



Caribou Mountains:

Roadless Wilderness on The Edge



Caribou. Near Kananaskis, Alberta.



Wilderness is The Last Dream

**By Gray Jones: Executive Director,
Western Canada Wilderness
Committee,
Alberta Branch**

To many people, wilderness is the last dream. The Caribou Mountains is one of the last roadless wilderness areas in Alberta. It is the domain of the elusive and magnificent woodland caribou. The area is under threat by oil and gas developments and increased forestry. These developments have the potential to fragment the biodiversity of the area and compromise the threatened woodland caribou. We are committed to this very important campaign. From what I have seen, our children will value wilderness much more than we do. Wild places where we can experience the howling of wolves in crystal air, hear the call of the red-throated loon and eat pan-fried arctic grayling are special places. The Caribou Mountains is such a place.

Permafrost covers much of the plateau. This permafrost layer is maintained by a thick coat of sphagna moss and lichens. As well as 15 known species of sphagna moss and 127 species of bryophytes, the Caribou Mountains contain an incredible array of lichens, which are a tapestry of colour across the plateau.

Both the terrestrial (ground) lichens and the arboreal (tree) lichens are more than colour to the threatened woodland caribou, they compose their staple diet and anchor them to the land.

Dr. Bernard de Vries, from Saskatchewan, describes the great significance of the lichen communities on the plateau as being, "an outdoor laboratory for foreign scientists. The lichens are important for caribou and preserving permafrost."

The web of streams, large and small lakes, and

unique patterned fens on the plateau could be described as being the mother of the Caribou Mountains ecosystem. Peter Lee describes the Caribou Mountains as being "A subtle environment - the transition from sub-arctic to boreal. Many of the plant and animal communities and niches are very delicate and very hard to manage, for the drainage system is incredibly complex in the area."

The WCWC Boreal forest research team increased the bird list in the Caribou Mountains by 17% in just three days. The Caribou Mountains have the only known breeding record for the red throated loon and the grey-cheeked thrush. High numbers of ospreys and bald eagles have been observed. The Caribou Mountains are also one of the two known nesting areas in Alberta for the elusive American tree sparrow.

If one looks at the history of development in the Caribou Mountains, there are some clues to just how fragile this ecosystem is. An access road which eroded and became a trench, the Ponton Trench, reversed the water flow in three townships. Permafrost and sphagna moss render the area very susceptible to industrial damage. The Caribou Mountains are on the verge of oil and gas development. The Home Oil Company has drilled and capped over 20 shallow-gas wells. At this point we applaud them for declaring a one-year moratorium on development. But if the proposed project goes from development to delivery the connecting pipelines will pose a serious threat in terms of permafrost destruction, erosion, and habitat fragmentation. A large number of wells, a camp infrastructure and possible airfield would seriously injure and fragment the water/lichen ecology of the plateau, and of course, seriously affect the caribou.

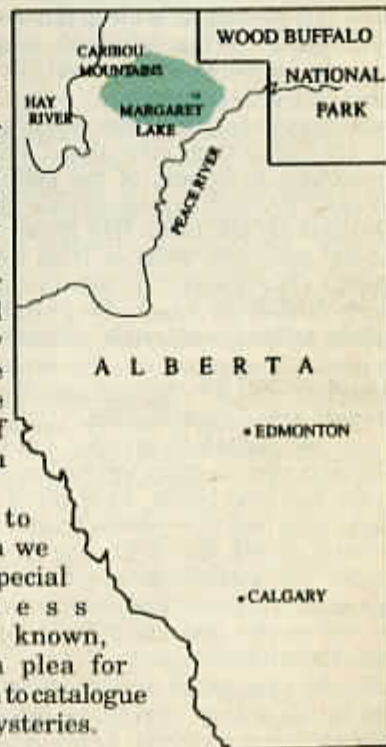
Over one third of the land mass of the plateau has been burned by wildfire in recent years, therefore reducing caribou habitat by one third.

The heat canopy and lichen communities have been destroyed. It will take 20-30 years for the burned over areas to recover as functioning caribou habitat. This is, in itself, a good argument for preserving the caribou/lichen habitat on the plateau.

The Western Canada Wilderness Committee commends the Little Red River Cree Nation and Chief Johnsen Sewepagaham for spearheading the latest biological research into the Caribou Mountains. We also recognize their traditional claim to the area and acknowledge their lead role in protecting the Caribou Mountains.

So far, we have just scratched the surface and are piecing together the mystery of the Caribou Mountains; *much more research is needed.* This little paper is our second effort to show the outside world the importance of the Caribou Mountains.

In order to defend the area we must make its special wilderness characteristics known, and put out a plea for further research to catalogue its biological mysteries.



What the Little Red River Cree Have to Say

by The Little Red River Cree Nation

SPIRITUAL BALANCE

We, the Little Red River Cree Peoples, have made our home in the Caribou Mountains since the ice retreated from these lands less than 10,000 years ago. Archeological evidence indicates indigenous peoples have lived within this region for five thousand years. Our relationship with the Caribou Mountains, its waters and all living things in the area, is founded upon the principles of respect, reciprocity and sharing. These principles guide our use of these lands, as well as our approach to negotiating with non-native peoples attracted to the natural beauty of the area, or the wealth of natural resources known to exist in the Caribou Mountains.

We believe all things found within the Caribou Mountains have the right to exist, as we have the right to exist. We are bound to all living things in an unbreakable relationship of reciprocal obligations and entitlements. We enjoy the inherent right to access the renewable resources in the area to sustain our people, and we have an obligation to ensure that our use demonstrates respect for our values, without impairing the right of all things to coexist.

Some non-Indian people refer to the Caribou Mountains as a wilderness, and propose that they be

development is necessary in order to contribute to Alberta's economy. To some extent both views are valid. The dilemma we now face is to balance these opposing perspectives. We believe that our role is to demonstrate how our use of the land over the last five thousand years addresses this dilemma, and to pose the question to non-Indians who would seek to develop the Caribou Mountains:

"If we agree to share these lands and their resources with you, will you agree to use them in a manner which does not destroy them or our relationship with them."

Our grandfathers walked these lands. Our predecessors rest here. The Caribou Mountains bear the marks of our presence, and are known by the names given by our people. We do not want to see these landmarks disappear. Nor do we want to remove the possibility that resources can be used to benefit our people. At the same

time, we question the commitment of non-Indian peoples, corporations, and resource managers to use resources without destroying the Caribou Mountains in the process. To date they have not demonstrated this depth of wisdom. It appears non-Indians have difficulty conceptualizing a balance between use and protection. Proponents of development tend to favour exploitation over sustainable use, while those who support protecting the area want to exclude human use almost entirely. We cannot accept either approach, but as peoples with a spiritual obligation to these Mountains we are willing to work with both groups to establish a balance which can endure.

Such a balance would admit some use and provide some protection. We believe that if Albertans approached this dilemma with an understanding of our relationship with these Mountains, this balance, grounded

upon principles of respect, reciprocity and sharing, could be reached. Without this understanding we are doomed to commit the sins of extremism.

When we speak of balance we enjoy the benefit of Indigenous wisdom regarding these Mountains. Over countless generations our people have come to understand the Caribou Mountains in a way that is difficult to translate.

One of the initiatives undertaken by our Nation over the last several years involves an attempt to "marry" this wisdom with conventional scientific knowledge. We see this as a means of helping non-Indian people understand the need for balance. Unfortunately the area has not been studied to any great extent, and so very little scientific knowledge of the Caribou Mountains exists. This means that non-Indian developers and environmentalists alike are planning in the dark. In order to address the concerns of all

parties involved it appears obvious that to collect information is the first step in determining where the balance must lie. To this end our Nation hosted a two-day conference with non-Indian scientists last fall. At that time we helped review existing scientific knowledge of the Caribou Mountains, and identified the need for scientific research to bridge the gaps.

We believe all parties with an interest in the Caribou Mountains must resist extremism. We believe all parties must work in collaboration to gain a better understanding of this area. It is only



Caribou Mountains as a wilderness, and propose that they be protected from industrial and recreational development. Other non-Indians point out the value of the area's resources and support the idea that



Wilderness Lodge, Margaret Lake, operated by the Little Red River Cree Photo: G. Jones

collaboration to gain a better understanding of this area. It is only through cooperation that a true understanding of the Caribou Mountains will emerge, and with this understanding a proper balance will be achieved.

Lichens and Bryophytes in a Changing Environment The Caribou Mountains

by Bernard de Vries &
G.F. Ledingham Herbarium
Department of Biology,
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The boreal subarctic Caribou Mountains in northwest Alberta is an ecosystem under siege. The very fabric of life in this area is threatened by logging and seismic explorations, which cut up the land and shred its fragile landscape.

On September 18, 1994 I made my second excursion into the Caribou Mountains. A fly-over of the area and several ground touch-downs were organized by the Little Red River Cree Nation and Vern Neal of High Level, Alberta. The purpose of this excursion was to form some consensus of woodland caribou habitat, and assess seismic and clear-cut disruption of this sensitive ecosystem, and the effect of past fires on reindeer lichen regeneration.

Air observation of the Caribou Mountains was in many ways disturbing. It was not long before we realized this fragile area was slowly being fragmented by seismic lines. Man in his ever growing search for wealth in remote areas, regardless of the consequences, has become his own enemy, destroying the biological web of which he is a part.

The fly-over raised several questions. Besides the seismic activity, we observed clear-cut logging sites on forest slopes. I questioned the need to log on these slopes, and wanted to have a closer look at the

affect of this kind of operation. Ground observation showed clearly that disturbance of the soil substratum was detrimental to lichen/bryophyte survival, due to severe disruption of the soil by logging operations.

In striking contrast was the adjacent forest which supported a rich arboreal lichen flora, as well as a ground cover of *Hylocomium splendens*, *Pleurozium schreberi* and the foliose lichen, *Peltigera apthosa*. Post-logging techniques in the form of trenching ran uphill instead of diagonally to minimize erosion by run-off. Coniferous seedlings were planted here, but their survival rate and the recovery of lichen and bryophyte flora remains uncertain.

Winter range of woodland caribou often corresponds with old-growth stands. In order to maintain a balance between caribou habitat usage and commercial logging, we need to develop an understanding of caribou behaviour. Some lichen growth was observed on seismic line shoulders in wooded areas receiving full sunlight, but no evidence of utilization by caribou was found.

Good caribou habitat was observed west of Margaret Lake with a luxurious cover of ground lichens and scattered old growth black spruce. Here, several small caribou groups were observed browsing on tree

lichen, especially near the patterned fen area in a black spruce/tamarack stand. We also observed caribou in an open-treed old-growth stand of black spruce, which had been left untouched by the 1982 burn. (Most of the 1982 burn area appears to be in the seral stage approaching the period of lichen renewal characterized by *Cladonia rangiferina*.) These areas in the vicinity of Horseshoe Lake have excellent potential as caribou habitat. Unfortunately, future explorations might drift this way and could

cause unavoidable fragmentation and irreparable damage to this extremely sensitive area and the underlying permafrost.

Another impending danger is pollution near wellheads, especially should burn-off take

place. Lichens and bryophytes take up water externally, or from the air. This could explain why these organisms are sensitive to atmospheric pollution. There is currently no literature available on the dangers of pollution near wellheads in the Caribou Mountains. Ground observation showed that lichen bryophytes were in a deprived condition near such sites. One possible cause is soil disturbance.

No literature has been published on the relationship between lichen, bryophyte and the forest of the Caribou Mountains, except for those by wildlife researchers



Lawson

Lawson

who speak of the nutritional value of tree and ground lichens to the woodland caribou. (Gainer, not dated). Vascular plant species have been well documented. (Lee et al. 1981, Wilson, 1991).

The great diversity of lichens, (believed to be the greatest concentration of lichen growth in Alberta), bryophytes, vascular plants and fauna make the boreal subarctic Caribou Mountains one of the most valuable heritage sites in Alberta and one in dire need of in-depth study and protection.

We are not so naive as to believe that public support for the protection of the Caribou Mountains will necessarily translate into a solution to the man-made problems in this area. But without public support no amount of ingenuity will reverse the drift that is slowly pulling the Caribou Mountains' fragile ecosystems apart.

How long will the Caribou Mountains remain as a vital part of Alberta's heritage? If we do not heed the urgent warning signs that all is not well with the Caribou Mountains, we might easily see a total biological collapse of this ecoregion. It is nonsense to say that the wilderness characteristics of the Caribou Mountains will be protected by minimizing development and activities. How is one to minimize such impacts upon a fragile ecosystem without jeopardizing the whole? Especially when large areas of the Caribou Mountains are virtual preserves for oil and gas exploration.

A Survey of The Caribou Mountains

Adapted from notes
by Peter Lee,
Protected Areas Coordinator,
Province of Alberta

- The Caribou Mountains is an elevated plateau 1500 feet above sea level, situated in northern Alberta, just west of Wood Buffalo National park, consuming 5000 square miles of Provincial Crown land.

- The Caribou Mountains is a rich natural habitat for over seventy bird species, and abundant plant-life species more commonly found in arctic and sub-arctic environments. Some of the lakes in the area contain important fish populations which are very sensitive to over-fishing given the slow rate of growth of these species.

- Underlying permafrost throughout much of the area makes it a unique and fragile ecosystem, extremely susceptible to damage from development.

- The Caribou Mountains is home to between 10 and 30 percent of the provincial woodland caribou population.

- The heavily lichenized black forest south of Margaret Lake and the Horseshoe Lake area are potentially two of the most critical habitats in the

Lichens, Mosses and Water WCWC file photo



province for woodland caribou, both in terms of availability of food and the existence of ideal calving grounds.

- Rare landforms are found in the Horseshoe Lake area, which is rich in fens and palsas, and on the banks of the Ponton River where large peat and sulphur slumps can be found.

- Boreal old growth stands exist on a few islands located at Eva Lake, on a peninsula at Caribou Lake, portions of the escarpment northwest of

Horseshoe Lake, and other sites which have not been touched by naturally occurring forest fires.

- Concern over oil and gas development centres around the construction of pipelines and their effect on permafrost, the caribou population, and the Horseshoe Lake fens.

- The consequences of unrestrained access by oil and gas exploration companies could be devastating to

the Caribou Mountains. Should development proceed wholesale it would likely be too late to mitigate long term effects on the environment.

- The Caribou Mountains may be the last opportunity in Alberta to manage the woodland caribou as a priority, rather than waiting until their numbers are significantly depleted.

- The Little Red River Cree Band has shown interest in working toward the conservation of the caribou. Alberta Environmental Protection would like to apply an ecosystem management plan to the area and foster cooperative arrangements for land planning and management. The challenge for land use managers and the people of the Little Red River Cree Nation is to react thoughtfully to land use pressures, especially from the petroleum and forestry industries. Reacting to land use pressures without taking into account the long term consequences must be avoided. Long term management and land allocation plans have to be drafted. The Caribou Mountains is indeed a special place. The area must be handled with care.





Woodland Caribou in Alberta's Caribou Mountains

By David Moyles
Wildlife Biologist
Environmental Protection, Alberta

Woodland Caribou are ideally adapted to the extreme conditions of the Caribou Mountains region. The hollow hair of their fur provides insulation over their bodies, including their nostrils, which allows them to survive predominantly cold conditions. Their large splayed hooves provide maximum surface area for moving through snow, and are equally effective for moving through wet muskegs in the summer. As well, these large hooves act as snow shovels during winter to paw down to food. Their keen sense of smell helps caribou locate food under deep snows. They will sometimes dig, or 'crater', through one metre of hard packed snow to reach food.

Caribou have adapted to the relatively low productivity of boreal areas with a low reproductive rate. Caribou are usually found in low densities through their range, with densities ranging from 0.01 to 0.09/sq. km (0.02 to 0.23/sq. mi.). Twin calves are virtually unknown in caribou populations, and female caribou sometimes take up to 41 weeks to reach sexual maturity. Compare that with white-tailed deer in Alberta which often become sexually mature as fawns and frequently have twins. Caribou also

move extensively through their range, often moving up to 60 km in two days. These extensive and frequent moves ensure that caribou do not overgraze an area. It is also likely this extensive movement helps prevent predation.

One of the greatest impacts on caribou range in the Caribou Mountains has been the fires of the early 1980's. From 1980 to 1982, approximately 320,316 ha (123,674 sq. mi.), mostly in the western portion around Caribou Lake, Big Fish Lake and Hotte Lake, were burnt by wildfires of varying intensity. Caribou will use these burn areas from spring to autumn, feeding on sedges and forbs such as fireweed. However, their use of these burn areas is certainly much less in winters of moderate to deep snow. Caribou tracks seen in burn areas appear to cross in a fairly direct manner, deviating only to feed in some unburned pockets. Pre-burn surveys in the late 1970's found many caribou located to the west of Caribou Lake. However, caribou do not appear to use this area during moderate to deep snow winters since the burns. Alberta Lands and Forest Service has placed a high priority on fighting fires in the Caribou Mountains to prevent further loss of winter habitat.

The Northwest Region Standing Committee on Caribou (NWRSCC), a group composed of government

agencies and industry dedicated to protecting caribou in northwest Alberta, have started a project to gather more information about caribou in the Caribou Mountains. In late 1994, 20 caribou were captured and fitted with telemetry collars. These animals have been tracked since then, and their locations and habitats have been recorded on a weekly basis. Ground surveys along caribou trails will also be conducted to study habitats used by caribou throughout the year. From this work we will gain an understanding of caribou movements within the Caribou Mountains, as well as migratory habits to and from adjoining regions. It will allow us to recognize habitats important to caribou during winter, provide a greater understanding of calving habits, as well as caribou use of mature conifer timber.

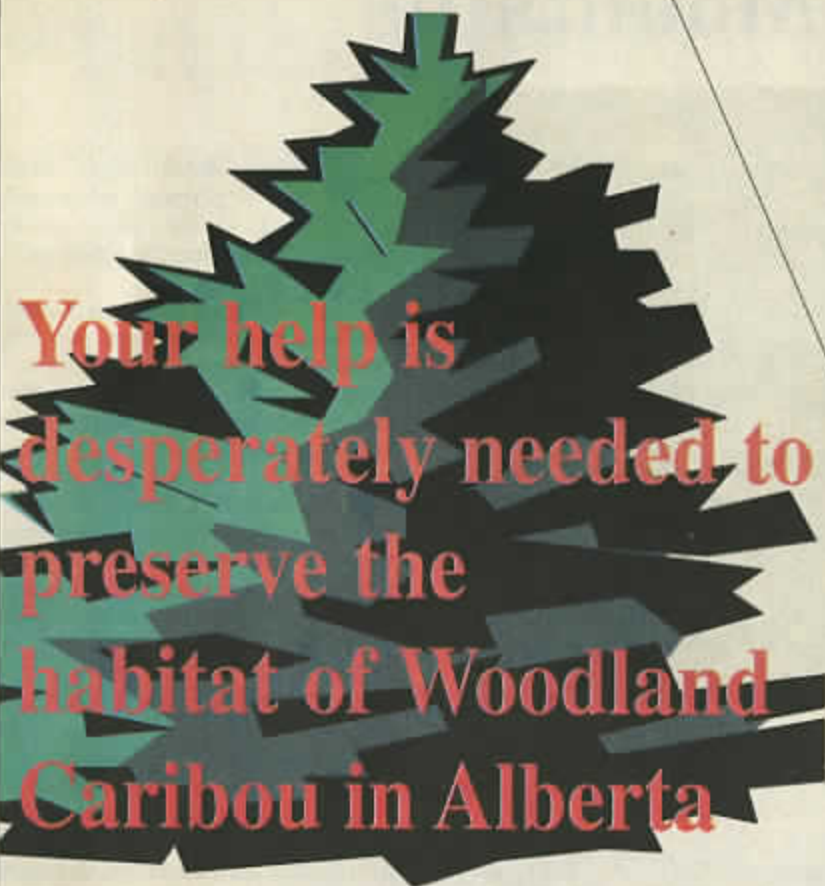
Little is known of caribou movements in the Caribou Mountains. In the past ten years caribou have often been seen in the Margaret Lake area. In November of 1993 a herd of 67 caribou was seen along the northwest tip of the lake. This sighting was unique. Caribou in boreal areas are rarely seen in such large groups. However, we do not know if caribou move to certain winter ranges during different snow conditions or if there are specific areas used by female caribou for calving. As well as movement within



Caribou Photo: Karen Ann Pina

the Caribou Mountains itself, there are undoubtedly movements to and from adjoining regions, probably into the Yates Tower area to the northwest. Such movements are important to genetic mixing of herds.

Caribou face relatively few pressures from man's activities in the Caribou Mountains, given that the area is so isolated. The last hunting season for caribou in Alberta was in 1979. Since then the only hunting pressure on caribou has been an unknown amount of native subsistence hunting, which likely increases during winter months due to increased accessibility. Wolves are the main predator of caribou in the area, although some caribou calves would be taken by black bears and lynx. The impact of predation and subsistence hunting on caribou populations in the Caribou Mountains is unknown. A great deal more study is necessary before we fully understand this unique area of Alberta.



Your help is desperately needed to preserve the habitat of Woodland Caribou in Alberta

Think about what will happen without your help...



Help us Defend Woodland Caribou Habitat

and continue our important research

Let your letters express your concern...

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This issue is dedicated to Albert Karvonen, filmmaker, who has done much to defend the woodland caribou, other species and all wild places in Alberta.

The views expressed in this publication are those of the respective authors and are not necessarily those of WCWC Alberta.

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