

# SCIF Funds Caribou Study



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## An Ecosystem of Change

Times are changing across the vast barrenlands of Newfoundland, the massive 43,000 square-mile island that lies off the east coast of Canada. One of the greatest icons of Newfoundland's wilderness, the woodland caribou, has fallen on hard times.

Hunters and outfitters, outdoor recreationists, and government biologists have all observed that the number of caribou is lower and lower each year, a decline that seemed impossible during the glory days of caribou hunting in the late 1990s. Caribou numbers have fallen from almost 100,000 strong in those days to approximately 30,000 today. The current situation presents an enormous challenge as the population continues to decline.

The woodland caribou is listed as a Species at Risk throughout their range in North America, their numbers and ranges declining dramatically over the last century. The exception is Newfoundland, whose caribou are not listed, and it is home to the majority of remaining woodland caribou. Caribou is the only indigenous ungulate on the island, and Newfoundland is the most southerly place in the world where they may be hunted.

The waning population has caused concern for hunters and outfitters. This has already had a considerable



Newborn caribou calves are especially vulnerable during its first week of life when it is often too weak to outrun. Photo by Shane Mahoney.

impact on the outfitting industry, which relies heavily on the revenue from non-resident caribou hunters. Caribou hunting has been closed in some Caribou Management Areas, and additional closures may be necessary as the caribou population continues to fall.

Hunting closures have significant implications to Newfoundland culture and traditions, as the island's coastal communities in particular have relied on caribou for recreational hunting opportunities and as a source of fresh meat. With this ebb, dramatic change



The Eastern coyote is one of the main predators of caribou calves in Newfoundland. Photo by Truman Porter





Burials of calf remains are preferred places to deploy Stealth Cams. The goal is see what predator returns to the kill. The kill in this photo was buried 1.5 feet down in the humus by a coyote. Photo by Steve Gullage.



A male black bear recovering from the immobilization and collaring procedure. Each bear is ear-tagged in both ears and given a lip tattoo (note the blue-green ink around the mouth). Photo by Tyler Hodder.

comes to the ecosystem and the hunting industry in Newfoundland. Many questions remain to be answered.

But change has always been part of the Newfoundland ecosystem, and most of the transitions we witness have been heavily perpetrated by man. Species introductions like the snowshoe hare (in 1864) and moose (in 1904), and the construction of the trans-island railway (completed in the early 1900s) and the Trans Canada Highway (in the 1960s) undoubtedly affected caribou populations in numerous ways.

So too did the extinction of the Newfoundland wolf. The last member of this unique subspecies was lost in the 1920s, ending a classic predator-prey relationship between wolves and caribou. The long-term impacts from the loss of the apex predator are unknown, but there was no noticeable upswing of the caribou population following the wolf's extinction. In the 1980s, after several decades without the sounds of canids in the Newfoundland wilds, the eastern coyote found its way to the island and began filling part of a wide niche left empty by the wolf's demise.

Other factors may have influenced caribou and the current decline. In the 1990s, high caribou densities and an increase in habitat fragmentation probably increased competition for food. In addition, predators may have increased in response to more caribou on the landscape, and a bigger, even more abundant alternate prey species, the moose.

Black bears and lynxes were known predators of caribou calves, but surprisingly, the bald eagle was discovered to be a predator of calves only in the late 1990s.

Bald eagles appear to be changing



their seasonal movements to coincide with the calving season in late May and early June. These huge predatory birds are known to kill calves, but seem to specialize on scavenging on the kills of others, sometimes in numbers of up to a dozen or more at a time.

### Action to Reverse the Decline – The Caribou Strategy

In addition to its importance in the natural system, the caribou is a symbol of Newfoundland revered by residents, tourists, hunters and outfitters. Loss of caribou would be catastrophic, particularly to the cultural heart of the province and its people.

In February of 2008, the Government of Newfoundland and Labrador announced the multimillion-dollar "Caribou Strategy." The Caribou Strategy is a five-year, science-based initiative led by the Sustainable Development and Strategic Science branch of the Department of Environment and Conservation to improve our understanding of the entire predator-prey system in which caribou persist.

The Strategy seeks to uncover the underlying causes of the caribou decline, explores wildlife management options such as predator reductions, and delves into the socioeconomics associated with caribou and their predators.

Many research projects on caribou and predator ecology, habitat, and ecosystem interactions are underway. The Strategy brings together several partners including provincial government departments, universities, non-government organizations, the general public, and hunters and outfitters.

An academic team, comprised of leading scholars from higher education institutions in Canada and the United States, acts as both shepherd and watchdog, guiding and monitoring all related research projects. A caribou resource committee represents the interests of government departments and stakeholder groups that are impacted by the caribou decline or have a contributory role to play in the





**Shane Mahoney, Executive Director of the Sustainable Development and Strategic Science Branch of the Newfoundland & Labrador Department of Environment and Conservation, shown holding a decapitated caribou calf circa 1982, three years before the first report of coyotes on the island of Newfoundland.**

Caribou Strategy. It consists of members from the departments of Environment and Conservation, Tourism, Culture and Recreation, Natural Resources, and the Rural Secretariat, as well as members from the Outfitters Association, the Trapping Association, the Wildlife Federation, the Rod and Gun Club, and the Caribou Strategy Academic Team.

As the Strategy progresses, new insights and findings will be incorporated into management actions through adaptive management. Caribou calves are collared as newborns in three study areas in late May and early June. These calves are monitored regularly, and when mortalities occur, the scene is assessed to determine cause of death, and if predated, the predator responsible. Once movement patterns and density of predators are known, these findings will help determine whether prescribed predator reductions would lower caribou calf mortality, and will allow the assessment of which factors most influence recruitment.

We already know that the proportion of caribou calves taken by each predator varies across different areas of the province. The black bears in Newfoundland, arguably some of North America's biggest black bears, feast on caribou calves in May and

June, especially in areas such as the northern and central parts of the island. In one study area called Middle Ridge in the years 2003-2008, black bears were responsible for 25 - 50 percent of caribou calf mortality.

The newcomer coyote is also taking a large proportion of calves (4-25 percent), mostly in more open areas to the south. Lynxes and eagles are

taking a relatively small proportion of calves compared to black bears and coyotes.

The return of Newfoundland's caribou herds to sustainable population levels may require intense predator management. However, the feasibility of increased predator reduction will be determined by experiments to scientifically assess the effectiveness of using predator management as a caribou recovery tool.

Experimental predator management will proceed when we have collected sufficient information on predator density and spatial distribution to allow us to interpret experimental results as they relate to effects of reduction on both caribou and the predators themselves.

Predator reduction will focus on coyotes and bears, as they are the primary predators of caribou calves. However, if experiments show that caribou are declining independently of predator numbers, then costly long-term predator management interventions may be neither practical nor warranted.

### **Safari Club International Foundation Joins the Conservation Effort in Newfoundland**

Very soon after the announcement of the Caribou Strategy, the Safari Club International Foundation (SCIF) got involved in a big way. As part of its commitment to

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science-based conservation, SCIF committed \$250,000 to aid in the study of Newfoundland's caribou and their predators. To date, SCIF funds have purchased 100 radio collars for caribou calves, 21 Global Positioning System (GPS) collars for lynxes, two net guns for coyote capture, 12 motion-sensitive cameras and battery packs and has hired a renowned geneticist to analyze DNA samples to estimate predator population densities.

Caribou calf collars are the research keystone for the Caribou Strategy. Each year when collared calves are killed by predators, information is gleaned from the kill sites to attribute each kill to a cause. Calves that survive the first few weeks of life are monitored into the following year to estimate survival over time, a crucial barometer indicating recruitment into the population and the state of caribou herds.

The lynx GPS collars will be deployed in three study areas of the island and will provide important information on lynx movements, habitat use, and overlap with cari-



Caribou dams congregate on the same calving grounds year after year. Photo by Shane Mahoney.

bou ranges and calving areas. To date, 26 coyotes have been captured with net guns purchased by SCIF,

and all animals have been equipped with GPS collars.

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Screenshot of a Stealth Cam video of a male black bear feeding on an adult caribou. The bear had killed the calf and then the mother. This was captured by one of twelve Stealth Cams donated to the Caribou Strategy by SCIF.

**Hope for the Future**

With the ongoing efforts of the many people involved in the Caribou Strategy and the generous support of Safari Club International Foundation, the woodland caribou won't join the Newfoundland wolf as a ghost in Newfoundland's past. The Strategy will probably prescribe an experimental predator reduction in 2010, provided adequate baseline information has been gathered, to determine the effectiveness and feasibility of predator control as a caribou recovery tool. If predator reduction increases calf survival and eventually the Newfoundland caribou population, the Strategy will be a success. 🐾

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Shane Mahoney investigating a calf mortality in Middle Ridge.