

Northern Rocky Mountains Park and Northern Rocky Mountains Protected Area Draft Management Plan

Draft for Public Review

Disclaimer: This draft management plan contains preliminary proposals that are subject to change and therefore may not necessarily reflect the position of the Ministry of Environment and Climate Change Strategy. At the conclusion of the planning process, a revised management plan will be approved by the Ministry.

October 2018

Northern Rocky Mountains Park and Northern Rocky Mountains Protected Area

Management Plan

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DRAFT

Foreword by BC Treaty 8 First Nations

WELCOME to our homeland. The Beaver (Dunne-za, Dane-zaa), Cree, Sauleau, Slavey (Dene), and TseK' hene indigenous groups have occupied these lands since time immemorial. Treaty 8 was signed in the spirit of Peace and Friendship on June 21, 1899. British Columbia Treaty 8 Territory is hundreds of thousands of square kilometres in size and includes 8 groups: Blueberry River First Nations, Doig River First Nation, Fort Nelson First Nation, Halfway River First Nation, McLeod Lake Indian Band, Prophet River First Nation, Sauleau First Nations and West Moberly First Nations. Our relationship to the land has and continues to be the spiritual basis for our mode of life. The land has always, and will continue to, provide shelter, food, clothing, and the economic resources for our livelihood. As a First Nation, we have an obligation to implement our inherent rights that are affirmed by the Constitution Act, 1982. This includes sustainability of our resources in order for us to hunt, trap, fish, and continue our mode of life. Prior to the arrival of the Europeans we were actively involved in the management of our territories: the lands understood us and we understood the land. Today, we continue to manage our Territory.

BC Treaty 8 First Nations were not involved in the initial development plans of this park in regards to its location and why the area was chosen. We would like neighbouring First Nations, outdoor enthusiasts and other visitors to our land who are enjoying the bounties of this Park to acknowledge and respect that you are on Treaty 8 Territory. Please act as a steward of Treaty 8 Territory so that together we will maintain its natural beauty, and cultural resources. This maintenance will be respectful to our current use and for future generations. Please conduct yourself in a manner that respects cultural heritage resources and values. Treaty 8 Territory will always be the home of First Nations for as long as the sun shines, the grass grows and the water flows.



Foreword by BC Kaska Dena First Nations

The Kaska traditional territory is 24 million hectares and includes portions of three provinces and territories (British Columbia, Yukon and Northwest Territories). The majestic northern boreal forest regions of interior British Columbia and the Yukon have some of the continent's most expansive and impressive wilderness areas, with a great diversity of terrestrial and aquatic ecosystems. Extensive mountain ranges and wild rivers frame pristine boreal forest watersheds. Large free ranging populations of Woodland Caribou, Moose, Dall's Sheep, Stone Sheep, a full suite of large carnivores, and hundreds of thousands of migrating neo-tropical songbirds and waterfowl make their home in these diverse boreal landscapes.

Since human beings have inhabited this landscape, we have been here. As long as human beings inhabit this landscape, we will remain here. Our occupancy of this land establishes both our right and our responsibility to ensure this land remains intact and able to support our people and culture. We emphasize it is now time to secure its permanent protection in order to protect a broad diversity of resources and values that are critical to our culture and our economic opportunities within our homeland.

The health of Kaska culture requires large intact landscapes which support healthy populations of traditional plants and animals. Furthermore, a central facet of our identity requires large unfragmented landscapes for our families to be on. This is where our traditional knowledge is passed on from parent to child, from generation to generation. As well, our physical health requires continued access to healthy wildlife populations as a key component of the diet to which we are accustomed and adapted.

Permanently protected areas and parks can play an important role in ensuring the long term health of First Nations cultures, and thus the Kaska are generally supportive of the concept of "parks" as a mechanism to protect our cultural interests. As well, the Kaska are supportive of parks within their traditional territories, with some caveats, as a contribution to the overall richness and core spiritual values of Canadian culture.



Vision Statement

Northern Rocky Mountains Park is renowned as a world-class area for wildlife, the preservation of wilderness, and a destination for recreation adventure. The park is seen as maintaining, in perpetuity, a wide diversity of important Species At Risk, iconic Rocky Mountain wildlife species, and the majestic mountain ecosystems characteristic of northeastern British Columbia.

The Park plays an important role in providing backcountry recreation opportunities for local, national, and international visitors. Development has been kept to a minimum and the few facilities that exist have been maintained with the goal of providing a wilderness experience. Levels of use, both public and commercial, are low, but are monitored to ensure that key park values and wilderness experiences are not negatively impacted.

Recognizing the traditional use of Northern Rocky Mountains Park is important to the area's First Nation communities; Northern Rocky Mountains Park remains a location where First Nations members practice their traditional social, ceremonial and cultural activities.

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1.0 Introduction

1.1 Management Plan Purpose

The purpose of this management plan is to guide the management of Northern Rocky Mountains Park and Northern Rocky Mountains Protected Area. Throughout this management plan, the terms “park” or “Northern Rocky Mountains Park” are used to refer to both the park and the protected area, with the exception of when Northern Rocky Mountains Protected Area is specifically named.

This management plan:

- articulates the key features and values of Northern Rocky Mountains Park;
- identifies appropriate types and levels of management activities;
- determines appropriate levels of use and development;
- establishes a long-term vision and management objectives for the park; and
- responds to current and predicted threats and opportunities by defining a set of management strategies to achieve the management vision and objectives.

1.2 Planning Area

Northern Rocky Mountains Park (665,709 hectares) and Northern Rocky Mountains Protected Area (763 hectares) are located in the Peace area of northern British Columbia in the Muskwa-Kechika Management Area (Figure 1)¹. The closest large community to Northern Rocky Mountains Park is Fort Nelson (approximate population 4,000), which is approximately 80 kilometres northeast of the park. Fort St. John (approximate population 21,000) is about 225 kilometres southeast of the park.

The Northern Rocky Mountains Park (Figure 2) protects diverse and abundant wildlife populations, undeveloped watersheds, wilderness qualities, and striking mountainous features. Spectacularly exposed geological features readily visible to park visitors are an important aspect of the park. Those features include hoodoos, huge folds, thrust faults, rugged castellated peaks, glacially sculpted U-shaped valleys, cirques and hanging valleys.

The park provides outstanding opportunities for backcountry recreation in a wilderness setting where human impact is temporary, minor and in the long-run substantially unnoticeable. Most of the ground-based access to the park is from the Alaska Highway corridor (entry points are located in the Wokkash Creek and Tetsa River drainages and through Stone Mountain Park), while water-based access is via the Muskwa River.

¹ The Muskwa-Kechika Management Area, established through legislation in 1998 (*Muskwa-Kechika Management Area Act*), is a 6.4 million hectare area recognized globally for its wilderness, wildlife and cultural significance.

The Muskwa-Kechika Management Area is zoned into a number of different resource management zones, including protected areas, which are intended to allow for the continuation of the area's wilderness character while allowing for resource development to occur. Within the Muskwa-Kechika Management Area there are approximately 1.17 million hectares of protected land within twenty-three provincially protected areas of various designations. Northern Rocky Mountains Park is the largest of these protected areas.

Two provincial parks are immediately adjacent to Northern Rocky Mountains Park: Stone Mountain Park to the northwest; and Kwadacha Wilderness Park to the southwest. Stone Mountain Park (25,690 hectares) provides travellers of the Alaska Highway with easy access to camping and recreation opportunities in a wilderness setting while Kwadacha Wilderness Park (130,279 hectares) provides spectacular scenery in a pristine wilderness setting. The combined areas of Northern Rocky Mountains Park, Northern Rocky Mountains Protected Area, Kwadacha Wilderness Park and Stone Mountain Park provide over 800,000 hectares of largely unroaded contiguous wilderness.

Several other provincial parks, including Prophet River Hot Springs Park (184 hectares), Redfern-Keily Park (80,712 hectares), Dune Za Keyih Park (330,774 hectares) and Graham-Laurier Park (99,904 hectares), are within 100 kilometres of the Northern Rocky Mountains Park. Prophet River Hot Springs Park protects sensitive hot spring habitats and the associated wildlife while Redfern-Keily, Dune Za Keyih and Graham-Laurier parks provide wilderness recreation opportunities and contribute to ecosystem representation.

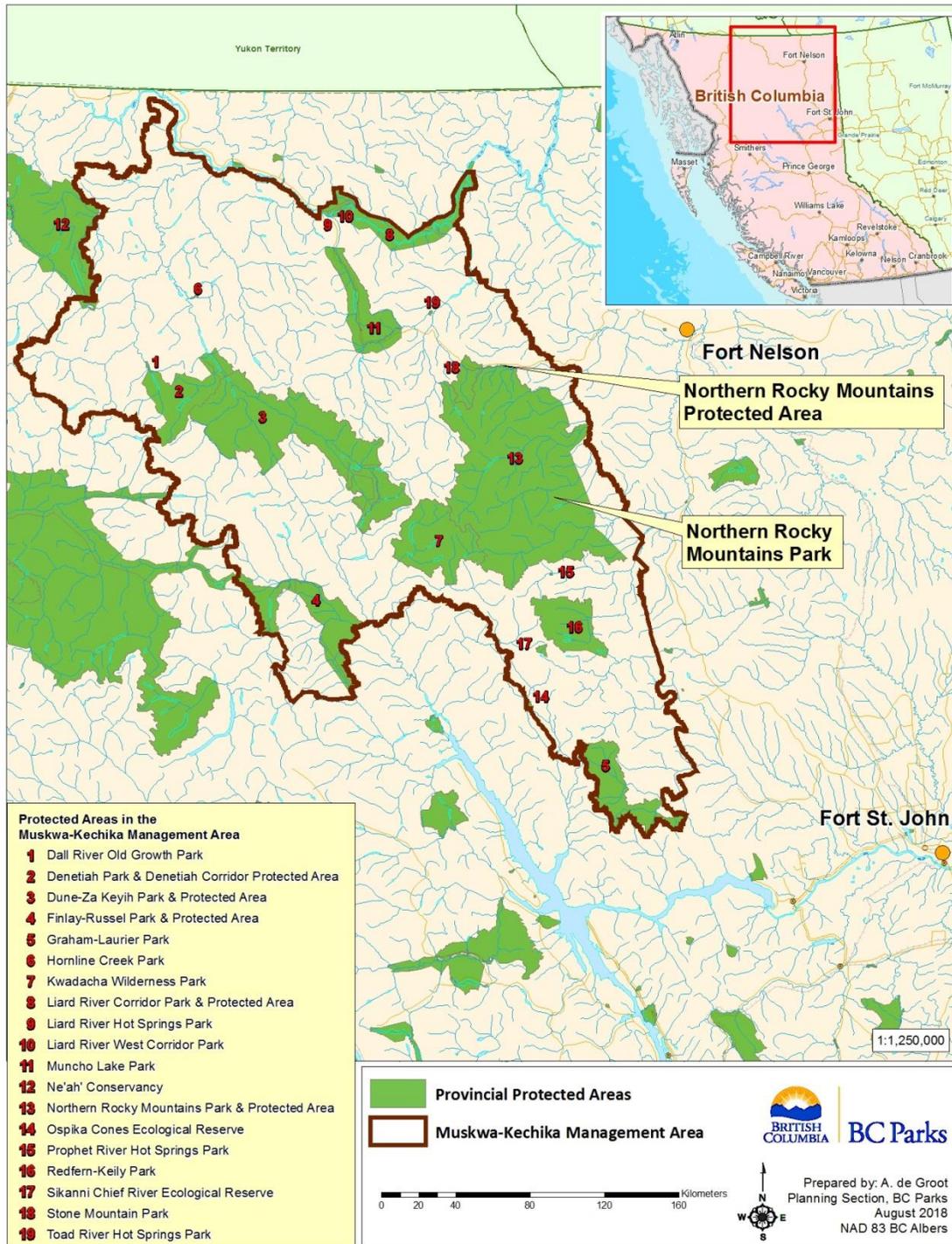


Figure 1: Context Map for Northern Rocky Mountains Park

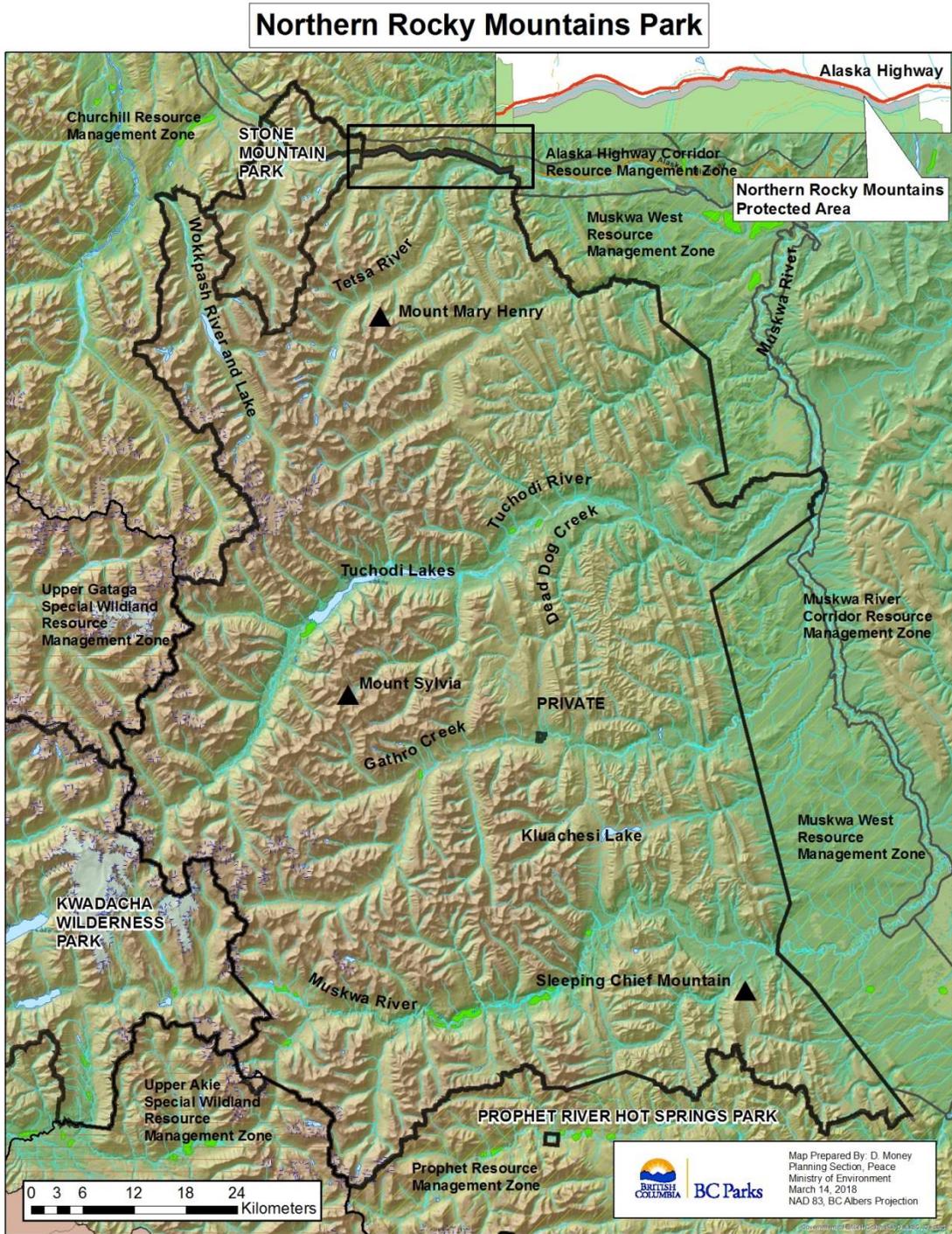


Figure 2: Map of Northern Rocky Mountains Park and Northern Rocky Mountains Protected Area Boundaries and adjacent LRMP zones

1.3 Legislative Framework

The 1997 Fort Nelson Land and Resource Management Plan² identified seven sites that were recommended for protected area designation; two of the sites were the Northern Rocky Mountains and the upper Wokkpush River. These sites were specifically selected to protect viable representative examples of natural diversity and also to protect special natural, recreational and cultural heritage features in accordance with the provincial Protected Areas Strategy.

The upper Wokkpush River was proposed as an ecological reserve in 1974, with a larger area later being established as a Recreation Area under the *Park Act* (1987) to provide recreation opportunities and to protect significant geological features including the Valley of the Hoodoos, Forlorn Gorge and Wokkpush Lake. The Recreation Area was cancelled in 1999 and the area included in the new Northern Rocky Mountains Park on June 29, 1999. The park is presently named and described in Schedule D of the *Protected Areas of British Columbia Act*.

Class A parks are Crown lands dedicated to the preservation of their natural environments for the inspiration, use and enjoyment of the public. Development in Class A parks is limited to that which is necessary to maintain the recreational values of the park. Some activities that existed at the time a park was established (e.g., range tenures) may be allowed to continue in certain Class A parks³, but, logging, mining or hydroelectric development is not permitted.

To provide the flexibility needed along the Alaska Highway in the event that future realignment was required, an approximately 500-metre wide corridor south of the Alaska Highway was designated under the *Environment and Land Use Act* as the Northern Rocky Mountains Protected Area on January 25, 2001

1.4 Relationship with First Nations

Northern Rocky Mountains Park is within the territory of multiple First Nations. The Treaty 8 First Nations that have territory that overlaps with the park are Doig River, Fort Nelson, Halfway River, Prophet River, and West Moberly. Additionally, the park is partially within the asserted traditional territory of the Kaska Dena Council First Nation community of Kwadacha.

This park management plan and subsequent management actions within Northern Rocky Mountains Park will respect the government-to-government agreements that have been signed with different First Nations (see section 1.8.3) as well as First Nations traditional harvesting, cultural activities, and other aboriginal rights and interests. The management of protected areas can be improved by incorporating First Nations' traditional ecological knowledge and cultural knowledge. BC Parks' goal is to gather,

² To access the Fort Nelson Land and Resource Management Plan visit:
<https://www.for.gov.bc.ca/tasb/slrp/plan32.html>.

³ Applies only to Class A parks listed in Schedule D of the *Protected Areas of British Columbia Act*.

collate and integrate local traditional knowledge with other scientific data to manage the park.

1.5 Relationship with Other Resource Agencies

BC Parks works directly with other land and resource management agencies to address specific management issues in and around Northern Rocky Mountains Park. These agencies include the ministry responsible for fish and wildlife, wildfire management, range management and Crown land to manage the fish and wildlife values, wildfires, range tenures, and pest and disease problems; and the ministries responsible for authorizing commercial and industrial activities to ensure that resource development applications recognize and include consideration of park values.

1.6 Adjacent Land Use

Patterns of adjacent land use can have an influence on park values particularly related to access, wildlife movement and preservation or loss of viewsapes. Northern Rocky Mountains Park is bordered on all sides by Crown land that exists as either established parks or protected areas, or as Crown land that is managed as either special wildland and/or resource management zones. This means that, as identified in Section 1.5, BC Parks and the natural resource management ministries coordinate as much as possible to manage at a landscape level, reflective of individual ministry mandates.

1.6.1. Land and Resource Management Plan Zones

Land and resource management plans (LRMP) delineate resource management zones within their respective planning areas. Activities permitted within the different resource management zones that surround Northern Rocky Mountains Park have the ability to affect park values, particularly when those activities occur in close proximity to the park or are consumptive in nature.

The Northern Rocky Mountains Park borders five zoning areas under the Fort Nelson Land and Resource Management Plan, and two zoning areas under the Mackenzie Land and Resource Management Plan (Figure 2, Table 1).

Table 1: LMRP Zoning in areas adjacent to the park

LRMP	Zoning Designation	Zone Name
Fort Nelson	Special Management	Churchill
		Muskwa River Corridor
		Muskwa West
		Prophet
		Enhanced Resource Development
Mackenzie	Special “Wildland Category” Management	Upper U Kai (Upper Akie)

The Special Management zones provide special management direction for the Muskwa-Kechika Management Area and are intended to ensure wilderness characteristics and wildlife habitat are maintained over time with resource development being permitted to proceed while minimizing impacts to other resource values.

The Enhanced Resource Development zone is intended to manage the highway corridor and enhance recreation and tourism opportunities.

In the Wildland Zones, emphasis is placed upon ecological conservation and remote backcountry characteristics. Oil and gas development is permitted, but timber harvesting is not and road development is intended to be temporary.

1.6.2. Mineral, and Oil and Gas Tenures

Seven active mineral tenures exist within five kilometres of the park, all to the south. Active petroleum titles are located approximately ten kilometres away from the park to the northeast. Multiple oil and gas well sites exist within areas adjacent to the park; these sites have been identified as abandoned.

1.6.3. Other Adjacent Uses

- Wildlife Habitat Areas for Caribou have been established south of the park under the *Forest and Range Practices Act* and the *Oil and Gas Activities Act*.
- Ungulate Winter Ranges for Northern Mountain Caribou, Stone's Sheep and Mountain Goat have been established south and west of the park under the *Forest and Range Practices Act* and the *Oil and Gas Activities Act*.
- Four authorizations under the *Land Act* for transportation purposes exist adjacent to the park along the Alaska Highway transportation corridor. These authorizations provide a 500-metre buffer for the Alaska Highway allowing for future expansion and in some locations correspond with the Northern Rocky Mountains Protected Area.
- One Licence of Occupation under the *Land Act* for a waste site exists in the vicinity of the Alaska Highway transportation corridor.
- There is one Forest Licence to Cut permit adjacent to the park.
- There is one private holding of 55 hectares within the park that is used as a base for a guide outfitter (Figure 2).

1.7 Authorizations within the Park

- Northern Rocky Mountains Park overlaps with five guide outfitting territories with four holding commercial recreation tenures in the park⁴. Guide-outfitter wildlife harvest levels are set by the agency responsible for wildlife management in BC, while their commercial recreation activities and facilities in the park are managed by BC Parks.
- There are nine commercial recreation operations authorized by park use permits in the park offering a variety of services, including angling, hiking, horseback riding, transporting, camping, wildlife viewing, boat tours and canoeing. Four of these park use permits are held by guide outfitters that also offer non-hunting recreational services. Six of the park use permits authorize privately owned structures, such as lodges or cabins.
- Nine range tenures for horse grazing held by guide outfitters and licensed transporters exist within Northern Rocky Mountains Park; they are tenured under the *Range Act*. These range tenures predate the establishment of the park and are authorized under the *Range Act*. These range tenures are managed under a Memorandum of Understanding (MOU) between BC Parks and the Range Program, with an associated policy and guidance document. The agreement between BC Parks and the Range Program allows for prescribed fires if they are part of a Range Use Plan and are consistent with park values and/or a park management plan. The number of Animal Unit Months (AUMs) for each range tenure in the park is capped at that authorized for the range tenure at the time of park establishment.
- Eight trapline areas have overlaps with Northern Rocky Mountains Park. Trapping is managed by the ministry responsible for wildlife management. That ministry also manages hunting regulations and harvest allocations, which are managed at the management unit level, with special consideration for parks. Currently, five of the trapline holders trap within the park (authorized by a valid park use permit), and the other three traplines are inactive in the park.
- There are four park use permits allowing air transport into the park.
- Three range reference area research installations are located in the park: Gathto Creek, Halfway Meadow and Tuchodi River. These permanent installations have animal enclosure fences to monitor grazing impacts over time and are managed by the Ministry responsible for range. The sample plots are both inside and outside the enclosures. These research installations are managed by the Ministry responsible for range.

⁴ One guide-outfitter territory has a minor overlap with the park; the territory holder does not have a Park Use Permit for commercial recreation as they do not use that portion of their territory.

1.8 Management Commitments/Agreements

1.8.1. Fort Nelson Land and Resource Management Plan

The 1997 Fort Nelson Land and Resource Management Plan provides specific recommendations for activities, uses and facilities within Northern Rocky Mountains Park. These recommendations are provided in Appendix 1. In general, the land use plan recommended that current uses be allowed to continue.

1.8.2. Muskwa-Kechika Management Area

The *Muskwa-Kechika Management Area Act* established the Muskwa-Kechika Management Area in 1998. Northern Rocky Mountains Park is one of 16 parks within the Muskwa-Kechika Management Area. There are also five protected areas and two ecological reserves. The intent of the Muskwa-Kechika Management Area is to achieve a balance between economic development and conservation. The overall goal is to maintain in perpetuity the wilderness quality, and the diversity and abundance of wildlife and the ecosystems on which it depends, while allowing resource development to occur in appropriately zoned areas (approximately 75% of the area).

To support land management, the *Muskwa-Kechika Management Area Act* specified the creation of an overarching management plan (completed) and five types of local strategic plans: a recreation management plan (completed), a wildlife management plan (completed), oil and gas pre-tenure plans (completed), park management plans (this plan) and local strategic forestry plans, referred to as landscape unit objectives (which are completed when there is forestry activity). As one of the local strategic plans, the Northern Rocky Mountains Park management plan is consistent with the direction provided by the Muskwa-Kechika management plan; it also considers direction within the other strategic level plans.

Local Strategic Recreation Management Plan for the Muskwa-Kechika Management Area

This plan provides an overview assessment of recreation resources in the Muskwa-Kechika Management Area and provides directives for the general management of recreation activities and facilities for protected areas within the Muskwa-Kechika Management Area.

Muskwa-Kechika Wildlife Management Plan

The wildlife management plan provides comprehensive and long-term direction for the management of wildlife species and their habitats to ensure ecological integrity of the Muskwa-Kechika Management Area. It contains two documents – the strategic document and the technical manual.

Pre-Tenure Plans for Oil and Gas Development in the Muskwa-Kechika Management Area

The purpose of these plans is to ensure environmentally responsible and timely development of oil and gas resources, by providing results-oriented management

guidelines and specific prescriptions, where appropriate. Several of these pre-tenure plans border the park.

Park Management Plans

The park management plans for parks in the Muskwa-Kechika will give direction to the management, conservation, and use of all protected areas within the Muskwa-Kechika Management Area. This management plan for Northern Rocky Mountains Park fulfills a portion of this local strategic plan commitment.

Landscape Unit Objectives

The purpose of landscape unit objectives is to provide a statement of desirable future condition for a forest resource or forest resource use, which is attainable through management action. These objectives are completed when there is forestry activity.

1.8.3. First Nation Government-to-Government Agreements

The Province of British Columbia has entered into, or is negotiating, government-to-government agreements with a number of First Nations whose proven rights or asserted traditional interest areas overlap with Northern Rocky Mountains Park. Where those agreements include commitments with respect to park management, BC Parks is committed to ensuring the implementation of those agreements.

The Strategic Engagement Agreement between the Province of British Columbia and the Kaska Dena Council and the Government-to-Government Agreement between the Province of British Columbia and Halfway River First Nation are examples of such agreements. The support and implementation of the government-to-government agreements by each of the parties are aimed at reducing land and resource sector conflicts, providing greater certainty, fulfilling specific legal obligations, and improving relationships.

1.9 Park Access

Several access routes have traditionally been used for travelling in the backcountry and are crucial to the wilderness experience. Generally, routes in the park are not formally developed, and maintenance has been *ad hoc* by various user groups such as the guide outfitters, licenced transporters and resident hunters. The most popular season is in the summer and fall with most access by horse travel and riverboats, but also on foot, and in the winter by snowmobile.

Tuchodi River is commonly used by riverboats to access the park, with trips starting at the Kledo Creek boat launch along the Alaska Highway, first travelling up the Muskwa River before entering the park along the Muskwa River, Tuchodi River, Gathto Creek or Kluachesi Creek. Boats are not allowed upstream of Tuchodi Lakes.

Several ground-based access routes into the park start along the Alaska Highway between Tetsa River and Summit Lake, and also along the Wokkpush Corridor. The Wokkpush Corridor is a popular access route into Northern Rocky Mountains Park that leads to the Wokkpush Valley trail. Wokkpush Corridor (Churchill Mine Road) is a

designated Muskwa-Kechika Access Management Area route and provides important access to the park. This access route is outside the park, and is a designated recreation trail under the *Forest and Range Practices Act* and is under the jurisdiction of the ministry that manages Crown land recreation. This trail is also part of the Fort Nelson Snowmobile Club trail system. The Wokkpash Valley trail can also be accessed from the MacDonald Creek Valley trail as part of a loop trail through Stone Mountain Park.

Fixed-wing aircraft, both wheeled and floatplanes, and helicopters access a variety of locations within the park. Fixed-wing aircraft have a long history of being used to access the park, with use concentrated at guide outfitter camps and lakes. There are also a few landing locations in the park at minimally-maintained air strips and along suitable river bars. Helicopters offer opportunities to access a broad range of sites within the park. In comparison to fixed-wing aircraft, helicopter use for recreation and commercial purposes makes up a small proportion of total air traffic.

1.10 Management Planning Process

Direction for the plan has been provided by the *Muskwa-Kechika Management Area Act*, the Fort Nelson Land and Resource Management Plan, the Muskwa-Kechika Wildlife Management Plan and the Muskwa-Kechika Recreation Management Plan.

A Public Advisory Group was formed following the Fort Nelson Land and Resource Management Plan and provided direct engagement of interested and affected groups and individuals. BC Parks and the Public Advisory Group members followed the intent of the Fort Nelson Land Resource Management Plan and incorporated into this plan recommended objectives including:

- General statements on protected areas;
- Specific recommendations pertaining to the park; and,
- General management objectives of the Fort Nelson Land and Resource Management Plan.

The Public Advisory Group, the Muskwa-Kechika Advisory Board, First Nations and natural resource agency staff informed the content of this draft management plan, including the issues and management strategies components.

During development of this draft management plan, public, stakeholder and First Nations engagement will occur at various stages. Public involvement opportunities, including open houses, will be provided as part of the development of the management plan. The draft document will also be made available for public review and comment on the BC Parks webpage. Information and feedback received during the development of the management plan will be used to inform and adapt the content of the final management plan, including the issues and management strategies components.

2.0 Values and Roles of the Park and Protected Area

2.1 Significance in the Protected Areas System

The Northern Rocky Mountains Park is the third largest park in British Columbia and is the largest component of the Muskwa-Kechika Management Area protected area complex. This group of protected areas is thought to be extensive enough to maintain functioning ecosystem processes including the large mammal predator-prey systems of the northern Canadian Rocky Mountains (Gurd *et al.* 2001). The park has a nationally and internationally significant abundance of wildlife species such as Caribou (*Rangifer tarandus*)⁵, Stone's Sheep (*Ovis dalli stonei*), Elk (*Cervus elaphus*), Moose (*Alces americanus*), Mountain Goat (*Oreamnos americanus*), and Grizzly Bear (*Ursus arctos*).

Within this vast wilderness area are special landform features, outstanding scenery and rich cultural heritage values that all contribute to the high backcountry recreation value of the park. Northern Rocky Mountains Park protects important features such as Sleeping Chief Mountain (a ridge-like formation with a profile resembling a sleeping man as seen from the Alaska Highway), the Wokkash hoodoos and several impressive glaciers at the headwaters of Tuchodi River system. The park provides representation of high elevation plateau landscapes, large south aspect slopes with high wildlife usage, and remote northern lakes and wetlands.

Northern Rocky Mountains Park plays a key role in conserving the wilderness recreation values of the Muskwa–Kechika Management Area. The park provides relatively accessible backcountry day and overnight use in, or adjacent to, the Alaska Highway Corridor with semi-established routes and few facilities. It also provides remote and challenging wilderness recreation opportunities in the middle to southern portion of the park, with emphasis on low, dispersed levels of use.

2.2 Biodiversity and Natural Heritage Values

Northern Rocky Mountains Park has spectacular geological structures, valuable freshwater values, and a diversity of vegetation, fish, and wildlife. Its vast size and proximity to other protected areas make it an important component of the provincial protected areas system.

2.2.1. Geology, Landforms and Soils

The mountains in the area were formed by rocks being bent, folded, faulted and uplifted by northeast compression from western British Columbia. Escarpments and chevron folds exist in the layers of Sleeping Chief Mountain (1,942 metres), Mount Sylvia (2,942 metres) and Mount Mary Henry (2,614 metres). The bedrock contains much limestone, as well as siltstones and sandstones. Much of the terrain in the park is

⁵ Caribou (*Rangifer tarandus*) in the park area are part of the Northern Mountain Caribou population or Designatable Unit, and the Muskwa and Pink Mountain subpopulations. The term Caribou will be used throughout the document to refer to the Muskwa and Pink Mountain subpopulations.

mountainous and characterized by rocky steep-sided slopes separated by high and wide valleys. In comparison to the southern Rocky Mountains, the Muskwa Ranges show evidence of more dramatic and complex geological features.

The park was glaciated approximately 25,000-10,000 years ago, though the mountains show little evidence of late-stage glacial erosion. As ice sheets receded, glacial lakes covered the lowland between the Muskwa and Prophet rivers. The valleys in the park received large deposits of gravel and boulders from these glaciers that were subsequently eroded by fluvial action that formed outwash plains with the eroded materials. Glaciers and perennial snow patches exist within the park boundaries and usually occur at elevations exceeding 2,400 metres.



Fluvial and lacustrine terraces and colluvial/alluvial fans are located along the Tuchodi River and Gathto Creek, as well as along the shorelines of Tuchodi and Kluachesi lakes. Lateral moraine tills, as well as glaciolacustrine deposits, tend to be at higher elevations and likely related to more recent, small glacier movements dating to the latter portion of the Holocene.

Figure 3: Blizzard Lakes

The geology and landforms in the Wokkpash drainage area are unusual. The hoodoos at Wokkpash Gorge are approximately 30 to 90 metres high and line both sides of the gorge for a distance of 5 kilometres. They are impressive in terms of number, size and gravity-defying suspended boulders. This may be the best example of hoodoos in the province. In Stepped Creek, downstream of Blizzard Lakes, there is a polje⁶ that fills with meltwater each year and drains later in the year. Forlorn Gorge is a deep, narrow gorge 150 metres deep and 25 metres wide, along Forlorn Creek. There are also several rock glaciers in the area.

Soil development in Northern Rocky Mountains Park is poor to non-existent in the more elevated alpine areas, while valley bottoms frequently have well-developed and well-drained soils. Exceptional abandoned fluvial features (e.g., meanders and terraces) are found along the Tuchodi River, Dead Dog Creek, and Gathto Creek.

⁶ A polje is defined as “an extensive depression having a flat floor and steep walls but no outflowing surface stream and found in a region having karst topography”.



Figure 4. Hoodoos in Wokkash Canyon

2.2.2 Ecosections and Biogeoclimatic Zones

By virtue of its significant size, adjacency to other protected areas and location in the province, the Northern Rocky Mountains Park is a major contributor to the protection of ecosystems and biological diversity of the northern Canadian Rocky Mountains. It is located in four ecosections of the northern Canadian Rocky Mountains: Eastern Muskwa Ranges (368,811 ha), Muskwa Foothills (275,847 ha), Muskwa Upland (15,196 ha) and Sikanni Chief Upland (6,531 ha). There are four biogeoclimatic (BEC) subzones⁷ represented in the park (Table 2).

The Boreal Altai Fescue Alpine (BAFA) subzone is found at elevations greater than 1,800 metres. Vegetation consists mainly of shrubs, heathers, grasses, herbs, mosses, and lichens. White spruce (*Picea glauca*), Engelmann spruce (*Picea engelmannii*) and sub-alpine fir (*Abies lasiocarpa*), where they occur, usually exhibit a stunted growth form due to the harsh environmental conditions.

The moist, cool Spruce-Willow-Birch (SWBmk) and moist, cool scrub Spruce-Willow-Birch (SWBmks) subzones are found along the valley bottoms (below 1,600 metres

⁷ A biogeoclimatic zone is a geographic area in British Columbia classified as having similar patterns of vegetation and soils that reflect a broadly homogenous macroclimate.

elevation for SWBmk and between 1,600 metres and 1,800 metres elevation for SWBmks). These subzones are predominantly forested with white spruce (*Picea glauca*) and sub-alpine fir (*Abies lasiocarpa*), with lesser amounts of lodgepole pine (*Pinus contorta* var. *latifolia*), black spruce (*Picea mariana*) and trembling aspen (*Populus tremuloides*). Scrub birch (*Betula nana*) and willow (*Salix* species) are also common. Areas with poor drainage contain white spruce and tall willow swamps, sedge (*Carex* spp.) fens, or marshes. Areas of old growth spruce forest can be found in areas with a less frequent disturbance regime, such as along river valley bottoms, and the Tuchodi River’s north and west facing slopes.

The Boreal White and Black Spruce moist, cool (BWBSmk) subzone is found at the lowest elevations in the park; these are on the eastern edge of the park below elevations of 1,000 - 1,200 metres. Upland forests are dominated by white spruce and trembling aspen forests, with black spruce found in forested wetlands and nutrient poor sites, occasionally with tamarack (*Larix laricina*). Lodgepole pine is common on drier sites. Non-forested wetlands are dominated by scrub birch and sedges.

The Northern Rocky Mountains Protected Area is located in one ecosection, Muskwa Foothills, and is in two biogeoclimatic zones (Boreal White and Black Spruce and Spruce-Willow-Birch).

Northern Rocky Mountains Park contributes a significant portion of the area protected in BC for the four biogeoclimatic subzones that occur in the park. This is especially the case for the BWBSwk, which is underrepresented in the province’s protected areas system.

Table 2. Biogeoclimatic Ecosystem Classification (BEC) representation

BEC Zone	BEC Subzone	Area of BEC Subzone in the Park (hectares)	Area of BEC Subzone Protected in B.C (hectares)	Percent of BEC Subzone protected in B.C. Contributed by the Park	Percent of BEC Subzone Protected in B.C.
Boreal Altai Fescue Alpine	BAFAun (undifferentiated)	254,270	1,702,313	14.9	27.8
Boreal White and Black Spruce	BWBSmk (moist cool)	42,900	396,273	10.8	4.2
Spruce-Willow Birch	SWBmk (moist cool)	292,059	1,085,706	26.9	26.1
	SWBmks (moist cool scrub)	75,448	382,167	19.7	23.5



Figure 5: Transition of Spruce-Willow-Birch to Boreal Altai Fescue Alpine BEC Subzones

2.2.2. Vegetation

Information on plant species at-risk in the park is very limited, with information mostly available for the Wokkpash area, Summit Lake and Wahthinli Mountain. Three red-listed⁸ species are known to occur in the park: northern swamp willow herb (*Epilobium davuricum*), Pallas' wallflower (*Erysimum pallasii*) and smooth draba (*Draba glabella*). Eleven blue-listed⁹ species are known to occur in the park: Arctic bladderpod (*Physaria arctica*), abbreviated bluegrass (*Poa abbreviata* ssp. *Pattersonii*), curved sedge (*Carex maritima*), entire-leaved daisy (*Hulteniella integrifolia*), high arctic cinquefoil (*Potentilla subvahliana*), low sandwort (*Arenaria longipedunculata*), rock-dwelling sedge (*Carex petricosa* var. *petricosa*), Siberian kobresia (*Kobresia sibirica*), slender gentian (*Comastoma tenellum*), two-flowered cinquefoil (*Potentilla biflora*) and whitish rush (*Juncus triglumios* subsp. *albescens*).

There are significant wetlands and areas of old growth forests along the Tuchodi River. Ecosystem mapping has not been completed for the park, so there is no information available on at-risk ecological communities, though there are likely to be at-risk floodplain ecological communities in the park.

2.2.3. Ecological Integrity

Ecological integrity occurs when an area or network of areas supports natural ecosystem composition, structure and function, and a capacity for self-renewal. The Northern

⁸ The Red List is a list of ecological communities, and indigenous species and subspecies that are extirpated, endangered or threatened in British Columbia.

⁹ The Blue List is a list of ecological communities, and indigenous species and subspecies of special concern (formerly vulnerable) in British Columbia.

Rocky Mountains Park is part of a large network of protected areas that is large enough to include all components and processes of the representative ecosystems (Gurd et al. 2001). The size of the park allows stochastic and dynamic natural processes to predominate. In a large protected area, species and ecosystems will have more space to be able to respond to climate change, thus maintaining ecological integrity of the area.

2.2.4. Water

Northern Rocky Mountains Park plays a significant role in maintaining freshwater values for the northeast portion of the province. At the headwaters of the Tuchodi River in the Battle of Britain Range is the Lloyd George Icefield, the largest icefield in the northern Rocky Mountains. Many smaller unnamed glaciers feed the lakes, rivers, and creeks. Meltwater from these glaciers can sometimes be very turbid. Northern Rocky Mountains Park protects parts of six undeveloped watersheds:

- Wokkpash Creek, from 5 kilometres upstream from its the confluence with the Racing River;
- Tetsa River, upstream from its confluence with the North Tetsa River;
- Muskwa River, upstream of Crehan Creek to the Kwadacha Wilderness Park boundary.
- Three-quarters of the Chischa River, from 13 kilometres upstream of the Muskwa River;

- Tuchodi River; and
- Gathto Creek, from approximately 19 kilometres upstream of the Muskwa River.



Though large lakes are not abundant in the park (Table 3), there are several significant lakes, especially the Tuchodi Lakes and Wokkpash Lake, which are important recreational destinations. Interesting features of Tuchodi and Wokkpash lakes is how they have been split by large fluvial fans (Figure 5).

Figure 5. View of Wokkpash Lake

Table 3: Lake surface area and maximum depth		
Lake	Surface Area (ha)	Maximum Depth (m)
Blizzard Lakes	78	-
Grizzly Lake	20	-

Kluachesi	221	7
Lower Tuchodi	438	19
St. Sepulchre	16	-
Tetsa Lake	57	-
Upper Tuchodi	728	43
Wokkpash Lake	319	36

2.2.5. Wildlife

The Northern Rocky Mountains Park is a part of a complex predator-prey system with a high density and diversity of large mammal species. Broad-scale habitat mapping for the park depicts a range of wildlife habitat values from low to high. Based on that mapping, the majority of the park lies within the moderate to high habitat range for Mountain Goat, Moose, Grizzly Bear (blue-listed; COSEWIC Special Concern)¹⁰, Grey Wolf, Caribou (Muskwa and Pink Mountain subpopulations of the blue-listed northern mountain population; COSEWIC Special Concern), Elk and Stone's Sheep (blue-listed). Approximately one half of the Muskwa-Kechika Management Area's Stone's Sheep population is located within the park.

The valleys and south-facing slopes are important winter range for many of the ungulate species. Caribou use high elevation mountainous areas in the park primarily during calving, summer and early fall, then move to lower elevation conifer forests for the late fall and winter. There can be considerable variation in this pattern among individuals and among years. For example, in high snowfall years Caribou are more likely to use wind-swept alpine ridges in winter. Also, some individuals will calve in forested areas before moving to higher elevation summer ranges. Protecting habitat for ungulates is one of the key roles of the park. The ongoing health of those wildlife populations is important from conservation, cultural and recreation perspectives.

The Northern Mountain population of Caribou was assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as a species of special concern in 2002 and was listed as such in Schedule 1 of the *Species at Risk Act* in 2005. COSEWIC reaffirmed special concern status for the Northern Mountain population in 2014. Due to the conservation status of Caribou, they are a management priority for BC Parks.

Northern Rocky Mountains Park covers parts of the ranges of the Muskwa and Pink Mountain Caribou subpopulations. It covers 26% of the range of the Muskwa subpopulation with 85% of the park in its range. Similarly, the park covers 10% of the Pink Mountain subpopulation range with 15% of the park in its range. Thus 100% of the park is within the range of the Caribou, making this park a significant contributor to the conservation of Caribou in northern British Columbia.

¹⁰ The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses the conservation status of species under the federal Species at Risk Act. Categories are extinct, extirpated, endangered, threatened, or special concern.

Population survey results suggest that the Pink Mountain Caribou subpopulation may be declining, but differences in survey methods mean it is not possible to be definitive about the population trend. For the Pink Mountain subpopulation, 1,275 caribou were counted in 1993 and in 2017, 323 animals were counted. For the Muskwa subpopulation, in 2001, 658 Caribou were counted and in 2007, 738 caribou were counted.

Wide scale Wolf control throughout the region from the 1940s to 1960s, and Wolf control in the range of the Muskwa Caribou subpopulation in the 1980s may have influenced Caribou numbers during and just after those periods. Plans specific to the Muskwa and Pink Mountain subpopulations are being produced by the provincial ministry responsible for wildlife management in British Columbia.

One of the greatest risks to Caribou is habitat alteration that converts mature forests into early seral vegetation at greater than natural rates. Increases in the amount of early seral vegetation, which is favoured by other ungulates such as Elk, Moose and Deer, can lead to increased numbers of these other ungulates. If predator numbers increase in response to increased prey, predation risk to Caribou can also increase (Louiser *et al.* 2009). Also, early seral vegetation does not contain lichen forage required by Caribou.

Additionally, Caribou and Mountain Goats are very sensitive to motorized activities. Motorized and non-motorized activities in the winter can create snow-packed trails which facilitates better predator access to critical winter range. The calving and early summer seasons are critical for Caribou; most calf mortality occurs during the first few weeks of life. Adult female Caribou often calve at higher elevations where deeper snow conditions help to keep predation risk lower. Activities that result in displacement of Caribou from preferred habitats into habitats with greater mortality risk could result in increased calf mortality and negative effects on the population.

Mineral licks are important features in the park. Ungulates congregate in these areas to ingest a variety of chemical components that are concentrated on the surface. Wet mineral licks are formed due to water movement (gravitational or upwelling) that concentrates materials leached from the surrounding rocks and soils. Dry licks are often formed through colluvial or aeolian exposure. Although they differ in their respective concentrations, wet and dry licks are natural sources of sodium, carbonates, magnesium, and sulfate.

Information on wildlife species in the park other than the prominent large mammal species, including birds, small mammals and invertebrates, is very limited. In protecting an area the size of the Northern Rocky Mountains Park with known high wildlife and landscape diversity it is hoped other unknown values are also protected. Increasing the knowledge of these values is an important park objective; more study is required to fill information gaps. Other known wildlife within the park includes several species of large mammals including American Black Bear (*Ursus americanus*), Mule Deer (*Odocoileus*

hemionus) and White-tailed Deer (*Odocoileus virginianus*), and smaller mammals including American Marten (*Martes americana*), Fisher (*Pekania pennanti*) (blue-listed), Canada Lynx (*Lynx canadensis*) and Wolverine (*Gulo luscus*) (blue-listed; COSEWIC special concern). Rare sightings of Cougar (*Puma concolor*) have occurred. Northern Myotis (*Myotis septentrionalis*), a blue-listed bat species (COSEWIC endangered), has been also documented in the park.

Numerous bird species use the park for both breeding and migration; however inventories are not available. The Rocky Mountains are known to be an important migration corridor for raptors such as Golden Eagle (*Aquila chrysaetos*). Other bird species known to or likely to use the park include Black-throated Green Warbler (*Setophaga virens*) (Blue-listed), Boreal Owl (*Aegolius funereus*), Bufflehead (*Bucephala albeola*), Canada Goose (*Branta canadensis*), Snow Goose (*Chen caerulescens*), Gyrfalcon (*Falco rusticolus*) (blue-listed) and Trumpeter Swan (*Cygnus buccinator*s).

2.2.6. Fish

The lakes and rivers of Northern Rocky Mountains Park are populated by a diverse fish community (Table 4). No two lakes in the park have the same suite of fish species present in them. The list of known fish species in the park includes Arctic Grayling (*Thymallus arcticus*), Bull Trout (*Salvelinus confluentus*) (blue-listed; COSEWIC special concern), Burbot (*Lota lota*), Lake Trout (*Salvelinus namaycush*), Lake Whitefish (*Coregonus clupeaformis*), Longnose Sucker (*Catostomus catostomus*), Mountain Whitefish (*Prosopium williamsoni*), Rainbow Trout (*Oncorhynchus mykiss*), Slimy Sculpin (*Cottus cognatus*), Spoonhead Sculpin (*Cottus ricei*), Lake Chub (*Cousius plumbeus*) and White Sucker (*Catostomus commersonii*).

Tuchodi Lakes were stocked with Rainbow Trout in the 1960s. Grizzly Lake was stocked with Rainbow Trout and Arctic Grayling in the 1960s, but the Rainbow Trout may not have survived.

Table 4. Fish species of the lakes in Northern Rocky Mountains Park

Lake Name	Fish Species										
	Arctic Grayling	Bull Trout ¹¹	Burbot	Lake Trout	Lake Whitefish	Lake Chub	Longnose Sucker	Mountain Whitefish	Rainbow Trout	Sculpin	White Sucker
Grizzly	X								?		
Kluachesi	X	X	X				X				X

¹¹ Records show Dolly Varden in Kluachesi, Tuchodi and Wokkpush lakes, and North Tetsa River; these fish would most likely now be identified as Bull Trout

Tetsa				X					
Tuchodi	X	X	X	X	X	X	X	X	X
Wokkpash	X						X		X

The streams of Northern Rocky Mountains Park are home to a number of fish species with Bull Trout and Slimy Sculpin being the most widespread. Arctic Grayling and Mountain Whitefish are also widely distributed (Table 5). Bull Trout are known to spawn in Dead Dog Creek, Crehan Creek, Gathto Creek and Joplin Creek. Rainbow Trout are not native to the river systems of the park, with stocking having occurred several times; the last known stocking being rainbow trout into Grizzly Lake in 1972 (Woods 2001a, Woods 2001b). Fish distribution is often limited by barriers such as waterfalls on smaller tributary streams.

Table 5. Fish species of the main waterways of Northern Rocky Mountains Park

Watershed Name	Fish Species						
	Arctic Grayling	Bull Trout ¹⁰	Longnose Sucker	Mountain Whitefish	Rainbow Trout	Slimy Sculpin	Spoonhead Sculpin
Gathto	X	X		X		X	
Kluachesi	X	X		X		X	
Muskwa	X	X		X	X	X	
North Tetsa	X	X	X	X	X	X	X
Tuchodi	X	X	X	X		X	
Wokkpash		X				X	

2.3 Ecosystem Dynamics

Ecosystem dynamics in boreal areas such as the northern Rocky Mountains are greatly influenced by disturbances from fire and forest insects that drive ecosystem renewal and change. Fire can have a variety of effects on ecosystems. In forested areas fires are often considered to be either stand replacing or stand maintaining. In grassland ecosystems, fire generally helps to maintain the grasslands through the removal of woody vegetation that cannot withstand repeated burning. The fire return interval for the area that includes Northern Rocky Mountains Park is between 50 and 400 years, with wildfire burning an average of 0.2% of the area per year between 1922 and 2012 (Ecora 2014, Leverkus 2015).

Prescribed fire is often used to apply fire to ecosystems under controlled conditions for specific purposes that include ecosystem maintenance or restoration, wildlife habitat enhancement, forage production for domestic animals, and wildfire prevention.

Throughout the northeast, prescribed burning has been historically used by First Nations, guide outfitters, and government to enhance wildlife habitat and enhance forage for range purposes (Louiser *et al.* 2009). Prescribed burns have been proposed at frequencies greater than the natural fire return interval (Woods 2017). This results in the maintenance of early seral¹² grassland habitat favoured by ungulates and horses.

Presently in Northern Rocky Mountains Park, prescribed burning is utilized by staff in the ministry responsible for wildlife management to maintain ungulate winter range habitat that has been created and maintained historically. These burned areas are at lower elevations for Elk and for Stone's Sheep in association with escape terrain features.

Prescribed fire is also used by guide outfitters to maintain forage production for their horses. Range tenures held by guide outfitters allow for prescribed burning to maintain forage for horses¹³ that are used in their operations. These range tenures are authorized under the *Range Act* by the Range Program and managed under a Memorandum of Understanding (MOU) with BC Parks. The agreement between BC Parks and the Range Program allows for prescribed fires if they are part of a Range Use Plan and are consistent with park values and/or a park management plan.

2.4 Climate Change

The specific effects of climate change on ecosystems and wildlife populations within British Columbia are not understood; however, research indicates that ecological communities will change along elevation and geographic gradients, causing shifts in plant and wildlife composition for given areas. Large, contiguous protected areas are thought to be important to allow for species and population movement and refugia during these times of change. Due to its size and wilderness character, Northern Rocky Mountains Park, and the associated adjacent and proximal provincial protected areas, has the potential to allow for wildlife species and plant communities to respond and adapt to climate change.

A climate change report (2012)¹⁴ for the Muskwa-Kechika Management Area shows that in the future climate will likely be warmer and wetter, with the mean annual temperature increasing by 3°C by 2050. The effects on ecosystems are expected to be extensive:

¹² Vegetation succession can result in less palatable woody vegetation dominating some areas.

¹³ The number of Animal Unit Months (AUMs) for each range tenure in the park is capped at that authorized for the range tenure at time of park establishment.

¹⁴ Yellowstone to Yukon Conservation Initiative. 2012. Muskwa-Kechika Management Area Biodiversity Conservation and Climate Change Assessment, Summary Report. Yellowstone to Yukon Conservation Initiative. Canmore, AB. Canada.

“In an alpine or boreal forest area where the average temperature increases from below to above 0°C, soils will start to warm up, permafrost (if present) will slowly melt, biological productivity will increase, and the vegetation will respond accordingly.”

“As the climate warms, the tree-line on the mountains begins to move up into the shrub belt, and shrubs begin to move up into alpine tundra. The start of this rise in tree-line and loss of alpine can be noticed already in some places. Where the mountains are high enough that the climate will still be too cold for trees and shrubs, alpine tundra ecosystems will persist, although they will be smaller in area. Where the slopes are not high enough, over time the alpine will be replaced by shrubby plants.”

According to the Yellowstone to Yukon Conservation Initiative report, the higher elevation western half of the Northern Rocky Mountains Park is expected to be subject to a small amount of ecological change or upheaval although an 8% decline in alpine areas for the greater Muskwa-Kechika Management Area is predicted by the year 2050. Areas with projected low ecological change *“are potential sanctuaries from climate change for species that use such habitat today”*. The areas predicted for significant amount of ecological change are in the eastern half of the park. Special attention may be required in these areas to maintain habitats that support at-risk ecological communities, plant and animal species, or allow species adaptation and or movement.

2.5 Cultural Values

The cultural heritage role for this park is to enable visitors, local and international, understand the importance of First Nation history and traditional knowledge within the park and surrounding area. Historically and presently, the summer and fall activities of First Nations include the hunting of large and small game, fishing, plant collecting, and the preparation of food for long-term storage for the upcoming winter months.

It is also important that the history and knowledge of early Europeans be appreciated and acknowledged as their history closely relates to current land practices.

2.5.1. First Nations

The Northern Rocky Mountains Park area has a very strong First Nations presence. It is well known that the First Nations people historically traveled throughout the park area, usually from plateaus to mountains and back, due to a lifestyle based on availability of game and other resources and seasonal movements. They were nomadic hunting people who lived in small family groups. A diversity of plants and animals were used for various purposes, ranging from foods to tools to medicine. The ability of the First Nations to cope in the northern Rocky Mountains before European contact required not only an intricate knowledge of resources and geography, but also efficient technology. People were dependent on the resources that the mountains and foothills provided them, and their way of life was entirely based on the land.

There are 56 recognized archaeological sites within the park. Most of the sites contain lithic items¹⁵ from before European contact. The other known sites contain two buildings, two culturally modified trees, human remains and a rock shelter.

The timing and availability of plant and animal resources were critical to the success of the First Nations lifestyle and ultimately their survival. Certain plants, for instance, could only be collected in specific locations, either because of their medicinal strengths or their rarity in the landscape. Some fungi, for example, were collected in the winter to burn for their smell, and as a mosquito repellent later in the year.

Good short-term camp locations were chosen based on the animals and plants in the area, and tended to be placed near creeks and on dry ground. As a consequence of the hunter-gatherer lifestyle that the First Nations enjoyed, their shelters consisted of quickly assembled yet versatile structures. Long-distance travel made up a significant component of First Nations life. Overland trails were important transportation routes with game trails being extensively used, especially to intercept animals. Where land trails occasionally proved impractical, water travel was also carried out by canoe in the late spring to early fall months.

Contact with European explorers and fur traders precipitated a dramatic change in lifestyle of these original inhabitants of the Northern Rocky Mountains Park area. People tended to take on a less nomadic lifestyle as they congregated and settled around forts and trading posts. Today the First Nations people of the area continue to pursue many of the land use activities that their ancestors pursued. As in the past, their present-day way of life is intimately tied to the land and its resources, particularly its wildlife resources. The same transportation routes that were travelled by First Nations people years ago are navigated today by horse, snowmobile and river boat. Recognition of the area's rich history coupled with on-going First Nations' continued use is vital to the effective management and maintenance of this park.

Northern Rocky Mountains Park is partly located in the Kaska Dena traditional use area. Information on Kaska land use and occupancy lists over thirty traditional use sites. These sites were associated with hunting, fishing or camping. Important trails are also documented in this compilation of Kaska land use and occupancy information. From this information, it appears that the Kaska accessed the northern part of the Northern Rocky Mountains Park area from a trail along the present-day route of the Alaska Highway, travelling into the heart of the park along, primarily, the Tetsa River and its tributaries. The northwestern border of the park was accessed by trails along the Racing River, MacDonald Creek, and Wokkash Creek. The southern part of the park was accessed by Kaska from the Kwadacha (Fort Ware) area, along the Kwadacha River and across Bedaux Pass to the headwaters of the Muskwa River.

¹⁵ Lithic items include anything made from stone.

2.5.2. Early Europeans

Early European use in the park primarily consisted of trapping, fur-trading, guiding, packing and hunting; all of these activities continue today. Horse-supported geologic survey expeditions were common in the pre-helicopter era, and were important in establishing early routes and increasing the general knowledge of the area.

American botanist Mary Henry first traveled through and explored the area of the park in 1931. She was the first person to catalogue plants in northeastern British Columbia and her party contributed greatly to the mapping of this uncharted area. A mountain in the park bearing her name (Mount Mary Henry, located south of Mile 390 of the Alaska Highway) recognizes the important contribution she made to the early exploration of northeastern British Columbia.

Knox McCusker, who surveyed the Peace River Block for the Dominion of Canada, was Mary Henry's guide, outfitter and topographer. "Mac" McCusker was an important person in the history of this park. Like all early travelers, McCusker followed First Nations' traditional routes and trails that had been in use for hundreds of years throughout the area. The first white traders, trappers and guide outfitters also used these trails. Before McCusker surveyed the topography on the 1931 Henry expedition, the region north of the Prophet River was uncharted and Mary Henry referred to it as the "blind spot" of Canada, in the *National Horticultural Magazine* (October 1934).

In 1934, Charles Bedaux led an expedition through the park along the Muskwa River in an attempt to establish an east-west route through the northern Rocky Mountains; the historical "High Trail." Since the 1930s, packers¹⁶ and guide outfitters have conducted commercial big game hunting operations in the park. These operators played an important role in shaping human use patterns of the northern Rocky Mountains. Mount Peck and Mount Gary Powell reflect this history and pay tribute to two of the pioneer guides in this park, Don Peck and Gary Powell.

Trapping was very important in the Northern Rocky Mountains Park area, as reflected in the naming of Mount Sheffield. Bert Sheffield trapped along the Muskwa River and up to the Tuchodi Lakes. He and his brother were convicted of the Great Fur Robbery at Old Fort Nelson in 1936 (i.e., the robbing of the Hudson's Bay Post). This colourful history, while not necessarily indicative of the area's inhabitants, helps illustrate the prominence of trapping in northern British Columbia's history.¹⁷

On March 9, 1942, construction of the famed Alaska Highway commenced. Long considered one of the construction achievements of the world, the Alaska Highway had a large impact on access to the area in and around the park. The construction of the highway was started as a wartime measure designed to provide a land route for war supplies and equipment to Alaska from the Canadian provinces and the American states.

¹⁶ Packers are now referred to as transporters, and are required to be licenced.

¹⁷ BC Geographical Names Information System, <http://apps.gov.bc.ca/pub/bcgnws/names/20250.html>.

2.6 Recreation Values

Northern Rocky Mountains Park area is popular for local recreationalists and for people from other parts of British Columbia and Canada, and also attracts international visitors. Historically, visitation to the park has been based on hunting and the provision of hunting services. Though hunting is expected to remain very important to the local economy, other recreational activities other than hunting such as horse trips and hiking are increasing.



Figure 7: Hiking in the Alpine

2.6.1. Recreational Opportunities

Northern Rocky Mountains Park provides many opportunities for wilderness recreation. The most popular activities include hunting, fishing, horseback trips, hiking, camping, boating, climbing, canoeing, photography, snowmobiling, and wildlife and scenic viewing. Mountain biking has traditionally not been a popular recreation activity in the park but may become more popular in the future.

2.6.2. Facilities

Lodges, cabins and sheds of commercial operators are the main type of facilities that exist in the park. Smaller structures such as pit toilets and food caches also exist; however, such facilities are infrequent. Commercial operators have established camps they use regularly as part of their operations. In areas that have facilities, these generally function as the main base camp (base of operations) or satellite camps (annual or seasonal use secondary camps). In areas that have minimal facilities, but no buildings, spike camps are often established (short-term, low impact camps). Hunters and other visitors may also establish camps to use as a base for their recreational activity.

2.6.3. Camping

Wilderness style (no facilities) camping occurs in a number of undesignated sites throughout the park. Public usage is generally confined to consistent areas; while not considered designated sites, these areas show disturbance from overnight use and exhibit noticeable impacts such as vegetation loss, loss of the organic litter layer and exposure of mineral soil. Camping also occurs sporadically in a number of other locations, however, in these areas impacts and signs of use are minimal due to the infrequency of use. There are approximately 110 undesignated camping spots throughout the park that are frequently used by the public; however, an inventory has not been completed.

2.6.4. Hiking

The numerous routes or trails in the park that were developed before the park was established are not maintained by BC Parks. Multiple-day and week-long hiking, hunting, and horse excursions are possible using the network of primitive routes, cross-country travel and dispersed undesignated campsites. The Wokkpash to MacDonald Creek 70-kilometre circle route is a spectacular five to seven day wilderness trip for backcountry adventurers that traverse the Wokkpash area of this park and Stone Mountain Park.

2.6.5. Snowmobiling

The park has traditionally not been widely used by snowmobiles except around the lower Gathto/Kluachesi area and along the Wokkpash Valley Trail. The majority of snowmobile access is gained from the Alaska Highway corridor, but there is also limited use along the eastern boundary and in the southeast corner via Bat Creek. Recently, snowmobiling activity has been increasing and is advancing further into the backcountry.

2.6.6. Boat Access

Much of the private recreational boating activity in the park is done with jet-boat. Jet-boats are a popular way to access the park for both hunters and non-hunters alike.

2.6.7. Canoeing

Two canoe or rafting trips are possible, down the Tuchodi and Muskwa rivers from Tuchodi Lakes, and Muskwa River from below the upper canyon. Both trips require air access and end at the Kledo Creek boat launch along the Alaska Highway.

3.0 Management Direction

3.1 Management Objectives and Strategies

This management plan addresses a number of issues identified through previous provincial land use planning processes and through consultation with other government agencies, First Nations, user groups, and the public. There are significant gaps in the information and understanding of ecosystems and values management in the park. Over

the last decade, much of the management effort has been directed to managing human use. An increased focus on ecosystem-based management and associated strategies is needed and existing knowledge gaps need to be filled.

3.1.1. Ecosystem Management and Climate Change

Ecosystem management needs within the Northern Rocky Mountains Park include: identifying species and ecosystem management priorities and conservation actions; cooperative management initiatives with surrounding land management agencies, First Nations and local government; and biological assessment and long-term monitoring that track the effects of human activity and climate change. Without this information, park managers will be unaware of such effects and may well forgo options to avoid irreversible impacts such as the loss of species.

Ecosystem management approaches typically aim at sustaining representative ecosystems and species, but may be thwarted by the effects of climate change (e.g., changes in precipitation levels, air temperature, etc.) which can alter the ecology of an area. Such effects may be subtle, but more dramatic natural disturbances such as wildfire, insects and disease are likely to increase in frequency or severity. With the ongoing effects of human land use activities outside the park already applying pressure on both rare and representative species and ecosystems, park managers may have to decide to what extent climate change effects can or should be evaluated or addressed within the park in order to help natural systems adjust or to support species that might otherwise be naturally extirpated.

The most consistently recommended approach for adapting to climate change is to maintain natural connectivity across the landscape. Northern Rocky Mountains Park is large but is not a closed ecosystem and so it relies on the movement of species across its borders, particularly during times of rapid change such as is currently being experienced. Working with adjacent land managers to maintain connectivity across the landscape is one of the most important actions that can be taken.

Management Objective	Management Strategies
<p>To protect and conserve the landscapes, representative ecosystems and values that makes this park unique.</p>	<ul style="list-style-type: none"> • Develop and apply an ecosystem management strategy that includes the major ecosystem components of vegetation, fish and wildlife and natural processes such as fire, insects, diseases, pollination and evolution. • Ensure impacts from human activities are constrained to traditional use areas of the parks. Ongoing monitoring and the implementation of appropriate mitigative or restorative measures at sites showing degradation may be required to conserve park values.

Management Objective	Management Strategies
To increase public awareness of the ecosystem and features of special concern in the park.	<ul style="list-style-type: none"> • Prepare educational information that can be viewed on the internet or distributed through brochures or information shelters.
To increase knowledge of ecological components and processes and an understanding of their response to climate change.	<ul style="list-style-type: none"> • Determine potential effects of climate change on park weather, hydrology, vegetation, fish and wildlife. • Determine appropriate actions for managing climate change impacts. • Encourage research/monitoring of climate change and the effects on park and protected area values and ecosystem functioning. • Work with First Nations communities, community groups and/or educational institutions to encourage participation in the BC Parks Long-term Ecological Monitoring (LTEM) Program aimed at understanding how the plant communities will evolve in response to environmental changes.
Mitigate or lessen the effects of climate change on the park and its values.	<ul style="list-style-type: none"> • Work with land managers of adjacent areas to maintain connectivity across the landscape to allow for species movement. • Consider climate change research, including the enduring features approach¹⁸, when making long-term strategic or management decisions.

3.1.2. Water

The park is a significant source of freshwater. Ensuring the protection of the watersheds and other high quality water values in the park is important. Recreational activity on water bodies is the main use that could affect water quality inside the park. Management strategies need to avoid any wide spread impacts such as water pollution, and human-caused erosion and sedimentation.

Management Objective	Management Strategies
To protect and maintain water quality.	<ul style="list-style-type: none"> • Encourage safe and responsible fuel storage and re-fuelling practices.

¹⁸ The enduring features approach identifies areas of high physical variety and rarity. This approach uses elevation, bedrock and geology, macro landforms and major aquatic elements, which are the foundations on which ecosystems are built as well as other gauges including productivity and feature rarity. For more information visit the Yellowstone to Yukon Conservation Initiative's website here: https://y2y.net/publications/technical-reports/MK_MainReport_2pg_web.pdf

Management Objective	Management Strategies
	<ul style="list-style-type: none"> • Provide the public with information on minimizing impacts to water quality in the backcountry through the Leave No Trace section on the BC Parks website and through signage at access points. • Encourage research and monitoring activities focused on water quality to aid in determining impacts from either point source or non-point source contaminants, particularly in higher use recreation areas. • Allow small scale water diversion (such as a small pump) to enable commercial operators to provide a water supply to base camps within their operating season.

3.1.3. Vegetation

The ecosystems of Northern Rocky Mountains Park have not been mapped; ecosystem mapping would be the basis of increasing the knowledge of at-risk ecosystems and wildlife habitat inventories. In addition, little is known about at-risk plant species in the park.

Areas of Northern Rocky Mountains Park that are more readily accessible to the public are considered to be at greater risk when it comes to potential damage to vegetation.

- During peak visitation seasons (e.g., hunting season), impacts to vegetation from camping occur in new areas because existing sites are being used to full capacity.
- In the vicinity of camping areas, damage to surrounding vegetation occurs as timber is illegally harvested for firewood¹⁹.
- While not currently a known issue in Northern Rocky Mountains Park, the establishment of invasive plant populations along travel corridors is an increasing risk in northeastern British Columbia.

Additionally, impacts to vegetation from recreation activities in areas that are not easily accessed are unknown. Possible impacts to sensitive areas (i.e., alpine or sub-alpine areas and blue or red-listed species) are of particular concern.

Management Objective	Management Strategies
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¹⁹ The Park, Conservancy and Recreation Area Regulation regulates that backcountry park visitors may only use vegetation that is lying dead on the ground to start fires.

Management Objective	Management Strategies
<p>Maintain vegetation and ecosystem for ecological integrity and visual aesthetics.</p>	<ul style="list-style-type: none"> • Conduct inspections of camping areas to ensure firewood is being obtained in accordance with park regulations (e.g., only dead wood laying on the ground can be used for fires). Consider information and educational signage if needed. • Avoid locations containing at-risk species and ecological communities when doing any future developments. • Prevent damage to riparian vegetation by encouraging horse users to adhere to the horse riders’ backcountry ethics that have been developed for the park, which advocates resting horses away from the water’s edge²⁰.
<p>Increase knowledge of ecosystems and protect at-risk plant communities and species.</p>	<ul style="list-style-type: none"> • Work with First Nations communities, other ministries, community groups and/or educational institutions to support vegetation inventories and studies aimed at better understanding the distribution of plant species and ecosystems and their ecology; including how they will respond to environmental changes such as climate change. • Work with First Nations communities, other ministries, community groups and/or educational institutions to collect information on the vegetation in the park to better understand how vegetation is changing in response to climate change (e.g., use the BC Parks Long-term Ecological Monitoring Program). • Develop partnerships to monitor activities occurring in areas containing known at-risk plant species to assess their potential negative impacts, including alpine areas. When impacts occur, communicate concerns to relevant parties through outreach and consider special permit provisions as necessary. • Where required, implement Species at Risk recovery plan strategies within park boundaries for red- and blue-listed

²⁰ For guidance on Horse Riders Backcountry Ethics, visit <http://www.env.gov.bc.ca/bcparks/explore/parkpgs/redfern/trails.html#ethics>

Management Objective	Management Strategies
	species and ecosystems.
To prevent the establishment or spread of non-native plant species.	<ul style="list-style-type: none"> Encourage commercial operators and park visitors to adhere to BC Parks Invasive Plant Best Management Practices²¹. Encourage commercial operators and park visitors to report occurrences of invasive plant species. In the event of invasive plant species establishment, review management actions and explore treatment options²².

3.1.4. Wildlife

The park plays a critical role in maintaining wildlife habitat and movement corridors, and sustaining wildlife populations in the northern Rocky Mountains. The remoteness of Northern Rocky Mountains Park presents challenges in determining wildlife abundance, key wildlife habitat locations, engaging in regular regulation enforcement and effectiveness monitoring of wildlife management techniques.

There are a number of red- and blue-listed mammal and bird species found in the park, but developing effective management may be limited by the lack of information on these species in the park.

The Northern Mountain population of Caribou is blue-listed, and the Muskwa and Pink Mountain subpopulations may be declining. Caribou is susceptible to threats such as habitat loss and alteration, altered predator/prey dynamics and disturbance throughout their range. Habitat management activities that reduce old and mature forests, and change predator/prey dynamics²³, can enhance habitat for other ungulate species and may negatively impact Caribou.

Trapping has been an important traditional use in the park especially amongst First Nations communities, where traplines are often held by families. The Fort Nelson Land and Resource Management Plan recommended that trapping continue in its present form.

Many activities that park visitors pursue are integrally tied to the area's abundance and variety of wildlife, such as hunting, trapping and nature appreciation.

Management Objective	Management Strategies
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²¹Best management practices for invasive plants in Parks and Protected Areas in BC
<http://www.env.gov.bc.ca/bcparks/conservation/docs/iscbc-bc-parks-bmp-20180412.pdf>

²² The use of herbicides in parks is only considered if there is no alternative treatment that has proven to be successful and if there is a significant threat to the ecological integrity of the park, as well as the surrounding area.

²³ The report "Role of Protected Areas in Caribou Management in British Columbia" gives details of the issues surrounding Caribou management, with recommendations for Caribou management in the protected area system.

Management Objective	Management Strategies
<p>To gain a better understanding of wildlife populations, distributions and habitats.</p>	<ul style="list-style-type: none"> • Work with First Nations communities, other ministries, community groups and/or educational institutions to conduct wildlife inventories and studies aimed at better understanding species' needs; including how the wildlife composition will evolve in response to environmental changes such as climate change. • Work with the Ministry responsible for wildlife management to identify and map Caribou habitat (e.g.: calving areas and early summer range) and matrix habitat and investigate the need for measures to maintain this habitat. • Work with the Ministry responsible for wildlife management to assess Mountain Goat and Stone's Sheep population size and determine distribution of Mountain Goat and Stone's Sheep habitat, especially winter and kidding areas. • Where possible and feasible, work with partners and other government agencies to inventory Species at Risk and implement recovery plan strategies within park boundaries for red- and blue-listed species. • Work with partners and other government agencies to identify and map locations of listed or significant species. Focus initially on areas that could be potentially negatively impacted by recreational activities (e.g. horse grazing). Should negative impacts occur, develop and implement a plan, in coordination with the relevant partners. • Recommend the use of the BC Conservation Data Centre Data Submission process to collect informal wildlife information from First Nations, commercial operators and other park visitors²⁴. • Follow the Muskwa-Kechika Management Area wildlife management plan (two documents) (http://www.muskwa-kechika.com/management-area/legislation-planning) to guide wildlife management decisions within the park. BC Parks will only deviate from the guidelines when it is deemed necessary for conservation purposes. • Work with First Nations, resource managers and other groups to ensure adjacent land use decisions include

²⁴ <http://www.env.gov.bc.ca/cdc/contribute.html>

Management Objective	Management Strategies
	consideration of park values.
Prevent impacts of non-native species to native wildlife populations and their habitats.	<ul style="list-style-type: none"> To protect native species from competition or disease introductions, llamas and other exotic animals are not permitted within the park; only horses are permitted.
Manage habitat values for all species, with a priority on at-risk species	<ul style="list-style-type: none"> Consider the impacts of management and recreational activities on all wildlife species and their habitat; should negative impacts to species or their habitat occur, modify or limit activities as necessary.
Ensure that all uses are managed to maintain healthy wildlife populations and minimize disturbance to the ecosystem.	<ul style="list-style-type: none"> Continue to ensure the ministry responsible for wildlife management maintains appropriate harvest levels. Work with hunters, guides, First Nations, and special interest groups to monitor use impacts from hunting, to collect data, and to identify and address concerns.
Maintain current trapping opportunities subject to conservation objectives.	<ul style="list-style-type: none"> Monitor trapping harvest to ensure conservation objectives are met.

3.1.5. Fish

The lakes and streams in the park are generally sensitive to over-harvesting and changes in habitat and it will be very important to manage fish populations and habitat carefully, especially the blue-listed Bull Trout. Stocking of lakes has taken place historically in several areas in the park with a varying degree of angling enhancement success.

Management Objective	Management Strategies
To increase knowledge and understanding of fish populations, especially those that are potentially vulnerable to over-fishing.	<ul style="list-style-type: none"> Work with First Nations communities, other ministries, community groups and/or educational institutions to support fish inventories and studies aimed at better understanding species' needs; including how fish will respond to environmental changes such as climate change. Conduct assessments of the Bull Trout to gather more information on spawning locations and population status.
Protect and maintain the natural diversity and productivity of aquatic ecosystems while maintaining a low intensity high quality fishery in designated areas	<ul style="list-style-type: none"> Monitor and assess angling use levels for water bodies and consider angling restrictions if use levels are determined to be impacting the fish populations. Ensure no fish stocking occurs.

Management Objective	Management Strategies
of the park.	<ul style="list-style-type: none"> • Monitor the effects of jetboat usage on Bull Trout and consider restrictions if use levels are determined to be impacting the fish populations. • Provide information to the public and other parties interested in managing fish and their habitat in the park to build understanding of fisheries issues.

3.1.6. Cultural Values

There are significant First Nation’s interests and cultural values in Northern Rocky Mountains Park that are reflected in management strategies for cultural values.

Some information relating to traditional land use sites within the Northern Rocky Mountains Park area by the Kaska Dena First Nation is available but is mostly lacking for Treaty 8 First Nations. Information from land use studies conducted in the park will be considered when making management decisions. BC Parks will work with First Nations to ensure appropriate use and confidentiality of shared information.

Management Objective	Management Strategies
To gain a better understanding of and protect cultural features, archaeological sites and traditional use locations.	<ul style="list-style-type: none"> • Encourage efforts to conduct historical and ethnographic research and cultural heritage field inventories as appropriate. • Identify threats to known cultural values, and support and implement protective measures in partnership with First Nations.
To promote stewardship of social, ceremonial and cultural values/uses and interests of the Kaska and Treaty 8 First Nations in the park.	<ul style="list-style-type: none"> • Encourage integration of First Nations language in the park. This may include: <ul style="list-style-type: none"> ○ Identification by First Nations where First Nations place names can be applied; ○ First Nations language on maps, other publications and interpretive material as appropriate. • Encourage and investigate opportunities to develop cultural interpretive material for the park. • Retain opportunities for First Nations traditional, sustenance and harvesting activities. • Incorporate traditional knowledge into park management.
To encourage cultural and First Nations tourism activities in the park.	<ul style="list-style-type: none"> • Encourage commercial recreation operators to establish working relationships with the First Nations and seek opportunities for mutual benefits. • Encourage discussions with First Nations regarding the

Management Objective	Management Strategies
	development of appropriate cultural tourism activities.

3.1.7. Access Management

Managing access is the single most effective means of retaining the isolation and wilderness quality of the park. Access management outside of the park should consider the park zoning, experiences and levels of use envisioned for the park. The Fort Nelson Land and Resource Management Plan recommended that recreational use should be managed in a way that recognizes unique historical use patterns, traditional access and that the *status quo* remains.

River and Lake Transportation:

BC Parks recognizes the presence of commercial river transportation (e.g. jet boating, rafting); however, in the future should over-use become an issue, BC Parks will consider limiting commercial use. The Fort Nelson Land and Resource Management Plan recommended no motorized boat access above Tuchodi Lakes.

Trail Promotion:

There is concern over the appropriate level of route development in the park. To reflect the vision for the park, there will not be any targeted promotion by BC Parks of the routes in the park. The exception is the Wokkpash-MacDonald Creek 70-kilometre circle route which has been, and will continue to be promoted.

Trail Maintenance:

BC Parks will not upgrade any existing route or formalized trails, except in the instances where safety and environmental issues (i.e. avoidance of sensitive areas for wildlife, vegetation, and soils) prompt development to protect these values. For the Wokkpash Valley Trail, maintenance will be prioritized based on use levels, safety, and trail condition. For any secondary trails, BC Parks will not conduct trail maintenance. BC Parks will endeavour to partner with groups to complete trail maintenance on primary formalized trails (e.g. Wokkpash Loop), and will be selective when approving volunteer groups to maintain secondary trails (e.g. horse trails).

Other Uses:

The use of ATVs is not allowed except where permitted by park use permit for localized commercial use by some guide outfitters within a designated area around their base camp to haul supplies. The use of aircraft within the boundaries of the park needs to consider historical patterns of recreational access and use as identified in the LRMP. Commercial helicopter access will be considered under a park use permit in the Nature Recreation Zone.

Management Objective	Management Strategies
<p>To ensure means of access is consistent with traditional uses and conserves wilderness characteristics.</p>	<ul style="list-style-type: none"> • Maintain low-impact traditional access methods (e.g. hiking trails). • Continue to only promote the Wokkpash-MacDonald Creek 70-kilometre circle route. • Prohibit road development, and additional route development in the park. • Road development may be considered in Northern Rocky Mountains Protected Area directly adjacent to the existing Alaska highway. • Prohibit ATV use in the park except for localized commercial use for holders as specified in a valid park use permit.
<p>To minimize the impacts of riverboats and other motorized water transportation activities on wilderness recreation and ecological integrity.</p>	<ul style="list-style-type: none"> • Monitor and evaluate historic and current levels of riverboat use and anticipate future demands of riverboat use in the park. • Encourage boats to not go above Tuchodi Lakes through appropriate signage. • Apply for a permanent motorized closure through the Vessel Operation Restriction Regulation under the <i>Canada Shipping Act, 2001</i> should voluntary measures prove inadequate in managing riverboat usage.
<p>To provide opportunities for aircraft access to the park while preserving a quality backcountry experience and minimizing wildlife conflicts.</p>	<ul style="list-style-type: none"> • Prohibit new or expanded airstrips except where required for environmental or safety reasons. • Prohibit cutting of live trees for helipad construction. • The landing of aircraft is strongly discouraged on high altitude plateaus due to potential conflicts with wildlife values. • If conflicts are identified, develop flight guidelines (fixed wing/helicopter) to address specific wildlife concerns (i.e., Mountain Goat or Caribou issues). These conditions can be incorporated into park use permit considerations and shared for voluntary implementation by private operators. • New methods of air access will not be allowed.

3.1.8. Recreation Management

The management intent is to continue to provide similar recreational opportunities and experiences to those that existed at the time the park was established and that have

low impact on the pristine mountain environment. Trails, camping and hunting are key activities in the park requiring management consideration.

Camping:

Most camping in the park is widely dispersed, however at certain times it can be concentrated. For example, during the peak of hunting season the numerous backcountry campsites along the Tuchodi River are used to full capacity.

Currently, camping is low impact. If use increases, BC Parks will need to consider establishing specific sites to prevent the establishment of new camping areas. While structures like toilets and fire pits may not seem appropriate to some in a wilderness area, they may be needed in certain areas to confine impacts and minimize excessive site degradation. In areas of higher use, visitors will be encouraged to use frequently used campsites. Campsites that conflict with known sensitive sites for wildlife may require relocation or need to be eliminated or closed during certain times of the year.

Wall tents are widely used by park visitors but are not considered permanent structures by BC Parks; the methods used by some visitors using wall tents are a concern for BC Parks. In these cases, wall tents have been erected in mid- to late summer in order to secure a camping spot for the upcoming hunting season. Similarly, food caches, intended for the storing and protection of meat and other foods or goods, need to be temporary; an exception may apply where they are associated with a cabin or facility, authorized by park use permit.

Impacts to Values:

The parks wilderness values and wildlife, including Mountain Goats and Caribou, are vulnerable to impact from recreational use and visitors. Visitors are likewise vulnerable to wildlife conflicts with species such as Grizzly Bears. Management strategies are needed to ensure safe and low impact recreation.

Recreational activity can have a negative impact on natural and cultural values. For example, recreational activities can displace wildlife from habitat areas, and have significant impacts to land and vegetation around campsites due to full capacity use during peak periods. Caribou that are displaced from preferred calving areas could be displaced into areas with a greater risk of mortality for both calves and adults.

Horse Use:

Horses have been a traditional method of transportation. Horse use will be managed to maximize recreation enjoyment and avoid wildlife conflicts, while not degrading park values.

Trails and camps for horse users need to remain rustic in nature. There may need to be site specific restrictions and conditions developed for high-use areas in order to minimize social and environmental impacts.

Snowmobiling:

Snowmobiling is becoming an increasingly popular winter activity in the park and is moving into areas previously not used by snowmobilers. Packed trails on snow can facilitate access by wolves by easing travel conditions. This can lead to increased predation if the trails are close to Caribou and Mountain Goat winter ranges.

Management Objective	Management Strategies
<p>To provide a high quality experience for visitors to the park while maintaining the sense of remoteness and naturalness, freedom to choose where to travel, and self-reliance dependent on personal abilities.</p>	<ul style="list-style-type: none"> • Conduct Backcountry Recreation Impact Monitoring (BRIM) and adjust management actions to ensure natural and cultural values are not being compromised by recreation use levels, particularly during peak season. The BRIM process will be used to determine the need and location of new backcountry camping areas. • Management decisions will reflect the low, dispersed levels of visitor use, and facilities will only be installed where use levels require them. • Promote the “leave no trace” wilderness ethic for public lands to reduce site impacts including the proper use of wall tents and design of food caches. An adapted version specifically geared towards horse users is available²⁵. • Allow horses on existing trails and throughout the park unless prohibited in certain areas to protect other important values. (e.g., sensitive habitats). • Allow new recreation activities to occur only if compatible with the park vision. • Educate visitors about minimum impact camping and backcountry wilderness ethics at all sites in the park to avoid site degradation and minimize human-wildlife conflicts. • Follow BC Parks guidelines for Unmanned Air Vehicles (UAV) authorization and use.
<p>To ensure wildlife are not adversely affected by recreational use.</p>	<ul style="list-style-type: none"> • Ensure there are no recreational activities in Caribou calving areas during the calving season and early summer (May 15 to July 15 at present). • Enforce zoning restrictions (e.g., snowmobile restrictions). • Where impacts upon wildlife are observed, adopt proven management strategies to reduce human impacts on high value wildlife species.
<p>To increase public awareness of</p>	<ul style="list-style-type: none"> • Share information on special features and values through

²⁵ To view Horse Riders’ Backcountry Ethics visit <http://www.env.gov.bc.ca/bcparks/explore/parkpgs/redfern/trails.html#ethics>.

Management Objective	Management Strategies
park features and areas of special concern in order to avoid unintended impacts to park values.	trail information shelters and through the BC Parks website.
To provide for snowmobiling opportunities while preserving a quality backcountry experience and minimizing wildlife conflicts.	<ul style="list-style-type: none"> • Apply temporary recreational snowmobiling closures for the protection of wildlife in extreme winter conditions (e.g., extreme cold, deep snow crusting). If areas of ongoing conflict are identified, BC Parks will consider permanent site specific closures (e.g., disturbance to key winter habitats). • Consistent with caribou elevation closures on adjacent crown land, snowmobiling use is not allowed above 1400m elevation. • Allow snowmobiling use in the Nature Recreation Zone (below 1400 meter elevation). • Snowmobiling that is used to access established traplines will be allowed in all zones (below 1400 meter elevation). • Enforce zoning and trail restrictions (e.g., do not allow ATV and snowmobile access to the Wilderness Recreation Zone, Special Feature Zone or above 1400 meters). Provide educational signage on snowmobiling practices at key locations (e.g., trailheads). • Educate winter users of the potential avalanche hazard and recommend that individuals have avalanche awareness training to travel in the park. • Prohibit snowmobile competitions or commercial recreation snowmobile tours and extreme snowmobiling, (i.e., repetitive hill climbs).

3.1.9. Fire Management

Prescribed fire has been used in the park by guide outfitters, First Nations and government to enhance wildlife habitat and to maintain forage for range purposes. The Fort Nelson Land and Resource Management Plan directs that prescribed fire be *“allowed subject to the (protected area) management plan”* with the comment *“only for expressed management purposes as defined by a protected area management plan”*. It also states for ecosystem and habitat enhancement that the use of fire be *“allowed subject to the (protected area) management plan”*.

The Muskwa-Kechika wildlife management plan gives management direction that habitat “*should be managed within the natural range of variability*”,²⁶ while also giving direction that prescribed fire be used in key habitats to maintain early seral grass or shrub areas for Stone’s Sheep, Moose and Elk.

The agreement between BC Parks and the Range Program permits prescribed burning if it is part of a Range Use Plan and is consistent with park values and/or a park management plan. It is recognized by BC Parks that both wildlife and horses may use burned areas, but plans used to manage prescribed fire need to be clear on the purpose of the burn.

The continuation of prescribed fire to enhance wildlife habitat presents a challenge for BC Parks as generally BC Parks’ conservation policies preclude the use of prescribed fire to enhance wildlife habitat²⁷. Also, it is difficult to determine the natural range of variability of wildfire and the ecological conditions produced by wildfire, and then manage within this natural range. The use of prescribed fire may push ecosystems outside the natural range of variability for fire. With climate change predictions forecasting warmer drier summers for the park area, wildfire frequency may increase and post-fire vegetation dynamics may also change.

Management Objective	Management Strategies
Use fire as appropriate to manage wildlife habitat considering the impacts and benefits to all wildlife species.	<ul style="list-style-type: none"> • Work with other agencies, First Nations, academia, relevant stakeholders and local community groups to continue to research the appropriateness of prescribed burning to enhance wildlife habitat. • Do not use prescribed fire to create additional early seral habitat for ungulates. • Ensure proposed prescribed burns for wildlife habitat enhancement are assessed using the BC Parks Impact Assessment process.
Work collaboratively with the Range Program to manage <i>Range Act</i> tenures.	<ul style="list-style-type: none"> • Ensure the Memorandum of Understanding (MOU) for Administering and Managing <i>Range Act</i> Agreements in Parks and Protected Areas, and the Policy and Guidance of the MOU are followed. • Work with range tenure holders and ministry staff responsible for range management to ensure range use is in alignment with maintaining healthy ecosystems that have a disturbance regime that closely mimics natural disturbance regimes in terms of frequency and severity of

²⁶ The Muskwa-Kechika Wildlife Management Plan defines Natural Range of Variability as “the range of variability in ecological conditions that occurred before European settlement”.

²⁷ BC Parks conservation policies support the use of prescribed fire to mimic historic natural return intervals within specific ecosystems.

Management Objective	Management Strategies
	<p>disturbance.</p> <ul style="list-style-type: none"> • Ensure range management activities are consistent with the forage requirements of the livestock in the tenure.
Information on the results of fire management activities is collected.	<ul style="list-style-type: none"> • Ensure monitoring is done to determine if management activities are meeting their goals and to determine the effects of management activities on ecosystems and wildlife.

3.1.10. Commercial Recreation Management

Continuation of commercial recreation opportunities is very important as it allows for a different park experience and type of park visitors. Primarily, these park visitors value a remote wilderness hunting and/or fishing experience. Maintaining the existing commercial recreation opportunities was supported by the Fort Nelson Land and Resource Management Plan.

The Fort Nelson Land and Resource Management Plan directed that BC Parks allow commercial operators to expand their holdings and operations within the existing provincial parks, including expansion of lodges within provincial parks if such an expansion is feasible. Avoiding duplication of existing commercial operations in and adjacent to the park was also a recommendation from the Fort Nelson Land and Resource Management Plan.

Management Objective	Management Strategies
To maintain commercial recreation opportunities within the park.	<ul style="list-style-type: none"> • Work with provincial tourism agencies and recreation operators to ensure marketing and promotion is consistent with the vision for the park and this management plan. • Work with commercial operators to ensure sensitive animal and plant species, sites and features are not placed at undue risk due from use (i.e., sensitive wildlife areas, ecologically sensitive areas, and/or cultural sites).
To ensure commercial backcountry recreation is consistent with the objectives and strategies of the Fort Nelson Land and Resource Management Plan ²⁸ , while maintaining a balance with public recreation and conservation.	<ul style="list-style-type: none"> • Inventory existing and potential commercial backcountry recreation opportunities to guide the allocation of additional permitted opportunities ensuring activities are consistent with BC Parks assessment of: <ul style="list-style-type: none"> ○ acceptable limits of use; ○ environmental sustainability; ○ greatest benefit to local community, region and province; ○ equitable forage allocation between commercial and

²⁸ See the Fort Nelson Land and Resource Management Plan.

Management Objective	Management Strategies
	<ul style="list-style-type: none"> non-commercial use; and ○ equitable allocation of suitable campsites.
<p>To manage facility development within the park to meet conservation objectives while considering the needs of park use permit holders</p>	<ul style="list-style-type: none"> ● BC Parks will encourage the use of alternative energy such as solar and wind provided the siting is unobtrusive and does not detract from the recreational experience. ● Changes to existing facilities for new or improved commercial recreational activities will be guided by the above factors and: <ul style="list-style-type: none"> ○ Will occur on the existing site and be of similar size and style to other facilities in the park; ○ Can be considered for increased client use with different and more varied recreation activities; ○ Must provide a similar type of experience compared to what existed previously; and ○ Must be consistent with wilderness and wildlife values of the park and the greater Muskwa-Kechika Management Area.

3.2 Zoning Plan

In general terms, a zoning plan divides a park into logical management units within which certain activities/uses are permitted and a particular set of management objectives apply. Zoning is often used to physically separate incompatible activities or uses within the park and provides visitors and managers with a quick visual representation and appreciation of how a particular park is managed. Zones are designed to reflect the physical environment, existing patterns of use and the desired level of management and development in a given management unit. Appendix A contains an allowable use matrix that covers activities, use and facilities in each zone.

The Northern Rocky Mountains Park is divided into three zones: Wilderness Recreation Zone, Nature Recreation Zone and Special Feature Zone (Figure). Northern Rocky Mountains Protected Area is zoned as Nature Recreation Zone.

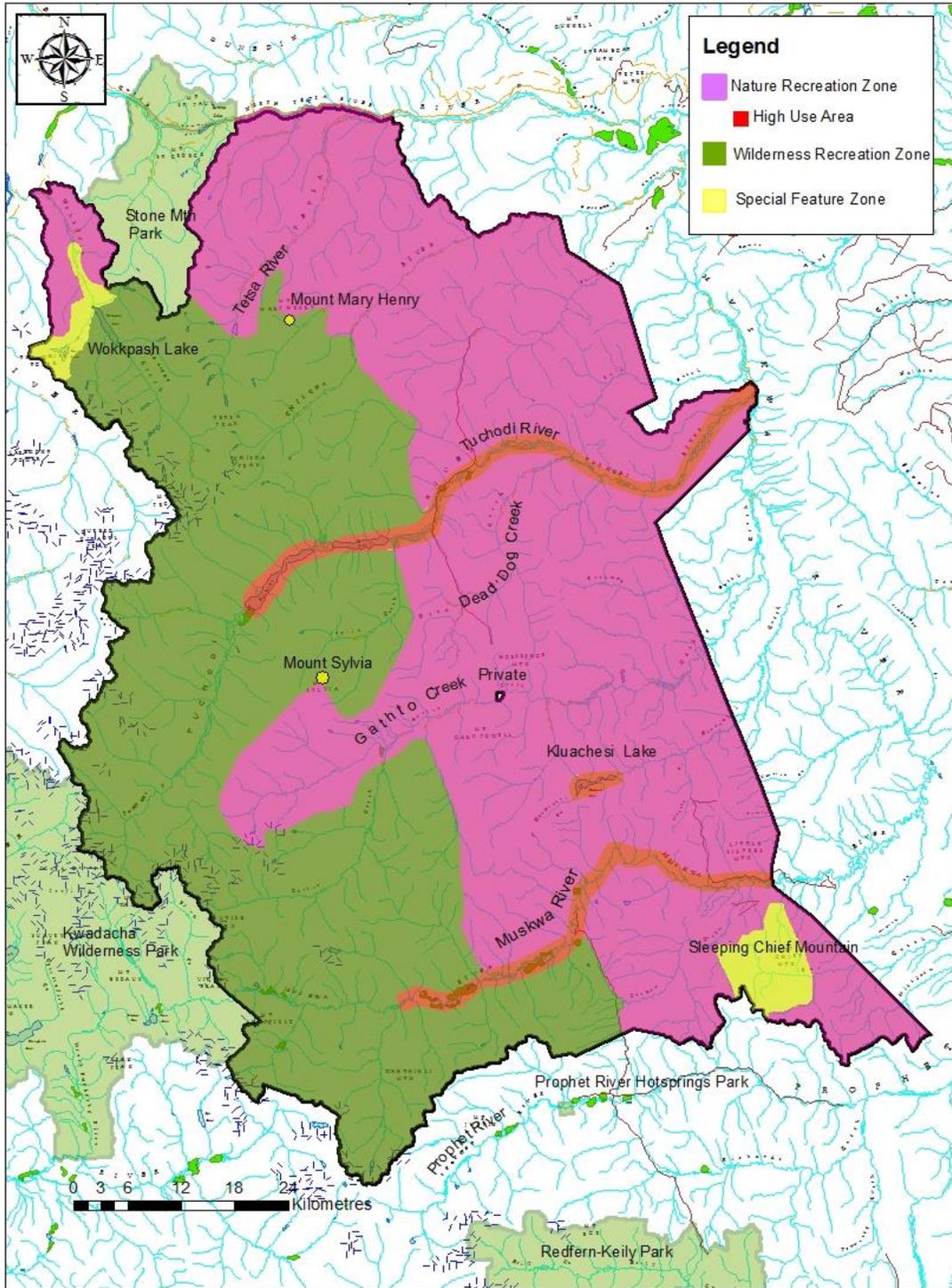


Figure 8: Northern Rocky Mountains Park Zoning Map

3.2.1. Wilderness Recreation Zone

Zone Description

The Wilderness Recreation Zone covers most of the western side of the park, from its southern boundary to the lower reaches of Wokkpash River. This zone includes the headwaters of the Muskwa, Tuchodi, Chischa and Tetsa rivers, as well as Kluachesi Creek and Wokkpash Lake. This zone is very pristine and remote, and mainly consists of high alpine and precipitous cliff habitats, as well as several small glaciers. It provides park visitors with a superb wilderness experience, generally free from artificial noise and light pollution. Traversing the land and waters within this zone will take the visitor to an experience similar to what existed centuries ago.

The Wilderness Recreation Zone covers 277,653 hectares which represents 41.6% of the park area.

Objectives and Management Intent

The objective of this zone is to protect a remote, largely undisturbed natural landscape and to provide backcountry recreation opportunities dependent on a wilderness environment where low frequency air access will be permitted to existing airstrips and traditional float-plane landing locations. The management intent is to allow a range of recreational opportunities in this zone including: backpacking, canoeing, kayaking, river rafting, nature and historic appreciation, hunting, fishing, cross-country skiing, camping, snowshoeing, horseback riding and specialised activities (e.g., caving, climbing). The only motorized uses permitted in this zone are: fixed wing aircraft and rotary aircraft for permitted management purposes and snowmobiling for trapping purposes (below 1400 meters).

3.2.2. Nature Recreation Zone

Zone Description

The Nature Recreation Zone covers over half of the park stretching from the southern boundary north to the Alaska Highway. It covers the eastern parts of the park and abuts the Wilderness Recreation Zone and Stone Mountain Park to the west. The Nature Recreation Zone is the most accessible zone in the park, with the Muskwa and Tuchodi rivers running through it, Kluachesi Lake in its southern portion, and the Tetsa River on the northern boundary. Most of the primary guide outfitter facilities lie within this zone. It is associated with high alpine plateaus, larger, broader valleys than the Wilderness Recreation Zone, wetland complexes, and large, grassy slopes.

Within the Nature Recreation Zone are some areas that experience higher levels of use than the rest of the zone and where higher compliance and enforcement presence may be warranted. These higher use areas are highlighted to depict where either riverboat, fixed wing and/or snowmobile traffic is the highest. In general, the highest use along these corridors coincides with the summer/fall recreation and/or hunting seasons. The

high use areas are linear and coincide with several waterways: Muskwa River, Tuchodi River, Tuchodi Lakes and Kluachesi Lake.

The Nature Recreation Zone covers 376,431 hectares which represents 56.4% of the park area.

Objectives and Management Intent

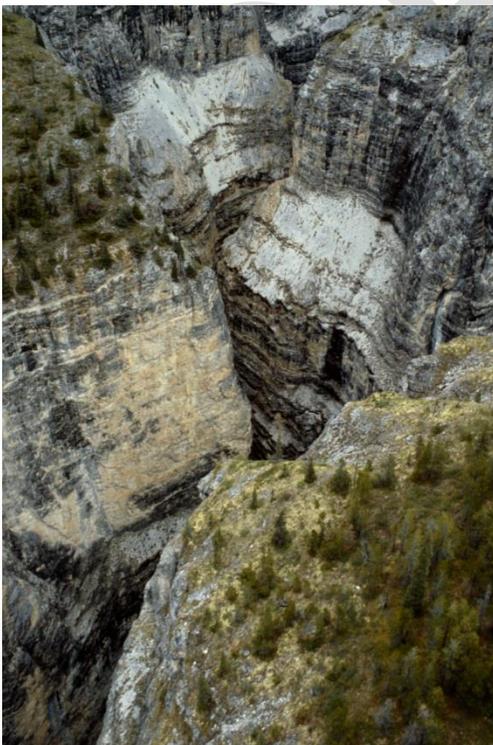
The objective of the Nature Recreation Zone is to protect scenic values and to provide for backcountry recreation opportunities in a largely undisturbed natural environment. The management intent of this portion of the park is to recognize the existence of existing traditional routes and more recent access routes such as along watercourses; and to provide spectacular backcountry recreation that is somewhat accessible.

There will also be provision for higher levels of visitor use where people will be able to see interesting features in a natural environment; however, visitors must expect to see other people in the park participating in similar activities. The only motorized uses permitted in this zone are: fixed wing aircraft, rotary aircraft for permitted management purposes and snowmobiles below 1400 meter elevation.

3.2.3. Special Feature Zone

Zone Description

There are two Special Feature Zones in the park: Sleeping Chief Mountain and Wokkash. The Sleeping Chief Mountain area is characterized by rocky steep-sided slopes and separated by a contiguous high and wide valley. The main feature is Sleeping Chief Mountain; an impressive geological formation. Supporting various wildlife species, due to its varied



habitats, Sleeping Chief Mountain forms a large bowl-like region that sits apart from the mountains surrounding it. This special feature was chosen for its cultural, wildlife and scenic values; with its impressive, well-defined chevron folds, it is an outstanding physiographic feature. This area covers 8,196 hectares which represents 1.2% of the park area.

The Wokkash area covers an area with several impressive and unusual geological features including hoodoos, the deep and narrow Forlorn Gorge, rock glaciers and a polje (Figure). The Wokkash Creek hoodoos are the largest and most impressive example of hoodoos in the province. Rock glaciers are unusual and distinctive landforms formed of rock and ice. Poljes are formed in karst landscapes and often have a fluctuating water table related to restricted drainage and seasonal water inputs. The rock glaciers are above Wokkash Creek and in Stepped Creek and the polje is in Stepped Creek.

This area covers 4,109 hectares which represents 0.6% of the park area.

Figure 9: Forlorn Gorge

Objectives and Management Intent

The objective of the Special Feature Zone is to protect significant natural or cultural values, features and processes because of their special character, fragility and/or heritage values. The management intent of this zone is to recognize and protect the special landforms in the park.

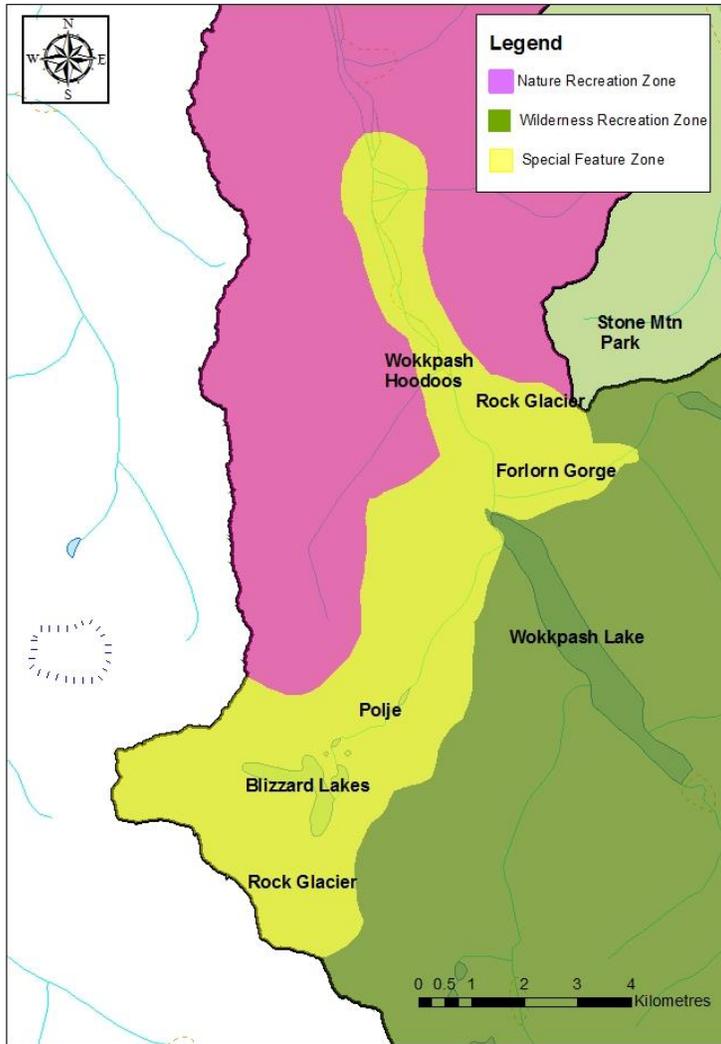


Figure 10: Map of Wokkash Special Feature Zone

4.0 Plan Implementation

4.1 Implementation Plan

BC Parks will seek project-specific funding and partners to implement high priority strategies. Specific projects will be evaluated for their priority in relation to the overall protected areas system. Many of the initiatives contemplated are not funded as part of core BC Parks activities so jointly seeking funds with outside partners will be a key aspect of the management plan implementation.

BC Parks uses annual management plans to address operational and management issues in provincial parks on a priority basis. Issues and strategies presented in this management plan will form the basis of the annual management planning process for Northern Rocky Mountains Park. Items to be included in the annual management plan include a description of the resources available during a given time period, including staff and any additional operating or project funds that may support identified strategies. BC Parks strives to ensure First Nations values and input are reflected in the development of annual management plan work plan items and as such, an open invitation exists for the area's First Nations to discuss annual management plan items and to provide input into the development of annual management plan priorities. Alternate implementation strategies for priorities not funded as part of core ministry activities may be pursued by BC Parks or its partners.

In addition to any legislation or policies highlighted in the management plan, there are numerous other provincial policies and guidelines which will be considered during management plan implementation. This includes items such as: BC Parks' policies on permitting, conservation, commercial recreation guidelines and policies, BC Parks bear-people conflict prevention plan and impact assessment processes.

4.2 High Priority Strategies

- *The high priority strategies will be identified after the public review stage has been completed. These strategies will help focus implementation efforts.*

4.3 Plan Assessment

In order to ensure that the management direction for the Northern Rocky Mountains Park remains relevant and effective, BC Parks staff will ensure that the management plan is assessed by BC Parks staff on a regular basis (i.e., at least every 5 years). Minor administrative updates may be identified and completed at any time (e.g., correct spelling errors, update protected area details where needed), and will be documented according to BC Parks guidelines.

If an internal assessment reveals that the management plan requires more significant updating or substantial new management direction is needed, a formal review by BC

Parks, First Nations or other partner(s) may be initiated to determine whether the management plan requires an amendment or if a new management plan is required.

The management plan amendment process or development of a new management plan includes an opportunity for public input.

DRAFT

Appendix 1: Fort Nelson Land and Resource Management Plan

The Fort Nelson Land and Resource Management Plan provides recommendations for Acceptable Uses in the Northern Rocky Mountains Park.

Activity/Use/Facility	Recommendation
Commercial Recreation	<p>The intent of the guidance is to maintain a balance between non-commercial and commercial recreation.</p> <p>An inventory of existing and potential commercial backcountry recreation opportunities is required to guide allocation.</p> <p>Ensure commercial backcountry recreation activities are consistent with:</p> <ul style="list-style-type: none"> · acceptable limits of use · environmental sustainability · greatest benefit to local community, region and province · equitable forage allocation between commercial and non-commercial use · equitable allocation of suitable campsites. <p>Manage for wildlife habitat enhancement through subsequent planning processes.</p>
Grazing	Allowed subject to management plan. New tenures can be issued as necessary to support commercial backcountry recreation opportunities.
Lodge Expansion	Allow for tourism operators to expand their holding and operations.
Motorized Activities	<p>Certain types of off-road motorized recreational vehicles and boats may be restricted either by type of vehicle, time of year or areas designated for use; developed through the management planning process.</p> <p>No motorized boats above Tuchodi Lakes.</p>
Negative Bear/Human Interactions	Utilize public education tools to educate the public on bear/human encounters, bear behaviour and safe human behaviour in bear country. Recurring aircraft and riverboat use and access will be sensitive to the Resource Management Zone (RMZ) values and resource user activities.
Pack Animal Use	Exotics, such as llamas and ostriches, are not to be used as pack animals.
Roads	Roads within the protected area not allowed. ²⁹
Trapping	Trapping activity will be allowed and trap line tenures will be renewable and transferable.
Vegetation	<p>Revegetate disturbed areas. Use local, native plant species where appropriate and possible.</p> <p>Identify and recommend a course of action for damaged or degraded habitat.</p>
Water Control Structures	Small scale water diversion structures allowed (not to be used for small scale hydro-electric development). Intent is to allow commercial operators to provide water supply to base camps.

²⁹ Northern Rocky Mountains Protected Area was created to allow for the potential need for future realignment of the Alaska Highway

Appendix 2: Appropriate Use Table

The following table summarizes existing and potential future uses in Northern Rocky Mountains Park that are and are not appropriate in each zone. This is not intended to be an exhaustive list of all uses that may be considered in this protected area in the future.

Please note that appropriate uses may be geographically restricted (i.e., only allowed in certain areas of Northern Rocky Mountains Park or are only appropriate at certain times of the year. Please ensure that you are well informed of any use restrictions as shown in the table. It is important to review relevant sections of the management plan when interpreting the table.

Appropriate Use Table Legend		
N	Not an appropriate use	The use is not appropriate in the indicated zone. If the use currently exists but the management planning process has determined that the use is no longer appropriate in all or part of the park, the management plan will include strategies for ending the activity (e.g., phasing out, closing).
Y	May be an appropriate use	Some level or extent of this use may be appropriate in the zone indicated. The management plan may provide guidance on the appropriate level of use and may address specific restrictions or planned enhancements (e.g. capacity, designated areas for a particular activity, party size, time of year, etc.). For new or expanded uses, this symbol indicates that the use <u>may be considered</u> for further evaluation. The appropriateness of some activities may not be confirmed until a further assessment (e.g., BC Parks Impact Assessment Process) or evaluation process (e.g., park use permit adjudication) is completed.
Y1	Appropriate use as per section 30	The use is not normally appropriate in a park but was occurring pursuant to an encumbrance or Crown authorization at the time the park was established.
N/A	Not an applicable use in this zone	It is not feasible for the use to take place in this zone (e.g., mooring buoys in a terrestrial zone).

Activity/Facility	Wilderness Recreation Zone	Nature Recreation Zone	Special Feature Zone	Comments
Recreational Activities/Uses				
Aircraft (fixed wing) –access and landing/takeoff	Y	Y	Y	BC Parks may request submission of a flight plan as part of a park use permit. Operators are encouraged to keep to historical flight paths.
Aircraft (rotary) – access and landing/takeoff	N**	Y*	N**	*Permit required for Nature Recreation Zone. **Helicopter access may be permitted for management purposes only
Boating (human powered)	Y	Y	Y	

Activity/Facility	Wilderness Recreation Zone	Nature Recreation Zone	Special Feature Zone	Comments
Boating (combustion engine)	Y	Y	N	No motorized boats above Tuchodi Lakes ³⁰ .
Camping (designated sites)	Y*	Y*	Y**	*Only if required in the future to mitigate damage. ** In Sleeping Chief Special Feature Zone, designated sites will not be established.
Camping (wilderness style-undesignated sites)	Y	Y	Y	
Fish Stocking	N	N	N	
Fishing	Y	Y	Y	
Hiking	Y	Y	Y	
Hunting	Y	Y	Y	
Land-based Mechanized Activity (e.g., mountain biking)	N	Y*	N	*On formalized trails
Land-based Motorized Activity (e.g., 4x4, motorcycles, ATV-not including snowmobiles, or aircraft landings)	N	N*	N	*Unless specifically identified in a Park Use Permit
Horse and Pack Animal Use	Y	Y	Y	
Skiing (downhill and cross-country track based)	N	N	N	
Skiing (backcountry)	Y	Y	Y	
Snowmobiling	N	Y*	N	*not allowed above 1400m elevation
Recreation Facilities/Infrastructure				
Boat Launches	N	N	N	
Boat Wharves and Docks	N	N	N	
Cabins, Huts and Shelters (as defined in the Fixed Roof Accommodation Policy)	Y	Y	Y	Existing permitted facilities will be allowed to remain and certain changes are allowed as per Section 3.1.10
Lodges (as defined in the Fixed Roof Accommodation Policy)	Y*	Y*	Y*	*Existing permitted facilities will be allowed to remain and certain changes are allowed as per Section 3.1.10
Campgrounds (vehicle accessed))	N	N	N	
Picnic Areas (vehicle accessed)	N	N	N	
Designated Camping Sites (not vehicle accessed)	Y	Y	Y*	* No designated sites in Sleeping Chief Special Feature Zone.

³⁰ As recommended in the Fort Nelson Land and Resource Management Plan.

Activity/Facility	Wilderness Recreation Zone	Nature Recreation Zone	Special Feature Zone	Comments
Roads	N	N	N	
Ski Facilities (vehicle accessed and serviced)	N	N	N	
Trails	Y	Y	Y	Existing trails only.
Visitor Information Buildings	N	N	N	
Other Activities/Infrastructure				
Commercial Filming	Y	Y	Y	
Communication Sites and Towers	N	N	N	
Grazing (horse)	Y	Y	Y	Backcountry recreation purposes only. New PUPs can be issued as necessary to support commercial backcountry recreation opportunities subject to management plan ³¹ , but no new range tenures can be issued.
Hydro Electric Projects (local run of river)	N	N	N	
Trapping	Y	Y	Y	
Snowmobiling (trapping)	Y	Y	Y	Allowed when associated with trapline activities and under 1400 meter elevation.
Utility Corridors	N	N	N	

Glossary

Cirque – a half-open steep-sided hollow at the head of a valley or on a mountainside, formed by glacial erosion.

Facility – refers to a building such as a lodge, cabin, campsite or trail but does not include toilets, fire rings or food caches.

Fluvial – of or found in a river.

Glaciolacustrine deposits – sediments deposited into lakes that have come from glaciers.

Hanging valley – a valley that is cut across by a deeper valley or a cliff.

Holocene – the system of deposits laid down during this time.

Hoodoo – a column or pinnacle of weathered rock.

³¹ Fort Nelson Land and Resource Management Plan.

Lacustrine – relating to or associated with lakes.

Morainal – a ridge, mound, or irregular mass of unstratified glacial drift, chiefly boulders, gravel, sand, and clay.

Thrust fault – a break in the Earth’s crust, across with older rocks are pushed above younger rocks.

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