

Conservation Strategy for Southern Mountain Caribou

in Canada's National Parks



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Parcs
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Canada

A photograph of a moose with large, velvet-covered antlers standing in a forest of evergreen trees. In the background, there are snow-capped mountains under a cloudy sky. The image is partially overlaid with a light green semi-transparent shape in the top right corner.

FOR CONSULTATION

**Conservation Strategy for
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Executive Summary

Canada's Southern Mountain caribou are disappearing at an alarming rate. As a steward of Canada's National Parks, Parks Canada has prepared a comprehensive caribou conservation strategy to help begin the slow process of recovering Canada's caribou.

To create this strategy, Parks Canada assembled a team of experts from across the country. Scientists, managers, communication specialists and external relations/visitor experience experts spent more than two years examining all threats to caribou conservation within the mountain national parks (Banff, Glacier, Jasper and Mount Revelstoke National Parks).

They found there are five main threats to Southern Mountain caribou:

- Altered predator/prey dynamics
- Facilitated predator access to caribou
- Direct disturbance of caribou
- Direct elimination of caribou habitat
- Small population effects

The goal of this strategy is to identify and explain how Parks Canada will do its part to help put caribou on a more secure survival path. Parks Canada has committed \$4.5 million over six years for the mountain national parks to achieve this goal. As well, we know how important leadership and collaboration with our partners is to help save Southern Mountain caribou. As this conservation strategy is implemented, we will continue to work with stakeholders, Aboriginal communities and other members of the public to help save the Southern Mountain caribou.

Introduction

As Canadians, we take pride in our national symbols, from the maple leaf to the mounties. Just as the beaver, moose and Canada goose are Canadian icons, so are caribou. Proudly displayed on the front of the quarter, caribou are a powerful symbol of our wilderness.

Parks Canada is committed to taking action, together with partners, to protect caribou. Two years of thorough research and study indicates that without action the Southern Mountain caribou may not survive.

Caribou are remarkable animals that have roamed the earth for over 1.5 million years. They survived the ice age, but it is clear without assistance they may not survive our modern world. With development and climate change destroying their habitat and natural predators increasing – it is our responsibility to protect this amazing animal.

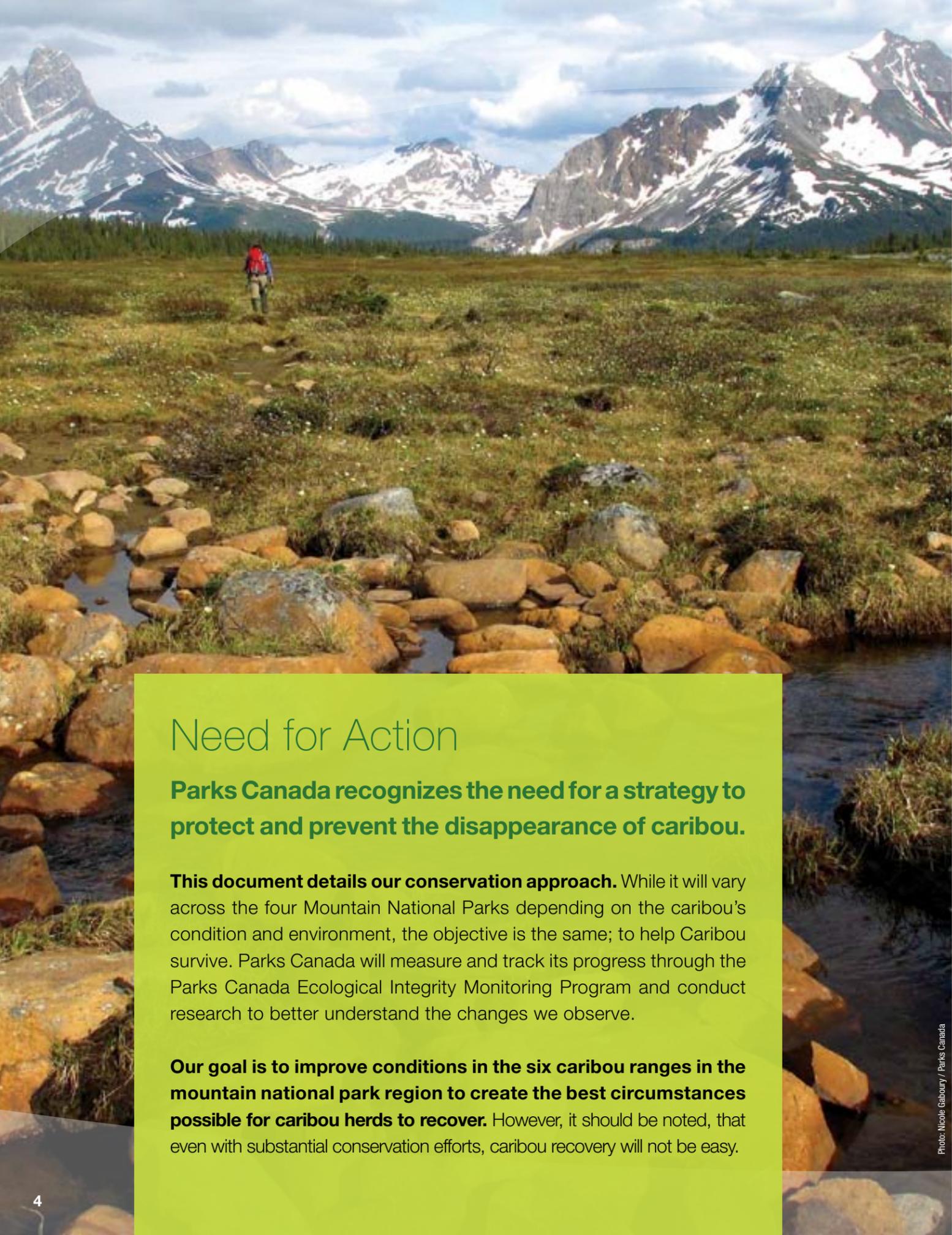
Today, caribou are listed as threatened by both the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and Canada's Species at Risk Act (SARA). Scientists and Aboriginal peoples suggest that if current conditions persist, caribou will vanish altogether. Twenty-five years ago over 800 caribou roamed the mountain national parks. Today, fewer than 250 caribou remain across that same range.

The question is: knowing what we now know, how can Parks Canada help save this animal?

This conservation strategy for the Southern Mountain caribou herds ranging in the mountain national parks presents Parks Canada's approach and our commitment to do that.



They survived the ice age, but it is clear without assistance they may not survive our modern world.



Need for Action

Parks Canada recognizes the need for a strategy to protect and prevent the disappearance of caribou.

This document details our conservation approach. While it will vary across the four Mountain National Parks depending on the caribou's condition and environment, the objective is the same; to help Caribou survive. Parks Canada will measure and track its progress through the Parks Canada Ecological Integrity Monitoring Program and conduct research to better understand the changes we observe.

Our goal is to improve conditions in the six caribou ranges in the mountain national park region to create the best circumstances possible for caribou herds to recover. However, it should be noted, that even with substantial conservation efforts, caribou recovery will not be easy.

Photo: Nicole Gagnon / Parks Canada

Legislative and Policy Context

Parks Canada is a leader in environmental stewardship. Canadians entrust their national and natural heritage to us, and we take this responsibility seriously. As an agency of the Government of Canada we operate within a complex legislative context. Within that context, Parks Canada is committed to taking bold steps in protecting caribou on national park lands.

Under the *Species At Risk Act* (SARA) Parks Canada and Environment Canada are considered “competent” for Southern Mountain caribou. With this responsibility comes the obligation to work with provinces and Aboriginal organizations across the range of Southern Mountain caribou to develop a strategy, followed by one or more action plans, for their recovery. The process of developing a national recovery strategy for Southern Mountain caribou will be spearheaded by Environment Canada. This mountain national parks specific conservation strategy applies to caribou located within national parks and will inform and support this national recovery planning process.

Each national recovery strategy prepared for species at risk in Canada includes an identification of critical habitat to the extent possible, based on the best available information. If it is not possible to complete the identification in the recovery strategy, the strategy will identify the date that it will be completed within an action plan. Critical habitat is defined in the *Species at Risk Act* as “... the

habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species...” Because critical habitat has yet to be defined for Southern Mountain caribou across their range, Parks Canada has identified important caribou habitat in the mountain national parks to help define the future needs of the caribou on its lands.

Parks Canada identified important habitat using four criteria: habitat occupied by caribou over the last 20 years, habitat where caribou were observed prior to that, habitat necessary for caribou to move between ranges, and habitat areas for caribou based on forest composition and age. By taking this step, Parks Canada is now able to describe certain caribou habitat as important. We have not drawn conclusions about whether habitat is critical. The identification of critical habitat will be done as part of the range-wide SARA recovery planning process.

Policy direction for caribou conservation in national parks is identified in the management plans for each of Banff, Jasper, Glacier and Mount Revelstoke National Parks according to the *Canada National Parks Act* (2000). These plans state the need for a conservation strategy that identifies important habitat, sets conservation goals and objectives, identifies conservation actions to be taken and supports broader recovery planning to be led by Environment Canada.

Current Status

History of caribou and current ecological context

For generations, caribou have been found throughout most of Canada's northern forests, including the western mountains. Now caribou occupy only the northern portion of their original range.

Within the mountain national park region there are five existing herds of Southern Mountain caribou: Columbia South, A La Peche, Tonquin, Maligne and Brazeau. There was a sixth herd in Banff, but all its members were killed in an avalanche in 2009. Re-establishing the sixth herd is an important part of Parks Canada's conservation strategy, both to restore lost biodiversity in Banff, as well as to restore important links among forests, fire, predators and other herbivores in this valued ecosystem.

What we know about caribou is that they don't like to be disturbed. They live in remote, alpine areas and migrate across elevations with the seasons. This helps them avoid most other large animals including predators such as wolves, bears and cougars. Caribou avoid competing for food with other large animals by foraging primarily on lichens, a scarce, slow-growing plant found in older forests. Living in harsh environments with limited access to high quality food means that caribou herds tend to grow and recover slowly from any decline.

Over time, caribou have adapted to suit the region where they live. That's why there are two types of caribou: "terrestrial-feeding" caribou and "arboreal-feeding" caribou. Terrestrial-feeding caribou (eat lichen growing on the ground) have adapted to cold winter temperatures and moderately deep snow, while their arboreal-feeding counterparts (eat lichen growing in trees) have adapted to milder winters and deeper snow. This conservation strategy applies to both types of Southern Mountain caribou.

The four herds located in Jasper National Park (A La Peche, Tonquin, Maligne and Brazeau) and the former Banff National Park herd are terrestrial-feeding caribou. The established range of the Banff herd and the Maligne, Brazeau and Tonquin herds are also close to potential habitat within adjacent protected areas. The traditional range of the Jasper A La Peche herd is mostly outside the park and is shrinking as industry, roads, seismic testing and pipelines crisscross their wintering range. This is giving both the public and predators greater access to caribou territory.

The caribou of Mount Revelstoke and Glacier National Parks are the arboreal-feeding kind. Known as the Columbia South herd, thirty per cent of their range is protected by national park land. The rest is in the Revelstoke region of British Columbia, made up of provincial crown land that's a mix of forestry, recreation and some newly protected lands. Caribou habitat here is shrinking as is the herd.

Where are they now?

Without intervention, all five existing caribou herds within the mountain national park region will likely shrink over the next decade. The Banff herd is already gone. Here are Parks Canada's estimates of the sizes of the other herds:

The A La Peche herd (Jasper National Park and Alberta) is the largest herd and is the only one that has been stable, with about 150 caribou.

The Tonquin herd (Jasper National Park) is in decline after a period of stability. There were approximately 60 caribou in 2010, and have declined by as much as 40% over the last two years.

The Columbia South herd (Mt. Revelstoke and Glacier National Parks and British Columbia) has shrunk to 7 in 2011, from 100 caribou in 1994.

The Brazeau herd (Jasper National Park) has declined. In 2010 there were approximately 9 caribou.

The Maligne herd (Jasper National Park) has declined. In 2010 there were approximately 6 caribou.



Threats

Why we're losing Caribou

Here are five main threats to caribou within Parks Canada's jurisdiction.

1. Altered Predator-Prey Dynamics

To manage caribou means to keep track of their predators. Predators are the biggest threat to the caribou populations in Jasper and Banff National Parks. Predators are also encroaching on the Columbia South herd that range in Mount Revelstoke and Glacier National Parks.

Caribou are naturally scarce, and live in alpine environments, so they generally make up a small part of the diet of large predators like wolves, bears and cougars. However, growing numbers of deer, elk and moose means more predators. The greater the number of predators, the more likely they are to encounter and kill caribou.

Forty four percent of caribou deaths, for which we know the cause, are due to predation.

Factors that affect predator-prey dynamics:

Too many prey

Too many prey such as elk, moose and deer mean more caribou predators such as bears, wolves and cougars. This includes the "elk refuge effect" when elk seek the protection of public areas, increase in numbers, and eventually create an even more bountiful food source for predators. Forestry and fossil fuel development in caribou range outside the mountain national parks has led to more and better habitat for moose, deer, and, as a result their predators.

Mountain Pine Beetle

A forest insect, known as the mountain pine beetle, has destroyed forests, creating good elk, deer, and moose habitat, that attracts predators of caribou.

Forest fires

Forest fires are always a threat for caribou. It can take decades after a fire for a forest to become a safe place for caribou. If climate change results in more, larger fires, then this will be a further challenge for our caribou populations.

Climate change

Is also predicted to lead to milder winters meaning smaller areas that are isolated by deep snow to protect caribou from predators.

2. Facilitated Predator Access to Caribou

Ski trails and roads into remote areas of the mountain national parks make a memorable visit for the public, but these features may also put caribou at risk. Providing people with easy access to remote areas in the winter where caribou occur also provides easy access for predators such as wolves and cougars.

3. Direct Disturbance of Caribou

Direct disturbance can be any encounter between caribou and people, overhead aircraft or vehicle collisions. For example:

- a) **caribou are killed or injured** by motorists and trains;
- b) **human activities**, including recreation, can disturb caribou so much that they move kilometres away.





Forty four percent of caribou deaths, for which we know the cause, are due to predation.

4. Direct Elimination of Caribou Habitat

Caribou habitat around the mountain national parks is disappearing. Deforestation, forest fires, development, and recreation involving snowmobiles and heliskiing are disturbing caribou habitat. These activities limit the caribou's range, causing habitat fragmentation, and leaving caribou with nowhere to live.

Climate change may also eliminate caribou habitat, although research (see suggested reading) indicates that caribou declines have been influenced more by industrial land use. While mitigating climate change itself is not a practical goal for this conservation strategy, addressing the five threat categories should produce a positive outcome for caribou.

Parks Canada has identified four factors that affect caribou habitat elimination:

Industry and development

Industry/development including new roads, forestry, ski hills, and oil and gas limits access or eliminates caribou habitat.

Mountain Pine Beetle

Insects such as the Mountain Pine Beetle could destroy old growth forest where caribou live.

Forest Fires

Large scale forest fires could destroy older forests where caribou feed or limit their access to other ranges.

Climate change

Climate change may affect vegetation that caribou eat, reducing their food sources.

5. Small Population Effects

Biologists recognize that species with small population sizes have special characteristics that make them vulnerable. They are more susceptible to inbreeding, demographic anomalies (e.g., an increase in the number of male calves will eventually lead to fewer births), disease, and catastrophic events. For example, a recent avalanche in Banff killed the entire caribou population. According to information from radio collared animals, almost half of caribou deaths in the Columbia South herd of Mount Revelstoke and Glacier National Parks can be attributed to accidents such as avalanches.

Isolation is also a factor. As a herd gets smaller, its home range shrinks, making it less likely to come in contact with other herds. Contact with other herds is crucial in maintaining genetic diversity.

Many large mammal species can recover quickly from declines, simply because they reproduce quickly. Caribou however, do not have twins and their calves are very vulnerable to predators. So they also recover slowly. Other jurisdictions have tried programs such as predator control to help small caribou populations recover, however these programs have met with mixed success – the recommendation of this strategy is to identify and reverse the real causes of the decline, and to augment populations that are extremely small.

Strategic Goals and Outcomes

A critical first step in conservation activities is to establish clear goals and objectives to meet the conservation challenges of each park and its region. Parks Canada's focus is to improve the condition and trend of each woodland caribou herd in the mountain parks. Experience has suggested that 40 individuals in a herd is an appropriate threshold for herd condition. To achieve this outcome, each park and region will pursue focused challenges and opportunities to promote caribou conservation. As a result, the goals and objectives for each park differ as reflected in the table below.

	Mount Revelstoke & Glacier	Banff	Jasper	
Strategic Goal	In collaboration with partners, maintain Southern Mountain Caribou on the regional landscape.	Achieve an ecologically functioning local population of Southern Mountain Caribou through maintenance of herds of 25-40 animals within historic range in and adjacent to the park and ecologically connected to adjacent populations.		
Conservation Outcomes	Ecosystem Management	Protect caribou and their habitat through precautionary management of human use and natural disturbance ensuring that there is minimal interruption to natural processes inherent to the ecological integrity of the region (i.e., disturbance patterns, predator-prey dynamics, insect population fluctuations, calving areas).	Manage primary prey populations (e.g., elk and deer) to maintain levels that sustain a natural predator-prey dynamic. Manage forests to maintain and/or increase caribou habitat quality and availability.	
	Monitoring	Monitor key indicators related to caribou persistence and management actions related to human use and natural disturbance.		
	Interagency Cooperation	Collaborate with the Province of British Columbia and other interested parties to develop support for conservation actions developed by Parks Canada and to encourage the establishment of actions by others.	Collaborate with the Province of Alberta and other interested parties to develop support for conservation actions developed by Parks Canada and to encourage the establishment of actions by others.	
	Public Understanding	Increase understanding within the public and interested parties of caribou biology, ecosystem interactions, threats to persistence and actions undertaken by Parks Canada.		
	Visitor Experience	Minimize the effects of human activity on caribou while facilitating a high quality visitor experience.		
	Stakeholder Engagement	Participate as a partner with provincial, aboriginal and other interested parties towards regional caribou conservation and lead engagement on programs and strategies implemented within the Parks boundaries.		





Photo: Nicole Gaboury / Parks Canada

Taking Action to Protect Southern Mountain Caribou

Parks Canada recognizes that dramatic change is needed to save caribou. We have committed \$4.5 million over six years for the Mountain National Parks to move forward on this strategy.

Together, in consultation with our partners, the following table shows how we are addressing the five main threats to caribou:

Threat	Action
Altered predator/prey dynamics	<ul style="list-style-type: none"> • keep primary prey for caribou predators low by preventing “elk refuges” • monitor predator populations to anticipate their impact on caribou recovery¹ • maintain/monitor population size and habitat
Facilitated predator access to caribou	<ul style="list-style-type: none"> • provide visitors with opportunities for recreation in areas not important for caribou while restricting recreation in caribou habitat • discontinue setting early season ski tracks that lead to caribou winter habitat
Direct disturbance of caribou	<ul style="list-style-type: none"> • reduced speed zones on highways in important caribou habitat • periodic seasonal trail and road closures • relocate trails away from important caribou habitat • educate park visitors to avoid disturbing caribou
Direct elimination of caribou habitat	<ul style="list-style-type: none"> • use prescribed fire in areas away from caribou habitat to maintain a safe distance between caribou and their predators • use prescribed burns to guard against large fires within caribou habitat • development within important caribou habitat to be considered under exceptional circumstances only, and must not adversely affect caribou
Small population effects	<ul style="list-style-type: none"> • re-introduce or add caribou where herd sizes are critically low² • manage other threats to prevent caribou populations from becoming small

¹The threshold for caribou persistence is 6 wolves per 1000 square kilometres.

²Based on DeCesare et al. 2010 the number of animals required for viability differs among herds, but would require approximately 15 additional female caribou each year for 3 years.

Caribou across the Mountain National Parks are vulnerable to each of the five threats in varying degrees. Below is an in depth review of how Parks Canada is countering these threats as part of its caribou recovery process.

Restoring the Balance in Predator/Prey Dynamics

Too many natural predators pose a danger to caribou. Parks Canada is managing prey populations to prevent unnaturally high predator numbers.

Townsites can create predator refuges for elk and deer, ultimately leading to higher populations of predators. Therefore, Parks Canada has implemented a program to eliminate the “elk refuge effect.” Ya Ha Tinda Ranch in Banff National Park, the town of Banff and the town of Jasper have all inadvertently created elk refuges. Parks Canada is removing elk from townsites and campgrounds, sending them back into their natural habitat. Subject to aboriginal and

public consultation, further measures such as ungulate culls to lower their densities may be considered to address this threat.

Fire management plans are also helping to protect caribou. Parks Canada is planning prescribed burns in areas away from important caribou habitat, and managing forests near caribou to prevent large fires.

To make sure our action plan is effective, all caribou herds are being monitored. Mount Revelstoke and Glacier National Parks conduct censuses with the B.C. government and other partners to collect data on caribou sightings and habitat and mortality (age, body condition, cause of death). Jasper National Park has staff dedicated to caribou population monitoring in addition to working with the Province of Alberta to census the cross-boundary A La Peche herd. Parks Canada is also conducting several university supported studies to understand how fire influences caribou habitat and factors that influence predator/caribou encounters.

Taking Action to Reduce Predator Access

Parks Canada is making it harder for predators to reach caribou. Deep snow at high elevations usually makes caribou habitat inaccessible to predators. However, ski and snowshoe trails to these high remote areas are helping predators travel upwards. Parks Canada is limiting packed trails by changing the timing of winter road ploughing, backcountry ski access and ski track-setting. Parks Canada will work with park visitors to move additional ski trails and implement seasonal road closures, and thus develop additional safe areas for caribou.

Taking Action to Prevent Direct Disturbance of Caribou

Direct disturbance is a serious threat to caribou. The sensitive and isolated nature of the animal requires that visitors to the mountain national parks give them a wide berth. Their survival depends on it.

Parks Canada has several initiatives underway to improve the security of caribou in their habitat, from closing or moving certain trails during critical months of the year to promoting slower speed zones along highways that travel through caribou habitat. More work is needed to enforce existing speed limits. Parks Canada also limits recreational activities such as camping in caribou habitat.

Public awareness is also crucial. Parks Canada is letting park visitors know how important it is to leave caribou undisturbed during park visits. Parks Canada is limiting snowmobile use by park staff and ensuring research does not disturb caribou.

Taking Action to Prevent Habitat Loss

Besides limiting human contact with caribou, Parks Canada is using planned burns in areas adjacent to and within important caribou habitat

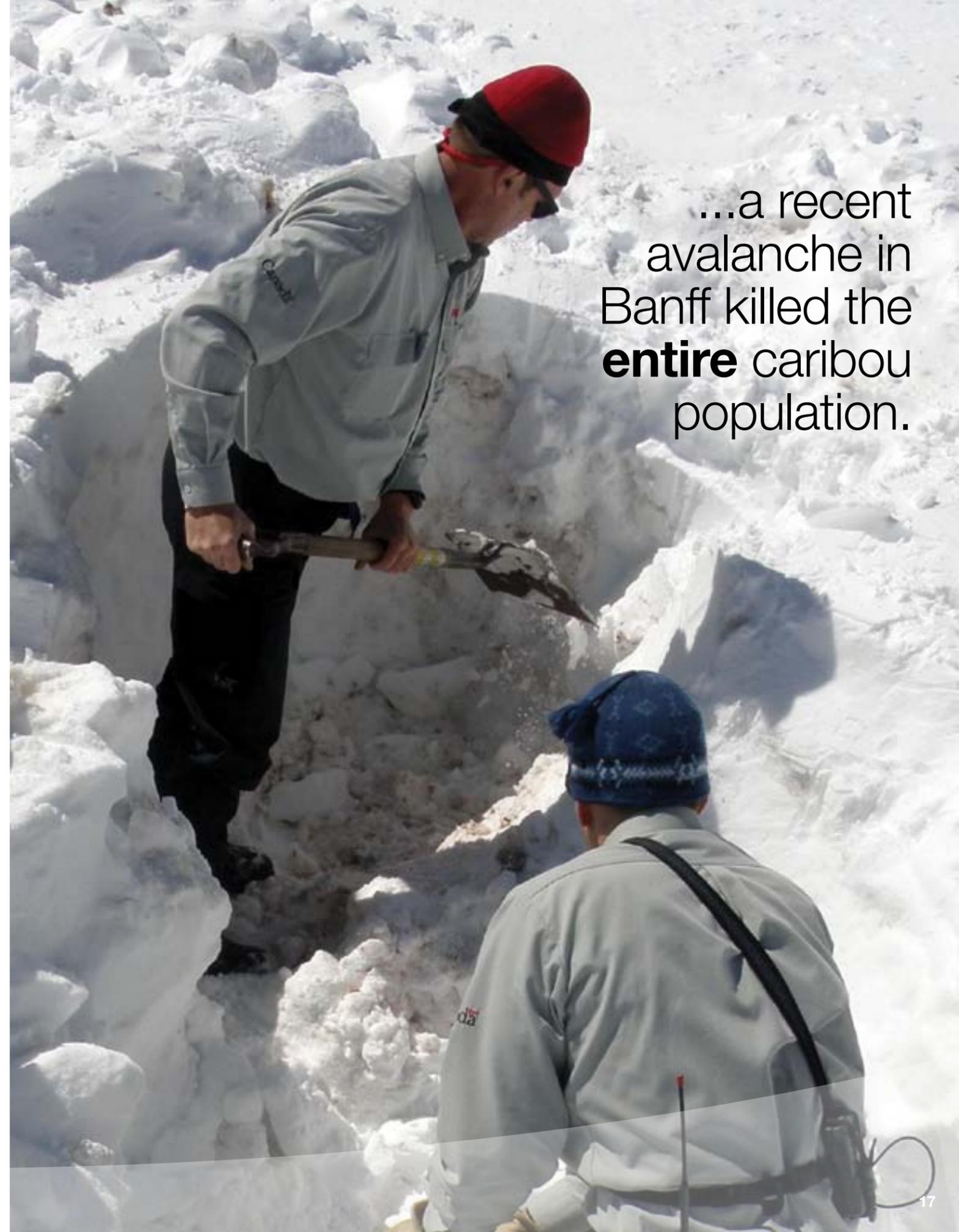
to minimize the potential for large fires to severely impact caribou. These actions will be carefully monitored to better understand the effects of fire on caribou habitat. Parks Canada has plans for large prescribed fires away from caribou, to separate caribou from other ungulates and their predators. Parks Canada also plans to use small fires to create staging areas from which to combat large fires approaching caribou habitat. The Agency is working with neighbouring land managers and other governments to ensure actions are part of a greater regional effort to protect caribou habitat and monitor ecological trends in the greater Mountain National Park region.

Taking Action to Reduce Small Population Effects

A study conducted by Parks Canada with the University of Montana and the University of Calgary has concluded that at current population sizes, the Maligne and Brazeau herds in Jasper will likely disappear, but that the Tonquin and A La Peche herds should persist. The province of BC has concluded that survival of the Columbia South herd is also unlikely without management intervention.

Even if the other threats have been mitigated, the only reliable way to save very small herds from extinction is to bring in animals from other, larger herds. This is known as translocation. Translocation is something Parks Canada is considering to re-establish the extirpated Banff herd and to augment the very small herds in Jasper. Parks Canada is also doing extensive research to find animals with the right genetic match and we are working to mitigate the other four threats before attempting to introduce caribou. While translocation has its challenges, we feel that it is the best way to re-establish very small herds. Parks Canada is therefore investigating captive breeding and source herd options with our conservation partners.

...a recent avalanche in Banff killed the **entire** caribou population.





Aboriginal and Public Consultation

Parks Canada values and respects the opinions and expertise of Aboriginal people.

The *Canada National Parks Act* ensures Parks Canada provides opportunities for Canadians and Aboriginal people to take part in management planning and decision-making in our National Parks. This exchange of ideas and information between Parks Canada, the public and Aboriginal people has and will continue to be a significant part of the development of recovery planning process for the Southern Mountain caribou.

Parks Canada has just begun to engage in discussions with Aboriginal communities with the goal to incorporate their concerns and traditional ecological knowledge into caribou conservation actions. The Agency will continue to look for opportunities for increased collaboration with Aboriginal communities.

In addition, in concert with this conservation strategy, public consultation will occur to engage Canadians in our planning and actions.



Next Steps

Parks Canada is committed to working with partners to sustain the survival of Southern Mountain caribou.

This document introduces a strategy to help rebuild caribou herds. It's a strategy that requires all to play a role, including the public and Aboriginal communities, by respecting the caribou's need for space, and by reducing speeds on highways through caribou habitat. Public awareness is an important part of this strategy. Parks Canada protects these lands for Canadians, and we want to ensure that people visiting our National Parks continue to enjoy their experience and appreciate how and why we are protecting caribou.

Saving caribou is a joint effort among the many stakeholders and governments that have jurisdiction over caribou habitat. Engaging provincial governments, Aboriginal communities and industry to set realistic, achievable conservation goals is essential.

Canada's caribou are in danger of disappearing. Their steady decline is a warning sign of an imbalance between nature, people and development. We can all take action to help restore the balance.

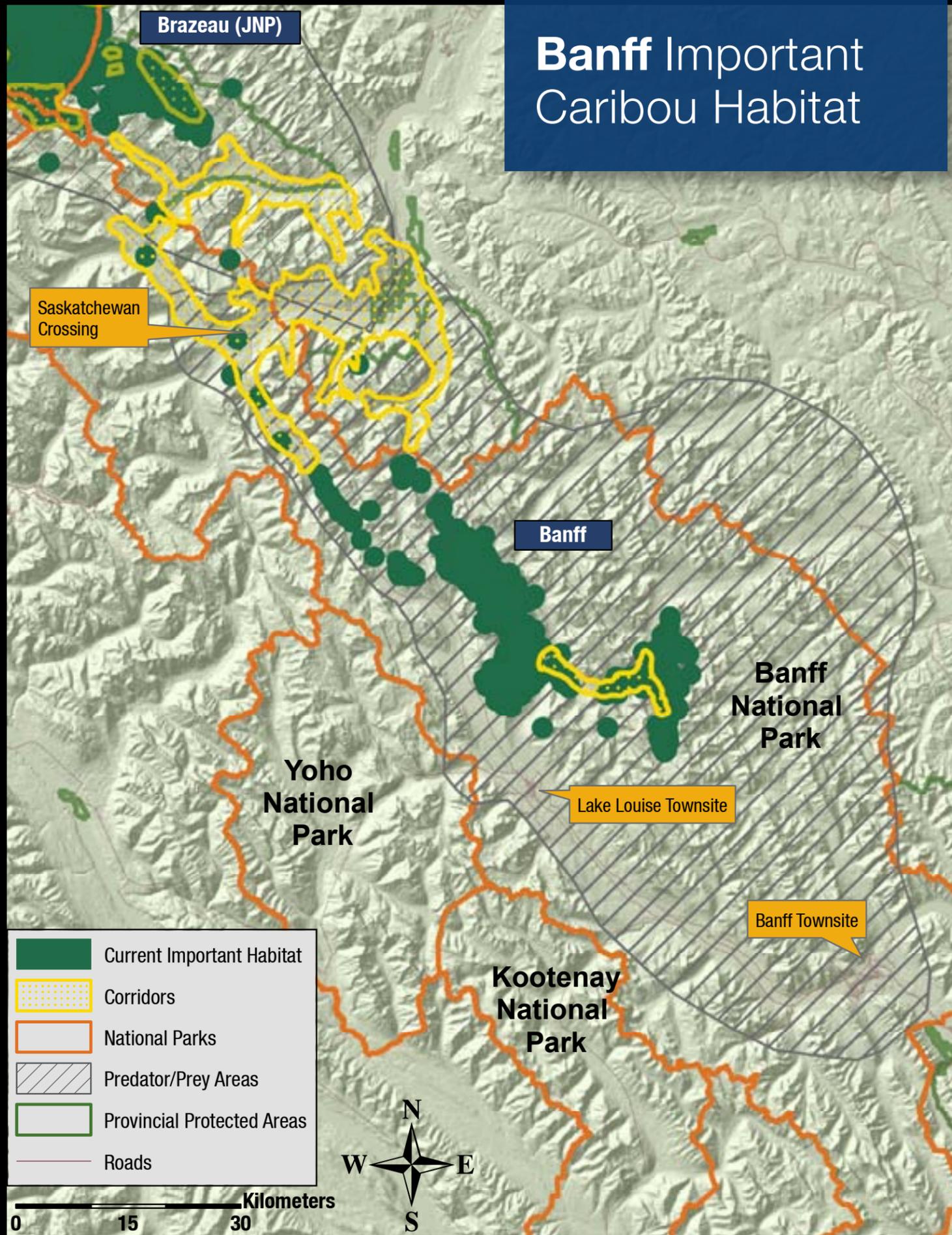
At Parks Canada, this strategy will help to ensure caribou are part of our parks, our present, and our future, for the benefit of all Canadians.

If you'd like to learn more about caribou, visit Parks Canada at www.pc.gc.ca.

Appendix

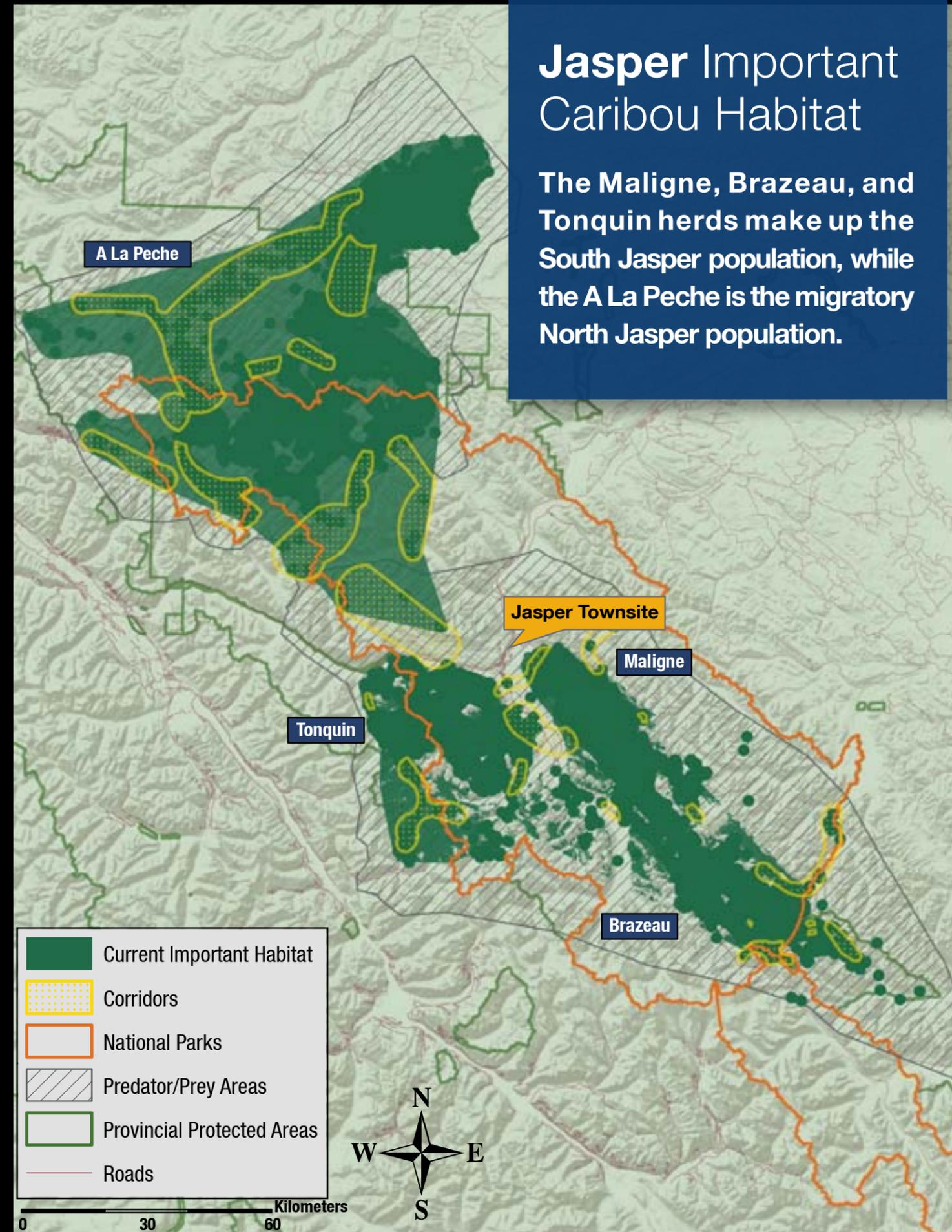


Banff Important Caribou Habitat

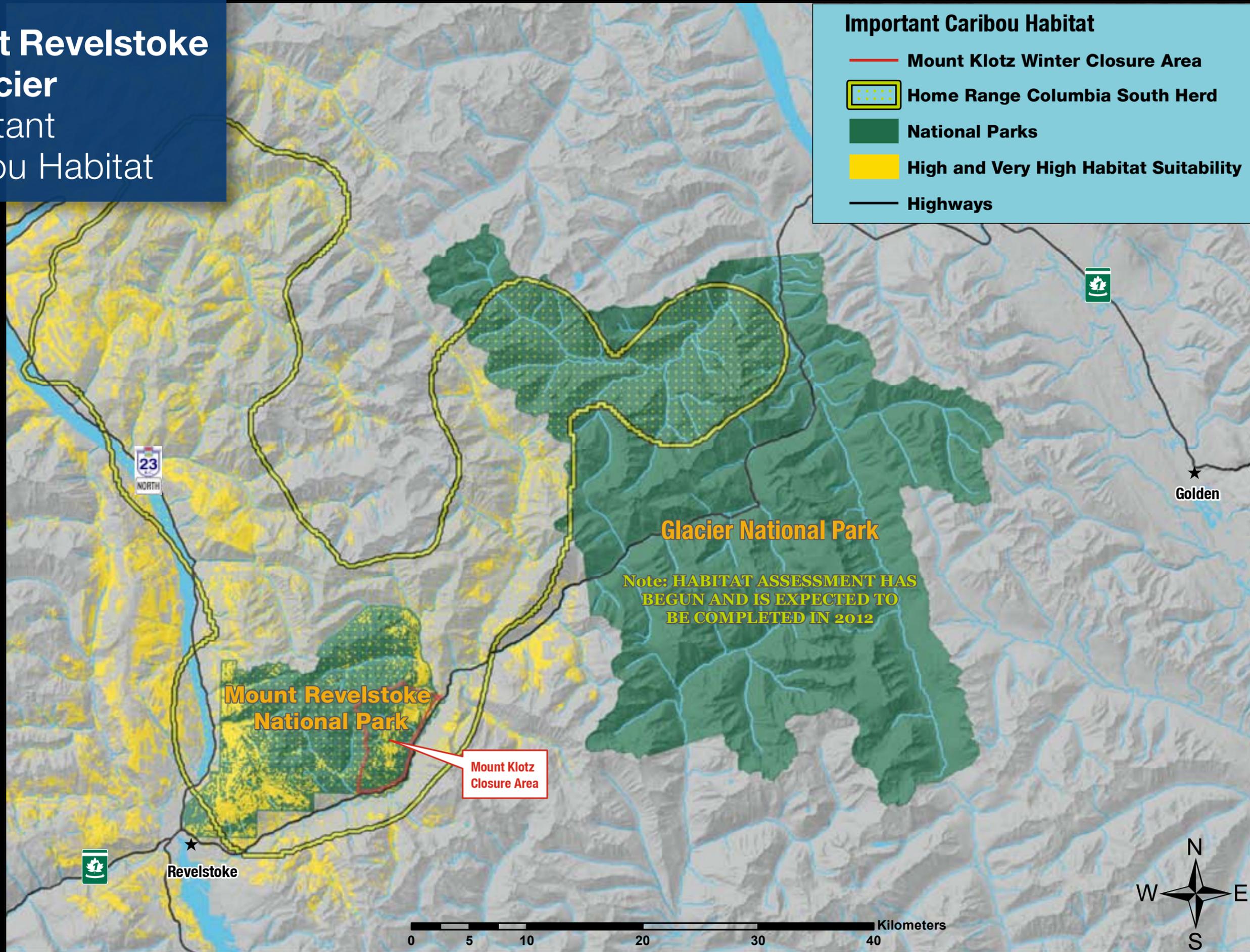


Jasper Important Caribou Habitat

The Maligne, Brazeau, and Tonquin herds make up the South Jasper population, while the A La Peche is the migratory North Jasper population.



Mount Revelstoke & Glacier Important Caribou Habitat





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