a slight respite from the torrent of mosquitoes and blackflies in the short northern summer. The grounds are also far from predators, primarily wolves, though bear and human hunters take an occasional toll. When the caribou give birth during the first week of June after an eight-month gestation, it is maternity season throughout the North. "The main reason they return to the same area is probably because they had success there the year before," says Jim Schaefer, biologist for the wildlife department for Newfoundland and Labrador.

Another explanation is the length of time female calves spend with their mothers. Male calves strike out on their own after 9 to 10 months and may never return to their place of birth. Female calves often do an annual cycle, or more. "Adult and yearling males are not on the calving grounds at all," says Couturier. "It's unusual to have such a black-and-white situation in biology."

Lately not only are males absent but so too are fertile females In the past years an increasing number of female caribou of birthing age have been barren. A female needs to have 8 to 10 percent body fat to

ovulate. “The health of the mothers is poor,” says Couturier. “The George River animals are facing a dilemma, a question of survival. The females have to go over the fat reserve to ovulate, but food is getting scarce and they have to travel more, expending more energy.” George Koneak, an old Inuit hunter living in Kuujjuaq, has seen caribou many times after harsh winters. “When they’re going toward the calving grounds, my gosh, they’re just bones. Bones sticking out everywhere, just bones, they’re so skinny.”

Shortly after they give birth, the females are ready to move. By four days of age, calves can already outrun wolves. Soon, the herd masses together, moves off the calving grounds, and runs the wolf den gauntlet toward the southwest. They gather near the Caniapiscau River, where they rejoin the males.

When the herd was small, as it was for a good part of the century, the caribou lived year-round on their maternity lands. As the population started to explode, and the number of mouths to feed grew, the animals were forced once again ti become nomads. They started to roam the vast Quebec-Labrador Peninsula, revisiting old migratory trails in search of greenery, willow and birch leaves, and grass.

Lichens, which keep the caribou alive in the long winter, are hardly the ideal fuel for potent population growth. The dull silver and grey plants look like tiny cauliflower heads with more widely spaced stalks. They are dry, almost brittle. Slow to grow, they are possibly a key control factor governing the caribou. Lichens sprout only three millimetres per year in the short summers and, once cropped to the ground by caribou, can take up to 50 years to reappear. Perhaps that is why Inuit hunters claim that when the caribou trails are worn, the animals disappear. Large portions of the traditional George River herd calving ground are scoured or trampled clean of nutrition, and it will be decades until food is plentiful enough to sustain caribou year-round.

The Aerospatial A-Star helicopter flies low over the Caniapiscau River, which bisects the George River caribou range like an artery. The land below has strong bones - the Precambrian Shield rippling like ribs, the low spots filled with bog and unnamed lakes. Thinly spaced, anemic trees fight for life, sprouting wherever the wind has left soil. Just before winter freeze, the entire landscape looks sprinkled with icing sugar. The white powder snow makes it easier to see where the caribou have trod. Thousands and thousands of trails weave through the trees, across meadows, and around lakes, and the heavily used highways are dark brown.

The helicopter lands in an unnamed valley about 100 kilometres southwest of Kuujjuaq. We are drawn here by a radio collar on a caribou, which contains a VHF transmitter that emits a faint pinging noise. The high-tech gadgetry is quickly forgotten once the rotors stop turning. Before us is a timeless sight. In the valley and on the surrounding hills are 8,000 caribou, a gathering of nomads briefly encamped on their long journey in search of food and winter shelter. In the valley, which has rarely seen humans since its creation, 16,000 eyes stare at us in wonder. Are we just more hangers-on in this traveling show? “As they move, life goes with them” says Stuart Luttich, a retired biologist who studied the herd for some 20 years for the Newfoundland government. “Wolves and ravens follow the migration, and even fox and mice benefit from their travels. Without caribou, the country looks sterile.”

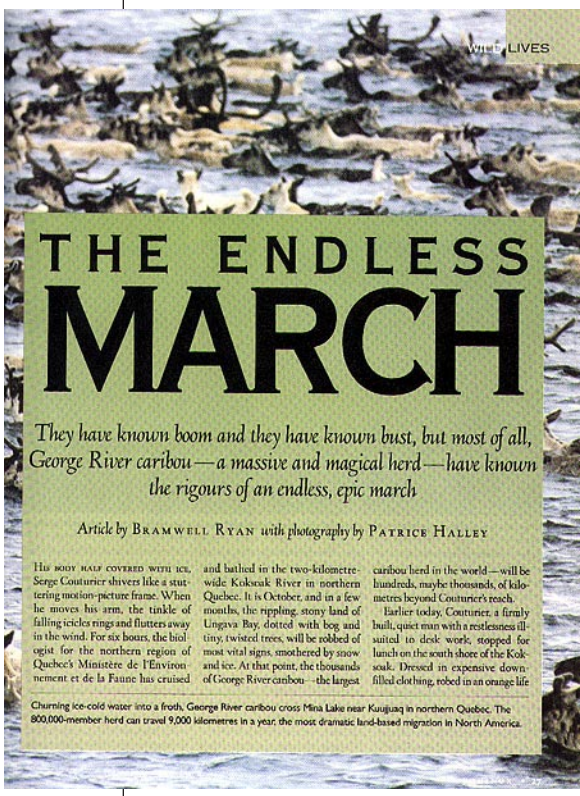
Soon most of the animals forget about us. Groups of 15 to 20 slowly approach, noses sniffing the air, legs slightly splayed, ready to sprint if they sense danger. Most of the attention comes from the females; the males are too busy licking the vulvas of the females, waiting for the exact instant when the presence of pheromones in the urine signals it is time to mate. During this season, male caribou consume so much urine that it taints their body tissues, prompting hunters to avoid shooting them for meat. The females are in oestrus for just 48 hours, a window of opportunity the males are loath to miss.

The fall rut is a key to survival for the herd, the time when the mightily antlered males battle for the right to mate. Nearby we see an occasional fight on the ridge of a rock ripple, but it is more a shoving match, a reminder rather than a title bout. Male status has already been established in earlier fights. Sometimes the size of an animal’s antler rack alone will intimidate a challenger into submission; the fight is over before it starts.

The large antlers are a momentary delight for male caribou. Once the short rutting season is over, the dull gold rack falls off, and as it hits the ground, so does the status of the male. Caribou are the only species of deer in which females have antlers, and their headgear remains throughout the winter. In winters past, Couturier has seen a bareheaded male caribou dig through two metres of snow, and just as he nears a lichen mat, a female will approach, lower her antlers, and frighten away the male. Couturier muses that the different antler shedding times for males and females are a survival tactic developed over millennia. During winter, pregnant does – the only females to have antlers – need food more than do other members of the herd.

Up close, the caribou, their hides a mixture of blond, brown, and grey hairs, surprise a first-time onlooker. The animals are small. The shoulder of an average caribou comes up to about mid-chest height on a human, about one metre. Couturier has often found that people are surprised by the animals’ small size. “People think they’re bigger,” he says as he sprawls on the cold rock, fumbling for binoculars. “It’s because of the openness of the country. They live in a land without scale.”

As the animals approach and retreat, we hear clicks. When they run, the clicks multiply into a chorus that sounds like a thousand knitting needles tapping together or, in the words of hunter George Koneak, “the sound of a cowboy’s hard-soled boots walking away from you.” The cause is a small tendon in the hell of the hind leg slipping across the bone. Couturier believes the clicks are an audible bond between members of the herd – another survival adaptation that can come in handy during a blinding



blizzard.

Couturier doesn't think the herd will almost disappear as it did earlier this century. He predicts that within 15 years of the downturn, there will be 200,000 animals alive, 600,000 fewer than there are today. The little that is known about the cycles of the caribou populations indicates that the largest herd size lasts between 10 and 25 years. Small herds endure much longer – 35 to 70 years – primarily because predation has a dramatic impact on the animals that remain. "Everyone agrees they're not growing anymore," says Jim Schaefer. "The best we can hope for is that they'll stay at this level for a while."

Both Couturier and Schaefer are confident that whatever happens to the herd in the near future will be a natural cyclical event. Although caribou have been called the "buffalo of the North," the impending decline in the George River herd, they say, will have little to do with humankind. "The Quebec-Labrador Peninsula is in essentially the same shape as it was 100 years ago," says Schaefer. "Apart from some flooding, a few roads, and one rail line, it's in the same primitive condition."

Others who look at the George River herd believe otherwise, pointing to possible disruptions caused by massive flooding for Hydro-Quebec power installations and treetop NATO training flights from Happy Valley-Goose Bay. Couturier and Schaefer dismiss both threats. In the last decade, Hydro-Quebec filled large reservoirs by damming several rivers flowing into James Bay. Plans to build more dams on rivers farther north are on hold indefinitely. "All the data indicate that Hydro is not a big problem for caribou," says Couturier. Her bristles when asked whether his opinions might be swayed since Hydro-Quebec covers some of the cost of Couturier's research on the herd. He agrees that flooding has ribbed caribou of a portion of their range. The herd, however, frequents the western part of the peninsula only in winter, when human-made lakes are frozen. "The impact on animals is minimal," he says.

The impact on caribou of low-level training flights is also minimal, says Jim Schaefer. Military flights have taken place over Labrador for almost 40 years, but in the past decade, the number has jumped considerably. In May 1995, the federal government increased the annual maximum allowable low-level flights to 15,000 from 7,000 and established an institute to monitor the environmental effects of the flights on the Innu and wildlife. The increase caused much controversy. "It seems other nations are willing to train their pilots to fly at low levels over some of Canada's people and wildlife instead of over their own," wrote Paul Aird, a professor of forestry at the University of Toronto.

Reacting to the concerns, the military decided to stop conducting flights over calving grounds. Besides, Schaefer says, there is no evidence that the flights do anything other than momentarily startle the caribou. "Most opinions on low-level flights are just that: opinion," he says. Schaefer's work is even more directly subsidized than Couturier's; in his case, by the Department of National Defence (DND), which operates 5 Wing Goose Bay, the international military flight centre in Labrador. He says DND uses the data from tagged caribou to avoid overflights. "They use our satellite-collar data to set up buffer zones around each collar," he says. The satellite collars emit signals for several hours twice a week. During that period, passing satellites pick up the beam, sending it to the control centre in France. There the coordinates are plotted and the information us placed on the Internet, where scientists such as Couturier, with 25 collared caribou, and Schaefer, with 13, can find out where the animals are located. The information contains motion-sensor data that indicate the number of times a caribou moves its head; a zero count likely means the animal is dead.

Fred Harrington, a behavioural ecologist at Mount Saint Vincent University in Halifax, agrees that the ecological impact of the flights is not a significant issue. Between 1986 and 1988, Harrington studied the effects of low-level flights on the Red Wine Mountains caribou herd, located near Goose Bay. "When you're overflown by a jet, it's not a pleasant experience," Harrington says. "But the effect on an adult caribou herd is relatively minor." He says the animals show a startle effect when a jet passes directly overhead; they may scramble to their feet, stop eating, and if they are walking, they may speed up to a trot. "Within a minute or so, they go back to what they were doing." Their reaction, Harrington says, mimics what they do when a predator appears nearby. "People may be seeing natural movement of the herd and inferring that there's a cause that's not natural."

All over the world, there is a rift between those who roam and those who plant. Throughout human history, those who move – Gypsies, Berbers, Mongols, North American natives – have been distrusted by those who stay put. Our society has been particularly adept at finding homes for the nomads. And not only the human wanderers – the great animal migrations are now growing fewer. That is what makes the widespread migration of the 800,000 George River caribou so spectacular. The caribou have not yet been moulded or decimated by the rooted, Their journey on the margins serves as a reminder of what we once were.

Ironically, their success is now their greatest threat to survival: more mouths to feed, less food to eat. They travel farther, burn more energy, and lower their birth rate. In the remote valley near the Caniapiscau River, their antlers are a forest, their clicking legs a symphony. Although in 12 years of study, Couturier has witnessed similar sights countless times, he still stares in wonder. For a man more likely to offer a fact in place of a feeling, he mutters a surprising summary. "They are amazing," he says. "They are so little – bad lichen, poor browsing on small trees – but they are able to live in such huge numbers. I still get a strange feeling when I see them. They're free, and I hope there are never so few that I can count them all."

Bramwell Ryan and Patrice Halley went underground to report on a greenhouse in a Flin Flon mine (January/February 1995). Ryan resides in Winnipeg, Halley in Montreal.