

## 4.4 Wildlife and Fish

The interior wetbelt ecosystems of Bowron Lake, Cariboo Mountains and Cariboo River Parks support a tremendous variety of animal species and a diversity of habitats. Combined with Wells Grey Park to the southeast, these parks form the fifth largest system of protected areas in the province (an area over 760,000 hectares in size), protecting a huge mountainous predator-prey ecosystem. This large unroaded and unfragmented landscape is considered especially vital for large carnivores such as grizzly bears. These carnivores require large areas of undisturbed habitat because of their huge home ranges, low densities, low reproduction rates and sensitivity to disturbance.

These parks contain a mosaic of low elevation valley bottoms with winding riparian complexes, lakes, rivers, avalanche chutes, alpine and subalpine areas, old growth spruce, hemlock, cedar, fir and pine forests as well as luxuriant wetlands rich in grasses, shrubs, forbs, willows and other herbaceous vegetation. This diversity supports populations of grizzly and black bears, moose, mountain goats, mule deer, cougars and lynx, hares and picas, beavers, porcupines, marmots, wolverine, wolves and mountain caribou as well as many smaller furbearing animals, birds, bats, amphibians and reptile species. The wetlands and marshes distributed throughout the parks support populations of resident and migratory waterfowl and songbirds. The parks contain a superb range of habitats for fish, and populations of Bull trout, coho, chinook, and sockeye salmon, kokanee, rainbow trout, char and other species of fish are widely distributed throughout the watersheds.

### Grizzly bears

A relatively large population of grizzly bears is distributed throughout these parks. This population is unique in the province because, unlike many other areas of the interior, these bears have access to large runs of sockeye salmon in natural undisturbed areas. The grizzly bear population tends to congregate on the Upper Bowron River and on the Mitchell River in September, when the runs of sockeye return to spawn. In the spring, after emerging from hibernation, the grizzlies tend to move on to the many south facing avalanche tracks to consume the newly greened-up grasses. They will also consume carrion from winter killed animals they find and will prey on moose and caribou calves. They move to moist areas, such as seepage sites, eating cow parsnip, horsetails, skunk cabbage and grasses. As the season progresses, they can be found in the alpine areas, eating roots, picas and marmots, raiding squirrel middens and ant nests and eating alpine vegetation. As the fall approaches, they move to open areas such as old clearcuts or burn areas to eat the blueberries and huckleberries as they ripen. In September they will move to the rivers to eat salmon in preparation for hibernation. Denning areas are believed to be found on mid-elevation, north facing slopes, but more research is required on this topic.

Little inventory or research work has occurred on grizzly bears in the parks, although some habitat work is currently taking place in the Mitchell River and Mitchell Lake Landscape Unit.

## **Black bears**

These parks contain large populations of black bears, which are considered ubiquitous throughout the area. Habitat requirements and lifestyles are similar to those of the grizzly bear described above, although grizzly bear will tend to displace black bears when in direct competition for food.

Again, little research has taken place on black bears, with the exception of bear hazard mapping for Bowron Lake Park and the Lower Mitchell River. Bear/human conflicts had been a problem in Bowron Lake Park, with many bears destroyed over the years. However, the introduction of new bear caches and a vigorous bear aware education program have virtually eliminated these conflicts and it has been a number of years since a bear has been destroyed.

## **Wolves**

It is believed there are at least three packs of wolves that live in and around these parks. One consists of 8-10 animals that travel a circuit from the east arm of Quesnel Lake up the Niagara Creek, across to Mitchell Lake and then down the north arm of Quesnel Lake. The next pack focuses its effort on the Cariboo River and the west side of Bowron Lake Park and the third is believed to live on the east side of Bowron Lake Park on Isaac Lake and its tributaries. Wolves feed primarily on moose, but will also residually target caribou. Some telemetry work was completed on two of these wolf packs in the mid 1990s.

## **Mountain caribou**

The red-listed Mountain Caribou is quite well studied throughout these three parks. There are a number of unique herds or sub-populations of caribou throughout the area. The Wells Grey North sub-population lives primarily in Cariboo Mountains Park and the area adjacent to Quesnel Lake. There are approximately 200 animals in this herd, and those numbers appear to be declining. The Wells Gray North herd is separated from the North Cariboo Mountain sub-population that lives in Bowron Lake Park by the icefields south of Lanezi Lake and Mount Ishpa, which forms a natural boundary to movement. About 30 caribou are estimated to live in Bowron Lake Park, but the entire herd numbers about 425. The Barkerville herd, which numbers about 40, lives to the west of Bowron Lake Park. Cariboo River Park is considered the boundary between the Wells Gray North herd and the Barkerville herd.

Mountain caribou summer in high elevation ESSF forests near the treeline. In early winter the caribou will move down into lower elevation old-growth Interior Cedar Hemlock forests to avoid the deep snow that has not formed a crust. If the lower elevation forests are not Cedar Hemlock (such as the west side of Bowron Lake Park, which is primarily Sub-boreal Spruce), the animals will stay in higher elevation areas. In January, when a crust has formed on the snow, the caribou will return to the high elevation ESSF forests, eating arboreal lichens growing in the old-growth forests.

The behavior, habitat and populations of the mountain caribou in this area are relatively well understood. Population monitoring has been underway for a number of years which involves telemetry and winter surveys.

### **Wolverine**

Little is known about the habitat or population of these animals. They have been observed in the parks, generally in the winter travelling over open snow, but no formal program of research or inventory has occurred. They are opportunistic feeders, often eating carrion left by wolves or bears as well as eggs, insect larvae, berries and small animals. They appear to den in high elevation basins in rocky outcroppings, having offspring in the late winter or early spring. They travel alone except when breeding.

### **Moose**

Moose are commonly found throughout all of these parks. In the summer moose will move to the subalpine ESSF forests to calve. The bulls tend to stay in these higher elevation areas while the cows will move back to the lower elevation wetlands and riparian areas. As winter arrives and snow depths increase, moose will move to lower elevation wetlands and riparian areas to feed on willow and other deciduous plant species. A very large population of moose winter in Cariboo River Park, the high densities of moose encountered there suggest the valley has the highest value moose habitat in the whole Cariboo-Chilcotin region.

Cariboo River had a moose telemetry study completed in the mid 1980s and the population is occasionally surveyed in the winter to determine population size and health.

### **Mountain Goats**

The mountain goat population in these parks appears to be relatively stable. These hardy animals will winter on very steep rocky slopes called "escape terrain." Birthing areas are generally the roughest terrain in the mountain goat range, and kids are born in May or early June. In the spring, goats can be found in lower elevation areas browsing on newly greened-up grasses and forbs and will progressively move higher as the summer progresses, but they never range far from escape terrain.

Winter surveys of goats populations in these parks have only begun over the last several years.

## Rare and Endangered Wildlife Species

In addition to the above noted large species, Bowron Lake, Cariboo Mountains and Cariboo River also provide habitats for a significant number of other red and blue listed species.

*Discussion of each biogeoclimatic subzone and variant and the predicted red and blue listed species that may be found there.*

Some of the specific species at risk that may inhabit these parks include:

Species	Class	Occurrence
<i>Table to be filled in</i>		

- “Known” species are those which have been observed in these parks.
- “Suspected” species are those likely to occur in the parks based on known distributions of the species.
- “Possible” species are those that could potentially occur in these parks but are less likely.

## Birds and Waterfowl

*This section is to be written. Will include an assessment of wetlands in the parks (e.g. Bowron wetlands, Mitchell River and Niagara River wetlands), seasonal usage and their relative value to waterfowl and migratory birds. Canada Land Inventory and the Canadian Wildlife Service are anticipated to be the main sources of data.*

Over 130 species of birds have been reported in Bowron Lake Park alone, including Great Horned Owls, kingfishers, eight species of woodpeckers, mockingbirds, several waxwing species, loons, pelicans, herons, 18 species of ducks and geese, hawks and ospreys, cranes, plovers and sandpipers, finches, warblers and vireos.

## Fish

Bowron Lake, Cariboo Mountains and Cariboo River encompass a number of very large watersheds. Lakes on the north, south and east sides of Bowron Lake Park drain south into the Cariboo River, pass through Cariboo River Park, then continue on to join the Quesnel River and eventually flow into the Fraser River. Lakes on the west side of Bowron, as well as the majority of the interior of the Park drain north into the Bowron River, which eventually drains into the Fraser River near Prince George. Two of the three watersheds in Cariboo Mountains Park – the Mitchell and the Niagara – flow southwest into Quesnel Lake, which is drained by the Quesnel River into the Fraser. The third main watershed in Cariboo Mountains – the Matthew River – has its headwaters

deep in the Park above Ghost Lake. The Matthew River leaves the park at the outflow of Ghost Lake and continues on to join the Cariboo River just above Cariboo River Park. Fish are widely distributed throughout the parks in the various rivers, creeks and lake. Some of the major areas include:

### ***Betty Wendle Creek***

An initial survey of the Betty Wendle in the late 1980's showed the presence of rainbow trout, Bull trout and char as well as large number of spawning kokanee. This large creek has very high fisheries values including a wide range of excellent spawning gravel, rearing and holding habitat and is considered an important nursery stream to Isaac Lake.

### ***Wolverine River***

The Wolverine River drains into the northeast corner of Isaac Lake. It is 10 km long and contains three distinct reaches, with the upper and lower reaches having excellent gravel beds for spawning as well as a range of rearing and holding areas. Rainbow trout were present.

### ***Upper Cariboo River***

The new addition to Bowron Lake Park is actually a tributary of the Cariboo River as well as a small portion of the mainstem of the Cariboo River. A barrier to fish is located on the lower portion of the tributary. The fisheries values on the Cariboo River itself are largely unknown, but may be affected due to the glacial nature and low visibility of the river.

### ***Cariboo River***

This large river has 21 tributaries draining into it within the park. Approximately a quarter of these tributaries, including the Little River, Kimball Creek, Cunningham Creek and Harvey Creek, contain spawning habitat. The mainstem of the river contains chinook salmon and bull trout.

*Find out more from DFO.*

### ***Mitchell River***

The Mitchell River is the second largest inlet stream to Quesnel Lake. It is fed by Mitchell Lake, a 1900 hectare lake in a very steep sided basin. The River travels 19 kilometers from the outlet of the lake to the point where it joins Quesnel Lake. The last 14 kilometers of the river flow through a series of oxbows and wetlands. The Penfold and Cameron Creeks are the two main tributaries.

The lower 14 kilometers of the Mitchell River, and its tributaries provide critical spawning; rearing and foraging habitat for trophy sized rainbow and bull trout from Quesnel Lake. In terms of juvenile rainbow trout production, the lower Mitchell produces 10,000 migrants to Quesnel Lake annually. It also supports a variety of other important freshwater and anadromous salmon species including kokanee, sockeye, chinook and coho. Sockeye are the major anadromous species, with a reported run of up to 250,000 in high cyclic years. This river contains exceptional fisheries values.

In order to increase winter water flows and enhance river conditions for incubating sockeye eggs, the DFO built a flow control structure at the river outlet at Mitchell Lake in 1988.

### ***Niagara Creek/Christian Lake***

Niagara Creek contains three main reaches; each separated by falls which form a barrier to fish. These three main reaches contain wide, meandering braided channels which have a wide variety of fish habitats such as small oxbow lakes, beaver ponds, relic channels and bogs. The main channel is quite turbid due to its glacial nature. Rainbow trout are present in many of the off channel habitats and have probably come from the small creek that connects Christian Lake to Niagara Creek.

Christian Lake has large numbers of small rainbow trout and, as noted may be a source for the fish in the Niagara Creek. It is not known if this is an introduced or natural population of fish. At one point a creek connected Christian Lake to Mitchell Lake, and it is possible the fish may have come from Mitchell Lake.

### ***Bowron River***

To be written

### ***Ghost Lake/Matthew River***

Ghost Lake is a 365 hectare, relatively shallow lake with steep shoreline which is drained by the Matthew River. It was found to be barren of fish, but was stocked with Rainbow Trout in 1986 (75,000), 1987 (15,000), and 1988 (15,000). The inlet of the Upper Matthew is very turbid and glacial with low, unstable banks. The Matthew River upstream of Ghost Lake is very unproductive with little in the way of spawning gravel, but has good rearing habitat and the lower sections and its tributaries are an important trout nursery area for the lake.

### ***Mitchell Lake***

Rainbow trout and bull trout. Bull trout spawn in first reaches of many of the creeks around the lake and the Upper Mitchell River where it drains into Mitchell Lake.

### ***Bowron Lake***

This lake contains populations of bull trout, char, rainbow trout, suckers, mountain whitefish, kokanee. It was stocked in the late 1940s and early 1950s.

### ***Kibbee Lake***

Kibbee is a somewhat shallow lake fed by a small inlet from Thompson Lake and has primarily a gravel and sand bottom. It has kokanee, mountain whitefish, suckers, rainbow trout, squawfish and peamouth chub.

### ***Indianpoint Lake***

This is relatively deep lake fed by a number of small creeks. The bottom is mostly sand, gravel and silt, and contains rainbow trout, squawfish and peamouth chub.

### ***Isaac Lake/Isaac River***

Isaac Lake is the largest lake in Bowron Lake Park. It is very deep, with the average being almost 200 feet and almost 600 feet at the deepest point. A dozen tributaries enter this lake, with the largest being the Betty Wendle, Wolverine and Moxley. It is drained by the Isaac River, a large river that flows into McLeary Lake. Isaac contains kokanee, mountain whitefish, char and bull trout.

*Special note – refugia for big fish because of special management?*

### ***McLeary Lake***

McLeary is fed by the Isaac river, and is the shallowest lake on the Bowron Lake circuit, with an average of only five feet. Rainbow trout the only species present.

### ***Lanezi Lake***

Another very deep lake, Lanezi is fed by the Cariboo River and as a result is very silty. It is a very unproductive lake with steep sides, a sand bottom and few organisms. Fish present included bull trout, rainbow trout, peamouth chub, mountain whitefish, suckers and lake trout.

### ***Babcock Lake***

This lake is fed by a clear, fast flowing creek with a gravel bed. It has a sand, gravel and mud bottom, and contains mountain whitefish, bull trout, rainbow trout and peamouth chub.

### ***Sandy Lake***

A very shallow and very silty lake (mean is 9 feet), Sandy Lake is fed by the Cariboo River, which appears to account for the large silt deposits. No fish are present.

### ***Hunter Lake***

This small lake is located adjacent to the boundary of the park and is accessed from a small path on Sandy Lake or from logging roads next to the park. It is quite shallow, is fed by a slough and drains into Sandy Lake. Rainbow trout and peamouth chub are present in the lake. This lake has been historically stocked.

### ***Unna/Rum Lake***

Another shallow lake typical of the west side of the Park, this lake has a sand bottom. Peamouth chub, suckers, mountain whitefish and kokanee were found to be present.

### ***Skoi Lake***

Another very shallow lake (mean is 13 feet) believed to be spring fed with no inlet and a small connection to Spectacle Lake. Muddy and silty bottom with no fish present.

### ***Spectacle Lake/Swan Lake***

Relatively shallow lake with mud and weed covered bottom. Species present include Rainbow trout, squawfish minnow, peamouth chub, kokanee, mountain whitefish and suckers.

## **Objectives (Wildlife)**

- Manage for the habitat needs of all species by providing a range of natural habitats and functional integrity between these habitats, both inside and adjacent to the parks.
- Maintain and/or recover to optimal levels<sup>1</sup> species and habitats at risk.<sup>2</sup>
- Maintain viable predator–prey relationships and natural behavior patterns.
- Maintain distribution and abundance of wildlife species.
- Protect wildlife habitat features<sup>3</sup>
- Maintain ungulate winter and spring ranges in a condition that will support populations during critical winter conditions.
- Minimize displacement of wildlife from preferred habitats.
- Prevent the introduction of exotic plant and animal species.
- Provide hunting opportunities in Cariboo River Park, Cariboo Mountains Park and in the additions to Bowron Lake Park (Wolverine, Betty Wendle, and Upper Cariboo River) for game species that support sustainable populations.
- Maintain Bowron Lake Park as a wildlife refugia where hunting and trapping is not permitted (trapping permitted in Upper Cariboo River and Wolverine additions).
- Minimize the risk of encounters between bears and humans.
- Minimize the (*potential*) impacts and stress of recreational activities on wildlife populations and habitats.

## **Strategies (Wildlife)**

### *Wildlife – General*

- Develop a long-term management plan for wildlife with Wildlife Branch, BC Parks, Ministry of Forests, forest licensees, recreation groups, guides and First Nations.
- Ensure long-term monitoring of wildlife populations inside the parks and coordinate this monitoring with areas outside and adjacent to the parks.
- Develop specific habitat prescriptions for species or habitats at risk.
- Regulate predator numbers when population numbers of red listed prey species are at risk
- Develop a better understanding of the complex predator–prey system within and surrounding the park ecosystems.

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<sup>1</sup> “Optimal” is a combination of historic levels and the area’s carrying capacity - this concept requires more research.

<sup>2</sup> “At Risk” refers to species or habitats that are rare, endangered, sensitive or vulnerable (red, blue and yellow listed).

<sup>3</sup> “Wildlife Habitat Features” are specific features of wildlife habitat that support specific wildlife or groups of wildlife such as mineral licks, nest trees, denning sites or nest sites etc.

- Manage human behavior in order to minimize impacts to wildlife. Education, voluntary practices, interpretation and guidelines are all possible tools.

#### *Biodiversity*

- Where compatible with critical habitat needs (i.e. mountain caribou) maintain large areas of old forest in the parks.<sup>4</sup> (*discussion point*)
- Standing dead trees over 10 cm in diameter except as necessary for development or safety should not be cut in order to provide perch trees and habitat for cavity nesting species.

#### *Bears*

- Map bear habitat and connectivity corridors within and adjacent to the parks.
- Do not permit the construction of trails, campsites or facilities in high value black bear and grizzly bear habitats.
- Strictly enforce all bear management guidelines (e.g. use of bear caches, food storage and handling etc)
- Educate park users about bear hazards and safe behavior in bear country.
- Continue to restrict public access to the Upper Bowron River.
- Seasonally restrict the use of the Mitchell River spawning grounds

#### *Wolves*

- Identify and map wolf ranges and distribution patterns.
- Increase knowledge relating to wolf foraging strategies as they relate to predator-prey ecosystems.

#### *Wolverine*

- Inventory distribution and abundance and map connectivity corridors.
- Report all sightings and known use areas.
- Maintain 2 km buffer of non-use from known or suspected denning sites from January to May.
- Minimize human use in known use areas.
- Develop facilities and manage use to minimize impacts to potential prey species, food, cover and denning sites.

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<sup>4</sup> The Cariboo Chilcotin Land Use Plan makes the assumption that, on a landscape unit basis, many requirements for old growth can be met by assuming all the area inside of parks is old. However, this assumption may contradict with the desire to recreate a more natural mosaic of age classes in the parks through fire management (e.g. prescribed burns and less fire suppression). These homogenous old forests are also more susceptible to catastrophic fire and forest pest outbreaks.

### *Moose*

- Identify and map winter ranges and identify critical periods.
- Manage use so there are buffer zones between humans and wintering moose and create or maintain sight barriers, noise barriers and hiding cover between areas of human use and winter ranges.
- Locate transportation routes and snowmobile corridors outside of critical winter ranges.
- Where ungulates travel on plowed roads, ensure frequent escape breaks are created in the bermed snow to allow animals to exit the road to avoid vehicle traffic.

### *Caribou*

- Maintain old growth forests and minimize activities that may reduce the quality of old growth forest habitat.
- Seasonally close highly sensitive habitats to snowmobiles and helicopters (*note: snowmobile use to be zoned through Recreation Task Group*).
- Regulate snowmobile and helicopter use within habitats of moderate sensitivity. (*note: snowmobile use to be zoned through Recreation Task Group*)
- Schedule fixed wing and helicopter flights to avoid calving and rutting times, as well as late winter.
- Limit aircraft altitudes to a minimum of 500 m over designated caribou habitats and develop operating procedure/flightlines to avoid disturbance of caribou.
- Control predator use by wolves by limiting access or reducing wolf numbers.

### *Mountain Goat*

- Identify, map and designate seasonal mountain goat habitats.
- Avoid disturbance of kidding areas between May 1 to July 15 by directing activity away from these areas.
- Avoid disturbance of designated winter ranges between Dec 1 to April 30 by directing activity away from these areas.
- For new helicopter operations, no-fly zones located 2000 meters horizontal and vertical from designated goat habitats (may be reduced where approved to take advantage of physical barriers).
- For existing helicopter operations, maintain no-fly zones that are a minimum of 500 meters horizontal and vertical from designated goat habitats.
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### *Trapping and Guiding*

- Authorize, by Park Use Permit, the continuation of pre-existing trapline operations. Allow the use of firearms and snowmobiles, within specific areas, for trapline management by the registered trapline holder and authorize this in permits.
- Prohibit trapping inside Bowron Lake Park and close yearly trapping opportunity in the Betty Wendle addition to Bowron Lake Park.

### **Objectives (Fish)**

- Increase understanding of fish habitat and populations in and adjacent to the parks.
- Provide a range of quality fishing experiences in the parks.
- Protect bull trout spawning and rearing habitat.

### **Strategies (Fish)**

#### *Fish Management*

- Prohibit the stocking of lakes in the parks.
- Permit the transplant of bull trout from and within all the parks in order to increase the viability and distribution of populations.
- Prepare a fisheries management plan for Bowron Lake. The plan should utilize the Bowron Lake Advisory Group (see section 4.5 Bowron Lake). The plan may address topics such as new regulations to ensure healthy populations of kokanee and other species, monitoring of catch rates, angler days and fish size, information and education. Consider partnerships with the local community to more effectively monitor the fishery (i.e. the July 1<sup>st</sup> fishing derby to monitor the historical catches of kokanee on the lake).
- Prepare a fisheries management plan for the lower Mitchell River. The plan should include commercial guides and public users. The plan should address allocation of angler rod days, impacts and potential conflicts with grizzly bears, impacts to spawning beds and bull trout populations and methods of travel on the river (e.g. potential jetboat restrictions).
- Consider Isaac Lake as a refugia lake for large rainbow trout and char by continuing regulations on size and number of fish that can be caught.
- Utilize RIC standards for all inventory and monitoring within the parks.
- Improve relationships with Fisheries and Oceans Canada and share information and data on fisheries values.

## *Research*

- Undertake research on spawning locations of bull trout. Spawning locations throughout these systems are poorly understood at the current time.
- Increase understanding of the Isaac Lake rainbow trout population. This population is unique population is similar to the late maturing Gerrard and Quesnel Lake rainbows, producing extremely large fish. Research should focus on spawning areas, potential numbers on spawning grounds, life history and genetic relationships to other rainbow trout populations.
- Increase understanding of the relationship between the Mitchell Lake/Mitchell River and Quesnel Lake rainbow trout populations using genetic testing. There is some question of whether the Quesnel Lake rainbows originally had their origins in Mitchell Lake.
- Investigate, in partnership with Fisheries Branch and the Fisheries and Oceans Canada, the effectiveness and future of the water control structure at the outflow of Mitchell Lake. In particular, the potential effect of the structure on overall fish production in Mitchell Lake should be examined, with particular emphasis on rainbow trout spawning areas and bull trout populations and trends.
- Complete fisheries inventory around Bowron Lake Park according to formalized RIC standards.
- Increase understanding of life history strategies of bull trout and lake char throughout the system of parks. In particular focusing on age/growth curves.
- Increase understanding of public angler effort and use, focusing on Mitchell Lake, Ghost Lake, Cariboo River and the lower Mitchell River. Consider using aerial surveys, volunteer wardens and other methods.
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