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FLIRTING WITH EXTINCTION

Clearcuts & the Demise of Southern B.C.'s Caribou

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A 1997 clearcut in a
“special resources development zone”
near the Itcha-Ilgachuz Mountains.
The clearcut is a stone's throw from the
creek shown on this document's cover.



**The Telkwa
caribou
herd is
on the
verge of
extinction.**

Extinction — No Bull

They once roamed by the hundreds. Now they number less than ten. They are all that is left of a once healthy population that called the Telkwa Mountains and surrounding forests near Smithers, B.C., their home.

Today it seems absurd to refer to the region's remaining woodland caribou as a herd. There's too few animals, and those that are left can't mate. "We had no cows breeding this year," says Sean Sharpe, head of the provincial Ministry of Environment's regional wildlife section. "There's no bulls."

Even with human help, it is doubtful whether the caribou in the Telkwa Mountains can survive. But Ministry of Environment officials will give it a try. In the early winter of 1997 they hope to capture 10 to 20 animals, perhaps from the Itcha-Ilgachuz Mountains to the south, and relocate the animals to the Telkwa region. The hope is that a few transplanted bulls will mate with enough cows that a new generation of calves will be born. Whether those calves will survive, however, is a significant question.

Like other regions of British Columbia, the Telkwa area has been subject to various levels of human disturbance. Sizeable areas of forest once inhabited by caribou in places such as the Bulkley Valley have been scarred by roads, clearcuts and other industrial developments. That spells death for species such as caribou that depend directly on older, undisturbed forests for survival, particularly in winter months. Roads have been particularly problematic, because they have made it easier for wolves to prey on caribou and for poachers to illegally shoot the animals.

The Telkwa caribou herd is on the verge of extinction. Ten or fewer cows. Left to its own devices, the herd will die animal by animal by animal until there are no caribou left.

The Telkwa story is not new. As Rick Page, a research scientist with B.C.'s Ministry of Forests recently observed: "In North America, every herd of caribou has declined once the forest has been logged - no exceptions - over the course of the last two centuries. And in eastern North America, most of those herds are now extinct."

Saving B.C.'s remaining woodland caribou requires a commitment on the part of the provincial government heretofore not seen. That commitment begins with the conservation of older forests frequented by caribou. It extends to revised, responsible, low-volume

logging practices. And it ends with the recognition that remaining large concentrations of caribou have an importance that transcends the regions in which they are found.

The 1,500 caribou in the Itcha-Ilgachuz Mountains are a vitally important biological warehouse. Indeed, they constitute the largest stable herd in southern B.C. Almost all other caribou populations in southern B.C. are in a state of decline. Without animals taken from this or another herd, the Telkwa herd is doomed. Similarly, without the capture and relocation of woodland caribou from elsewhere in B.C. to the mountains of northern Idaho and Washington there would be no woodland caribou left in the continental United States where the species is listed as endangered.

The Itcha-Ilgachuz Mountains are home to the largest concentration of caribou in southern B.C. This is an internationally important herd of animals, a herd whose continued health is essential to the well-being of weakened caribou stocks elsewhere. Provincial government leaders have acknowledged the importance of this herd. But their actions haven't squared with their words. The government continues to approve clearcut logging in critically important habitat for these animals.

This document challenges government leaders to put actions to words. In the absence of substantive changes to land use in and around the Itcha-Ilgachuz Mountains, we are courting the extinction of southern B.C.'s great caribou herd - no bull.

Commitment - what commitment?

In April, 1997, David Zirnhelt, British Columbia's Minister of Forests, took the unusual step of teaming with Cathy McGregor, Minister of Environment, to issue a joint communiqué on the subject of southern B.C.'s biggest and imminently threatened caribou herd. The letter was written in response to a BC Wild document released in the early spring of 1997. The BC Wild document relied largely on government reports and data to suggest that the health of the Itcha-Ilgachuz caribou herd is jeopardized by ill-conceived provincial government land-use decisions.

McGregor and Zirnhelt's letter was copied to a who's who of B.C.'s major decision makers - Premier Glen Clark, Minister of Employment and Investment Dan Miller, Mr. Clark's Deputy Minister Doug McArthur, and a host of senior provincial civil servants.

In their letter, Zirnhelt and McGregor committed to protect the 1,500 caribou in the

vicinity of the Itcha-Ilgachuz Mountains. They also said that they supported resource jobs in the region, but in a manner that did not threaten the herd. For the record, they said:

"Government recognizes the need to ensure the maintenance of this caribou herd and will do so, while at the same time allowing resource development to proceed in a way which will generate jobs and economic activity and does not put this population of animals at unnecessary risk."

This publication questions the sincerity of the above commitment. It documents in words and photographs the continued destruction of old-growth forests which are crucial to the survival of woodland caribou. It shows that despite government assurances to the contrary, there is no scientific basis to support the land-use plan that the

Recent clearcuts near Satah Mountain. The area's forests are considered prime habitat for caribou.

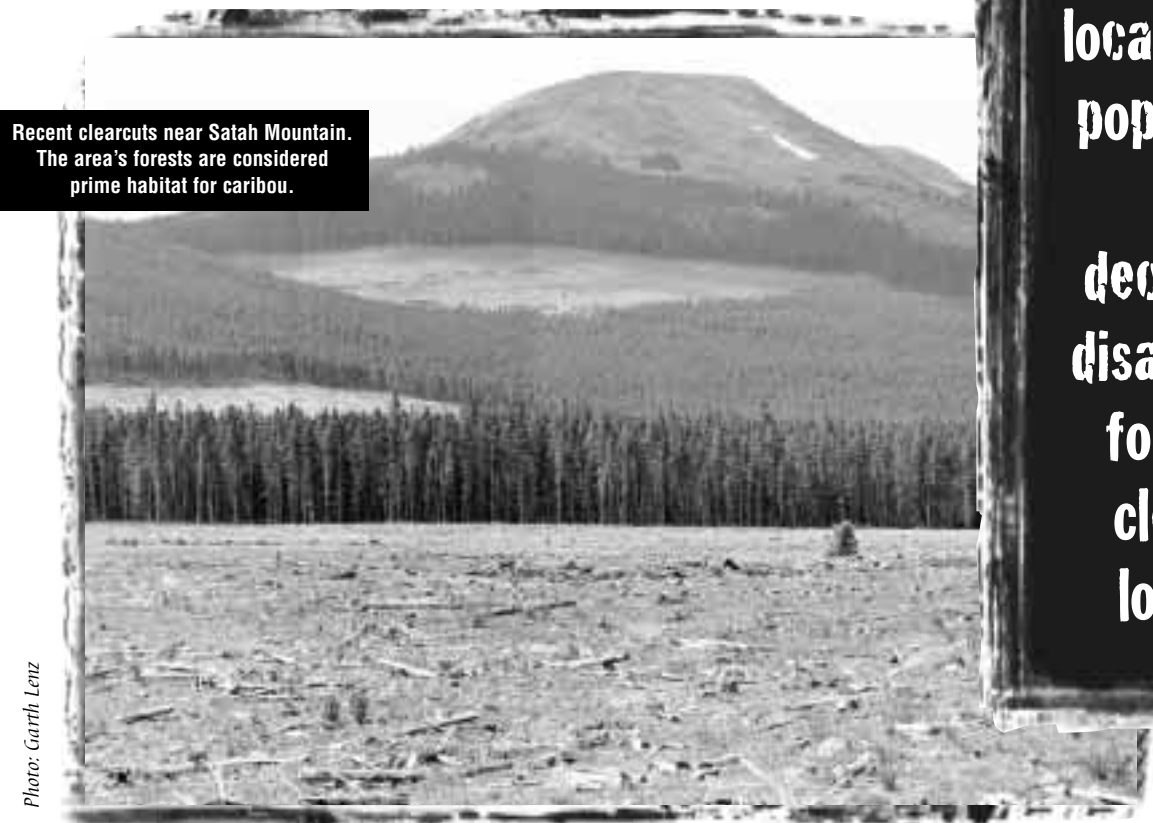


Photo: Garth Lenz

Across North America, local caribou populations have declined or disappeared following clearcut logging.

“We’re not going to have the answers here two or three years from now.”

government has allegedly put in place to protect this globally significant concentration of animals.

Across North America, local caribou populations have declined or disappeared following clearcut logging and related road-building. No exceptions. To expect that the caribou in the vicinity of the Itcha-Ilgachuz Mountains will fare differently is to live in dreamland.

Only by stopping clearcutting in critically important forests where caribou are found in winter months, and by altering logging methods in other wintering sites, can the habitat necessary for the survival of these animals be maintained.

To the provincial government’s credit, it has embarked on experiments to test the ecological impacts of “alternative harvesting” methods. But these experiments, which result in varying percentages of trees being left standing after logging, are in their infancy. Nobody knows if they will work. Meanwhile, a moratorium that prohibits logging in key forests where caribou spend winter months expires at the end of 1999. After that, the logging companies are ready to move in.

“Obviously, we’re not going to have the answers here two or three years from now,” says Harold Armleder, a Ministry of Forests researcher who is intimately involved in the logging

trials. “You can’t have answers two or three years after planting a seedling.”

If government leaders are truly committed to “ensure the maintenance” of this great caribou herd, it’s time they acknowledged that they don’t have the answers. It’s time to extend the moratorium and direct logging away from contentious areas. Otherwise the Itcha-Ilgachuz Mountains may soon be the globe’s latest forested “island” to lose a key wildlife species.

What’s at Stake?

The Itchas rise majestically from a sea of pine and spruce trees, giant grassy meadows, little and not-so-little lakes; one of three volcanic mountain ranges to punctuate the expansive Chilcotin Plateau that stretches west from Williams Lake to the coastal mountains a four hour’s drive away.

Twenty-five-million years ago, a series of violent eruptions resulted in the formation of these mountains. Billions of tonnes of lava flowed over a wide area burying everything in its path. At places, the lava deposits around the Itcha Mountains have been measured to a depth of 3,000 feet. Today, the volcanic origin of the area is seen in the slightly



Photo: Chris Schmid

these lichens under deep snow packs? Why do caribou eat certain lichens and not others? These and many other questions remain largely unanswered.

What is known, however, is that lichen variety and abundance is directly related to old forests. Clearcuts take away those forests. The plantations or naturally re-seeded trees that follow in a clearcut's wake cannot produce the lichens that were there before, at least not in sufficient volumes to be of much use to woodland caribou for 120 or more years.

Push enough roads into this natural landscape, carve out enough clearcuts, and you slowly kill caribou.

A Bad Decision

In October 1994, the B.C. government announced the creation of a number of new parks in the Cariboo-Chilcotin region. Among them was a new 109,000-hectare protected area in the Itcha-Ilgachuz Mountains.

For the most part, the park boundary is restricted to the high country and excludes lower elevation "commercial" forest. Not coincidentally, the new park boundary neatly conformed with the then logging plans of the region's main forest company - Riverside Forest Products. In other words, the boundary gave Riverside access to the timber it wanted while everything on the other side of the line was "protected" for caribou and other wildlife species.

In the late spring, summer and early fall caribou are found in large numbers in the new park. But for the other six months of the year, the caribou roam well outside of the park into the surrounding forest. The important winter home of the caribou is open to varying degrees of destructive industrial development, particularly clearcut logging.

McGregor and Zirnelt know this. In partial recognition of this, the provincial government declared a further 306,000 hectares of land around the park a "Special Resource Development Zone." In their April, 1997, letter Zirnelt and McGregor described the zone this way:

"The surrounding approximately 306,000 hectare area was established as a Special Resource Development Zone (SRDZ) where significant fish, wildlife, ecosystem, backcountry recreation and tourism values exist and where timber harvesting, mining, and grazing will take place in a manner that respects these values."

The photograph of a 1997 clearcut on the opening inside pages of this publication is located in the heart of this zone. If this leaves you with the suspicion that this allegedly enlightened land use designation serves industrial interests first and environmental interests second you are not alone. Furthermore, it is important to remember that fully half of the winter range of the Itcha-Ilgachuz caribou falls outside the park and the Special Resource Development Zone. All of the accessible forest outside the zone is slated for clearcut logging.

Government scientists in the Ministries of Forests and Environment have spent years at taxpayers expense studying the needs of the Itcha-Ilgachuz caribou herd. Prior to the creation of the new park, those scientists came together under the auspices of the Western Caribou Working Group to recommend protecting an area that included the boundaries of the existing park plus critically important winter forests around the park.



Photo: Garth Lenz

Much of the forest inside, and all of the forest outside of a "special resource development zone," is open to clearcut logging.

The Working Group acted in good faith to fulfill the mandate presented them, namely, to come up with a plan that offered a modicum of protection to the caribou while also allowing some logging. The plan they presented to the provincial government posed a “moderate risk” to the herd. Government took the plan and unilaterally upped the risk to these threatened animals by declaring that 35 per cent of the land base earmarked for protection by the Working Group be available for logging interests. Since then, in an effort to provide maximum fibre supplies to the sawmills in Williams Lake, provincial government officials have suggested that fully 41 per cent of the area be open to logging interests.

To understand the rationale behind this decision, Freedom of Information requests were filed with key provincial government ministries, including the Ministry of Forests, the Ministry of Finance and Corporate Relations and the Ministry of Environment, Lands and Parks. The request was for “all documents, memos, letters and meeting minutes” which would outline the scientific rationale for the government’s decision.

The reply from the Ministry of Forests was indicative of those received from government offices. “We have searched the files of the Cariboo Forest Region office and have not located any documents pertaining to your request,” wrote the Ministry’s Mike Carlson. Carlson went on to say that the Ministry was a party to that decision but “has not maintained a record of the process.”

The inescapable conclusion is that sound science played no role in the decision. The decision was political and designed to meet the interests of forest companies in Mr. Zimhelt’s Williams Lake riding.

What Others are Doing

It is noteworthy to consider what others are doing by way of protecting their threatened woodland caribou herds. In Ontario, where localized extinctions of woodland caribou have already occurred, there is intense interest in protecting some remaining habitat for these threatened animals.

Attention has focussed on a remote area in the northwest of the province known as Wabikimi. Approximately 300 woodland caribou live there. The region’s forests are also being eyed by logging companies who have already clearcut much of the original forest further to the south.



Caribou habitat protected

Ontario	B.C.
300 caribou	1,500 caribou
900,000 hectares habitat protected	109,000 hectares habitat protected
3,000 hectares per animal	72 hectares per animal

For details see pages 10 & 12.

To address mounting public concern about the fate of this area, the then provincial NDP government of Bob Rae established a “Wabikimi Park Boundary Committee” comprised of representatives from 14 different interest groups including government, the forest industry, tourism operators, conservation groups, First Nations, prospectors, anglers and hunters.

If, as is widely expected, the group’s recommendations are approved by the current Conservative government of Premier Mike Harris, a 900,000-hectare area of jackpine and black spruce forests, peat bogs, rock, lakes and rivers will be declared a new park. That works out to 3,000 hectares of land per caribou in the Wabikimi region.

In B.C., the provincial government has decided to give 1,500 caribou in the Itcha-Ilgachuz Mountains 109,000 hectares of protected area or 72 hectares of land per animal. And, it must be stressed, little of that area contains good winter habitat.

In the Itcha-Ilgachuz Mountains more animals are required to make do with far less land than their counterparts elsewhere in the Province of B.C. or in other provinces such as Ontario. That’s hardly the foundation on which to build public confidence in the B.C. government’s plans to protect these animals.



A group of caribou run through an alpine meadow high in the Itcha Mountains.

Photo: Chris Schmid

Science and the Arbitrary Deadline

It is not uncommon in the forests surrounding the Itcha-Ilgachuz Mountains to find spruce or pine trees that are 250 years to 350 years old. The older these trees get the more lichen feed that is available for woodland caribou. (See *Forest Mysteries* page 27.)

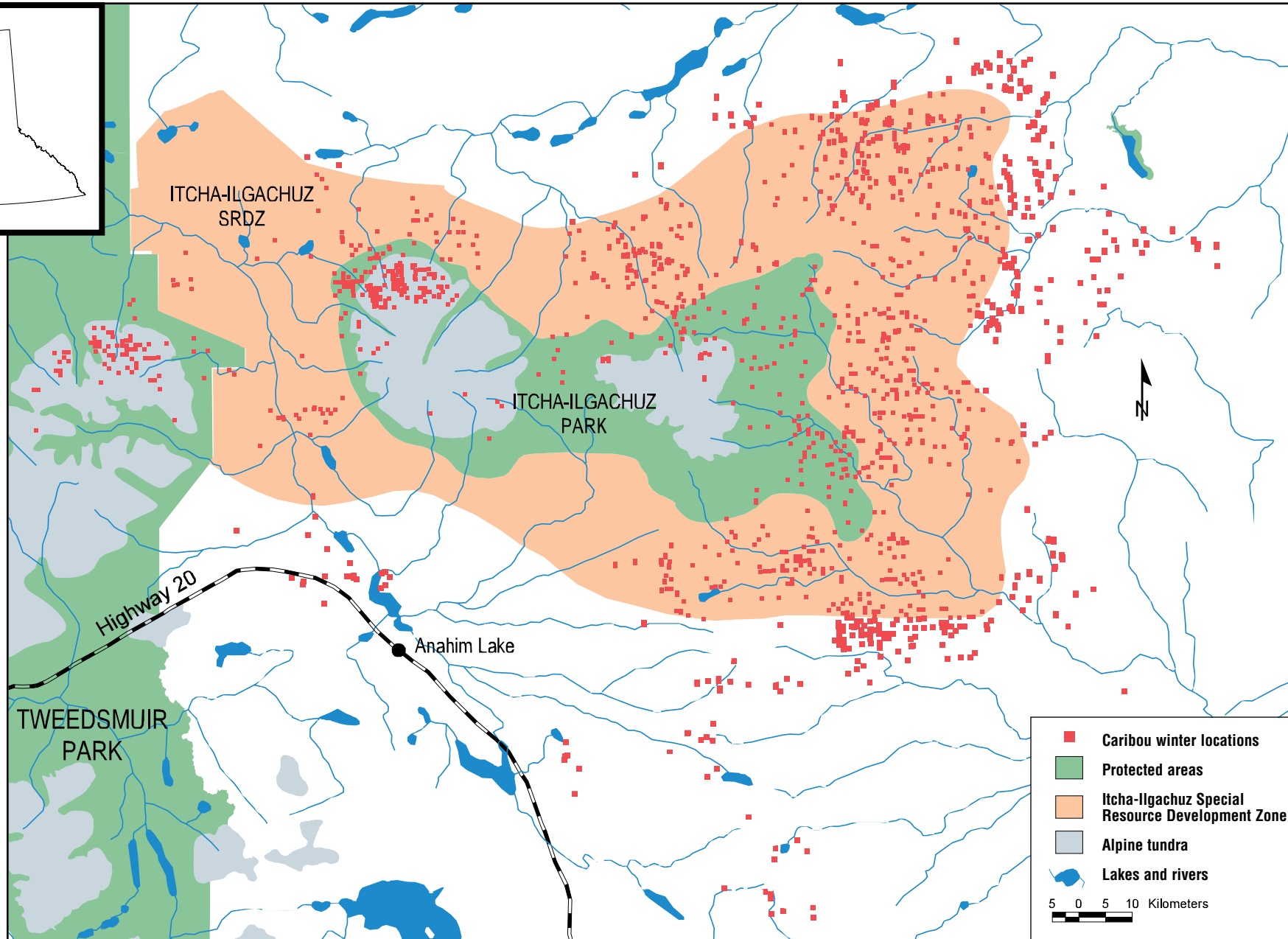
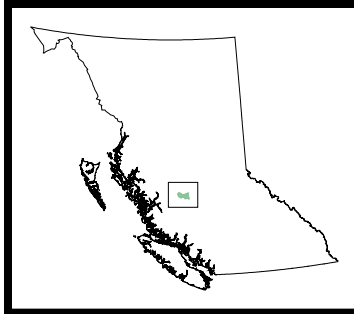
Scientists know something about the abundance and variety of lichens in these forests and they know something about the population and dispersal of caribou. There’s lots left to learn, but enough is known already to suggest that if these forests are clearcut they quickly lose the ability to provide food for caribou.

Clearcut logging is not compatible with maintaining caribou populations. As already mentioned, there is the issue of lichen loss following clearcutting. But clearcutting also unleashes a whole other set of problems. Most significantly, clearcutting results in an explosion of new plant growth. Many of these plants prove attractive to moose.

As moose colonize newly logged areas, so do their main predators – wolves. Wolves that are used to hunting and killing moose have no problem shifting to smaller prey such as caribou.

New clearcuts also require new roads. Roads not only provide corridors which wolves use more easily to track their prey, but they also provide a way for poachers to access remote areas by vehicle. Legal, controlled hunting of caribou in the Itcha-Ilgachuz Mountains has gone on for decades with little apparent impact on the overall health of the herd. But as new clearcuts and roads penetrate deeper and deeper into the winter range of the herd, chances increase that poachers will illegally shoot more of the animals.

Clearcuts and logging roads pose big problems for caribou. The B.C. government knows this. That is why it says it will require forest companies to employ other logging methods in some but not all forests frequented by caribou. In a move that favours logging companies over conservationists, the government told its field staff to come up with those alternatives by the end of 1999 or sooner. After that, it’s back to the business of industrial forestry in the heart of the caribou’s home range. Science meets the arbitrary, political and economically-driven deadline.



Where the Caribou Roam

Study of radio-collared caribou shows that individual animals may roam 80 kilometres away from the Itcha-Ilgachuz Mountains in winter months.

As the accompanying map illustrates, caribou range far outside of the park and surrounding Special Resource Development Zone (SRDZ). The park and the SRDZ were allegedly created to protect these vulnerable animals.

Given such an extensive range, it is highly questionable whether current plans to protect these caribou will succeed.

Accessible forest outside the SRDZ is slated for clearcutting. The government has also told forest companies that they can log significant volumes of trees in the SRDZ itself.

The clearcutting and related road-building will have a negative impact on the herd, although this may take time to play itself out.

A possible scenario in which caribou numbers suddenly decline may involve known risks such as clearcut logging and intangibles such as a severe winter.

In such a scenario, more old forest is clearcut. The caribou are left with less habitat. Then, an extremely bad winter arrives. Snow packs grow deep. The caribou can't dig through the snow to feed on ground lichen and are forced to move into forests where tree-hanging lichen are abundant. Unfortunately, the increased logging has fragmented such forests into small, dispersed islands. The distance between the islands is too great. Many caribou die.

This scenario can be avoided but it requires the protection of more old, lower-elevation forest.



Trials in the Woods

In 1995 and 1996 Ministry of Forests staff in the Cariboo Forest Region began alternative logging trials in the Satah Mountain area. The area is considered prime winter habitat for the Itcha-Ilgachuz Mountain caribou. The trials involved the logging of varying volumes of trees in different areas. In each case, clearcutting was the logging method employed.

In the first trial, 70 per cent of the trees were clearcut. The remaining trees were left standing in small, dispersed islands measuring one quarter hectare to one full hectare in size. In the second trial, 70 per cent of the trees were again clearcut. This time, however, there were a lot more islands, but each island was very small, comprising only 10 to 15 trees. In the final trial, 30 per cent of the trees were clearcut in small, circular openings. The remaining 70 per cent of the forest was not logged.

BC Wild contractors recently toured these alternatively logged sites accompanied by Harold Armleder, and Gerry Grant, district manager for the Ministry of Forests' offices in Alexis Creek.

On the first site where 70 per cent of the trees were logged and the rest left standing in islands of one-quarter-hectare to one-hectare in size, the impact on resident lichen populations was severe. Armleder kneeled down on the ground, gently picking up a sample of one lichen species that is a favourite winter food of caribou. The lichen was stressed, and extremely brittle. In fact, it turned to a fine dust in Armleder's hands when he rubbed them together. "This is not used to growing in this environment," Armleder said. "It's used to shade."

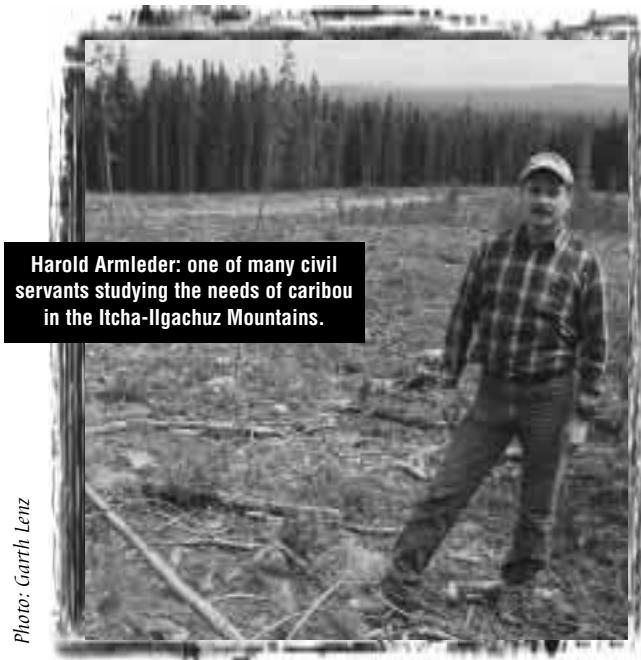
Armleder went on to say that when lichen researchers toured this site three months after logging, the negative impacts of clearcutting on

lichen were clearly evident. In a report released in September 1995, lichen researchers hired by the provincial government found that this experiment in logging had a dramatic and negative impact on lichen abundance and diversity. The researchers noted that removing 70 per cent of the forest and leaving the residual forest in islands resulted in "56% fewer species...Several lichen species appeared to have mortality rate in excess of 50%."

Another interesting and disturbing finding was that in the islands themselves there was a noticeable impact on lichen populations. "Thirty metres in from the edge of the residual stand, the terrestrial lichen were still very brittle, although it had rained only two days earlier. Conversely, lichens in the interior of larger continuous blocks of trees were still pliant." In other words, only the middle of these small islands might provide an attractive food source for caribou, and only if the caribou were brave enough to venture across the clearcut to get to them.

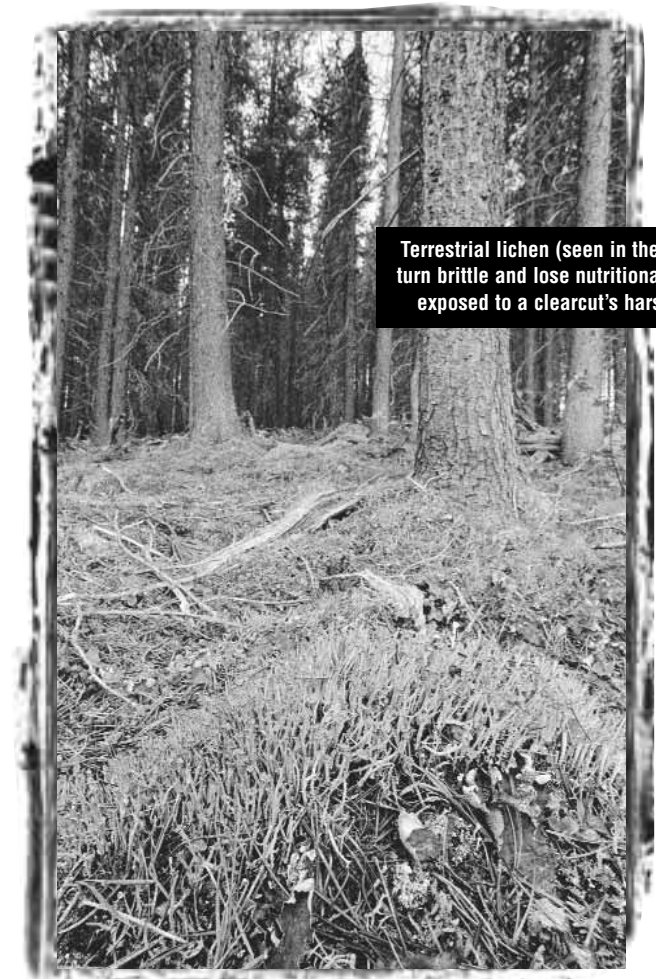
The second site showed similarly severe impacts on lichen populations and abundance. The islands themselves were of little or no use in protecting lichen because, at 10 to 15 trees each, they were too small to generate the shade necessary to sustain healthy lichens.

Of the three logging trials, the third showed the most promise of retaining suitable forest cover for lichens. On this site, two machines



Harold Armleder: one of many civil servants studying the needs of caribou in the Itcha-Ilgachuz Mountains.

Photo: Garth Lenz



Terrestrial lichen (seen in the foreground) turn brittle and lose nutritional value when exposed to a clearcut's harsh climate.

Photo: Garth Lenz

were used to cut and move logs out of the forest. The machines followed pre-determined trails and did not move off of those trails. The clearcuts were tiny, measuring between 20 and 30 metres across. Even on a sunny day, these openings were relatively cool. The surrounding forest provided a moderating influence on temperature. Unfortunately, this system requires the building of roads every 600 metres across the landscape. The logging companies maintain that it is not economic to do otherwise. Even though the lichen may

stand a chance under this system, the problems associated with so many roads pose serious questions about maintaining caribou.

Again, lichen researchers examined this site prior to and following logging. Of the three logging trials they examined, this was the most palatable because it maintained the highest lichen diversity and abundance. But, one of the researchers warned, if the objective was to maintain caribou even this logging method had to be questioned. As David Miede said, if maintaining caribou winter habitat was the goal then the “most appropriate” tool to use in sustaining that habitat was “conservation.”

Miede went on to report in his Ministry of Forests-commissioned report that in forests less frequently used by caribou in winter months some limited form of logging could be done. Of the research plots he examined, Miede said the one in which only 30 per cent of the trees were logged was the best. “This treatment not only has the smallest openings so that terrestrial lichens are not exposed to excessive drying effects by the

opened [tree] canopy,” Miede said, “but also leaves the most substrate (trees) for arboreal forage lichens.”

This observation should not, however, be construed as an endorsement of this logging method. Miede would only venture to say that this treatment “might” work.

Miede went on to say that from a caribou’s perspective these forests were prime winter habitat. The ground and, in many cases the trees, were loaded with lichen. In periods of average snowfall, the caribou could burrow through the snow to reach the terrestrial lichen hidden below. Terrestrial lichen are the favoured food of caribou in this region. But in periods of heavy snow, a not uncommon occurrence in this cold region, the animals had to have a fall back food source. The fall back was arboreal lichen. The caribou had to have the ability to switch their feeding patterns to plucking arboreal lichen off of overhead tree branches. Given the diversity and abundance of terrestrial and arboreal lichens in these forests, Miede made a point of reiterating his concerns about conservation of these forest types.

“Areas of forest used extensively by caribou in winter should be included in a no-harvest zone,” Miede concluded in his report. “From a lichenological perspective, this should include areas with high forage lichen biomass. It is interesting that the study area includes zones with either high terrestrial lichen biomass, high arboreal lichen biomass or both. The ground lichens in the east should be easily accessed by caribou, because of light snow cover and high abundance: in contrast, areas to the



Tiny islands of trees cannot maintain lichen for caribou.

Photo: Garth Lenz



Areas of forest with high lichen abundance must be protected if caribou are to survive.

Photo: Garth Lenz

Terrestrial lichen, pine needles and cones on an old-growth forest floor.



In these experimental clearcuts the hot sun beats down. But there is a wind that keeps the mosquitos away. There are no trees left standing in the 25-metre-wide swath that marches through the forest to disappear on the back side of a small hill. On the ground are yellowy white pine stumps, surrounded by greying wood chips. They are clipped close to the ground and they shine bright in the early afternoon sun. The ground around the stumps, indeed throughout the clearcut, is littered with reddish-brown pine

needles. Amidst the needles lie brittle, bluey-grey terrestrial lichens.

Whether this experiment will work is far from clear. Armleder would like to think it offers hope for the logging companies as well as for the caribou. But he's the first to admit that he doesn't yet know. "By making the openings fairly small I'm hoping the surrounding forest will help the lichen," Armleder says. But, he adds, there's lots of questions that remain. And, with the moratorium deadline expiring in just over two years, not enough time to find the answers.

"We've got this deadline of 1999 for the Caribou Strategy. But all the answers aren't going to be there," Armleder says. "Ideally, you would have considerably more time [to make an informed decision]."

What We Know and What We Don't

There are no guarantees when it comes to protecting species. But there are some general rules that can guide us. First, species become threatened with extirpation (localized extinctions) when they are isolated on islands. The smaller the island, the greater the risk of extinction.

Not all islands are surrounded by water. Some islands are land-locked. They become isolated within a wider landscape whose natural character has been temporarily or permanently altered by one or a combination of human activities. (See *A Trapper's Losses* page 25.)

The Itcha-Ilgachuz Mountains and surrounding forests are one such island. The island started off large, but it has become smaller and smaller and smaller as clearcutting and road-building have encroached on its shores. In recent years, the pace of clearcutting in the Cariboo-Chilcotin region, which includes the Itcha and Ilgachuz Mountains, has been nothing short of staggering. In the last decade alone, fully half of all the trees ever logged in the region have come down. The sea of clearcuts is widening, and the remaining forested islands are becoming more and more isolated.

Research by wildlife biologists, lichen experts and foresters is unequivocal when it comes to the relationship between old-growth forests and caribou: the latter can't survive without the former. Clearcuts destroy old-growth forests. Old-growth forests contain lichen. Lichen are largely absent from young forests and do not reappear in significant volumes for one hundred or more years.

What we also know is that some of the alternatives described above don't work, and that the best that can be said about others is that they "might." In 1999, when the moratorium is lifted, Riverside will move into some of the most sensitive caribou habitat and commence using one of these unproven methods. The island will shrink even further.

Meanwhile, outside of the park and inside and outside of the Special Resource Development Zone, Riverside will punch in more and more roads and clearcuts. The island will shrink further still.

In the last decade, half of all the trees ever logged in the Chilcotin region have come down.



This is not a recipe for building public confidence in the government's plan to allegedly protect one of the province's biggest and most important caribou herds. Yet that is exactly what Zirnvelt and McGregor condone.

Recommendations

If Zirnvelt and McGregor are serious when they say they are committed to protecting this internationally significant caribou herd, it's time that they listened to their own staff. Their staff clearly say much more needs to be done to safeguard the interests of the herd. Senior Ministry of Forests and Ministry of Environment scientists know what

doesn't work. Knowing what does will take some time to figure out. In the meantime, proper protection must be extended. That protection includes:

- no logging in important caribou wintering areas
- some kind of alternative, low impact logging in less important wintering areas
- an extended moratorium and more time properly to study logging trials now underway
- published and publicly available government studies on the impacts of clearcutting and alternative logging systems on caribou populations

To ignore the advice of responsible, reasoned and professional field staff and bow to the short-term interests of one logging company is to flirt with the disaster that befell the Telkwa caribou herd.

For the sake of the Itchas-Ilgachuz caribou, we can't let that happen.

It's time
Zirnvelt and
McGregor
ordered a
halt to
logging
in certain
areas.



Photo: Garth Lenz

Les Friend

A Trapper's Losses

Les Friend has trapped small fur-bearing animals in the Chilcotin region for years. He knows the country like the back of his work-worn hands.

Friend used to trap year in and year out without any apparent long-term impact on the species he targeted. But about a decade ago things changed. The logging companies moved in and valley after forested valley was clearcut.

"Thunder Creek," Friend says, shaking his head. "We used to go in there and catch marten and fisher and fox and coyotes. Everything! Now that valley is gone, gone, gone. There's nothing there."

An avid outdoors man who snowmobiles in winter into some of the most remote parts of the region, Friend is intimately familiar with the Chilcotin's threatened caribou herd.

He even has a small cabin deep in the Itcha Mountains.

When Friend looks at the logging plans of Riverside Forest Products he sees a deliberate attempt to go in and log the most sensitive wintering areas of the local caribou herd.

"Where are they?" Friend asks of Riverside. "Right where they (government biologists and others) said not to go. They've gone right to the most...[sensitive] areas and cut that stuff right off the bat!"

If the provincial government continues to let Riverside log the winter forests of the local caribou herd, Friend says it should declare "an open hunting season" on two thirds of the herd's estimated 1,500 animals. "They might as well," Friend says, "because there would be too many caribou left in too small an area and they wouldn't survive."

A Different Way

The whine of the All Terrain Vehicle's engine signals David Jorgenson's arrival. Moments later, from a narrow trail cutting through a stand of lodgepole pine trees, a grinning Jorgenson emerges astride the modified four-wheel machine. All Terrain Vehicles or ATVs are common in these parts. Uncommon is what Jorgenson tows behind him, a specially-built trailer loaded with small-diameter pine logs that have been cut for fence posts.

Jorgenson is a maverick in these parts. Logger, fence builder, tree-thinner, inventor, he has designed and developed machinery that can selectively log with minimum impact to forest soils and the surrounding unlogged trees.

Jorgenson bristles at the suggestion that alternative logging in these parts must involve some form of clearcutting. He also says that he can do truly selective logging (where individual trees are targeted for logging and the rest left standing) far more cheaply than the highly-mechanized logging methods employed by contractors to the region's big forest companies.

For example, it costs about \$1 million to buy an industrial single-grip harvester – a machine that falls, delimits and cuts trees to length – and a forwarder with a grapple that takes logs from the logging site to the road. To service the debt on that equipment and pay a two-person crew requires delivery of up to 500 cubic metres (roughly 500 telephone poles) of logs per day, Jorgenson says.

For roughly one quarter that investment, Jorgenson could get two of his modified ATVs and trailers into the bush along with one excavator with a modified single-grip harvesting arm on it and another excavator to assist in moving the logs. He could employ four people in such an operation and would only have to deliver 130 cubic metres of logs each day to service the debt payments on the machines and pay the crew.

Climbing off of his ATV, Jorgenson looks at the selectively logged forest where 80 per cent or more of the trees are still standing. "I could work in forests like this for the rest of my life, absolutely," he says. "And that's my intention, if they give me the chance."



David Jorgenson

Forest Mysteries

Harold Armleder stands in a forested island surrounded by a clearcut. In the shady interior of the small island, Armleder tells the visitor about the mysteries of this place.

Years ago, a classification system was developed that broke B.C.'s diverse forest types down into separate and distinct biogeoclimatic zones. Armleder is standing in what is defined as a montane spruce zone, yet most of the trees here are pine and they are very old pine at that.

"No other place we know is like this. There are spots here where the pine goes right to the top [of the tree line]. This is a very interesting, intriguing area. It's surprisingly complex," Armleder says. Some pine trees in these forests reach 350 years in age. On the forest floor and hanging from tree branches are at least 93 species of lichen, making this one of the most diverse areas of its kind in the province.

It is precisely the diversity and abundance of lichens that has allowed caribou in the Itcha-Ilgachuz region to survive, Armleder says.

Armleder's job is to find out what logging may be compatible with maintaining suitable habitat for caribou. It is a daunting task, considering that caribou range over a wide and diverse area.

"There's some sites where they [woodland caribou] go in and there's a massive amount of lichen, and they'll eat a little bit here and a little bit there and move on to a site that has very few lichens," Armleder says. "That seems to be part of their survival strategy... thin out, space out, keep the predators guessing."

Armleder's job is to develop a plan that gives logging companies what they want while leaving "continual [and suitable] habitat over time" for caribou. Like the wolf chasing its elusive prey, he can only guess what the answer might be. For the caribou's sake let's hope Zirnelt and McGregor give Armleder and others the time they deserve to make informed decisions.



Harold Armleder