

# MANAGEMENT PLAN

February, 2004

*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 Water, Land and Air Protection. At the conclusion of the planning process a revised management plan will be approved by the Ministry.*

for Kokanee Glacier  
Provincial Park



BRITISH  
COLUMBIA

Ministry of Water,  
Land and Air  
Protection  
Environmental  
Stewardship Division

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Kokanee Glacier  
Provincial Park

# Management Plan

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# Acknowledgements

To be completed after public consultation/review

# Executive Summary

This management plan establishes objectives and strategies for the long-term management of Kokanee Glacier Provincial Park. It is intended to provide strategic direction and guidance for park managers and anyone interested in the management and stewardship of this park. The plan is based on direction from the West Kootenay-Boundary Land Use Plan, The Kootenay-Boundary Land Use Plan, goals of the Protected Areas Strategy, and Environmental Stewardship’s conservation and recreation goals. In addition, the plan encapsulates a management vision that was itself based on the goals, dreams and aspirations of a variety of users and stewards of the park. The original management plan for the park (1990) is now outdated because of facility infrastructure removal/additions and park boundary changes.

## Plan Highlights

- The vision for the future of Kokanee Glacier Provincial Park is to see the park managed in perpetuity for both year-round recreational and tourism opportunities and wilderness conservation. Enhancement of wilderness values occurs over time through restoration of damaged and/or closed sites, minimization of human impacts and the emphasis on a more scientific ecosystem-based approach to management. Ecologically sustainable ecotourism continues to play an important role in fostering a greater understanding of, and appreciation for, natural and cultural heritage values and continue to contribute to the economy of local communities.
- Recreation and conservation goals of the park are served by designating high recreation use into what has been termed as the “core” area of the park. Low recreation use areas with high conservation are in the remainder of the park landbase. The upper core consists primarily of the areas around Kaslo Lake, Kokanee Glacier Cabin and the western fringes of Helen Deane Lake. Collectively these portions of the park, along with the hiking corridor along Kokanee Creek have been zoned as Natural Environment, leaving a greater portion of the park as Wilderness Recreation (approximately 30,757.6 ha) respectively. Trail corridors through drainages receives fewer visitation are also zoned as Wilderness Recreation where mechanized use will not be permitted. Gibson Lake will be the only area zoned as Intensive Recreation within the park and the historic Slocan Chief Cabin will receive zoning as a special feature.
- Management of natural and cultural values include:
  - Restoring to a natural state the campsite at Kalmia Lake and removing facility infrastructure in the immediate area around the Slocan Chief cabin.
  - Renovation of the Slocan Chief cabin and the creation of a day-use interpretive center detailing the rich mining and mountaineering history of the park.
  - Conducting comprehensive flora and fauna inventories in high-use areas of the park to help mitigate impact from recreation use and non-native/invasive weed infestation.
  - Developing a carrying capacity model for the high-use recreation areas of the park.
  - Maintaining core habitat for grizzly bears and other rare and endangered wildlife.
  - Removing motorized access within the Keen Creek drainage portion of the park.
  - Permitting helicopter access to key locations of the park on a seasonal basis.

- Investigating pre-contact use in the park by First Nations.
- Management of outdoor recreation opportunities include:
  - Promoting the Kokanee Glacier cabin as a year-round recreation destination.
  - Considering ecologically sustainable ecotourism and commercial opportunities developed from regional ecotourism strategies.
  - Maintaining strategic trail corridors (i.e. Kokanee Creek) into the core area of the park to allow novice park visitors to experience mountain wilderness.
  - Providing park visitors self-serve interpretive displays and facilities that highlight the mining history of the park.
  - Maintaining cabins at the headwaters of Woodbury Creek and Silver Spray Creek in summer months for use by experienced backcountry travellers.

# Introduction

## The Management Planning Process

A management plan is a document prepared to guide a park's management for the future. It sets objectives and strategies for conservation, development, interpretation, and operation of the park. This management plan relies on current information relating to park values obtained from the background report. Additional information is gathered from park managers, government agencies, public interest groups, First Nations and from the public. Familiarization with the background report is highly recommended to fully understand this plan.

Preparation of a management plan involves a thorough analysis of the overall goals of the park, levels of use, and management objectives. Through this process, various options for managing the park are developed and assessed.

The Environmental Stewardship Division (ESD) prepares management plans with a high degree of public involvement. The general public and public interest groups have opportunities to provide input through a variety of means, including public meetings and mail-outs. Additional information was gathered from the West Kootenay-Boundary Land-Use Plan (1995) and Implementation Strategy (1997), the Kootenay-Boundary Higher Level Plan Order (2002), the Kokanee Glacier Provincial Park and Recreation Area Master Plan (1990), the Kokanee Glacier Provincial Park Addition Management Direction Statement (1999), and the Kokanee Glacier Provincial Park Background Report (1989) and (2004). The former management plan for the park (1990) provided a foundation for this new management plan. Periodically, management plans are reviewed and updated every ten years to reflect changes in park infrastructure. Kokanee Glacier Provincial Park has undergone several significant changes since inception of the 1990 plan (i.e. park boundary extension, conservation priorities, cabin renovation and construction).

The plan focuses on management issues, objectives, and recommended strategies. There are five main sections in this document:

- 1) Introduction - highlights planning issues and provides a background summary of the park.
- 2) Role of the Park and Vision Statement - describes the importance of the park and the overall guiding principles for management.
- 3) Park Zoning - establishes management zones.
- 4) Management Objectives and Strategies – establishes objectives and actions for managing the natural and cultural values and the outdoor recreation opportunities.
- 5) Plan Implementation – sets priorities for implementing the management strategies.

## **Relationship with Other Planning**

### **Kootenay-Boundary Land-Use Plan**

Land use planning for land resources and conservation in the Kootenay-Boundary region of southeastern British Columbia entered a new era with the provincial government initiative to prepare a strategic land use plan, the West Kootenay-Boundary Land-Use Plan (WKBLUP), which designated various land uses, including protected areas, over the entire region.

In addition to allocating land use, the WKBLUP also established land use management guidelines through the Kootenay-Boundary Land Use Plan Implementation Strategy (KBLUP-IS). These guidelines help to integrate land use management with a variety of government strategic policies from the Forest Practices Code to the Provincial Grizzly Bear Conservation Strategy. They are intended to provide broad, corporate guidance to managing agencies.

With respect to protected areas, the KBLUP-IS emphasizes the importance of co-operative management of values both within parks and adjacent areas "to ensure that parks can effectively protect sensitive values contained within them." To this end, general management objectives and strategies associated with environmental, recreational and tourism values are provided for inclusion in park management including:

- Park Planning
- Pre-existing Tenures
- In-holdings
- Natural Occurrences
- Park Management.

### **KBLUP-IS Management Direction for Kokanee Glacier Provincial Park**

KBLUP-IS provided specific management direction for nine protected areas that were established in the West Kootenay. In the case of Kokanee Glacier Provincial Park, this involved extending the park boundaries to incorporate much of the former Kokanee Glacier Recreation Area. The management emphasis focussed on conservation given the importance of key grizzly bear habitat contained within much of the former Recreation Area.

Specific management direction for adjacent areas was identified through wildlife connectivity corridors, Priority Grizzly Bear Management Areas and by delineating Special Resource Management Zones (SRMZ), Integrated Management Zones (IRMZ) and Enhanced Resource Development Zones (ERMZ).

### **Kootenay-Boundary Higher Level Plan Order**

The Kootenay Boundary Higher Level Plan (October 2002) followed revisions to an early Higher Level Plan Order (January 2001). The KBHLP effects land use immediately adjacent to the park and influences ecosystem integrity and function (e.g. wildlife connectivity and foraging, road access). The order is a legal tool that revised earlier land use planning, namely allowing the forest industry to harvest more wood from

mature forest areas (100-250 years old) considered to be of lower environmental value. The total area under protection is unaffected by the changes in the order and remains at 13.5 per cent of the total planning area of 10 million hectares in the West Kootenay.

The establishment of new Resource Management Zones (RMZ) and changes to the Enhanced Resource Development Zones (ERDZ) form the basis of the Higher Level Plan Order. Many of the aspects and guidelines stated in the KBLUP-IS remain in effect.

Responsibility for the higher level plan order on a day-to-day basis rests with the Ministry of Forests, which approves forest development plans and may do so only if they are consistent with the higher level plan. Provisions exist in a delegation letter that allows various ministries (Forests, Sustainable Resource Management, Energy and Mines) to address site-specific forest licensee hardships, environmental issues or new scientific information.

## **Kokanee Glacier Provincial Park Management Direction Statement**

Management direction statements were developed for all the new parks that were created through the WKBLUP. These documents provide management guidance in the absence of comprehensive management plans. They were initially developed in 1996 and reviewed in association with the KBLUP-IS. This new management plan will replace the existing management direction statement that was created for the Kokanee Glacier Provincial Park Addition (1999) and the original master plan produced for the Kokanee Glacier Provincial Park and Recreation Area (1990).

## **Background Summary**

Kokanee Glacier Provincial Park is situated in the Central Columbia Mountains, northeast of the City of Nelson. To the east of the park lies Kootenay Lake and to the west Slokan Lake and valley (Map 1). The park is one of British Columbia's oldest provincial parks, originally set aside in 1922 and encompassing 25,900 ha. It was designated as a Class "A" park on July 12, 1995 under the *Park Amendment Act* and expanded in size in the mid 1990's to 32,035 ha. as a result of the WKBLUP. It is named and described in Schedule C of the *Protected Areas of British Columbia Act*.

The park protects representative natural, cultural and recreational values of the Central Columbia Mountains Ecosection. Conservation values include a full elevation range of ecosystem types and habitat from riparian corridors and old growth forest to alpine tundra.

Kokanee Glacier Provincial Park supports a wide range of species, many of which are provincially listed as rare or endangered. The park provides essential habitat for grizzly bear, mountain goat, and wolverine, while other species at risk are strongly suspected. Ungulates such as deer and elk also exist within the park; however, because of limited foraging habitat and severe winters there are no substantial populations of either in the park. Significant fish values are present including spawning habitat for provincially listed bull trout and westslope cutthroat trout. There is also a healthy fishery of rainbow trout and other sport fish.

While the park retains significant wilderness features, it is easily accessible because of extensive logging road networks outside of the park and well-established trails within the park. Owing to the lucrative mining activity at the turn of the 19<sup>th</sup> century, many popular trails in the park are former ore hauling routes. Many of the former mine diggings and structures have deteriorated over-time and are unsafe for viewing by the general public.

Recreational activities in the summer months are dominated by hiking and backpacking, mostly situated around the Slocan Chief Cabin and Kaslo Lake areas. The Kokanee Glacier Cabin (completed in 2003) is quickly becoming a destination for both day-use hikers and overnight visitors seeking amenities, replacing the historic Slocan Chief Cabin. The trail corridor through the Gibson Lake day use area (Kokanee Creek) is the preferred access to the core area of the park. In addition to the core area, backcountry cabins situated in the Silver Spray and Woodbury drainages receive a steady number of experienced backcountry enthusiasts. The two cabin facilities at these locations require visitors to be more self-sufficient when compared to the Kokanee Glacier Cabin.

Frontcountry recreational activities are focussed in the Gibson Lake area. The lake provides fishing and hiking opportunities and a day use shelter is commonly used by schools or large groups. A demonstration forest is located outside of the park along the approach to Gibson Lake and complements self-serve interpretation features of the area.

Road access to backcountry areas is limited to the travel on Forest Service Roads (Public Use, Wilderness, or Industrial)<sup>1</sup> and gazetted secondary roads maintained by the Ministry of Transportation (i.e. Keen Creek and Kokanee Creek). Dependant on industrial activity adjacent to park boundaries, roads are subjected to variable maintenance standards.

The popularity of backcountry skiing in the park has increased dramatically in the last two decades. Originally, accommodation services for skiers was available at the Slocan Chief Cabin on a first come first serve basis. Skiers would travel into and out of the park on skis/snowshoes. Following conflicts amongst users at the cabin for available bed space, BC Parks instated a lottery system to better regulated visitor capacity at the cabin. The Kokanee Glacier Cabin replaced the Slocan Chief Cabin as the overnight base for skiers in 2004. The lottery system remains in effect and is managed by a private contractor with use limits imposed by Parks and Protected Areas. Because of hazardous avalanche terrain in all access corridors leading to the core area, a helicopter taxi service is an integral component of the backcountry skiing accommodation services.

Traditional First Nation historic use within Kokanee Glacier Provincial Park is not documented. Numerous place names within the park have First Nations origins. It is believed that cultural groups associated with the Sinixt, Okanagan, Shuswap and Kutenai may have been resident or transitory on the landscape prior to European contact.

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<sup>1</sup> See Appendix L.

**Map 1: context map - click on link below**

**[http://wlapwww.gov.bc.ca/bcparks/planning/mgmtplns/kokanee/kokangla\\_loc\\_6\\_map1.pdf](http://wlapwww.gov.bc.ca/bcparks/planning/mgmtplns/kokanee/kokangla_loc_6_map1.pdf)**

# Management Issues

This management plan addresses a number of issues identified by the Environmental Stewardship Division through previous land use planning processes and through consultation with other government agencies, First Nations, user groups, and the public.

Conservation has been identified as the management priority for Kokanee Glacier Provincial Park (addition to the park land base of 6,203 hectares) by the Kootenay-Boundary Land Use Plan Implementation Strategy (KBLUP-IS). Furthermore, the park's conservation values have been identified as "high risk" by the Parks and Protected Areas Conservation Risk Assessment (2001). The overall challenge for the management of this park will be to conserve and protect important natural values, while maintaining high quality backcountry recreational experiences. The accommodation services offered at the newly constructed Kokanee Glacier Cabin and overall reputation of the park as a year-round<sup>2</sup> destination has emphasized the need to manage for both wilderness recreation and conservation values.

The following have been identified as the main issues.

## Natural Values Management

### Wildlife

Kokanee Glacier Provincial Park serves as a headwaters of several major creeks, making it a critical hub (core connectivity area) for the movement and genetic dispersion of numerous species, particularly grizzly bears (Map 3). High elevation ecosystems such as alpine meadows, along with valley corridors rich in old growth forests support a range of wildlife.

Given the park's proximity to the City of Nelson, a major tourist destination, combined with the reputation of the park as an easily accessible wilderness area, there are significant pressures placed on the park by backcountry visitors. Recent reduction in maintenance of forestry roads leading to the park boundary has reduced access to a few select accesses routes. This has caused a funnelling effect of visitors into the core area of the park. Consequently, some species, including grizzly bears, are likely being driven into peripheral areas of the park<sup>3</sup>. DNA research has demonstrated that grizzly bear densities are relatively low in the general area, a negative effect imposed by highway corridors and high human habitation outside of the park. This fact provides important context for assessing the overall risk to grizzly bears in the protected area and identifies that wildlife populations and habitat requirements transcend park boundaries. Therefore, it is critical for the continued health and viability of the wildlife in the park that co-operative management strategies be developed with adjacent land managers.

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<sup>2</sup> Winter activities are restricted to areas situated within close proximity of Kokanee Glacier Cabin.

<sup>3</sup> This is not scientifically proven but has been outlined in the BC Parks Conservation Risk Assessment (2001).

## **Vegetation**

Natural disturbances such as fire, disease, and insect infestations are fundamental in maintaining ecosystem complexity. While allowing natural phenomena to occur without interference is consistent with wilderness management, this strategy contains an element of risk to facilities in the park and to adjacent managed forestlands.

Invasive weeds could pose a threat to the park, mainly spreading from logging roads that lead to the park boundary. To date, no inventories have been conducted within the park, but various non-indigenous plant species are known to occur immediately outside the park.

The 1,500 hectare wildfire in the Woodbury drainage (2003) created an opportunity to study the long-term effects of high intensity fire over the park land base. However, it presents a challenge for managing public safety through the Woodbury recreation corridor.

## **Fisheries**

Fisheries values in the park including the management of the endangered bull trout and cutthroat trout populations and spawning habitat must be managed to prevent impacts from natural disturbances (e.g. slides) and unnatural fish migration, and regulations and closures should be used to ensure viable populations.

## **Boundaries and Access**

Access to trailheads is controlled primarily by the Ministry of Forests and to a lesser extent the Ministry of Transportation (Keen Creek Road and Kokanee Creek Road). Ministry of Forests policy changes regarding road designation has the potential to reduce the availability of public access to several areas of the park.

## **Adjacent Land Management**

It is important to co-ordinate planning for commercial and non-commercial uses surrounding the park. Equally important is the co-ordination of park management with land use planning outside the park. Currently, there is logging proposed and approved cutblocks lie within close proximity of the park boundary. In addition, there are applications to increase commercial recreation opportunities.

# Visitor Management

## Levels and Types of Recreational Opportunities

In summer months, predominant use is by hikers and backpackers. Ensuring that recreational activities have minimal effect on the landscape and minimizing hazardous encounters between visitors and wildlife is a high priority.

In winter months, backcountry skiing is concentrated in the Kaslo Lake and Slocan Chief Cabin area. A high priority will be given to educate park visitors in safe winter travel and avalanche awareness. Efforts will be made to ensure all park visitors are properly informed that they are self-sufficient in terms of rescue.

At present, the cabin accommodation offered in the park are suited to visitors who are self-sufficient. An opportunity exists to expand services offered at the cabins to a full-service function. Accommodating park visitors seeking amenities by supplying bedding, food and housekeeping would be facilitated by a fee system.

## Mechanized Activities

Helicopter activity is currently provided through park use permit for tours in summer months (small portion of Kokanee Glacier proper) and by helicopter taxi service offered in winter months to the Kokanee Glacier Cabin.

Motor vehicle access well within park boundaries is currently permitted in the Keen Creek drainage only. Road deterioration and unsafe conditions have reduced mechanized usage in this area. Demand to keep this area open for these activities is high and requires a management strategy.

# Role of the Protected Area

## Provincial and Regional Context

Kokanee Glacier Provincial Park is situated in southeastern British Columbia in the Kokanee Range of the Selkirk Mountains. The park lies between the Monashee Mountains to the west and the Purcell Mountains to the east. The Selkirk Mountains are bounded by major lakes that dominate the West Kootenay landscape, namely Kootenay Lake and Slocan Lake.

Kokanee Glacier Provincial Park is one of British Columbia's oldest provincial parks. Set aside in 1922, it followed the establishment of 3 other parks, Strathcona on Vancouver Island in 1911, Mt. Robson in 1913, and Garibaldi in 1920. Initially, the purpose of these parks was to set aside large scenic mountain wilderness areas accessible by railway largely for the use of tourists. Today Kokanee Glacier Provincial Park serves the same function; however, conservation of habitat for rare and endangered flora and fauna has also become an important role. Along with other nearby wilderness protected areas such as Valhalla

Provincial Park, the Purcell Wilderness Conservancy Provincial Park, Goat Range Provincial Park and West Arm Provincial Park, Kokanee Glacier Provincial Park provides essential wildlife connectivity in the West Kootenay. The park contributes significantly to maintaining core habitat for grizzly bear. With ever increasing human development in the region, the park's wilderness becomes even more significant. Collectively the protected areas that conserve representative examples of the ecosections found in the West Kootenay/Boundary area cover just over 11% of the total land base. Furthermore, the Kootenay Region's protected areas contribute 5% to the protected area land base province-wide.

Each park and protected area in the system contributes uniquely in both the values they protect and the role they serve. When compared to Kokanee Glacier Provincial Park, other large protected areas such as Goat Range Provincial Park and the Purcell Wilderness Conservancy Provincial Park provide an experience which is more geographically remote and generally less accessible. Similarly, West Arm Provincial Park and Valhalla Provincial Park are largely undeveloped with many features only accessible via water. Indeed, Kokanee Glacier Provincial Park, with its complement of backcountry cabins, easily accessible trails, day-use facilities, and year-round activities offers characteristics unmatched in the West Kootenay.

## **Significance in the Protected Area System**

The Province of British Columbia is more physically and biologically diverse than any comparable region in Canada. Its protected areas system conserves viable representative examples of the province's diverse natural ecosystems and special natural, cultural, and recreational features. Kokanee Glacier Provincial Park contributes to the biological diversity of the Central Columbia Mountains (CCM) Ecosection. This ecosection is one of six located within the Northern Columbia Mountains Ecoregion, a rugged, often ice-capped mountain area that rises abruptly from the Southern Rocky Mountain Trench to the east. This block of mountains intercepts eastward flowing precipitation, making these the wettest mountains in the interior of the province.

Within Kokanee Glacier Provincial Park, the U-Shaped valleys that are characteristics of active alpine glaciation, give rise to high mountains and ridges. Within these mountains, a multitude of lakes and glaciers form the headwaters of seven separate watersheds that emanate from the core area of the park, a rare feature which adds to the representation of natural ecosystems in the province.

The diversity of backcountry recreation opportunities, from vehicle accessible day-use activities to multi-day mountain traverses, add to the park's recreational significance. World class backcountry lodging offered at the Kokanee Glacier Cabin provides park visitors a wilderness experience while maintaining the ecological integrity over the landscape by minimizing impact and utilizing 'state of the art' technology.

## **Protected Areas Strategy Goal 1**

Kokanee Glacier Provincial Park is an excellent example of a Protected Areas Strategy (PAS) Goal 1 area based on its representativeness, biodiversity, and opportunities for use and appreciation qualities.

## Representativeness

- Kokanee Glacier Provincial Park is one of 21 protected areas contributing to representation of the CCM Ecoregion which is well represented (19%) in the province's protected areas system. Kokanee Glacier Provincial Park is the fourth greatest contributor to the representation of this ecoregion (11%), following Valhalla Provincial Park (17%), Goat Range Provincial Park (26 %) and the Purcell Wilderness Conservancy Provincial Park (35%). The park provides approximately 2% of the total CCM ecoregion representation in the Kootenay region landbase.
- Within the Kootenay Region, the park contributes to just over 11% of the protected area landbase.
- Despite its small size when compared to larger protected areas such as Goat Range Provincial Park or the Purcell Wilderness Conservancy Provincial Park, Kokanee Glacier Provincial Park contains a diverse elevational gradient of biogeoclimatic zones. The following seven Biogeoclimatic Ecosystem Classification (BEC) subzones/variants are found within the park

**Table 1: BEC Subzones/ Ecoregion Representation**

| <i>BEC subzone/variant<sup>4</sup></i>  | <i>Area of Park (hectares)</i> | <i>Percentage of BGC code / CCM situated in the park.<sup>5</sup></i> |
|---|--------------------------------|---|
| <b>ATun (Alpine Tundra) undifferentiated</b>  | <b>2610.3</b>                  | <b>3.1</b>  |
| <b>ESSFwc4 (Selkirk Wet Cold Englemann Spruce-Subalpine Fir Variant)</b>              | <b>10454.5</b>                 | <b>3.5</b>  |
| <b>ESSFwcp4 (Selkirk Wet Cold Englemann Spruce-Subalpine Fir Parkland)</b>            | <b>8384.6</b>                  | <b>3.4</b>  |
| <b>ICHmw2 (Columbia-Shuswap Moist Warm Interior Cedar-Hemlock Variant)</b>            | <b>834.6</b>                   | <b>0.6</b>  |
| <b>ICHwk1 (Wells Gray Wet Cool Interior Cedar-Hemlock Variant)</b>                    | <b>858.5</b>                   | <b>No data available</b>  |
| <b>ESSFwc1 (Columbia Wet Cold Englemann Spruce-Subalpine Fir Variant)</b>             | <b>2296.8</b>                  | <b>0.7</b>  |
| <b>ESSFwcw<sup>6</sup> (Woodland-Wet Cold Englemann Spruce-Subalpine Fir Variant)</b> | <b>6465.5</b>                  | <b>No data available</b>  |

- Following Goat Range Provincial Park (42%) and Valhalla Provincial Park (22%), Kokanee Glacier Provincial Park provides the third greatest contribution (18.8%) to the ESSFwc4 (Engelmann Spruce Subalpine-Fir Selkirk Wet Cold) subzone/variant in the Central Columbia Mountains Ecoregion.
- The park is a minor contributor (7% and 3%) to ESSFwc1 (Engelmann Spruce Subalpine Fir Columbia Wet Cold) and ICHmw2 (Interior Cedar Hemlock Columbia-Shuswap Moist Warm), two subzone/variants that are under-represented in province wide protected areas (6% and 8% respectively).

<sup>4</sup> Based on mapping information supplied by the Ministry of Sustainable Resource Management (2004)

<sup>5</sup> Analysis using PASO (Protected Area Systems Overview) data, current as of October 19, 2001.

<sup>6</sup> A new classification of ESSF as stated in Trowbridge et al. (2002).

## **Biodiversity**

Kokanee Glacier Provincial Park serves as the headwaters for twelve separate watersheds<sup>7</sup> and complements an extensive connectivity corridor that supports wildlife movement for many rare and endangered species<sup>8</sup>, such as grizzly bears, through the West Kootenay. The park contains high alpine ecosystems, lower valleys rich in old growth forests, and water bodies that support endangered bull trout and westslope cutthroat trout populations.

## **Use and Appreciation**

Kokanee Glacier Provincial Park has established itself as a provincially significant recreation destination that provides both novice and seasoned backcountry visitors a memorable wilderness experience. Three backcountry cabins situated within the park offer a range of amenities and accommodation services, while a variety of campsites offer opportunities to self-sufficient park users. In addition, with the park's close proximity to major tourist centres, day-use is quickly becoming a preferred activity. Commercial interests have also seized the business potential of the park in summer by offering clients challenging outdoor recreation adventures. Multi-day backcountry skiing is also available through a lottery system with accommodation provided at the Kokanee Glacier Cabin. This recreation opportunity requires visitors to be proficient in safe winter travel and have a level of avalanche awareness.

## **Protected Areas Strategy Goal 2**

There are several special features in the park that fulfill the PAS Goal 2 criterion.

- Remnant ecosystems such as alpine meadows at Sapphire Lakes, Kalmia Lake and Helen Deane Lake maintain essential grizzly bear habitat at the headwaters of Keen Creek, Lendrum and Coffee Creeks.
- Rare natural features such as old growth forests are associated with the many valleys emanating from the core area of the park.
- Regionally significant recreation features such as the Woodbury, Silver Spray and Kokanee Glacier Cabins. In addition, preserving the cultural and historical features of the Slokan Chief Cabin is important.

## **Protected Area Roles**

The role of a park or protected area is defined by the values it contains, the goals of the Protected Areas Strategy, the BC Parks Conservation Goals it serves, and the management vision that has been developed. Together, these components help to define an overall strategic management direction in which to guide the development of specific objectives and management strategies. Kokanee Glacier Provincial Park's role in preserving wilderness values within the context of the conservation, recreation, and cultural value components is as follows:

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<sup>7</sup> See watershed boundary map in Background Report.

<sup>8</sup> See Appendix I.

## Conservation Role

Kokanee Glacier Provincial Park plays a major role in contributing to BC Parks Conservation Goals (Appendix B) of protecting representative natural ecosystems of south-eastern British Columbia and protecting British Columbia's key natural, cultural heritage and recreation features.

- The park contributes significantly to protecting representative ecosystems and the biological diversity of the Central Columbia Mountains Ecosection, one of three prominent ecosections that cover the Selkirk Mountains. Representation is through the three biogeoclimatic zones that occur in the park.
- In terms of special natural features, Kokanee Glacier Provincial Park contains significant habitat for a variety of wildlife species. Habitat types range from valley bottom to mountain top and include old-growth forests, riparian vegetation, alpine/sub-alpine meadows and lakes.
- A healthy and productive indigenous fishery exists in at least twenty-five of the lakes in the park and in associated creeks. Some streams contain blue-listed bull trout populations, while all fish-bearing lakes support healthy populations of endangered westslope cutthroat trout.
- Although wildlife inventories have not been conducted, prominent wildlife species include mountain goat, deer, elk, wolverine and grizzly bear and over sixty bird species.
- The headwaters of twelve major creeks are located within the park which makes the protected area unique in providing a pure source for several watersheds. In addition, the convergence of multiple headwaters create a hub for wildlife movement and genetic dispersion for numerous species.
- Beyond supporting the objective of the KBLUP of conserving regional biodiversity, the park, along with adjacent protected areas such as Goat Range, Valhalla, and Purcell Wilderness Conservancy Provincial Park, has been identified in the Kootenay/Boundary Higher Level Plan Order as an integral component to wildlife connectivity in the West Kootenay.
- With the effects of global climate change continuing to impact natural ecosystems on the North American continent, several of the park's glaciers have become vulnerable to increased erosion, weathering and melting. An opportunity to study and increase scientific knowledge of ecological processes that are impacted by the "greenhouse effect" exist within the park.
- The Woodbury wildfire of 2003 provides an opportunity to study and research post fire ecology in a sub-alpine environment.

## Tourism and Recreation Role

The park's primary recreation role is to provide exceptional backcountry recreation opportunities in a wilderness setting. Although the park contains a high level of facility infrastructure compared to other adjacent wilderness areas such as Valhalla Provincial Park or Goat Range Provincial Park, it has retained stunning natural features that appeal to local residents and tourist alike. Traditionally, the park has been an

attractive destination for novice hikers and backpackers, but increasingly, more seasoned backcountry enthusiasts are utilizing the park in both winter and summer.

Kokanee Glacier Provincial Park complements neighbouring wilderness protected areas such as Goat Range Provincial Park and Valhalla Provincial Park by offering recreation opportunities in a pristine setting, while at the same time offering day-use activities and ease of access to many sections of the park. The main factors contributing to the park's tourism and recreation roles include:

- Provides easy hiking access to sub-alpine and alpine areas that possess wildlife viewing opportunities and foster greater appreciation for the rugged beauty of the Selkirk Mountains.
- Offers various overnight camping and lodging choices, from cabin accommodations to tranquil campsite locations.
- Complements backcountry commercial recreation opportunities in the West Kootenay region.
- Provides helicopter access for backcountry skiing centered around the Kokanee Glacier Cabin.

Secondary to the BC Parks Recreation Goal of providing for backcountry recreation opportunities, the park also provides local recreation and tourism travel corridor opportunities. There are several frontcountry opportunities that add diversity to the activities available in the park. Specifically:

- Gibson Lake is a popular day-use area that offers excellent fishing and nature appreciation that are well suited for the elderly, families and school groups.
- The Kokanee Glacier Cabin is rapidly becoming a desirable location and attraction for day users, supported by a well maintained trail through the core area of the park.
- The Slocan Chief cabin has traditionally been a choice destination for day hikers because of its historical and interpretive significance in the area.
- Sunset Lake offers fishing and picnicking opportunities and is easily accessible from the Woodbury Creek Forest Service Road.
- Summer hiking to Silver Spray and Woodbury cabins.

## **Cultural Heritage Role**

The Environmental Stewardship Division plays an important role in protecting cultural heritage features in the province. The cultural heritage role of Kokanee Glacier Provincial Park is to conserve the cultural landscape, structural features, and any known traditional use or cultural sites important to First Nations and for representation of historical development of the region.

The rich mining history of the area dates back to the late 19<sup>th</sup> century and remnants of this by-gone era are still visible in the park today. In fact, many of the existing trails are essentially former ore hauling routes into remote locations of the park. The Slocan Chief Cabin, built in 1896, is one of the last standing vestiges

of past mining activity. Although weather and time have taken their toll on the log structure, a restoration project is underway, using largely volunteers<sup>9</sup>, to revitalize the cabin and promote it as an interpretive attraction.

At one time, up to fifteen mine sites dotted the landscape in Kokanee Glacier Provincial Park. The principle bounty was silver, lead, zinc and small amounts of gold. In some locations, excavations and vertical shafts are still present along with discarded machinery and equipment. These unique features present a safety hazard to the general public and visitation to the sites is not encouraged or promoted. Despite this, the mere presence of century-old mining artifacts contributes to a park visitor's understanding and appreciation of the historical significance of the area.

First Nation's use within the park is not well documented and information is scarce on traditional and/or cultural practices that may have occurred. Furthermore, no known archaeological sites have been documented within park boundaries<sup>10</sup>. However, evidence (pictographs, pit house depression, artifacts) of Neolithic culture exists throughout the West Kootenay. The strategic position of the park at the headwaters of several major creeks combined with habitat supporting a variety of wildlife species strongly indicates that First Nations would have used the park prior to European contact and colonization.

## Relationship with First Nations

With the emergence of treaty negotiations in British Columbia and the growing awareness of aboriginal rights and interests, the Environmental Stewardship Division has begun to forge stronger relationships with First Nations across the province. The provincial park system contains cultural and natural values that are highly significant to First Nations. Some parks are important as sources of natural medicines, foods or as sacred sites. The Environmental Stewardship Division needs to consider the traditional knowledge and concerns of First Nations.

Two First Nation<sup>11</sup> tribal councils, the Ktunaxa/Kinbasket Tribal Council and the Okanagan Nation Alliance have included Kokanee Glacier Provincial Park within their asserted traditional territory. The management plan proposes to develop working relationships between the Environmental Stewardship Division and First Nations in a number of areas to ensure that management of the park considers their traditional uses. The management plan will not limit subsequent treaty negotiations.

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<sup>9</sup> The Friends of West Kootenay Parks.

<sup>10</sup> Registered with the Archeological Registry of BC (MSRM) and classified by Borden code.

<sup>11</sup> Another group known as the Sinixts Nation has also asserted that the park is in their traditional territory but the governments of Canada and British Columbia have not recognized their claim.

# Vision Statement

The development of a vision statement is an important tool in the overall management of a park. A shared vision helps to focus and guide the planning, management, operation and development of a park while facilitating closer cooperation between park managers and visitors. A clear vision provides the context to guide the short-term and long-term management of a park. Furthermore, it can assist in providing direction to park managers in regard to evolving demands in recreation and incorporating new approaches to conservation management. The vision statement is forward looking, and describes the desired future for Kokanee Glacier Provincial Park.

This vision statement projects up to 20 years into the future to describe what a visitor to Kokanee Glacier Provincial Park would expect to find at that time and sets the tone for how the park may differ from what it is like today. The vision provides a conceptual context for defining the conservation, recreation and cultural roles of the park. Through understanding and appreciation of this vision, the public will be able to learn about the park and enjoy appropriate activities. Park managers will be able to adapt to changing and perhaps unforeseen circumstances in order to maintain the park setting and values while achieving the vision.

## Vision for Kokanee Glacier Provincial Park

*Kokanee Glacier Provincial Park will continue to be a premiere backcountry wilderness destination that has preserved and maintained its rich biodiversity and important wildlife habitat.*

*Management initiatives have reduced impacts from human activities by removing redundant facilities and restoring impacted areas. Use and enjoyment of the accommodation and information services at the Kokanee Glacier Cabin, along with the interpretive role of the Slocan Chief Cabin have strengthened the public's appreciation for, and respect of, the rugged natural beauty and historical significance of Kokanee Glacier Provincial Park.*

*A strong emphasis towards ecosystem based management in the park and continued protection of vital connectivity corridors in the Southern Selkirk Mountains has provided rare and endangered wildlife species, such as grizzly bears, an opportunity to stabilize their populations. In some cases, species richness and diversity have increased within the park. Furthermore, with the efforts to reduce the "ecological footprint" in the park, fragile vegetation and plant communities are prolific and expanding.*

*The continuing pressures on the park's natural resources and wildlife values by outdoor enthusiasts, whether young or elderly, experienced or novice, guided or self-sufficient, in winter or summer, has been carefully mitigated by setting sustainable visitor use capacities. This has been accomplished by research and encouraging ecologically sustainable eco-tourism and by vigorously promoting backcountry wilderness ethics, practices and safety.*

*An era of greater understanding of First Nation's interests and greater sensitivity to their cultural and spiritual ties to the landscape have formed a holistic vision for management of the park.*

**Map 2: Park Zoning - click on link below**

**[http://wlapwww.gov.bc.ca/bcparks/planning/mgmtplns/kokanee/kokanglar\\_zone\\_1\\_map2.pdf](http://wlapwww.gov.bc.ca/bcparks/planning/mgmtplns/kokanee/kokanglar_zone_1_map2.pdf)**

# Protected Area Zoning

## Introduction

Zoning is a tool to assist in the planning and management of a provincial park. In general terms, zones divide a park into logical units for management. Zoning applies uniform and consistent management objectives based on natural, cultural and recreational values, and existing and projected patterns of access and recreational use in relation to specific conservation goals. The individual zones reflect the intended land use, the degree of human use, level of management and development permitted. The BC Parks Zoning Policy (Appendix C) includes five zones: Intensive Recreation, Natural Environment, Special Feature, Wilderness Recreation, and Wilderness Conservation.

Based on Kokanee Glacier Provincial Park's natural, recreation and cultural values, roles and vision statement, the park has been divided using four of these management planning zones. Although the park is frequented by a high number of park visitors in the core area and to a lesser extent the Keen, Enterprise, Lemon, and Woodbury drainages, the peripheral areas of the park are subjected to low use patterns where mechanized use is restricted to designated sites. The allowance for regulated mechanized activity in some areas and hunting (November only) within the entire park precludes management zoning at the highest level of conservation as a Wilderness Conservation Zone.

## Wilderness Recreation Zone

### Zone Objective

To provide a remote, undisturbed natural landscape and to provide backcountry recreation opportunities dependent on a pristine environment where air access may be permitted to designated sites.

### Zone Description

The Wilderness Recreation Zone encompasses approximately 30,757.6 hectares of Kokanee Glacier Provincial Park. This zone is applied to all park land residing outside of the core area of the park including all of the major creek drainages except Kokanee Creek. Backcountry cabin and camping facilities situated at the headwaters of Woodbury Creek and Silver Spray Creek are not included in this zone.

### Zone Rationale

The intent of this zone is to place a high priority on conserving the natural environment while providing some level of backcountry use that is consistent with its wilderness atmosphere. It is the second highest level of conservation management within the spectrum of management zones. Wilderness Recreation zones are large natural areas where natural ecological processes occur largely uninfluenced by human activity. Low levels of recreational use are permitted but evidence of human presence is confined to specific

primitive facilities and sites. Travel within the zone is limited to non-mechanized forms with the exception of low frequency air access to designated sites.

The Wilderness Recreation Zone allows for the continuation of dispersed, traditional wilderness recreational activities and support facilities. Activities include hiking, backpacking, rock climbing, and un-assisted backcountry skiing.

Infrequent (summer months only) helicopter usage in specific areas of the park (namely Caribou Ridge and Kokanee Glacier proper) and landing and departures at Crazy Jane Lake do not conflict with the intent of the Wilderness Recreation Zone.

Areas of the park with high grizzly bear activity are also included in this zone to help reduce the potential for bear-human conflict through low levels of use and facility development.

### Zone Activity/Use/Facility Matrix

The following Activity/Use/Facility Matrix defines the activities, uses and facilities that will apply to the Wilderness Recreation Zone in this park. The Allowable column indicates the generic status of such activity, use, or facility in the protected areas system. The Applied column indicates if the activity, use, or facility is applicable to the zone in this park. The symbols within the figures below are defined as follows: Y = allowed subject to conditions identified in the management plan; M = may be permitted if compatible with protected area objectives; N = not allowed; N1 = allowed for expressed management purposes only; N2 = present and allowed to continue (KBLUP-IS) but not normally allowed and N/A= not applicable.

| Activity  | Allowable in WR Zone | Applied in this Park's WR Zone |
|---|----------------------|--------------------------------|
| Beach activities (swimming, sunbathing, etc.)                                     | Y                    | N/A                            |
| Boating (power)   | N                    | N/A                            |
| Boating (non-power)   | Y                    | N/A                            |
| Camping – backcountry/no trace  | Y                    | Y                              |
| Commercial recreation (facility-based)  | N                    | N                              |
| Commercial recreation (non-facility based)  | Y                    | Y                              |
| Fishing   | Y                    | Y                              |
| Hiking and Walking  | Y                    | Y                              |
| Hiking (helicopter assisted)  | M                    | N                              |
| Hunting   | Y                    | Y                              |
| Natural and cultural values appreciation (birding, photography, wildlife viewing) | Y                    | Y                              |
| Recreational gold panning/rock hounding   | N                    | N                              |
| Scientific research (manipulative activities)                                     | M                    | N1                             |
| Scientific research (specimen collection)   | M                    | N1                             |

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| Activity                                      | Allowable in WR Zone | Applied in this Park's WR Zone |
|---|----------------------|--------------------------------|
| Skiing (downhill & cross-country track based) | N                    | N                              |
| Skiing (helicopter or snowcat assisted)       | N                    | N                              |
| Backcountry Skiing                            | Y                    | Y                              |
| Trapping                                      | N                    | N                              |

| Use   |    |     |
|---|----|-----|
| Aboriginal traditional uses and activities                  | Y  | Y   |
| Aircraft access   | M  | Y   |
| Exotic insect/disease control                               | Y  | Y   |
| Filming (commercial)  | N  | N   |
| Fire management (prescribed fire management)                | M  | M   |
| Fire management (prevention)                                | N1 | N1  |
| Fire management (suppression)                               | N1 | N1  |
| Fish stocking and enhancement                               | M  | M   |
| Forest insect/disease control                               | N  | Y   |
| Grazing (domestic livestock)                                | N  | N   |
| Guide outfitting (fishing)                                  | Y  | M   |
| Guide outfitting (hunting)                                  | Y  | N/A |
| Guide outfitting (nature tours)                             | Y  | Y   |
| Guide outfitting (river rafting)                            | Y  | N/A |
| Horse use/pack animals (not exotic)                         | Y  | N   |
| Motorized Water access                                      | N  | N/A |
| Non-motorized water access                                  | Y  | Y   |
| Noxious weed control  | N1 | N1  |
| Off-road Access (non-mechanical – dog sleds, horse sleds)   | M  | N   |
| Off-road Access (mechanical activities)                     | N  | N   |
| Off-road Access (motorized – not snowmobiles)               | N  | N   |
| Off-road Access (snowmobiles)                               | N  | N   |
| Pack animals (exotic)                                       | N  | N   |
| Facility  |    |     |
| Administrative buildings and compounds                      | N  | N   |
| Backcountry huts and shelters                               | M  | M   |
| Boat launches   | N  | N/A |
| Campgrounds and picnic areas (vehicle access and serviced)) | N  | N/A |
| Campgrounds (designated backcountry sites)                  | M  | Y   |
| Communication sites   | N  | N   |

| Facility                                       | Allowable in WR Zone | Applied in this Park's WR Zone |
|--|----------------------|--------------------------------|
| Interpretation and information buildings       | N                    | N                              |
| Roads and parking lots                         | N                    | N                              |
| Ski hills and snowplay areas                   | N                    | N                              |
| Lodges and other serviced accommodation        | M                    | N                              |
| Trails (hiking, cycling, cross-country skiing) | Y                    | Y                              |
| Utility corridors                              | N                    | N                              |
| Water control structures                       | N                    | N                              |

## Natural Environment Zone

### Zone Objective

The objective of this zone is to protect and to provide for backcountry recreation opportunities in a largely undisturbed natural environment.

### Zone Description

The Natural Environment Zone covers approximately 1,115.2 hectares of the park. The zone is applied to the trail corridor that stretches from Gibson Lake to Kaslo Lake, incorporating the entire facility infrastructure at Kaslo Lake and immediate area (campsite and the Kokanee Glacier Cabin). The eastern fringe of the zone incorporates Helen Deane Lake and the area surrounding the Slocan Chief Cabin. Also included in this zone are backcountry cabins/campsites located at Woodbury and Silver Spray and the road corridor within the Keen Creek drainage (between Desmond and Sturgis Creek).

### Zone Rationale

In Kokanee Glacier Provincial Park, the Natural Environment Zone encompasses areas which provide ease of access and have higher use levels than what is normally associated with a wilderness experience. This designation is intended to ensure that the activities and facilities do not dominate the natural setting but do reflect levels of use, including the number of hikers, backpackers, skiers, cabins and campgrounds.

### Zone Activity/Use/Facility Matrix

The following Activity/Use/Facility Matrix defines the activities, uses and facilities that will apply to the Natural Environment Zone in this park. The Allowable column indicates the generic status of such activity, use or facility in the protected areas system. The Applied column indicates if the activity, use or facility is applicable to the zone in this park. The symbols within the figures below are defined as follows: Y = allowed subject to conditions identified in the management plan; M = may be permitted if compatible with

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protected area objectives; N = not allowed; N1 = allowed for expressed management purposes only; N2 = present and allowed to continue (KBLUP-IS) but not normally allowed and N/A = not applicable.

| Activity  | Allowable in NE Zone | Applied in this Park's NE Zone |
|---|----------------------|--------------------------------|
| Beach activities (swimming, sunbathing, etc.)                                     | Y                    | N/A                            |
| Boating (power)   | Y                    | N/A                            |
| Boating (non-power)   | Y                    | Y                              |
| Camping - no trace  | Y                    | Y                              |
| Commercial recreation (facility-based)  | N                    | N1                             |
| Commercial recreation (non-facility based)  | Y                    | M                              |
| Fishing   | Y                    | Y                              |
| Hiking and walking  | Y                    | Y                              |
| Hiking (helicopter assisted)  | Y                    | N                              |
| Hunting   | Y                    | Y                              |
| Natural and cultural values appreciation (birding, photography, wildlife viewing) | Y                    | Y                              |
| Recreational gold panning/rock hounding   | N                    | N                              |
| Scientific research (manipulative activities)                                     | N1                   | N1                             |
| Scientific research (specimen collection)   | M                    | N1                             |
| Skiing (downhill & cross-country track based)                                     | N                    | N                              |
| Skiing (helicopter or snowcat-assisted)   | N                    | N1                             |
| Backcountry Skiing  | Y                    | Y                              |
| Trapping  | N                    | N                              |
| <b>Use</b>  |                      |                                |
| Aboriginal traditional uses and activities  | Y                    | Y                              |
| Aircraft access   | Y                    | N1                             |
| Exotic insect/disease control   | N1                   | N1                             |
| Filming (commercial)  | M                    | M                              |
| Fire management (prescribed fire management)                                      | N                    | N                              |
| Fire management (prevention)  | N1                   | N1                             |
| Fire management (suppression)   | Y                    | Y                              |
| Fish stocking and enhancement   | M                    | M                              |
| Forest insect/disease control   | M                    | M                              |
| Grazing (domestic livestock)  | N                    | N                              |
| Guide outfitting (fishing)  | M                    | N                              |
| Guide outfitting (hunting)  | Y                    | N                              |

| Use   | Allowable in NE Zone | Applied in this Park's NE Zone |
|---|----------------------|--------------------------------|
| Guide outfitting (nature tours)                             | Y                    | Y                              |
| Guide outfitting (river rafting)                            | Y                    | M                              |
| Horse use/pack animals (not exotic)                         | Y                    | M                              |
| Motorized Water access                                      | Y                    | N/A                            |
| Non-motorized water access                                  | Y                    | Y                              |
| Noxious weed control  | Y                    | Y                              |
| Off-road Access (non-mechanical – dog sleds, horse sleds)   | Y                    | N                              |
| Off-road Access (mechanical activities)                     | Y                    | N                              |
| Off-road Access (motorized - not snowmobiles)               | N                    | N                              |
| Off-road Access (snowmobiles)                               | Y                    | N                              |
| Pack animals (exotic)                                       | N                    | N                              |
| <b>Facility</b>   |                      |                                |
| Administrative buildings and compounds                      | N                    | N                              |
| Backcountry huts and shelters                               | Y                    | Y                              |
| Boat launches   | Y                    | N/A                            |
| Campgrounds and picnic areas (vehicle access and serviced)) | N                    | N                              |
| Campgrounds (designated backcountry sites)                  | Y                    | Y                              |
| Communication sites   | N1                   | N1                             |
| Interpretation and information buildings                    | N                    | Y                              |
| Roads and parking lots                                      | N                    | N                              |
| Ski hills and snowplay areas                                | N                    | N                              |
| Lodges and other serviced accommodation                     | Y                    | Y                              |
| Trails (hiking, cycling, cross-country skiing)              | Y                    | Y                              |
| Utility corridors   | N                    | N                              |
| Water control structures                                    | N                    | N1                             |

## Special Feature Zone

### Zone Objective

The objective of the Special Feature Zone is to protect and present significant natural or cultural values, features or processes because of their special character, fragility and heritage values.

## Zone Description

The Special Feature Zone covers approximately 15.2 hectares of the park. It applies specifically to the Slocan Chief Cabin and immediate surroundings.

## Zone Rationale

These special natural and cultural features are vulnerable to being impacted by public uses. The zoning precludes camping and other forms of specific recreational development. Management emphasises a high level of protection and ongoing monitoring and limits facilities to those used for interpretation. There is no Activity/Use/Facility Matrix for this zone. Additional sensitive and special features sites will be managed under this zoning regime as they are identified.

## Intensive Recreation Zone

### Zone Objective

The objective of the Intensive Recreation Zone is to provide a variety of readily accessible, facility orientated outdoor recreation opportunities.

### Zone Description

The Intensive Recreation Zone occupies approximately 147.8 hectares of the park. It is centered around the trailhead parking and day-use facilities at Gibson Lake.

### Zone Rationale

Intensive Recreation zones are focused on areas which are intensely developed for user convenience. Natural resources are kept in a primarily natural state but where human presence may be readily visible through the existence of recreation facilities and of people using this zone. Facilities designed for efficient operation while remaining unobtrusive to the park visitor.

### Zone Activity/Use/Facility Matrix

| Activity                               | Allowable in the IR Zone | Applied in this Park's IR Zone |
|--|--------------------------|--------------------------------|
| Camping - other                        | Y                        | N                              |
| Commercial recreation (facility-based) | N                        | M                              |
| Fishing                                | Y                        | Y                              |
| Hiking and walking                     | Y                        | Y                              |
| Activity                               | Allowable in the         | Applied in this                |

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|   | <b>IR Zone</b> | <b>Park's IR Zone</b> |
|---|----------------|-----------------------|
| Hunting   | N              | N                     |
| Natural and cultural values appreciation (birding, photography, wildlife viewing) | Y              | Y                     |
| Recreational gold panning/rock hounding   | N              | N                     |
| Scientific research (manipulative activities)                                     | N              | N                     |
| Scientific research (specimen collection)   | M              | N                     |
| Trapping  | N              | N                     |
| Boating (Non-power)   | Y              | Y                     |
| <b>Use</b>  |                |                       |
| First Nations traditional uses and activities                                     | Y              | Y                     |
| Exotic insect/disease control   | Y              | M                     |
| Filming (commercial)  | M              | M                     |
| Fire management (prescribed fire management)                                      | Y              | Y                     |
| Fire management (prevention)  | Y              | Y                     |
| Fire management (suppression)   | Y              | Y                     |
| Fish stocking and enhancement   | M              | M                     |
| Forest insect/disease control   | Y              | Y                     |
| Grazing (domestic livestock)  | N              | N                     |
| Guide outfitting (fishing)  | Y              | N/A                   |
| Guide outfitting (hunting)  | N              | N/A                   |
| Guide outfitting (nature tours)   | Y              | Y                     |
| Horse use/pack animals (not exotic)   | Y              | N                     |
| Noxious weed control  | Y              | Y                     |
| Off-road Access (mechanical activities)   | Y              | N                     |
| Off-road Access (motorised - not snowmobiles)                                     | Y              | N                     |
| Non-motorized water access  | Y              | Y                     |
| <b>Facility</b>   |                |                       |
| Campgrounds (vehicle access and serviced))  | Y              | N                     |
| Picnic areas (vehicle access and serviced)  | Y              | Y                     |
| Interpretation and information buildings  | Y              | Y                     |
| Roads and parking lots  | Y              | Y                     |
| Trails (hiking, cycling, cross-country skiing)                                    | Y              | Y                     |

# Natural and Cultural Values Management

## Introduction

Kokanee Glacier Provincial Park conserves and protects important elements of British Columbia's natural and cultural heritage. The challenge of park managers will be to continue to preserve the park's old growth forests and alpine environments, watershed sources, and habitat for a variety of species at risk while providing for an increasing demand for recreational opportunities. To ensure that natural and cultural values are managed in perpetuity, the Environmental Stewardship Division will apply an ecosystem management approach in the management of Kokanee Glacier Provincial Park.

This section of the management plan addresses management of the principal natural and cultural values of the park such as vegetation, water, and fish, which constitute the park's representative ecosystems and special features. Each section begins with a brief description of the values including the associated concerns and management needs. This is followed by the objectives and management strategies that are needed to implement the management vision for the park.

## Ecosystem Management Approach

The Environmental Stewardship Division is moving toward a more science dependent ecosystem-based management approach for protected areas to enhance ecosystem values and processes. This requires:

- integration of available science-based information with management.
- understanding of the interrelationships of the ecosystem's biological and non-biological components;
- a focus on long-term/or large-scale issues;
- a holistic view of the environmental system and environmental problems; and
- interagency co-operation given ecosystems extend beyond jurisdictional boundaries.

Much of this understanding, knowledge and the practices to implement an ecosystem management approach for protected areas are still in the formative stages and will be developed over time. In addition to this, Environmental Stewardship Division initiative, the KBLUP-IS also emphasized the importance of an ecosystem-based approach to land and resource planning and management to maintain healthy functioning ecosystems and, in protected areas, to maintain ecosystem representation.

Since the home range of various wildlife species is much larger than the protected area, effective management of the ecosystems is a challenge. The efforts to preserve and maintain species diversity within the park could be negatively influenced by land management practices outside of the park. Indeed, the concepts of island biogeography<sup>12</sup> are becoming more apparent in many large wilderness parks and Kokanee Glacier Provincial Park is no exception. Development (primarily logging) adjacent to the park is ongoing

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<sup>12</sup> The concept of Island Biogeography proposed by MacCarthur and Wilson (1962) states that big reserves are better than small reserves and that connected (or close) reserves are better than unconnected reserves.

and can adversely affect wilderness values if not carried out in a complementary manner. The WKBLUP and Higher Level Plan Order have rated that portion of the park residing in the Kootenay Lake Resource Management Zone<sup>13</sup> as a Intermediate Biodiversity Emphasis Option<sup>14</sup>. The western boundary and southern end of the park residing in the Arrow Lakes Resource Management Zone has been categorized as a High Biodiversity Option. In addition, most of the adjacent area outside the park boundaries has been designated as Special Resource Management Zones (SRMZ) in the WKBLUP. The SRMZs adjacent to the park contain associated natural values (e.g. wildlife connectivity) and a wide range of uses and facilities from industry to tourism, recreation, and community settlement. The Higher Level Plan Order further designated portions of Silverton and Fennel Creek drainages as Enhanced Resource Development Zones. This category allows for increased volumes of timber to be removed from these areas.

In addition to mitigating concerns over adjacent land use, ecosystem function within Kokanee Glacier Provincial Park is imperative. While some processes like climate are very complex and unmanageable, other processes such as wildfire, disease and insect infestation must be incorporated into management for the park.

There are large gaps in the information and our understanding of the ecosystems in Kokanee Glacier Provincial Park. Over the last several decades much of the management effort in the park has been directed to recreational values and enhancement. A shift in management focus is needed in order to develop a strategy for ecosystem management. Information and knowledge gaps need to be bridged and concise management practices developed.

## **Objective:**

To preserve unimpaired representative ecosystems, ecological values and natural ecological processes within the park while working with adjacent land managers to maintain the integrity of sensitive values in support of the park.

## **Strategies:**

- Increase information and understanding of ecosystem values and processes in partnership with other agencies and jurisdictions through the sharing of inventory and research<sup>15</sup>.
- Apply practices and principles, where appropriate, of the Environmental Stewardship Division's ecosystem based management approach as they are developed.
- Work co-operatively with other government agencies and land managers to ensure wildlife (e.g., grizzly bear, mountain goat and wolverine) habitat that exists external to the park is maintained, including effective connectivity throughout the region's protected areas, SRMZs and wildlife management areas.
- Ground truth existing Predictive Ecosystem Mapping (PEM)<sup>16</sup> for the park.
- Monitor and provide input into Landscape Unit Planning, Forest Development Plans, mineral exploration projects, and Commercial Recreation Proposals.

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<sup>13</sup> See Appendix J for a description of Resource Management Zones.

<sup>14</sup> See Appendix J for descriptions of BEO categories.

<sup>15</sup> Although BC Parks liaises with other agencies concerning activities adjacent to the park the mandated responsibility is to manage issues within the park.

<sup>16</sup> PEM completed in 2003.

- Co-ordinate the development of communication and educational resources with other agencies and private groups to enhance the overall effectiveness of activities that support ecosystem integrity.
- Provide input through provincial review processes for proposed major developments that may impact the park's ecosystem values (including fish and wildlife).
- Work with the Ministry of Forests and the Ministry of Sustainable Resource Management to retain mature and old-growth stands<sup>17</sup>, riparian, wetlands, flora, fauna, and other values adjacent to the park in support of the KBLUP-IS Conservation Objectives and Strategies and the RMZ objectives of the Higher Level Plan Order.
- Limit habitat fragmentation in the park when considering facilities or uses.
- Develop an ecosystem management<sup>18</sup> strategy that incorporates principles of ecological integrity including the major ecosystem components of vegetation, fish and wildlife and natural processes such as fire, insects, and diseases.

## Land and Resource Tenures

Tenures within Kokanee Glacier are predominantly connected with commercial backcountry guiding, accommodation, and visitor services. Currently, there are seven active park use permits. The Alpine Club of Canada (ACC) operates the reservation and maintenance services at the Kokanee Glacier Cabin for twelve months of the year. In addition, the not-for-profit organization operates and maintains backcountry facilities within the core recreation area and backcountry cabins at Woodbury and Silver Spray.

Private guiding companies offer a variety of day use hikes and multi-day traverses within the park. The Kokanee Glacier Cabin is quickly becoming a destination for guiding businesses because it offers clientele a wilderness experience with comfortable and spacious lodgings.

The winter use component of the ACC contract with Environmental Stewardship includes a helicopter taxi service. This is facilitated by two local helicopter companies which also hold park use permits to operate scenic flights within designated areas of the park (i.e. southwest corner of Kokanee Glacier proper and Caribou Ridge) and one location where helicopter accessible fishing is permitted (i.e. Crazy Jane Lake).

### Objective:

- To manage pre-existing tenures in keeping with the conservation objectives of the park.

### Strategies:

- Continue park use permit with the ACC while ensuring maintenance and operations agreements remain consistent with Environmental Stewardship standards.

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<sup>17</sup> See Appendix J for a definition of mature and old growth stands.

<sup>18</sup> Ecosystem management provides a conceptual approach for the protection of park ecosystems. It involves taking a more global view of the natural environment and ensuring that land use decisions take into consideration the complex nature of ecosystems. It is also important to keep in mind that park management will have effects on surrounding lands and their management (Parks Canada 2004).

- Monitor use levels associated with private guiding companies.
- Maintain existing helicopter access permits while ensuring strict compliance with flight guidelines.
- Continue to identify and report any impacts to natural and/or visual values from helicopter access or over-flights and amend or cancel park use permit if required.

## Vegetation

Kokanee Glacier Provincial Park is situated within the wet interior forest belt. The area is characterized by a short summer season with mild winters and high annual snowfall. The park is dominated by high elevation ecosystems, with close to 40% of the park classed as alpine<sup>19</sup>. Old growth forests (averaging more than 140 years in age) constitute approximately 30% of the park<sup>20</sup>. Late seral stage forests along with unique alpine meadows provide essential year-round habitat for a variety of wildlife. Although the highest representation of remnant ecosystems such as ESSFwc1 and ICHmw2 are sourced to neighbouring protected areas (i.e. Goat Range and Valhalla) Kokanee Glacier Provincial Park's contribution to these distinctive BEC subzones/variants is notable. The park is intersected by the Kootenay Lake Forest District (KLFD) and the Arrow Boundary Forest District (ABFD). Approximately two thirds of the park reside within the KLFD.

Owing to the twelve watersheds that originate in the park, significant riparian vegetation is present in most of the tributaries travelling out of the park. Keen Creek has approximately 8 km of riparian corridor and supports the only ICHwk1 BEC zone found within the park. Other tributaries such as Lendrum, Woodbury, Enterprise, Lemon, and Coffee Creeks all sustain riparian vegetation that is crucial for maintaining high quality stream flow for fish spawning and rearing.

With the exception of past logging in Coffee Creek and to a lesser extent Woodbury Creek, vegetation has been minimally disturbed by industrial use and activity. Former mining activities have had little effect on vegetation features within the park because extraction sites were located predominately on rock. Most roads associated with mining that penetrated the park have been converted to trails or have become overgrown. An exception is the Scranton Mine Road and former minesite, which requires rehabilitation to ensure that the long term environmental impacts on a nearby Pontiac Creek are lessened. Tailings and outcast from the old workings and their impact on vegetation have not been adequately studied.

One hundred years of recreational use in the core area of Kokanee Glacier Provincial Park has caused severe impact to vegetation in some areas. The recent initiative to remove facilities associated with the Slocan Chief Cabin (i.e. outbuildings, Kalmia Campsite and Ranger Station) to compensate for new services provided at the Kokanee Glacier Cabin has prompted a seed progeny project<sup>21</sup>. The main objectives of the study is to identify vegetation complexes, determine footprint areas to be removed or deactivated, collect seeds on-site, and perform a review of past work completed within the core area related to monitoring and site restoration. The project is currently in year one of a five year timeline.

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<sup>19</sup> Based on Baseline Thematic Mapping in Background Report.

<sup>20</sup> The Woodbury fire of 2003 reduced old growth forest cover considerable within the Woodbury drainage so this figure may be reduced following re-evaluation of forest cover within the park.

<sup>21</sup> Kokanee Glacier Provincial Park: Seed Progeny Project prepared by Novus Consulting (2003).

Additional sites that are currently receiving impacts from recreational use are campsites located at Kaslo Lake, Sapphire Lakes and the immediate area surrounding the Kokanee Glacier Cabin. The Kaslo Lake campsite has progressively become saturated with a network of undesignated social trails linking individual sites. Vegetation dieback and exposed mineral soil is evident in many locations. Furthermore, visitors to the Kokanee Glacier Cabin are utilizing the undeveloped sections of the lakeshore of Kaslo Lake. In this immediate area St. Johns-wort, a blue-listed plant species, has been reported.

Prior to the construction of the Kokanee Glacier Cabin an Environmental Impact Assessment (EIA) focussing on vegetation detailed the need to lessen any impacts associated with visitor use in the area surrounding Kaslo Lake<sup>22</sup>. Recommendation for signage and directional trails leading to and from the new cabin were detailed within the EIA and in 2003 were implemented.

In terms of natural events, the recent high intensity wildfire along the northern slopes of the Woodbury drainage removed a considerable amount of forest cover and understory vegetation. In some areas, the burn intensity was so severe that all organic material and soil substrate was removed. The research potential with respect to changing forest health and ecosystem dynamics within the 1,500 hectare wildfire is substantial.

Generally, the forests within the park are considered to be rarely or infrequently disturbed by natural processes or events that largely terminate the existing forest stand and initiate secondary succession (i.e. categorized as NDT 1 and 2)<sup>23</sup>. Likewise, over fifty percent of the park is classified as NDT 5 and consists of alpine and subalpine parkland. As natural disturbances occur in these areas approximately every 200 to 350 years, the park's old-growth forest ecosystem component is expected to normally remain undisturbed by catastrophic natural processes that result in successional changes.

The steep sided valleys of the park also create a unique stage for mass wasting events. Large snow and mudslides are not uncommon in late winter and in freshet. Some of the positive impacts from slides, avalanches and wildfires is the constant renewing of foraging vegetation for wildlife. Alternatively, such events can cause severe water quality issues such as increased turbidity and blockages of stream flow.

Rare and endangered plant species inventories are lacking within the park. However, one known blue listed flora species, St. John's-wort has been identified within the park. Recent Predictive Ecosystem Mapping has revealed the potential for two listed plant communities existing within the park<sup>24</sup>, but have not been confirmed by an on-site inventory. Given the data on red and blue listed species within the general area, rare and endangered plants species are likely to be located once vegetation inventories are completed.

Invasive and non-native weed species have yet to be confirmed within the park, however, spotted knapweed is known to occur outside of the park boundary along Forest Service Roads. A weed inventory of West Kootenay parks in 2002<sup>25</sup> cited nearby Kokanee Creek Provincial Park as having the highest number of weed species surveyed in the West Kootenay. A total of 14 species were identified, with spotted knapweed incorporating a large percentage (67%) of the species found. Within the park, the Woodbury fire of 2003

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<sup>22</sup> Kokanee Glacier Provincial Park Alpine Cabin: Environmental Impact Assessment for Vegetation and Fisheries Values (2001).

<sup>23</sup> See NDT disturbance categories in Appendix 1 of Kokanee Glacier Background Report (2004).

<sup>24</sup> Subalpine fir / black huckleberry / bear-grass ESSFwc1/00 and Subalpine fir / black huckleberry / bear-grass ESSFwc4/00, ESSFwc1/00 (KLFD and ABFD respectively).

<sup>25</sup> Invasive Non-Native Plants in West Kootenay Parks, J. Craig et. al (2002).

has also created a possible window of opportunity for non-native weeds to establish and must be monitored. Several roads and trails leading into the park have a high probability of being infested with non-native plant species.

## **Objective:**

- To protect rare and endangered plant species and native plant communities.
- To restore vegetation in areas damaged from recreational impact and return the sites to a natural condition.
- To maintain old growth forest ecosystems and processes.
- Close additional areas currently at risk and rehabilitate to a natural state.

## **Strategies:**

- Complete a comprehensive vegetation inventory to locate, identify, and map plant communities, rare species and threatened plant communities in areas that could potentially be impacted by recreation.
- Determine through on-site inventories the existence of blue-listed plant communities identified in Predictive Ecosystem Mapping.
- Continue the five year Seed Progeny Project initiated in 2003.
- Close and rehabilitate the Scranton Mine Road and former minesite.
- Develop a trail system plan (hardened pathways, boardwalks, signage) directing travel to and from the Kokanee Glacier Cabin.
- Discourage use of undeveloped sections of the Kaslo Lake foreshore by use of signage and natural barriers.
- Seek partners to realize the research potential of the post-fire landscape in the Woodbury drainage.
- Prepare a vegetation management plan for the above-mentioned areas that will identify management strategies (excluding commercial logging) for specific issues such as insect infestation, disease, non-native plant invasion and blowdown.
- Prepare a fire management strategy that defines the role of these natural disturbances in the maintenance of natural ecosystem diversity. This plan will also consider fire history, natural fire regimes, effects of suppression, historical use of fire by humans, concerns of other agencies and values in need of protection. Use of fire retardants within the park should be discouraged, unless public safety or facilities are at risk.
- Until the fire management strategy is prepared, Ministry of Forests and the Environmental Stewardship Division will jointly undertake an initial assessment of all wildfire based on guidelines set by the Fire Management Team<sup>26</sup>. The fire may be allowed to run its natural course as long as it meets landscape biodiversity objectives and visitors, adjacent commercial forests and park facilities are not in danger. The intent is to allow natural fires that occur under normal environmental (non-extreme) conditions to run their natural course. Use of heavy excavating machinery will not be permitted to fight fires in the park.

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<sup>26</sup> A Fire Management Team (FMT) has been established by the Ministry of Water, Land and Air Protection to address issues in areas under its responsibility arising from the 2003 fire season.

- Retain wildlife trees except where there is a hazard to visitors or facilities whereupon a Wildlife/Danger Tree Assessment will be conducted to determine the highest value and remedial action.
- Inventory, monitor and control the presence of non-native plants along access corridors and recreational use areas.
- Develop a inventory and control strategy for non-native plants occurring within the park.
- Remove non-native plants as required using the most effective low-impact method available.

## Water

Kokanee Glacier Provincial Park is distinctive with respect to water values in the Kootenay Region. The park contains the headwaters to twelve separate watersheds. In addition, the park contains the headwaters of the Bjerkness Creek community watershed. Another two community watersheds abut the northwest boundary of the park<sup>27</sup> and there is domestic water use (4 separate water licences) in that portion of Kokanee Creek which resides in the park<sup>28</sup>. Kokanee Creek is also regulated by the Fisheries Branch to enhance fishery values in Gibson Lake. To date, no water quality or monitoring studies have been undertaken in the park<sup>29</sup>.

Recreational impacts appear to have a minimal effect on water quality issues. The majority of campsites have specific grey water collectors and outhouses are equipped with fly out effluent barrels.

The portions of the Woodbury drainage affected by wildfire in 2003 should be monitored for water quality issues, especially in periods of heavy precipitation or in freshet. Downstream effects such as an increase in turbidity and total dissolved solids may negatively influence fish habitat and water quality.

Kokanee Glacier Provincial Park contains six glaciers, five of these individually occupy less than a 1km<sup>2</sup>. Kokanee Glacier is the largest and most prominent of these remnant ice features encompassing a land area of approximately 4 km<sup>2</sup>. All of the glaciers are slowly receding and the influences of global warming may have a negative impact on their future<sup>30</sup>.

### Objective:

To protect and maintain the natural quality and quantity of water in the park.

### Strategies:

- Ensure recreational activities have minimal impact on erosion of surface materials and do not compromise water quality.

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<sup>27</sup> See community watershed map in Background Report.

<sup>28</sup> See Appendix C in Background Report for water licence descriptions.

<sup>29</sup> A detailed water quality study for the Bjerkness and Kemp Watersheds (residing outside of the park) is available at [http://srmwww.gov.bc.ca/appsdata/acat/html/deploy/acat\\_p\\_report\\_301.html](http://srmwww.gov.bc.ca/appsdata/acat/html/deploy/acat_p_report_301.html).

<sup>30</sup> No recent studies of glaciers in the park have been conducted. Studies performed in the 1960's were unavailable for review. Based on physical and photo observations only.

- Establish long term monitoring of Kaslo Lake water levels and water quality in upper reaches of Keen Creek to ensure minimization of any adverse effects from operations of the Kokanee Glacier Cabin. Engage in remedial work if necessary.
- Manage use to ensure proper disposal of human waste in backcountry and wilderness areas.
- Ensure sanitary facilities are properly designed and located.
- Any further water impoundment, diversions, or new domestic use projects must be in accordance with the *Park Act*.

## Fish and Aquatic Values

Kokanee Glacier Provincial Park contains significant fish spawning and rearing habitat. Sixteen lakes within the park support fish and the majority of the larger lakes were stocked in the late 1970's and early 1980's with westslope cutthroat trout. This species, along with bull trout, which are found predominantly in Keen Creek and the lower reaches of Coffee Creek, are both ranked provincially as blue-listed. Other fish species known to occur within streams in the park are mountain whitefish, rainbow trout, slimy sculpin, torrent sculpin and eastern brook trout. The latter is an introduced recreational sport fish that is known to force indigenous fishes from their original native habitat and have been shown to alter the genetic integrity of wild, native fish.

Currently, stream and lake surveys identifying fish abundance and species diversity within the park is lacking, however, surveys funded through FRBC (Forest Renewal British Columbia) in 1997-2000 were conducted on several watersheds outside of the park, namely in Coffee, Keen, Klawala, Kyawats, Ben Hur and Enterprise Creeks<sup>31</sup>. The surveys provide insight into fish species diversity and richness in streams that emanate from the park.

Generally, all the fish bearing lakes within Kokanee Glacier Provincial Park (e.g. Kokanee, Kaslo, Sunset, Upper Joker, Nalmet and Gibson) all have inlets or outlets that support, to varying degrees, spawning populations of endangered westslope cutthroat. Anecdotal reports point to most of these lakes containing large numbers of cutthroat trout, but individual fish tend to be small and stunted. This is a direct result of short growing seasons (due to the high altitude of all the lakes); the lakes generally are of low productivity, and there is unrestricted natural recruitment. The Fish and Wildlife Science and Allocation Section is not contemplating doing any study in the park because the fishery is a low management priority.

Prior to construction of the Kokanee Glacier Cabin facility, an environmental impact assessment was conducted that outlined potential angling pressure to the fishery at Kaslo Lake and the upper reaches of Keen Creek<sup>32</sup>. The study reiterated the lack of any current fish data. Detailed in the report was the need to continually reassess the impacts on the recreational fishery at Kaslo Lake because of a perceived increase in angler use.

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<sup>31</sup> Detailed fish surveys for streams residing outside of the park are available at [http://srmwww.gov.bc.ca/appsdata/acat/html/deploy/acat\\_p\\_report\\_301.html](http://srmwww.gov.bc.ca/appsdata/acat/html/deploy/acat_p_report_301.html). Forest licencees have no obligation to survey waterways outside of their operating areas.

<sup>32</sup> Kokanee Glacier Provincial Park Alpine Cabin: Environmental Impact Assessment for Vegetation and Fisheries Values (2001).

## Objective:

- To maintain/restore natural fish habitat and conserve all natural fish populations.

## Strategies:

- Develop and implement a fish inventory and management strategy with other agencies (including forest licencees) and First Nations to address needs both inside and adjacent to the park.
- Ensure adequate water supply and quality for endangered fish species and other resident indigenous fish stock.
- Conduct inventories of indigenous and resident fish populations as required.
- Ensure sanitary facilities in backcountry cabin/campsite locations within the park are non-polluting.
- Implement a creel census of Kaslo Lake and outflow tarns associated with the upper reaches of Keen Creek.

## Wildlife

One of the greatest challenges in the future management of Kokanee Glacier Provincial Park will be to sustain essential wildlife habitat and maintain biodiversity, despite the growing popularity of the park as a year-round recreation destination. The park, along with other large wilderness protected areas, such as Valhalla, Goat Range and the Purcell Wilderness Conservancy, provides important habitat and creates critical linkages for wildlife movement in the West Kootenay.

Because of the severity of the climate and generally rugged topography of the park, only the most resilient and adaptive species flourish. Deer and elk populations are low because of the lack of foraging areas and numbers are mostly concentrated on peripheral areas. Both Rocky Mountain bighorn sheep and mountain caribou were once known to use the park but are now locally extirpated<sup>33</sup>. A small diversity of amphibian, reptiles and invertebrates could potentially be found within the park<sup>34</sup>, but deficiencies in baseline data and inventory are a contributing factor in not being able to confirm species existence.

In spite of the absence of detailed study, over sixty bird species have been observed within the park. In addition, visual confirmation from helicopters and hiker traffic have also aided in determining that mountain goats utilize remote sections of the park usually along the isolated ridges above tree line, namely in the Coffee, Enterprise, Woodbury and Keen Creek drainages. Principle large predator species such as the mountain lion are known to use the uplands of the park, likely seeking shelter and avoidance in the remote broken granite landscape in summer and then moving to valley bottoms in winter. Grizzly bears, have traditionally used the park along with the wolverine, both of which are listed as endangered in British Columbia. Fisher, a red-listed species could potentially occur within the park, but to date no sightings have been reported.

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<sup>33</sup> BC Parks Conservation Risk Assessment: Kootenay Region (2001).

<sup>34</sup> For a comprehensive lists of potential species see Appendix E and page 12 of the Background Report.

One of the highlights of the park is the varied habitat associations with respect to prime bear habitat. The headwater topography fosters rich riparian habitats for bears while valley sides are lined with avalanche chutes and provide an abundance of berries and other seasonal vegetation. Other staple nourishments for bears are provided by alpine meadows and barren surfaces which allow digging for ground squirrels and corms of avalanche lily. The alpine also provides denning areas for grizzly bears while mid-elevation old growth western red-cedar forests provide denning structures for black bears.

Although it is difficult to estimate with any degree of accuracy the number of grizzlies that use the park annually, scientists have estimated it could be up to 15 or more, including 3-4 nursery groups<sup>35</sup>.

Within the last 19 years, there have been 26 encounter type situations. 81% of the events involved grizzly bears (either sub-adults or sows). Following the recommendations of four studies focusing on bear-people management between 1985 and 2000, a strategy to close areas to public use (removal of facilities, seasonal closures) and to educate park visitors has contributed to the absence of any human injury from bear-people encounters.

Historically, the upland<sup>36</sup> portion of the park appears to receive the highest frequency of grizzly bear movement. From a connectivity-habitat perspective, the high amount of park facility infrastructure located in the Kaslo Lake area needs to be monitored to determine its impact on grizzly bear movement<sup>37</sup>.

The facility infrastructure in Kokanee Glacier Provincial Park and subsequently the recreation opportunities offered, particularly in winter, results in the reliance on helicopters. Furthermore, helicopter tours in select portions of the park must be monitored for their impact on wildlife populations, specifically mountain goats, wolverines and grizzly bears. In the past, heli-fishing was moved from Grey Eagle Lake because of the potential for disturbance of grizzly bears using the area as a major glacier lily corm feeding site.

Managing wildlife values is one of the most difficult challenges for a wilderness area such as Kokanee Glacier Provincial Park. There is a lack of adequate study in the park with respect to the cumulative effects of recreation use and facility development on rare and endangered species. There is also a shortage of inventories and baseline data on wildlife within the park. The natural dynamics of wildlife movement in and out of parks over a large area complicates an already limited knowledge of the species diversity in Kokanee Glacier Provincial Park. These knowledge gaps dictate the need for enhanced sharing and co-ordination of management between a number of agencies. Some agreements already in place between government agencies are helping co-ordinate the management of wildlife, including sharing information and assisting with inventory collection.

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<sup>35</sup> Wayne McCrory RPBio pers. comm (2004).

<sup>36</sup> The uplands are defined as the subalpine core of the park and includes areas to Lemon Pass , as well as Enterprise Pass to Tanal Lake.

<sup>37</sup> Where animal movements are squeezed into relatively narrow, confined passageways, often surrounded by steep walled, often impassable terrain a “pinch point” may be created for grizzly bear movement (from McCrory 2000).

**Map 3: Grizzly Habitat and Movement - click on link below**

**[http://wlapwww.gov.bc.ca/bcparks/planning/mgmtplns/kokanee/kokangla\\_grizhab\\_map3.pdf](http://wlapwww.gov.bc.ca/bcparks/planning/mgmtplns/kokanee/kokangla_grizhab_map3.pdf)**

## Objective:

- To sustain the natural diversity of wildlife species and habitat, with priority given to rare, endangered or threatened species.

## Strategies:

- Develop a wildlife inventory with priority on red- and blue-listed species.
- Expand above inventory to include a comprehensive two year grizzly bear movement/habitat suitability project encompassing the entire park (use of Geographic Information Systems to detail habitats and connectivity).
- Increase the knowledge and understanding of wildlife and their habitat requirements both inside and outside the park.
- Encourage research aimed at better understanding the cumulative effects of recreational use (i.e. helicopters and hiker traffic) on species such as mountain goats, wolverine, and grizzly bears.
- Manage wildlife values as a higher priority over recreational activities (i.e. re-examine hunting regulations, develop a recreational carrying capacity).
- Place greater emphasis on using the “precautionary principle”<sup>38</sup> with regards to managing wildlife.
- Develop a co-ordinated long-term approach to wildlife management with other government agencies, including the Ministry of Forests, the Ministry of Sustainable Resource Management and First Nations, with emphasis on species at risk, including: maintaining ecosystem representation, conservation and use, management of biodiversity; access, connectivity and range management; and co-ordinating wildlife management objectives.
- Encourage the assistance of volunteers and others to collect wildlife data with BC Parks Observation Cards (e.g. bird watching clubs, anglers, heli-taxi and tour operators, etc.)
- Manage bear/human conflict in accordance with the BC Parks Bear-People Conflict Prevention Plan.

## Cultural Heritage Values

Kokanee Glacier Provincial Park is situated within the traditional territory of two First Nation groups: the Okanagan and the Ktunaxa Kinbasket. Much of First Nations uses of the area were concentrated in major lake corridors (i.e. Kootenay, Slocan and West Arm) and accompanying valleys, often by-passing rugged mountains, such as those found in the park. The Sinixt<sup>39</sup> and Ktunaxa peoples use of the area near the outlet of Kokanee Creek (located outside of the park) as a seasonal village for food gathering, hunting and fishing grounds is well documented. For example, a “grease trail” was located from Lemon Creek to the outlet of Duhamel Creek at the West Arm of Kootenay Lake<sup>40</sup>.

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<sup>38</sup> The lack of full scientific certainty as to the impacts should not be an adequate reason to postpone measures that will protect the resource (Section 38 Bill C-5- Species at Risk Act).

<sup>39</sup> Regarded as an extinct cultural group.

<sup>40</sup> Grease trail- an intertribal trade route. Eileen Pearkes: Recovering Stories of a Landscape’s First People (Nelson: Kutenai House, 2003), 19.

Place names within the park sourced from the Salishan or Upper Kutenai dialect abound within Kokanee Glacier Provincial Park. The word “Kokanee” is an Anglicization of the Okanagan-Colville term that applies to the species of land-locked sockeye salmon. Other names such as Tanal, Nilsik, Kyawats, Klawala, Natanek, and Paupo have their origins in the Kutenai language. However, documentation of traditional use within the park is absent, as are the existence of any archaeological sites associated with First Nations.

In colonial times, the West Kootenay region was a focal point for mining exploration. The mining boom in nearby Sandon and the Slocan Mountains spread to land now within the present day park. Several of the mine developments took place on a large scale, such as the Molly Gibson Mine and Scranton Mine and were in operation for over 50 years. During the lucrative years of ore removal several camps emerged on the landscape. Backcountry cabins currently located at the headwaters of the Silver Spray and Woodbury drainages are essentially lying on the footprint of former mining cabins. Many of the popular hiking trails within the park are also past miner’s routes, once witness to the hauling of men and material on the backs of mules using extensive an network of skid trails.

Today, the Slocan Chief Cabin is the only intact wooden structure that remains from this era of pioneer mining. Originally built in 1896, the cabin evolved from being a shelter for miners to a ski and hiking destination for local residents following establishment of the park in 1922. The cabin is steeped in history and the outer logs and interior walls display a written testament (initials and engravings) to the hardy recreational enthusiasts that ventured into the park from the early part of the 20<sup>th</sup> century to present. Nevertheless, time and weathering has deteriorated the structure. Construction of the Kokanee Glacier Cabin has replaced the Slocan Chief as the key accommodation facility offered in the core area of the park. A restoration project<sup>41</sup> initiated as part of the Kokanee Glacier Cabin Campaign will see the historic cabin renovated and promoted as a special interpretive feature within the park.

## **Objectives:**

- To gain a better understanding of the pre- and post-contact history associated with the park.
- To locate important First Nations cultural heritage sites and ensure their protection.
- To work with First Nations and other government agencies to ensure First Nation access to important cultural heritage sites (if located).
- To preserve the past remnants of mining activity within the park and promote the historical significance of the Slocan Chief Cabin.

## **Strategies:**

- Protect 'in situ' important features and traditional use sites if located within the park. Such sites will not be identified on any public park literature in order to protect them from damage.
- Implement the BC Archaeological Assessment Guidelines whenever development plans have the potential to disturb traditional use sites.

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<sup>41</sup> The Friends of West Kootenay Parks are conducting the renovation project under the direction of Parks and Protected Areas.

- Work with First Nations and the Archaeology Planning and Assessment Section, Ministry of Sustainable Resource Management, in managing the archaeological and heritage resources in the park including adherence to research standards and protocols.
- Research, document, and interpret the structural remains associated with the larger more prominent mine sites within the park (i.e. Molly Gibson, Joker, Scranton).
- Restore the Slocan Chief Cabin so that it may serve as a special day-use interpretive feature of the park.

## Visual Values

The viewscapes offered within Kokanee Glacier Provincial Park become more apparent as park visitors access higher elevations. Outstanding views are offered in a variety of locations in the park. Some of the most notable are:

- the base of Woodbury Glacier from the Woodbury Cabin
- mountain scenery surrounding the Silver Spray Cabin
- alpine tundra and water cascades associated with the Sapphire Lakes
- imposing cliff faces of the Sawtooth Range
- stark terrain features of the Kokanee Glacier
- the post fire landscape of the Woodbury drainage<sup>42</sup>

## Objectives:

- To minimize human-caused changes to the views in and out of the park so that the visual qualities and wilderness nature is protected.
- To design and situate park facilities in a manner that preserves the visual integrity of the park.

## Strategies:

- Locate and design all park facilities in harmony with the visual setting and in accordance with park zoning objectives.
- Encourage the Ministry of Forests and forest licensees to help ensure, through the Forest Development Plan Review Process, that areas outside the park boundary are managed in accordance with the *Forest and Range Practices Act*<sup>43</sup> of British Columbia to protect viewscapes.
- Work with the Ministry of Forests, the Ministry of Sustainable Resource Management and other agencies to protect the visual integrity of the park from impacts of adjacent uses.

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<sup>42</sup> The area remains closed to the public pending safety assessments.

<sup>43</sup> The Act and regulations take effect Jan. 31, 2004. Any activities already approved under the existing Forest Practices Code may continue until Dec. 31, 2005. After that, all planning and on-the-ground work must comply with the Forest and Range Practices Act and regulations.

## Scientific Research and Education

To date, minimal amount of scientific research and education has been conducted within the park. Environmental stresses (e.g. global warming, wildfire, recreation) on the park will undoubtedly create greater interest in establishing a solid foundation of baseline scientific knowledge.

### Objectives:

- To encourage appropriate scholarly research relating to the natural and cultural history of the park.
- To encourage multi-agency co-operation in the field of protected areas scientific research and education.
- To promote education and conservation through increasing understanding of the natural and cultural values of the park.
- To encourage positioning of the park as a comparative benchmark for monitoring ecological change.

### Strategies:

- Encourage colleges, universities, other agencies, and corporate sponsors to establish funding for and to undertake appropriate and timely research studies including inventory and monitoring of values at risk.
- Limit scientific research that involves collecting specimens.
- Ensure that any material that is collected for scientific research will remain the property of the Province of British Columbia, regardless of where it is stored.

## Outdoor Recreation Opportunities Management

### Introduction

Kokanee Glacier Provincial Park offers a range of wilderness experiences within close proximity to major population and tourist centres in the West Kootenay. The park's unique recreation features promote the park as a destination in both winter and summer and appeal to park visitors with a range of outdoor skill levels. The diversity of opportunities offered in the park need to be carefully managed so that they are compatible with the park's zoning; are not detrimental to the natural and cultural values; are consistent with visitors' expectations; and respect the Vision Statement of this management plan.

Despite significant increases in park visitation over the last several decades, Kokanee Glacier Provincial Park has been able to retain its unique wilderness features. The sense of solitude and pristine mountain scenery are integral parts of the attraction of this area. Balancing growing recreational demands while maintaining the ecological integrity of the park will be the greatest challenge to park managers. The overall intent is to preserve the natural character of the park in tandem with supplying recreational opportunities that encourage visitors to understand, respect and appreciate the park's values. For this to occur, the

Environmental Stewardship Division must assess the impact of recreational activity in the park in co-operation with local residents, conservationists, First Nations, and recreational users.

Within the commercial guiding and recreation industry, Kokanee Glacier Provincial Park is viewed as a preferred destination. Undoubtedly in the future operators will pursue even more outdoor opportunities offered within the park, focussing on the Kokanee Glacier Cabin. Presently, all backcountry lodgings in the park are operated by the ACC (a non-profit society) and several commercial guiding businesses hold permits to operate within the park. It is important for the Environmental Stewardship Division to balance public and commercial recreation use both to ensure fairness of access to the park and to protect the natural values that contribute to the recreation experience.

This section of the management plan describes the strategies for managing outdoor recreation, park visitation and for providing park information. It will consider:

- Providing opportunities for people to experience the park in ways that are compatible with park features/values;
- Providing outdoor recreation activities in such a way that there are minimal conflicts between user groups;
- Providing the tools for creating public awareness of and respect for the natural and cultural values in the park; and
- Using the tools of science and research to guide recreational use decisions.

**Map 4: Recreation and Significant Features - click on link below**

**[http://wlapwww.gov.bc.ca/bcparks/planning/mgmtplns/kokanee/rec\\_kokangla\\_b\\_map4.pdf](http://wlapwww.gov.bc.ca/bcparks/planning/mgmtplns/kokanee/rec_kokangla_b_map4.pdf)**

# Outdoor Recreation Opportunities and Facilities

## Hiking, Camping and Backpacking

The popularity of Kokanee Glacier Provincial Park as a hiking and backpacking destination has grown significantly within the last 20 years with over 18,000 park visitors annually<sup>44</sup>. Within the park there are over sixty-five kilometres of hiking trails, three backcountry cabins for overnight accommodation, a large day-use area offering a picnic shelter and a historic day-use interpretive cabin. Easy road access, especially in the Gibson Lake corridor, allows for a high number of both day use and overnight visitors in the core area of the park (Map 4). Traditionally, the Slocan Chief Cabin was a preferred destination, however, the new Kokanee Glacier Cabin situated at Kaslo Lake, has become an additional attraction to the park. The spacious (approximately 5000ft<sup>2</sup>) timber frame cabin, sleeps up to twenty people and is equipped with all standard amenities (i.e., flush toilets, heat, electricity, showers). Prior booking of bed space is administered through the Alpine Club of Canada.<sup>45</sup>

Additional backcountry cabins located at the headwaters of the Woodbury and Silver Spray drainages complement the overnight shelter accommodation within the park. Trails leading to these cabins are easily reached within half a day's hiking. Campsites are also located at both Woodbury and Silver Spray, often serving as an overflow for park visitors who have not booked the cabin(s) prior to arrival<sup>46</sup>.

Two other designated campsites are located within the park. Kaslo Lake is one of the most popular sites located adjacent to the Kokanee Glacier Cabin facility, while Tanal Lake provides more rustic camping<sup>47</sup>. Several remote lakes in the park offer wilderness camping, namely Blue Grouse Basin and Crazy Jane Lake. Campfires are not permitted in the park.

A small contingent of park users enter isolated regions of the park for mountaineering or glacier travel. This use is concentrated in areas between the Woodbury Glacier and the headwaters of the Silver Spray drainage. Kokanee Glacier proper also receives visitors hiking from Smugglers Ridge. The northeast corner of the park, specifically the area surrounding Caribou Ridge and Mt. Chapman contains opportunities for hiking. Much of this high elevation area is dotted with alpine lakes and once part of the Kokanee Glacier Recreation Area<sup>48</sup>. Day use is primarily focussed around the facilities at Gibson Lake, with short, easy hiking trails that are suitable for young children, families and the elderly.

Preventing human-bear conflict has been a management priority for BC Parks since the early 1980's. Many trails and facilities have been closed or decommissioned within the park to mitigate the potential hazards to both bears (grizzly and black) and park visitors. Seasonal closures that coincide with prime feeding times

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<sup>44</sup> Statistics from 1976 indicate approximately 2,600 visitors in that year (Background Report).

<sup>45</sup> Alpine Club of Canada operates the cabin year round under contract to BC Parks.

<sup>46</sup> Alpine Club of Canada operates the cabins at Woodbury and Silver Spray in summer only.

<sup>47</sup> The Sapphire Lakes campsite has been recommended for removal as part of this Management Plan.

<sup>48</sup> See Background Report.

are also in effect for areas such as the Joker Lakes-Helen Deane trail. Dogs are not permitted within the park because of the potential for wildlife harassment<sup>49</sup>.

## Objectives:

- To provide backcountry lodgings at Kaslo Lake (Kokanee Glacier Cabin), Silver Spray and Woodbury while maintaining strict controls on accommodation capacity.
- To provide a variety of backcountry and wilderness hiking and camping opportunities dependent on a wilderness environment.
- To continue to provide easily accessible day-use activities at Gibson Lake.
- To assess and monitor the impact of backcountry visitors on natural and cultural values.

## Strategies:

- Maintain status-quo of a available bed space/overnight visitor capacity associated with backcountry cabins<sup>50</sup>.
- Continue to promote use at designated campsites.
- Close, relocate or improve trails as required if bear and visitor safety problems arise.
- Use BC Parks' Impact Assessment processes prior to developments to assess and mitigate impacts.
- Assess conditions and monitor backcountry visitor numbers and destinations to protect natural values in accordance with the Backcountry Recreation Impact Monitoring (BRIM) Policies.
- Educate visitors about minimum impact camping (backcountry wilderness ethics) at all sites in the park to avoid site degradation and minimize human-bear conflicts.
- Continue education and enforcement of regulations pertaining to “no dogs” and “no campfires”.
- Develop a carrying capacity model for core area of park.
- Explore the feasibility of creating a summer trail system in the northeast corner of the park (Mt. Chapman) to alleviate stress on the core area from high visitor use.

## Backcountry Skiing

For several decades, backcountry skiers have been venturing into the core area of Kokanee Glacier Provincial Park. Traditionally, the lodgings at the Slocan Chief Cabin served as a base for skiers seeking deep powder skiing. In 1989, BC Parks began a lottery system for the cabin to regulate the increasing demand for recreational skiing in the core area of the park. A cabin custodian was hired to assist in the maintenance duties of the cabin. Four years later, a private company assumed the administration of the lottery and operated/maintained the cabin from early December to late May<sup>51</sup>. To provide a steady influx of visitors and to prevent access issues, the private company began to use a helicopter taxi service to the

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<sup>49</sup> Dogs can also provoke bear confrontation. Dog fecal matter carries bacteria that is potentially fatal to wildlife and can cause illness in humans if it contaminates the water supply.

<sup>50</sup> See Background Report for available bed space in respective cabins.

<sup>51</sup> Kokanee Glacier Mountaineering Incorporated.

Slocan Chief Cabin. In the mid 1990's, a proposal by the company to expand winter skiing opportunities at the Silver Spray Cabin was accepted by BC Parks.

Tragedy struck skiers using the Silver Spray Cabin in 1998. A major avalanche occurred in steep terrain not far from the cabin, killing six, including the cabin custodian. The Silver Spray Cabin was closed to winter use following recommendations of an independent consultant<sup>52</sup>.

The area surrounding the Slocan Chief Cabin has also witnessed fatalities from avalanches. To date, seven deaths have occurred within the core area or proximal to it, including the death of Michel Trudeau<sup>53</sup> in 1998, and two deaths in 2003.

On average, twelve deaths a year are attributed to avalanches in Canada. In 2002/03, twenty-one deaths occurred in British Columbia and Alberta alone<sup>54</sup>. Often victims of avalanches are experienced, knowledgeable and well-equipped for travel in winter mountain conditions. Kokanee Glacier Provincial Park offers excellent snow conditions favoured by skiers<sup>55</sup> and the deaths over the last ten years have involved primarily seasoned backcountry users.

The impetus for the construction of the Kokanee Glacier Cabin in early 2000, was not only to replace the aging Slocan Chief Cabin, but also to increase avalanche awareness in the park and British Columbia. The Canadian Avalanche Association (CAA) along with the Alpine Club of Canada (ACC) has continued to work with the Environmental Stewardship Division to enhance the safety to park visitors utilizing the cabin in winter and to promote avalanche education.

As with the former Slocan Chief Cabin, the new cabin is booked solidly throughout the winter season with a lottery system in effect for reservations. The ACC caretakes and administers the cabin on a year round basis. Traditionally, demand for cabin accommodations far exceed supply, with bed spaces kept to a maximum of twelve. Guests pay up to \$700 (including helicopter) for lodgings and to ski the terrain around the cabin for a week, shuttled to and from the park via a helicopter taxi service. The lottery system dictates when a party is allowed to use the cabin facilities. Responsibility rests with park visitors to decide whether or not to ski should snow pack conditions be unsuitable or regarded as unsafe.

No professional guides<sup>56</sup> reside at the cabin. If guests choose, they are able to hire a guide beforehand through the ACC. Custodians at the cabins provide avalanche bulletins and safety tips and do not direct skiers where to go in terms of skiing. Guests are not permitted to fly-in and ski out because of avalanche hazards on the route out of the park.

For those park visitors attempting to access the park by ski or snowshoes from trailheads (i.e. Gibson Lake, Enterprise Creek, Keen Creek), most routes cross significant avalanche terrain. The possibility of natural or skier triggered avalanches is highly dependant on snow pack conditions and weather, which at that elevation can change considerably over twenty-four hours. Moreover, access to trailheads is severely limited because

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<sup>52</sup> Avalanche Risk Assessment: Silver Spray Hut and Associated Terrain (Stevens and Bay, 1998).

<sup>53</sup> Son of former Prime Minister Pierre Trudeau.

<sup>54</sup> Canadian Avalanche Association (2004).

<sup>55</sup> Reputed to be one of the best destinations for powder skiing in Western Canada (Summits and Icefields).

<sup>56</sup> A guide certified for winter travel by the Association of Certified Mountain Guides.

roads leading to the park are not maintained in winter. Snowmobile access via Keen Creek for the purposes of skiing in the core area has occurred infrequently.

## Objective:

- To continue to provide winter backcountry recreation opportunities associated with the Kokanee Glacier Cabin.

## Strategies:

- Continue to liaison with the Canadian Avalanche Association with respect to providing up to date avalanche bulletins and education.
- Ensure trailhead access remains closed and signage warning visitors of the potential ongoing avalanche danger is in place and maintained.

## Mechanized Activities

Although some mechanized activities such as helicopters, ATV's, snowmobiles and mountain bikes are accommodated in some provincial parks in British Columbia, these activities are generally not compatible with the wilderness nature and land use intent of many protected areas. Mechanized recreation is more suitable in areas that are less environmentally vulnerable and in areas supported by appropriate infrastructure such as a road/trail network.

Mechanized use is growing in popularity and its impact on park values is the subject of debate. Snowmobile proponents, for example, claim impacts are non-existent or negligible given winter conditions, however, snowmobiles and other forms of mechanized recreation are known to have impacts on wildlife values in other areas.<sup>57</sup> Snowmobiles have been known to use the Keen Creek drainage up to Joker Lakes.

All-terrain vehicles and motorcycles are also known to travel the Keen Creek corridor, on the old road<sup>58</sup>. Sections within the park have been subjected to several washouts; one major failure located 1 km south of Desmond Creek and another closer to the terminus of the road at the Joker Millsite. These obstacles preclude any trucks or cars travelling the full extent of the road within the park. As such, BC Parks prohibited vehicular access in this area in 2000, but ATV's and motorcycles remain able to negotiate the first washout and travel to points beyond. Access is primarily by local residents seeking fishing opportunities at either Joker Lakes or along Keen Creek.

Mountain biking has also become popular in some drainages. Currently, bicycles are only permitted on the Keen Creek Road. Reports from ranger staff indicate that local riders from Nelson are utilizing both Enterprise and Lemon Creek trails to access the core area. From here they use the Kokanee Creek trail to descend to Gibson Lake.

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<sup>57</sup> K. Simpson and E. Terry, Impacts of Backcountry Recreation Activities on Mountain Caribou

<sup>58</sup> The Kokanee Glacier Provincial Park and Recreation Area Master Plan (1990) states that the Keen Creek Road is open to mechanized conveyances.

Helicopter use is addressed separately under Commercial Recreation (p.47).

## Objective:

- To maintain wilderness recreational values free from mechanized recreation impacts.

## Strategies:

- Prohibit all forms of mechanized recreation in all areas of the park except as provided for in this management plan.
- Secure bicycle storage at the end of the maintained section (Ministry of Transportation) of the Keen Creek Road.
- Establish a designated trailhead where Keen Creek Road intersects with the park boundary
- Ensure Keen Creek access into the park remains open to bicycles.
- Encourage, through inter-agency planning processes, mechanized recreation outside the park in areas unlikely to impact wildlife connectivity.
- Additional related actions can be found in the Access Management Section (p.49).

## Hunting

The park falls within Management Unit 4-17 and 4-18. Hunting is permitted within the park between November 1<sup>st</sup> and November 30<sup>th</sup> for open season species identified in the *Wildlife Act*.<sup>59</sup> Limited Entry Hunting (LEH) for mountain goats also occurs within the park<sup>60</sup>. LEH for spring grizzly bear hunting does not coincide with the period of open hunting in the park, therefore is prohibited in the park. However, grizzly bear hunting can occur immediately outside of the park in MU 4-17 between April 1<sup>st</sup> and June 5<sup>th</sup>. Black bear hunting is permitted within the park only during the open season specified in the *Wildlife Act*.

Those First Nations who have an aboriginal or treaty right to hunt for sustenance or ceremonial purposes may do so in all provincial parks, subject to conservation requirements and public safety concerns.

The Environmental Stewardship Division must manage hunting in a sustainable manner to ensure conservation objectives are not compromised. There is a spectrum of management techniques that are used such as open seasons, limited entry permits and hunting closures. Harvest levels are adjusted according to fluctuations in wildlife populations, including natural predators. Potential impacts on rare and endangered species is an important aspect of setting hunting regulations and involves careful consideration of ecosystem dynamics.

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<sup>59</sup> See Appendix K for a complete list of species open for hunting within the park (excluding LEH).

<sup>60</sup> As indicated in LEH 2003/04 synopsis 4-17 (Zone B).

## Objective:

- To allow wilderness hunting opportunities to continue subject to conservation objectives.

## Strategies:

- Assess, monitor, and regulate hunting in co-operation with First Nations, hunters, and special interest groups to ensure conservation objectives are met.
- Obtain updated wildlife data in order to manage for sustainable wildlife populations and appropriate hunting levels.
- Review on an annual basis with the ESD Fish and Wildlife Science and Allocation Section open season species with emphasis on rare and endangered species.
- Review any subsequent proposed changes with First Nations and recreational hunters.

## Commercial Recreation Opportunities

Ecotourism is one of the fastest growing economic sectors in the province. With the aging of the baby boomer generation having a major influence on this growth with respect to increases in disposable income and leisure time, the demand for ecotourism is expected to continue to increase. Many rural communities see this as an opportunity to improve and diversify their local economies. Over the next few years new initiatives in tourism planning for the Kootenay Region will be undertaken by various agencies within the provincial government, including tourism and recreation inventories, trends analysis and identification of market opportunities. It is expected that land managers, including the Environmental Stewardship Division, will be able to use this information in planning for existing and future ecotourism opportunities.

Through a wide range of commercial recreation/ecotourism opportunities ranging from guiding to campgrounds to ski resorts, the Environmental Stewardship Division's protected areas system contributes significantly to the economy of the province. Recent studies estimate that provincially the parks system contributes about \$521 million to the provincial GDP with the West Kootenay parks contributing about \$22 million annually.

For ecotourism to work successfully in provincial parks, great care must be taken to ensure sustainability of important ecological values and avoid user conflicts. Findings of the Legacy Panel (1999) indicates a greater public demand to have ecological integrity as the paramount consideration in park management. This is also supported at the regional level by the KBLUP-IS, which recommended a tourism management strategy that considered the opportunities for tourism subject to the prime goal of protecting park values.

Within a half hour drive of the park are a multitude of private business such as bed and breakfast lodgings, lakeshore hotels and marinas along Kootenay Lake, and private campgrounds. The popular Kokanee Creek Provincial Park (situated 12 km south of the park) hosts an annual kokanee spawning run that can be observed a various vantage points within the park. The Visitor Centre at Kokanee Creek Provincial Park, which is operated by volunteers (Ecosense Interpretive Ltd.), facilitates many of the visitors to the spawning run as well providing interpretive services and displays on the ecology and natural systems of the area.

At present, the primary focus of commercial recreation within Kokanee Glacier Provincial Park is tied to three backcountry cabins (Kokanee Glacier, Silver Spray, and Woodbury). The Alpine Club of Canada currently administers the booking and minor maintenance and operations of these facilities, along with camping at Kaslo Lake and day-use services at Gibson Lake. The pivotal shift in the ACC's involvement in the park followed the completion of the Kokanee Glacier Cabin in 2003. The facility, along with the Woodbury and Silver Spray cabins are actively publicized as integral parts of their twenty-two huts offered across Canada. There is an opportunity to expand current accommodation system at the cabin to a more full-serve function. In the future, visitors could pay additional fees to have food preparation, housekeeping and bedding supplied.

Guiding companies have also utilized the recreational benefits that Kokanee Glacier Provincial Park offers. Currently, four operators provide a range of day-hiking and overnight pursuits within the park. The park is commonly offered as a feature trip in tandem with visits to other nearby protected areas<sup>61</sup>. Within just one season of operating, the lodgings at Kokanee Glacier Provincial Park have become a preferred destination for many.

Helicopter sightseeing and fly-in fishing to specific locations within the park have been ongoing for several years. Up until the mid 1980's, helicopters were permitted to land at several lakes in the Lendrum Creek drainage, namely, Grey Eagle Lake, Lendrum Lake and Nalmet Lake. Threats to the grizzly population was the impetus for closing these areas to helicopter traffic. Currently fly-in fishing at Crazy Jane lake is permitted, but receives minimal visitation from the two helicopter companies that hold permits in the park<sup>62</sup>. Scenic flights over the park have become popular although restricted to the southwest section of Kokanee Glacier proper and Caribou Ridge.

Winter use in the park, facilitated by the services offered at the Kokanee Glacier Cabin, is by far the greatest contributor to commercial recreation opportunities. The revenue generated by visitor accommodation in the winter far exceeds summer revenue from hikers, despite a lower capacity level for visitors (12 people maximum as opposed to 20 in summer)<sup>63</sup>. Heli-taxi service to and from the cabin is the limit of helicopter use in the park for commercial recreation in the winter. Further commercialization of the Kokanee Glacier Cabin is highly dependent on the level of use the facility infrastructure can sustain (e.g. sewage treatment, power supply, visitor safety).

Because of extreme avalanche dangers in the Woodbury and Silver Spray areas, the cabin facilities at these locations are closed to commercial operations for the winter.

## Objective:

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<sup>61</sup> Mountain Trek Fitness Retreat and Health Spa utilizes Pilot Bay Provincial Park, in addition to Kokanee Glacier Provincial Park, in week long trips throughout the West Kootenay.

<sup>62</sup> Kokanee Helicopters Inc. and High Terrain Helicopters.

<sup>63</sup> Use levels are currently set to twelve to ensure visitor safety.

- To plan for ecologically sustainable ecotourism opportunities in support of adjacent communities.
- To continue to permit commercial guiding services within acceptable limits of impact.
- To encourage stewardship of park values by all commercial operators and users.

## Strategies:

- Limit new commercial recreation services to low impact proposals that do not require infrastructure to be located in the park.
- Encourage any proposed ecotourism infrastructure to be located in nearby communities.
- Work with existing tenure holders to collect data, develop a stewardship program and a code of conduct consistent with the objectives of the management plan.
- Establish limits of acceptable change (carrying capacity model) and ecological integrity standards in consultation with government agencies, the community, First Nations, and stakeholders.
- Conduct BC Parks' Impact Assessment Process for new recreation services with specific concerns for the impact on species such as grizzly bears and mountain goats. Quotas may be set for commercial operators and a limit set on public visitation when monitoring shows the environmental and/or wilderness carrying capacities are close to being exceeded.
- Establish a verifiable monitoring program of recreational use impacts.
- Monitor and assess, with associated agencies, the impact of helicopter taxi services and scenic over flights on wildlife and develop improved operational procedures, practices, or other management options to minimise impacts on wildlife.

## Access Strategy

The opportunity for a wilderness experience largely depends on how access is managed. Access management helps define the type, impact, distribution, and amount of use. It is also important to maintain the wilderness qualities of the park.

Kokanee Glacier Provincial Park is one of the most easily accessible wilderness backcountry parks within the Kootenay Region. The park is bounded on all sides by secondary highways (6, 3A, 31 and 31A). Past resource development surrounding the park has created a vast network of Forest Service Roads (FSR's) that intersect with the park boundary, and in some cases penetrate into the park. The majority of the roads are suitable for high-clearance two wheel drives in summer months. In winter, access to the park boundary via FSR's is hampered by deep snow and is usually limited to snowmobiles.

Several historical road accesses to the park are no longer suitable for vehicular traffic. Coffee Creek FSR is closed<sup>64</sup> near its junction with Highway 31 and upper reaches of the road have been deactivated by the BC Forest Service. Likewise roads under the jurisdiction of the BC Parks (i.e. Scranton Mine Road and Keen Creek Road) are washed out in numerous location and overgrown. Both of these roads are no longer suitable, nor promoted, as vehicle accessible. The threats to conservation values by old roads (i.e. altering hydrological cycles, fish habitat impacts) could be reduced by deactivation and closure.

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<sup>64</sup> Access regulated by Aquila Networks Canada.

New policies<sup>65</sup> regarding maintenance on Forest Service Roads may have significant impact on park visitor access to many popular hiking destinations. Enterprise Creek, Lemon Creek and Woodbury Creek FSR all have industrial road use permits on them. The extent of roadway under permit and its proximity to the park boundary is variable. These roads are the responsibility of a designated forest licensee operating in the area. Should forestry operations cease, the licensee has no legal obligation to provide maintenance on the road. Often if the industrial road use permit is lifted the access is downgraded to a Wilderness Forest Service Road. Access with this designation is not guaranteed and maintenance is focussed on mitigating environmental problems, not keeping the road open for vehicles. The popular Kokanee Creek Road is maintained by the Ministry of Transportation in summer and is frequented by school buses and low clearance vehicles. Likewise the Woodbury Road receives considerable vehicle traffic for those wishing to travel into the Silver Spray and Woodbury Cabins. Undoubtedly, the closure or reduced maintenance of FSR's may channel a greater number of park visitors to maintained roads (i.e. Kokanee Creek Road).

Other access to the park boundary is provided by short trails originating from Forest Services Roads (i.e. Lendrum, Fennel, Silverton) ending several kilometres from park boundaries. Use of these trails will be affected by use and maintenance of resource roads leading to trailheads, as described in the previous section.

The KBLUP-IS indicated that the natural diversity of previously harvested sites and affected habitats will be restored and that some existing access and trails that lead to protected areas could be closed or decommissioned to support primitive wilderness recreation. This initiative could be viewed two ways: either it will afford further protection to species diversity and wildlife habitat on the periphery of the park or it may create a tunnel effect that may force even more visitors into the core area.

## **Objectives:**

- To work with appropriate agencies to ensure management of public accesses to the park is appropriate for conservation priority.
- To work with appropriate agencies to ensure road access to key trailheads remain open.
- To restore to not needed for public access to a natural condition to sustain and/or enhance wilderness values.

## **Strategies:**

- Coordinate with the Ministry of Forests and the Ministry of Transportation with respect to the management of roads, trails, and trailheads on Crown lands that provide access to the park.
- Place emphasis on maintaining the Kokanee Creek Road and Woodbury Road to a high standard to allow easy and safe access for park visitors.
- Liaise with local communities and outside agencies (governmental and non-governmental) on options for providing mechanized access for the park's section of Keen Creek Road.
- Permanently close and rehabilitate the Scranton Mine Road and mine site and de-activate defunct roads that may be impacting conservation values.

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<sup>65</sup> See Appendix L for BC Forest Service Maintenance Policy Overview.

- Prohibit all forms of motorized access into the park except for management purposes and as provided for in this management plan.
- Investigate future access points that could expand hiking and backcountry opportunities in the periphery of the park (e.g. Mt. Chapman area).

## Management Services

Kokanee Glacier Provincial Park is administered from the Environmental Stewardship Division, Kootenay Regional Office, located in Cranbrook, and the sub-regional office located in Nelson. Staff ensure that management responsibilities are carried out according to the *Park Act*, the *Park and Recreation Area Regulations* and the established policy and procedures of the Ministry of Water, Land and Air Protection. Responsibilities include such priorities as:

- regulating public use to ensure safe and appropriate use of the park;
- maintaining trails and facilities;
- managing permits for commercial uses and research within the park;
- minimizing impacts from visitor use;
- conducting environmental rehabilitation and management projects;
- continuation of First Nation traditional uses and collecting data on the park's natural and cultural values; and;
- managing the park's cultural and natural values to ensure their sustainability and biodiversity.

## Objectives:

- To carry out management responsibilities according to the *Park Act*, *Park and Recreation Area Regulation* and the guidelines of this management plan.
- To develop a close working relationship with other agencies.

## Strategies:

- Liaise on a regular basis with groups representing park users and commercial operators to ensure that park management benefits from their knowledge and input.
- Consult with First Nations on the strategies that affect their traditional use.
- Continue to provide seasonal ranger patrols.
- Use volunteers where possible to enhance park management.
- Continue to prepare Annual Management Plans to determine the annual management requirements of the park including the management strategies to be implemented.
- Consult with the Fish and Wildlife Science and Allocation and the Ecosystem Sections of the Regional Operations Branch, Environmental Stewardship Division, on the management of ecosystems and conservation issues.

# Communications

## Introduction

Providing current information about provincial parks is an important aspect of visitor service management. Information about Kokanee Glacier Provincial Park will serve a number of functions. Firstly, it will assist visitors in planning their visit so they will know what to expect. Secondly, this information will promote outdoor etiquette, risk management with respect to winter use and potential wildlife/human interactions, respect for the natural environment and careful appreciation of the variety of values found within the park. Thirdly, it will foster an awareness of the cultural and conservation values and features of this area. Owing to the ease of access to the park, education to novice park users will be an important component of public communication.

## Marketing and Promotion

Promotion of a park can affect the level of use and the type of visitors it attracts. Consequently, promotion strategies must be consistent with the management intent of the park.

The conservation and recreation significance of the park must be incorporated into strategies for marketing. There are concerns that promoting backcountry recreation can lead to significant increases in visitors, which in turn can affect park resources and wilderness qualities; therefore care must be taken in the type of promotion and marketing programs undertaken. Marketing programs promoting sustainability and environmental consciousness will ensure the park resources are appreciated, understood, and respected. In addition to the Environmental Stewardship Division, tourism and recreational interests and tourism agencies promote parks in general. Co-ordination is needed to ensure that promotional information is consistent, accurate and in keeping with park objectives, and that marketing is consistent with the role of the park and objectives of the management plan.

## Objectives:

- To ensure that promotion and marketing are consistent and appropriate for the park.
- To portray the park's role in conserving important species, habitats and biodiversity and highlighting the park's provincial ecoregion and biogeoclimatic representation.
- To provide accurate and appropriate information for backcountry recreational opportunities.

## Strategies:

- Work with commercial operators, tourism associations and the media to portray the park in an appropriate manner and create expectations appropriate to a wilderness park.
- Use an approach to promoting and advertising the park that emphasizes the uniqueness of the park in terms of wilderness and recreation co-existing.

- Create an information strategy that will focus on maintaining current use levels in the core area of the park.
- Continue to use park information shelters at designated access points to provide important safety information and wilderness ethics to visitors.
- Research and communicate the latest information on low impact use practices to visitors.

## Pre-trip Planning

Awareness and pre-trip planning information can help to set expectations, enhance the recreational experience, and influence attitudes and behaviours. Kokanee Glacier Provincial Park is primarily a wilderness area. Despite facility development in the core area, the park contains many natural hazards in all seasons. In summer, visitors to the core area must be prepared for chance encounters with wildlife. Interactions between park visitors and grizzly bears can result in harm to both the visitor and the bear. Backpackers should be aware of appropriate bear avoidance behaviour and identification of prime grizzly and black bear habitat to reduce the chances of an encounter.

In winter, backcountry skiers using the park must be independent, self-sufficient and proficient in avalanche safety.

Specific information on pre-trip planning and expectations can be found at the Environmental Stewardship Division's Kootenay Regional Office in Cranbrook, the sub-regional office in Nelson and on the BC Parks website. Because of the variable climate, rugged nature, and wilderness qualities of this park, visitors are urged to be especially vigilant in their pre-trip preparations. They are encouraged to seek out weather reports, avalanche bulletins and maps and to provide their trip itinerary to relatives or friends with departure/return times. Communications from within the park are limited to satellite phones and rescue services are not readily available.

### Objectives:

- To provide consistent, current and accurate information to visitors.
- To clearly indicate to visitors and other tourism outlets that although the park is easily accessible and offers day use opportunities it remains a wilderness area that requires basic pre-trip planning.
- To enhance backcountry visitors' awareness of the natural features, wilderness etiquette, cultural setting and techniques for respecting bear habitat and avoiding bear encounters.
- To clearly indicate that winter activities in the park dictate that park visitors are adept at travelling in avalanche terrain and are self-sufficient in terms of rescue.

### Strategies:

- Work with local communities and tourism associations in providing appropriate pre-trip planning information.
- Ensure any publications on Kokanee Glacier Provincial Park are current and accurate.
- Maintain the natural character of the park by limiting any signage to where it is necessary for visitor safety or the protection of sensitive sites.

- Prepare information for backcountry visitors which describes the natural and cultural features of the park, wilderness recreation etiquette and safety, low impact camping, wildlife viewing techniques, and ways of avoiding bear encounters. The focus will be on pre-trip planning as much as possible.
- Develop with the Alpine Club of Canada an avalanche awareness and avoidance strategy for backcountry skiers.
- Ensure that the ACC assumes a lead role in pre-trip planning for park visitors year round.

## Natural and Cultural Heritage Education

Kokanee Glacier Provincial Park offers significant recreational opportunities, while protecting important cultural and natural values, all in a wilderness setting. The park provides a pristine venue to explore natural processes and features along with cultural history that is unique to this area. The park also represents several exceptional themes that could be explored in an education or research program. These include:

Natural Heritage: regional landscapes, role of the park in the Central Columbia Mountains Ecosystem, conservation biology.

Cultural Heritage: cultural heritage significance of specific sites in the park (e.g. Slocan Chief Cabin), particularly focussing on the rich mining history of the park.

Wilderness Recreation: opportunities available in the park, outdoor safety and avalanche awareness, wilderness and conservation ethics, and wildlife appreciation.

### Objectives:

- To provide information about the natural, recreational and cultural features and values in the park to park users in order to foster and maintain appreciation of and understanding for its significance and the importance of protecting these features and values.
- To interpret the cultural heritage of the park for the public's appreciation and education.

### Strategies:

- Involve stakeholder groups in management initiatives that are focused on preserving and interpreting the historic features of the park (e.g. Friends of West Kootenay Parks).
- Ensure that research relating to the role of First Nations in the park involves First Nations peoples and the Archaeology Planning and Assessment Section, Ministry of Sustainable Resource Management. Research activities will require a Park Use Permit.
- Produce education and information on the themes described above and make it available on the BC Parks website.

# Plan Implementation

The plan implementation section provides information about the types of strategies that the Environmental Stewardship Division will implement as funding and resources permit.

## High Priority Strategies

- Implement a two year grizzly bear movement/habitat suitability project encompassing the entire park.
- Restore the former Slocan Chief Cabin and develop a self-serve interpretive program highlighting its regional historical significance.
- Confirm existence of rare plant communities associated with ESSFwc1/00 and ESSFwc4/00 site series using locations identified in Predictive Ecosystem Mapping.
- Conduct a risk assessment of the trail system in the Woodbury Creek affected by wildfire in 2003.
- Research on Woodbury fire landscape, including monitoring for non-native weed invasion.
- Develop a wildlife inventory with priority on red- and blue-listed avian, reptile, amphibian, invertebrate and mammal species.
- Continue five-year seed progeny project and rehabilitation of areas associated with facility removal at the Slocan Chief Cabin and Kalmia campsite.
- Remove the Sapphire Lakes backcountry campsite and develop a restoration plan for the immediate area.
- Reconfigure the site plan for the Kaslo Lake campsite and implement a hardened trail system with directional signage for visitors to the Kokanee Glacier Cabin. Discourage off-trail use in both the aforementioned areas as per recommendations contained within the EIA.
- Develop a carrying capacity model for the core area of the park.
- Coordinate with the Ministry of Forests and the Ministry of Transportation to continue providing access (for low clearance vehicles) to trailheads via roads external to the park boundary, placing priority on Kokanee Creek Road and Woodbury Creek Road.
- Conduct a creel census of Kaslo Lake.
- Develop weed management strategy that emphasizes inventory (using GIS mapping), monitoring and prescriptions with regards to non-native plants along access corridors and recreational use areas. Remove non-native plants as required using the most effective low-impact method available.

## Task or Project Strategies

- Complete a vegetation inventory to locate, identify, and map plant communities, rare species and threatened plant communities in the Special Features Zones, Natural Environment Zones, Intensive Recreation Zones and areas that could potentially be impacted by recreation.
- Prepare a fire management strategy that defines the role of natural disturbances in the maintenance of natural ecosystem diversity.
- In the interim, until the fire management strategy is prepared, Ministry of Forests and the Environmental Stewardship Division will jointly undertake an initial assessment of all wildfire based on guidelines from the Fire Management Team.

- Implement a fish inventory strategy and develop strategies with other agencies (i.e. Ministry of Forests, BC Fisheries- Science and Allocation Section, forest licencees) and First Nations to address needs both inside and adjacent to the park.
- Inventory and maintain pure genetic stocks of headwater westslope cutthroat trout and resident bull trout in all creeks with priority on upper Keen Creek and Coffee Creek.
- Develop a co-ordinated long-term approach to wildlife management with other government agencies, including Ministry of Forests, and First Nations, with emphasis on species at risk (i.e. reviewing annual wildlife harvest levels within the park, GIS applications- Predictive Ecosystem Mapping, analyzing connectivity corridors and changes to them because of resource extraction outside the park).
- Research, document and interpret the mining artifacts associated with the larger mine sites found within the park (i.e., Molly Gibson, Joker Lakes, Scranton).
- Develop preventative measures (monitoring, education, and enforcement) to address the threat of artifact removal from mine sites.
- Establish limits of acceptable change and ecological integrity standards in consultation with other government agencies, the community, First Nations, and stakeholders.
- Continue a verifiable monitoring program of recreational use impacts (e.g. Backcountry Recreation Impact Monitoring or BRIM).
- Develop an agreement between the Ministry of Forests, Ministry of Transportation and the Environmental Stewardship Division concerning the management of roads, trails, and trailheads on Crown lands that provide access to the park.
- Prohibit all forms of mechanized access into the park except for management purposes and as provided for in this management plan.
- Relocate trailhead and parking area to a suitable area near park boundary on that portion of Keen Creek Road residing in the park.
- Investigate possibility of expanding trail system in the northeast corner of the park (Mt. Chapman) to help counter high visitor use in the core area.
- Work with commercial operators to develop a co-ordinated approach to promoting the park.
- Create an information strategy that will focus on maintaining low backcountry use levels.
- Research and communicate the latest information on low impact use practices.
- Produce education and information brochures on the themes described above and make them available on the BC Parks website.
- In concert with First Nations, develop and present information on aboriginal cultural heritage features (if identified) and place names within the park.

## Ongoing or Monitoring Strategies

- Monitor harvest volumes and encourage conservative quotas for hunting.
- Include assessment of the impact on ecosystem health of harvesting fur-bearing animals when considering the ecosystem requirements for species at risk.
- Minimise impacts on fur-bearing animals that may arise in the future.
- Retain wildlife trees except where there is a hazard to visitors or facilities whereupon a Wildlife/Danger Tree Assessment will be conducted to determine the highest value and any remedial action.
- Ensure recreational activities have minimal impact on erosion of surface materials and do not compromise water quality.

- Ensure sanitary facilities are properly designed and located.
- Assess and manage use to ensure proper disposal of human waste.
- Prohibit water impoundment, diversions, or new domestic use projects in accordance with the *Park Act*.
- Monitor water quality periodically with the Environmental Protection Division.
- Ensure adequate water supply and quality for westslope cutthroat, bull trout and other resident fish stocks.
- Continue policy on not permitting dogs or horseback riding within the park.
- Maintain the no-campfire policy for the park.
- Increase the knowledge and understanding of wildlife and their habitat requirements both inside and outside the park.
- Encourage research aimed at achieving a better understanding of mountain goats, grizzly bears, and wolverines.
- Manage wildlife values as a equal priority with recreational activities.
- Encourage volunteers and others to collect wildlife data with BC Parks Observation Cards (e.g. bird watching clubs, anglers, helicopter tours/taxi operators).
- Manage bear/human conflict in accordance with the BC Parks Bear-People Conflict Prevention Plan.
- Protect ‘in situ’ important features such as former mine sites. For visitor safety and artifact protection, site locations will not be publicized in park brochures or literature.
- Adopt the BC Archaeological Assessment Guidelines whenever development plans have the potential to disturb traditional use sites (if located within the park).
- Work with First Nations and the Archaeology Planning and Assessment Section, Ministry of Sustainable Resource Management, in managing heritage resources in the park.
- Locate and design all park facilities in harmony with the visual setting and in accordance with park zoning objectives.
- Provide advice to the Ministry of Forests and forest licensees to help ensure, through the Forest Development Plan Review Process, that areas outside the park boundary are managed in accordance with various Ministry of Forests statutes (acts and regulations) to protect viewscapes.
- Work with the Ministry of Forests and other agencies to protect the visual integrity of the park from impacts of adjacent uses.
- Encourage colleges, universities, other agencies, and corporate sponsors to establish funding for and to undertake appropriate and timely research opportunities.
- Limit scientific research that involves collecting specimens.
- Ensure that any material that is collected for scientific research remains the property of the Province of British Columbia, regardless of where it is stored.
- Close, relocate or improve trails as required if bear and visitor safety problems arise.
- Assess conditions and monitor backcountry visitor numbers and destinations to protect natural values in accordance with the Backcountry Recreation Impact Monitoring (BRIM) policies.
- Educate visitors about minimum impact camping at all sites in the park to avoid site degradation and minimize human-bear conflicts.
- Limit new commercial recreation services to low impact proposals that do not require infrastructure to be located in the park, in accordance with the KBLUP-IS.
- Encourage any proposed ecotourism infrastructure to be located in nearby communities.
- Work with existing tenure holders to collect data, develop a stewardship program, and to implement a code of conduct consistent with the objectives of the management plan.

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- Conduct BC Parks Impact Assessment Process for new recreation services with specific concerns for the impact on species at risk and other wildlife.
- Monitor and assess with the Fish and Wildlife Science and Allocation Section of the Environmental Stewardship Division and tenure holders the impact of helicopter taxi service in winter and helicopter scenic tours in summer on wildlife and develop improved operational procedures and practices to minimize impacts that may threaten wildlife.
- Liaise on an annual basis with groups representing park users and commercial operators to ensure that the park benefits from the greatest possible input.
- Consult with First Nations on the strategies that affect their traditional use.
- Continue to provide seasonal ranger patrols.
- Use volunteers where possible to enhance park management.
- Continue to prepare Annual Management Plans to determine the annual management requirements of the park and implement prioritized strategies and projects.
- Work with commercial operators, tourism associations and the media to portray the park in an appropriate manner and create expectations fitting of a wilderness park.
- Use an approach to promoting and advertising the park that remains consistent with conservation objectives of the park.
- Ensure any public information on Kokanee Glacier Provincial Park is current and accurate.
- Maintain the natural character of the park by limiting any signage to where it is necessary for visitor safety and/or the protection of sensitive sites.
- Ensure that research relating to the role of First Nations in the park involves First Nations peoples and the Archaeology Planning and Assessment Section, Ministry of Sustainable Resource Management.

## Appendix A: KBLUP-IS (Chap.- 4 Protected Areas)

### 4.1 Introduction

One of the purposes of regional and sub-regional land use planning processes, including the West Kootenay-Boundary Land-Use Plan, has been to implement the provincial government's Protected Areas Strategy (PAS). The PAS has two goals:

Goal 1 – Representation: To protect viable examples of the natural diversity of the province, representative of the major terrestrial, marine, and freshwater ecosystems, the characteristic habitats, hydrology and landforms, and the characteristic backcountry recreational and cultural heritage values of each ecosection.

Goal 2 - Special Features Protection: To protect the special natural, cultural heritage and recreational features of the province, including rare and endangered species and critical habitats, outstanding or unique botanical, zoological, geological, and paleontological features, outstanding or fragile cultural heritage features, and outstanding outdoor recreational features.

The Kootenay-Boundary Regional Land-Use regional planning process dealt primarily with the PAS Goal 1. Further work is required to complete the Goal 2 process.

As a result of the West Kootenay-Boundary Land Use regional planning process, the provincial government, in July 1995, established nine new protected areas. Through designation under the *Park Act*, all new protected areas have become Class A provincial parks. Consequently, the terms 'provincial parks' and 'protected areas' are used interchangeably in the KBLUP Implementation Strategy.

The establishment of the new protected areas plays an essential role in the realisation of the plan's environmental conservation objectives, particularly through contribution towards general biodiversity maintenance and the protection of essential habitat areas for maintenance of species health. The parks also contribute significantly to regional recreational and cultural heritage objectives, as well as to long-term economic objectives.

The following section identifies general management objectives and strategies for the region's new protected areas. A description of each new park and an indication of further planning priorities are included in Table 4.1.

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4.2 General Management Objectives and Strategies for New Parks in the Kootenay/Boundary Region

| PROTECTED AREA OBJECTIVES  | MANAGEMENT STRATEGIES  |
|--|--|
| <p><b>Park Planning</b></p> <p>1. To develop comprehensive park master plans, over time, for each new protected area in order to ensure the maintenance of the conservation, recreation and cultural heritage values within the new protected areas.</p> | <p>1.1 Park master plans will be developed for each new protected area in accordance with the availability of budget resources and the general park planning priorities identified in the overview of new protected areas within Appendices 1-7.</p> <p>1.2 Park master plans will be developed with the benefit of extensive public and inter-agency participation. Among other things, the plans will define park-specific management objectives, acceptable levels of use, accepted uses, zoning, and other strategies that will minimise conflicts, help ensure the integrity of important park values.</p> <p>1.3 Park master planning processes will consider existing uses and management objectives and strategies (as identified in this regional plan and in operational level plans) for lands that are adjacent to the protected areas.</p> <p>1.5 Provincial park master planning processes will include consultation with tourism industry representatives in order to examine potential commercial opportunities within provincial park land, subject to the prime goal to protect the conservation, recreation, and cultural heritage values within the parks. Commercial opportunities will be assessed with a view towards limiting / locating the development of physical commercial infrastructure (e.g., roads, lodgings, staging areas, etc.) on the periphery of park boundaries in order to minimise park impacts.</p> <p>1.6 Pending the development of comprehensive park master plans for each new protected area, the management guidance that is provided in BC Parks’ <i>“Management Direction Statements”</i> would be used to direct park management and operations.</p> <p>1.7 Upon completion of Goal 2, management direction statements will be prepared for those new protected areas.</p> <p>1.8 Resource issues adjacent to park boundaries will be identified and the responsible government agencies will work together to address them.</p> |

|  |   |
|--|---|
| <p><b>Pre-Existing Tenures and In-Holdings</b></p>   |   |
| <p>2. To recognize the legal rights of pre-existing tenure holders and landowners within newly established parks in the region, and to deal fairly with those interests.</p> | <p>2.1 Pre-existing mineral and timber tenures and other tenures / encumbrances associated with commodity extraction (e.g., gravel reserves) will be discontinued within new protected areas. The terms of discontinuance will be negotiated with owners of pre-existing tenure interests, in accordance with provincial policy respecting resource rights compensation. Tenure discontinuance negotiations will also consider ongoing silviculture obligations (e.g., free-to-grow requirements), and rehabilitation of harvested areas and roads in key locations.</p> <p>2.2 Pre-existing tenures within new protected areas for utility rights-of-way, communication sites, grazing, commercial backcountry recreation, commercial heli-skiing or hiking, guide-outfitting, trapping, water works and use, etc., will be permitted to continue, in accordance with the existing management conditions attached to those tenures. In the future, the management conditions attached to those tenures may be amended to comply with the requirements of park master plans that are developed for individual protected areas.</p> <p>2.3 Existing grazing authorisations issued under the Range Act within new (1995) protected areas will continue to be managed according to the Range Act are fully transferable. Where pre-existing tenures other than Range Act tenures lapse or are voluntarily surrendered by a tenure holder, the province is under no obligation to re-issue the tenure rights to a new party. Whether or not tenure rights are to be re-issued should be resolved through the protected areas management planning process.</p> <p>2.4 Existing owners of private land in-holdings within new parks will continue to exercise their property rights, and existing opportunities for access to those properties will be addressed.</p> |

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| <p><b>Natural Occurrences</b></p>  |  |
| <p>3. To protect key park values and adjacent private property, as appropriate, from natural occurrences in protected areas.</p> | <p>3.1 Where appropriate, natural occurrences in new parks, such as fires, insects, forest diseases, will be managed as in other provincial parks, through consultation and joint action by BC Parks, BC Environment and the Ministry of Forests at the District level.</p> <p>3.2 Fire management plans will be developed for areas within new parks that are proximate to residential settlement, and where traditional land management includes burning for winter range enhancement.</p>   |
| <p><b>Park Management</b></p>  |  |
| <p>4. To maintain ecosystem representation and ensure protection of key representative features.</p>                             | <p>4.1 Park management emphasis will be placed on maintaining the ecosystems and features for which these areas were established.</p> <p>4.2 Parks will be managed to compliment biodiversity objectives across landscape units, where appropriate.</p> <p>4.3 Where existing grazing tenures occur, alpine and subalpine grassland meadows will be maintained in conjunction with MOF through application of high elevation grassland guidelines.</p> <p>4.4 Sound park management relies on good resource information. BC Parks, BC Environment and the Ministry of Forests will work together to collect resource inventory for the new parks.</p> <p>4.5 The natural diversity of previously harvested sites and affected habitats will be restored through negotiation of silvicultural obligations.</p> <p>4.6 Previously open forests and grasslands have become ingrown because of fire suppression. Where appropriate, vegetation management will be undertaken primarily using fire to restore natural grasslands.</p> |
| <p>5. To ensure protection of key species and their habitats.</p>  | <p>5.1 BC Parks will work with other agencies to ensure connectivity of wildlife habitat between the park and surrounding area.</p> <p>5.2 Opportunities to establish grizzly bear benchmarks for scientific study and management will be investigated.</p> <p>5.3 Rare and endangered species and their habitats will be protected.</p> <p>5.4 Ungulate habitat, cover and site-specific features will be considered in management processes.</p>   |

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| <p>6. To maintain backcountry recreation opportunities.</p>                          | <p>6.1 While BC Parks will continue to manage parks to provide a wide range of recreational experiences, protected areas will provide the primary opportunities for primitive and wilderness recreation. Where appropriate, existing access and trails within protected areas may be closed or decommissioned to support primitive recreational experiences. Similarly, recreational access to some areas may be limited to maintain the quality of recreational experience.</p> <p>6.2 Levels of recreational use and associated impacts will be monitored and management applied where necessary to maintain the wilderness qualities, where appropriate.</p> <p>6.3 BC Parks will work with MOF to promote good visual design of logging and appropriate access management in areas adjacent to parks.</p> |
| <p>7. To plan and manage parks in a manner which reflects the cultural heritage.</p> | <p>7.1 Local First Nations will be consulted to establish traditional use in the area.</p> <p>7.2 Options to work in co-operation with First Nations in the management of area will be identified in the treaty process.</p> <p>7.3 European history will be considered in the management strategies.</p>   |

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Table 4.1

New Protected Areas (Class A Provincial Parks)  
Established as a Result of the Regional Land Use Plans

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| Park Name                 | Approx. Area<br>(ha) | Priority for Development of<br>Park Master Plan |
|---------------------------|----------------------|---|
| <i>East Kootenay LUP</i>  |                      |   |
| Akamina – Kishinena       | 10,921               | Moderate  |
| Bugaboo                   | 13,646               | High  |
| Upper Cummins             | 6,1081               | Low   |
| East Purcells             | 36,938               | Moderate  |
| Elk Lakes                 | 17,245               | High  |
| Gilnockie                 | 2,822                | Low   |
| Height of the Rockies     | 53,964               | High  |
| <i>Subtotal</i>           | <i>141,717</i>       |   |
| <i>West Kootenay/BLUP</i> |                      |   |
| Gladstone                 | 39,361               | High  |
| Goat Range                | 78,936               | High  |
| Granby                    | 40,845               | High  |
| Kianuko                   | 11,677               | Moderate  |
| Lockhart Creek            | 3,751                | Moderate  |
| West Arm                  | 25,254               | High  |
| Syringa                   | 4,191                | Low   |
| Kokanee Glacier Extension | 6,203                | Moderate  |
| West Purcells             | 32,662               | Low   |
| <i>Subtotal</i>           | <i>242,880</i>       |   |
| <i>Total Area</i>         | <i>383,182</i>       |   |

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Note: the Findlay corridor within the East Purcells is protected under the *Environment and Land Use Act*.

## Appendix B: BC Parks System Goals

### Conservation

*BC Parks has two conservation goals:*

Goal 1) Protection of Representative Landscapes - To conserve British Columbia's natural diversity by protecting viable, representative examples of our different landscapes.

Goal 2) Protection of Special Features - To protect British Columbia's key natural and cultural features, including outstanding examples of our wildlife, old-growth forests, waterfalls and cultural artifacts.

### Recreation

*BC Parks has four recreation goals:*

Goal 1) Tourism Travel Routes - To provide park attractions and services, which enhance tourism travel routes.

Goal 2) Outdoor Recreation Holiday Destinations - To provide park attractions which serve as or improve key destinations for outdoor recreation holidays.

Goal 3) Backcountry - To provide outstanding backcountry recreation opportunities throughout the province. Some sites may feature adventure tourism, while in other areas the wilderness would remain untouched.

Goal 4) Local Recreation - To ensure access to local outdoor recreation opportunities for all residents of this province.

# Appendix C: Management Planning Zoning Descriptions

## BC PARKS MANAGEMENT PLANNING ZONING SYSTEM DESCRIPTION

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|                          | <b>Intensive Recreation</b>  | <b>Natural Environment</b>  |
|--------------------------|--|---|
| OBJECTIVE                | To provide for a variety of readily accessible, facility-oriented outdoor recreation opportunities.  | To protect scenic values and to provide for backcountry recreation opportunities in a largely undisturbed natural environment.  |
| USE LEVEL                | Relatively high density and long duration types of use.  | Relatively low use but higher levels in association with nodes of activity or access.   |
| MEANS OF ACCESS          | All-weather public roads or other types of access where use levels are high (see "Impacts" below).   | Mechanized (powerboats, snowmobiles, all terrain vehicles), non-mechanized (foot, horse, canoe, bicycle). Aircraft and motorboat access to drop-off and pickup points will be permitted.  |
| LOCATION                 | Contiguous with all-weather roads and covering immediate areas modified landscapes or other high-use areas.  | Removed from all-weather roads but easily accessible on a day-use basis. Accessible by mechanized means such as boat or plane.  |
| SIZE OF ZONE             | Small; usually less than 2,000 ha.   | Can range from small to large.  |
| BOUNDARY DEFINITION      | Includes areas of high facility development in concentrated areas.   | Boundaries should consider limits of activity/facility areas relative to ecosystem characteristics and features.  |
| RECREATION OPPORTUNITIES | Vehicle camping, picnicking, beach activities, power-boating, canoeing, kayaking, strolling, historic and nature appreciation, fishing, snow play, downhill and cross-country skiing, snowshoeing, specialised activities. | Walk-in/boat-in camping, power-boating, hunting, canoeing, kayaking, backpacking, historic and nature appreciation, fishing, cross-country skiing, snowmobiling, river rafting, horseback riding, heli-skiing, heli-hiking, and specialised activities. |

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| <b>Special Feature</b>   | <b>Wilderness Recreation</b>   | <b>Wilderness Conservation</b>   |
|--|--|--|
| To protect and present significant natural or cultural resources, features, or processes because of their special character, fragility, and heritage values. | To protect a remote, undisturbed natural landscape and to provide backcountry recreation opportunities dependent on a pristine environment where air access may be permitted to designated sites.        | To protect a remote, undisturbed natural landscape and to provide unassisted backcountry recreation opportunities dependent on a pristine environment where no motorized activities will be allowed. |
| Generally low.   | Very low use, to provide solitary experiences and a wilderness atmosphere. Use may be controlled to protect the environment.   | Very low use, to provide solitary experiences and a wilderness atmosphere. Use may be controlled to protect the environment.   |
| Various; may require special access permit.  | Non-mechanized; except may permit low frequency air access to designated sites; foot, canoe (horses may be permitted).   | Non-mechanized (no air access); foot, canoe (horses may be permitted).   |
| Determined by location of special resources; may be surrounded by or next to any of the other zones.   | Remote; not easily visited on a day-use basis.   | Remote; not easily visited on a day-use basis.   |
| Small; usually less than 2000 hectares.  | Large; greater than 5,000 hectares.  | Large; greater than 5,000 hectares.  |
| Area defined by biophysical characteristics or the nature and extent of cultural resources (adequate to afford protection).                                  | Defined by ecosystem limits and geographic features. Boundaries will encompass areas of visitor interest for specific activities supported by air access. Will be designated under the Park Act.         | Defined by ecosystem limits and geographic features. Will be designated under the Park Act.  |
| Sightseeing, historic and nature appreciation. May be subject to temporary closures or permanently restricted access.  | Backpacking, canoeing, kayaking, river rafting, nature and historic appreciation, hunting, fishing, cross-country skiing, snowshoeing, horseback riding, specialised activities (e.g. caving, climbing). | Backpacking, canoeing, kayaking, river rafting, nature and historic appreciation, fishing, cross-country skiing, snowshoeing, horseback riding, specialised activities (e.g. caving, climbing).      |

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|   | <b>Intensive Recreation</b>  | <b>Natural Environment</b>  |
|---|--|---|
| <b>FACILITIES</b>                         | May be intensely developed for user convenience. Roads, trails, campgrounds, picnic/play areas, boat launches, visitor and administrative buildings, service compounds, gravel pits, disposal sites, parking lots, etc.  | Moderately developed for user convenience. Trails, walk-in/boat-in campsites, shelters, service buildings may be permitted; facilities for motorized access e.g. docks, landing strips, fuel storage, etc.  |
| <b>IMPACTS ON NATURAL ENVIRONMENT</b>     | Includes natural resource features and phenomena in a primarily natural state but where human presence may be readily visible both through the existence of recreation facilities and of people using the zone. Includes areas of high facility development with significant impact on concentrated areas.             | Area where human presence on the land is not normally visible, facility development limited to relatively small areas. Facilities are visually compatible with natural setting.   |
| <b>CONSERVATION MANAGEMENT GUIDELINES</b> | Intensive management of natural values and/or control of visitor activities. Landscape changes may occur to increase carrying capacity of the area. Direct management intervention may occur to protect natural values and enhance recreation opportunities. Compatible scientific research and monitoring encouraged. | Management oriented to maintaining a natural environment where visitor access may be restricted to preserve the recreation experience or to limit impacts. Direct management intervention may occur to protect natural values or enhance recreation opportunities. Compatible scientific research and monitoring is encouraged. |
| <b>RECREATION MANAGEMENT GUIDELINES</b>   | Management oriented toward maintaining a high quality recreation experience. Requires careful management and upkeep of intensive use outdoor recreation facilities. Facilities designed for efficient operation while remaining unobtrusive to the park visitor.   | Management oriented to presenting high quality recreation experiences in a natural setting. Separation of less compatible recreational activities and methods of transportation may be necessary to avoid potential conflicts (e.g. horse trails, cycle paths, hiking trails).  |
| <b>EXAMPLES OF ZONING</b>                 | Campground in Rathrevor Beach Park; Gibson Pass ski area in E.C. Manning Park.   | Core area in Cathedral Park; North beach in Naikoon Park.   |

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| <b>Special Feature</b>  | <b>Wilderness Recreation</b>   | <b>Wilderness Conservation</b>   |
|---|--|--|
| Interpretive facilities only, resources are to be protected.  | Minimal facility development for user convenience and safety, and protection of the environment e.g. trails, primitive campsites, etc. Some basic facilities at access points, e.g. dock, primitive shelter, etc.  | None.  |
| Natural values are to be protected. Interpretation facilities to be limited to small areas.   | Natural area generally free of evidence of modern human beings. Evidence of human presence is confined to specific facility sites. Facilities are visually compatible with natural setting.  | Natural area generally free of evidence of modern human beings.  |
| High level of management protection with ongoing monitoring. Natural processes will normally be allowed to continue unhindered; in some instances, protection of rare, unique, outstanding, threatened and endangered natural values may require specific management intervention. Visitor access may be restricted to preserve the recreation experience and limit impacts. Any scientific study must be clearly justified and carried out under permit. | High level of management protection for pristine wildland. Active resource management programs may be allowed if essential for protection of significant natural values. Visitor access may be restricted to protect the natural environment and visitor experience. | Highest level of management protection for pristine wildland. Natural processes will be allowed to continue unhindered. Specific management intervention will not be permitted unless essential to protection or survival of significant natural values. Visitor access may be restricted to protect the natural environment and visitor experience. |
| Management dedicated to educating visitors through interpretation of features. Visitor access may be restricted to limit damage to features. Facility development and visitor use will be determined by the area's carrying capacity.   | Management dedicated to maintaining a visitor recreation experience of solitude, freedom, and physical challenge in a primitive natural setting. Facility development and visitor use will be determined by the area's carrying capacity.                            | Management dedicated to maintaining a visitor recreation experience of solitude, freedom, and physical challenge in a primitive natural setting. Visitor use will be determined by the area's carrying capacity.   |
| Tidepools in Botanical Beach Park; Sunshine Meadows in Mount Assiniboine Park.  | Quanchus Mountains Wilderness in Tweedsmuir Park; Moose River Valley in Mount Robson Park.   | Central Valhalla Wilderness in Valhalla Park; Garibaldi Park Nature Conservancy area.  |

## Appendix D: Seasonal Abundance of Birds in BEC zones.

Lower case = uncommon, scarce, or rare; Upper case = common. **Species in BEC zones are not necessarily found in park.**

- P = spring (March-May)
- S = summer (June-August)
- A = autumn (September – November)
- W = winter (December – February)
- M = migratory (spring and autumn)
- Y = yearlong

| Common Name               | ICHmw | ICHwk | Common Name                    | ESSFw | ESSFwp | Common Name                   | AT |
|---------------------------|-------|-------|--------------------------------|-------|--------|-------------------------------|----|
| Pacific loon              | swm   | sm    | Pacific loon                   | sm    | sm     | Pacific loon                  | sm |
| Common loon               | Y     | SwM   | Common loon                    | sm    | sm     | Common loon                   | sm |
| Yellow-billed loon        | y     | sm    | Red-necked grebe               | sm    |        | Canada goose                  | s  |
| Pied-billed grebe         | SwM   | sm    | Canada goose                   | s     | s      | Blue-winged teal              | ps |
| Horned grebe              | SwM   | sM    | Mallard                        | ps    | ps     | Ring-necked duck              | s  |
| Red-necked grebe          | SwM   | SM    | Blue-winged teal               | ps    | ps     | Lesser scaup                  | sm |
| Eared grebe               | y     |       | Cinnamon teal                  | s     | s      | Harlequin duck                | ps |
| Western grebe             | sm    | sm    | American wigeon                | p     | p      | Oldsquaw                      | m  |
| American white pelican    | sm    |       | Ring-necked duck               | s     | s      | Surf scoter                   | m  |
| Double-crested cormorant  | s     | a     | Lesser scaup                   | sm    | sm     | White-winged scoter           | sm |
| American bittern          | sm    | sa    | Harlequin duck                 | ps    | ps     | Common goldeneye              | ps |
| Great blue heron          | SwM   | sa    | Oldsquaw                       | m     | m      | Barrow's goldeneye            | sm |
| Cattle egret              | a     |       | Surf scoter                    | m     | m      | Bufflehead                    | s  |
| Black-crowned night-heron | ps    |       | White-winged scoter            | m     | m      | Hooded merganser              | ps |
| Tundra swan               | y     | m     | Common goldeneye               | ps    | ps     | Common merganser              | ps |
| Trumpeter swan            | wm    |       | Barrow's goldeneye             | sm    | sm     | Sharp-shinned hawk            | sM |
| Snow goose                | wm    | wm    | Bufflehead                     | ps    | ps     | Cooper's hawk                 | sm |
| Ross' goose               | w     |       | Hooded merganser               | ps    | ps     | Northern goshawk subsp.       | y  |
| Canada goose              | SwM   | sM    | Common merganser               | ps    | ps     | Red-tailed hawk               | sm |
| Wood duck                 | ps    |       | Bald eagle                     | ps    | ps     | Rough-legged hawk             | m  |
| Green-winged teal         | sM    | sm    | Northern harrier               | m     | m      | Golden eagle                  | ps |
| Mallard                   | SwM   | Sm    | Sharp-shinned hawk             | sM    | sM     | American kestrel              | ps |
| Northern pintail          | sm    | m     | Cooper's hawk                  | sm    | sm     | Merlin                        | sm |
| Blue-winged teal          | ms    | s     | Northern goshawk subsp.        | y     | y      | Blue grouse                   | y  |
| Cinnamon teal             | ps    | p     | Swainson's hawk                | ps    | ps     | Willow ptarmigan              | Y  |
| Northern shoveler         | ps    | ps    | Red-tailed hawk                | sm    | sm     | Rock ptarmigan                | y  |
| Gadwall                   | ps    |       | Rough-legged hawk              | m     | m      | White-tailed ptarmigan subsp. | y  |
| Eurasian wigeon           | m     | a     | Golden eagle                   | sm    | sm     | Greater yellowlegs            | ps |
| American wigeon           | sM    | sm    | American kestrel               | sm    | sm     | Lesser yellowlegs             | ps |
| Canvasback                | sm    | m     | Merlin                         | sm    | sm     | Solitary sandpiper            | ps |
| Redhead                   | y     | ps    | Peregrine Falcon subsp. anatum | ps    |        | Spotted sandpiper             | ps |
| Ring-necked duck          | sm    | ps    | Spruce grouse                  | y     |        | Least sandpiper               | ps |
| Greater scaup             | m     |       | Blue grouse                    | y     | y      | Baird's sandpiper             | s  |
| Lesser scaup              | sm    | m     | White-tailed ptarmigan subsp.  |       | y      | Pectoral sandpiper            | s  |
| Harlequin duck            | ps    | ps    | Semipalmated plover            | ps    | ps     | Common snipe                  | s  |
| Oldsquaw                  | m     | m     | Greater yellowlegs             | m     | m      | Red-necked phalarope          | s  |
| Surf scoter               | m     | m     | Lesser yellowlegs              | m     | m      | Bonaparte's gull              | s  |

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| Common Name                    | ICHmw | ICHwk | Common Name                   | ESSFw | ESSFwp | Common Name            | AT |
|--------------------------------|-------|-------|-------------------------------|-------|--------|------------------------|----|
| White-winged scoter            | sm    | sm    | Spotted sandpiper             | ps    | ps     | Mew gull               | s  |
| Common goldeneye               | y     | ps    | Least sandpiper               | a     | a      | Herring gull           | ps |
| Barrow's goldeneye             | y     | y     | Baird's sandpiper             | s     | s      | Rufous hummingbird     | ps |
| Bufflehead                     | SwM   | ps    | Pectoral sandpiper            | s     | s      | Say's phoebe           | sa |
| Hooded merganser               | y     | ps    | Common snipe                  | s     | s      | Horned lark            | sa |
| Common merganser               | SwM   | sm    | Red-necked phalarope          | s     | s      | Tree swallow           | s  |
| Red-breasted merganser         | y     | a     | Bonaparte's gull              | ps    | ps     | Violet-green swallow   | s  |
| Ruddy duck                     | sm    | sa    | Mew gull                      | s     | s      | Cliff swallow          | s  |
| Turkey vulture                 | ps    | s     | Herring gull                  | m     | m      | Barn swallow           | s  |
| Osprey                         | PSaw  | sm    | Great horned owl              | y     |        | Mountain bluebird      | s  |
| Bald eagle                     | swM   | Psa   | Boreal owl                    | y     | y      | Townsend's solitaire   | sa |
| Northern harrier               | swM   | m     | Rufous hummingbird            | PS    | PS     | American robin         | s  |
| Sharp-shinned hawk             | swM   | sM    | Belted kingfisher             | s     | s      | American pipit         | sA |
| Cooper's hawk                  | sm    | sm    | Downy woodpecker              | y     |        | Savannah sparrow       | sa |
| Northern goshawk subsp.        | y     | y     | Hairy woodpecker subsp.       | ps    |        | Golden-crowned sparrow | s  |
| Swainson's hawk                | m     |       | Three-toed woodpecker         | y     | y      | White-crowned sparrow  | sa |
| Red-tailed hawk                | SwM   | sm    | Black-backed woodpecker       | y     | y      | Snow bunting           | a  |
| Rough-legged hawk              | wm    | m     | Pileated woodpecker           | ps    |        | Rosy finch             | sm |
| Golden eagle                   | y     | y     | Olive-sided flycatcher        | s     |        |                        |    |
| American kestrel               | SwM   | sM    | Hammond's flycatcher          | ps    |        |                        |    |
| Merlin                         | y     | sm    | Horned lark                   | sa    | sa     |                        |    |
| Peregrine Falcon subsp. anatum | sm    | ps    | Tree swallow                  | ps    | ps     |                        |    |
| Prairie falcon                 | s     |       | Violet-green swallow          | s     | s      |                        |    |
| Spruce grouse                  | y     | y     | Northern rough-winged swallow | s     |        |                        |    |
| Blue grouse                    | y     | y     | Cliff swallow                 | s     | s      |                        |    |
| Ruffed grouse                  | Y     | y     | Barn swallow                  | s     | s      |                        |    |
| Wild turkey                    | y     |       | Gray jay                      | y     |        |                        |    |
| Virginia rail                  | sm    |       | Steller's jay subsp.          | y     |        |                        |    |
| Sora                           | ps    |       | Clark's nutcracker            | y     | y      |                        |    |
| American coot                  | SwM   | sa    | American crow                 | sm    | sm     |                        |    |
| Sandhill crane                 | m     |       | Common raven                  | y     | y      |                        |    |
| Black-bellied plover           | a     | a     | Mountain chickadee            | y     | y      |                        |    |
| Lesser golden-plover           | a     |       | Boreal chickadee              | y     | y      |                        |    |
| Semipalmated plover            | sm    | s     | Red-breasted nuthatch         | y     | sa     |                        |    |
| Killdeer                       | swM   | ps    | Brown creeper                 | y     |        |                        |    |
| Greater yellowlegs             | sM    | s     | Winter wren                   | y     |        |                        |    |
| Lesser yellowlegs              | m     | s     | American dipper               | mw    | m      |                        |    |
| Solitary sandpiper             | sm    | ps    | Golden-crowned kinglet        | y     | y      |                        |    |
| Spotted sandpiper              | PSa   | ps    | Ruby-crowned kinglet          | y     | sa     |                        |    |
| Upland sandpiper               |       | s     | Mountain bluebird             | ps    | ps     |                        |    |
| Sanderling                     | sm    | a     | Townsend's solitaire          | sa    | sa     |                        |    |
| Semipalmated sandpiper         | sm    | a     | Hermit thrush                 | s     | s      |                        |    |
| Western sandpiper              | a     |       | American robin                | sm    | sa     |                        |    |
| Least sandpiper                | a     | a     | Varied thrush                 | sm    |        |                        |    |
| White-rumped sandpiper         | a     |       | American pipit                | sa    | sa     |                        |    |
| Baird's sandpiper              | sa    | s     | Bohemian waxwing              | y     | y      |                        |    |
| Pectoral sandpiper             | saw   | s     | Northern shrike               | a     | a      |                        |    |

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| Common Name               | ICHmw | ICHwk | Common Name            | ESSFw | ESSFwp |
|---------------------------|-------|-------|------------------------|-------|--------|
| Short-billed dowitcher    | s     |       | European starling      | sm    |        |
| Long-billed dowitcher     | sa    | s     | Orange-crowned warbler | sa    | sa     |
| Common snipe              | sm    | sm    | Yellow-rumped warbler  | sa    | sa     |
| Wilson's phalarope        | ps    |       | Townsend's warbler     | sa    |        |
| Red-necked phalarope      | ps    | s     | Blackpoll warbler      | sa    | sa     |
| Parasitic jaeger          | s     |       | American redstart      | sa    |        |
| Bonaparte's gull          | SA    | ps    | Northern waterthrush   | sa    |        |
| Mew gull                  | s     | ps    | MacGillivray's warbler | sa    |        |
| Ring-billed gull          | sM    | s     | Common yellowthroat    | sa    |        |
| California gull           | PSaw  | sa    | Wilson's warbler       | sa    | sa     |
| Herring gull              | swM   | sm    | Chipping sparrow       | s     | s      |
| Thayer's gull             | a     |       | Fox sparrow            | s     |        |
| Sabine's gull             | a     |       | Song sparrow           | s     | s      |
| Common tern               | pSA   | sa    | White-crowned sparrow  | s     | s      |
| Black tern                | ps    | ps    | Dark-eyed junco        | sm    | sm     |
| Rock dove                 | Y     |       | Snow bunting           | mw    | mw     |
| Band-tailed pigeon        | ps    |       | Rusty blackbird        | ps    |        |
| Mourning dove             | y     |       | Rosy finch             | y     | y      |
| Black-billed cuckoo       | s     |       | Pine grosbeak subspp.  | sm    | sm     |
| Barn owl                  | psw   |       | Red crossbill          | y     | y      |
| Great horned owl          | y     | y     | White-winged crossbill | y     | y      |
| Northern hawk owl         | saw   |       | Common redpoll         | mw    |        |
| Northern pygmy owl        | y     | y     | Hoary redpoll          | mw    | mw     |
| Barred owl                | y     | a     | Pine siskin            | Y     | Y      |
| Great gray owl            | w     |       | Evening grosbeak       | sm    |        |
| Long-eared owl            | y     |       |                        |       |        |
| Short-eared owl           | wm    | p     |                        |       |        |
| Boreal owl                | p     |       |                        |       |        |
| Northern saw-whet owl     | y     | s     |                        |       |        |
| Common nighthawk          | pSA   | pS    |                        |       |        |
| Black swift               | SM    | SM    |                        |       |        |
| Vaux's swift              | PSa   | s     |                        |       |        |
| Black-chinned hummingbird | ps    |       |                        |       |        |
| Anna's hummingbird        | pw    |       |                        |       |        |
| Calliope hummingbird      | PS    | ps    |                        |       |        |
| Rufous hummingbird        | PSa   | PSa   |                        |       |        |
| Belted kingfisher         | SwM   | SwM   |                        |       |        |
| Lewis' woodpecker         | sm    | a     |                        |       |        |
| Red-naped sapsucker       | PSa   | ps    |                        |       |        |
| Red-breasted sapsucker    |       | ps    |                        |       |        |
| Downy woodpecker          | SwM   | y     |                        |       |        |
| Hairy woodpecker subspp.  | y     | y     |                        |       |        |
| Three-toed woodpecker     | y     | y     |                        |       |        |
| Black-backed woodpecker   | y     | y     |                        |       |        |
| Northern flicker          | Y     | sm    |                        |       |        |
| Pileated woodpecker       | y     | y     |                        |       |        |
| Olive-sided flycatcher    | ps    | ps    |                        |       |        |

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| Common Name                   | ICHmw | ICHwk | Common Name             | ICHmw | ICHwk |
|-------------------------------|-------|-------|-------------------------|-------|-------|
| Western wood-pewee            | ps    | ps    | Nashville warbler       | sm    | sm    |
| Alder flycatcher              |       | ps    | Yellow warbler          | sm    | sm    |
| Willow flycatcher             | ps    | ps    | Magnolia warbler        | sm    | sm    |
| Hammond's flycatcher          | sm    | sm    | Yellow-rumped warbler   | sm    | sm    |
| Dusky flycatcher              | ps    | ps    | Townsend's warbler      | sm    | sm    |
| Western flycatcher complex    | sm    | sm    | Black-and-white warbler | s     |       |
| Ash-throated flycatcher       | s     |       | American redstart       | sm    | sm    |
| Western kingbird              | ps    |       | Northern waterthrush    | sm    | sm    |
| Eastern kingbird              | sm    | sm    | MacGillivray's warbler  | sm    | sm    |
| Horned lark                   | y     | m     | Common yellowthroat     | sm    | sm    |
| Tree swallow                  | PSa   | PSa   | Wilson's warbler        | sm    | sm    |
| Violet-green swallow          | Psa   | Psa   | Western tanager         | sm    | sm    |
| Northern rough-winged swallow | PSa   | PSa   | Black-headed grosbeak   | sm    | sm    |
| Bank swallow                  | PS    | PS    | Lazuli bunting          | sm    | sm    |
| Cliff swallow                 | PSa   | PSa   | Rufous-sided towhee     | y     | ps    |
| Barn swallow                  | SM    | PSa   | American tree sparrow   | mw    | m     |
| Gray jay                      | y     | y     | Chipping sparrow        | Psa   | Psa   |
| Steller's jay subsp.          | y     | y     | Vesper sparrow subsp.   | sm    |       |
| Blue jay                      | y     | y     | Lark sparrow            | ps    |       |
| Clark's nutcracker            | psAW  | y     | Savannah sparrow        | sm    | sm    |
| Black-billed magpie           | y     | y     | Fox sparrow             | y     | sm    |
| American crow                 | Y     | SMw   | Song sparrow            | y     | sm    |
| Common raven                  | Y     | Y     | Lincoln's sparrow       | sm    | sm    |
| Black-capped chickadee        | y     | y     | White-throated sparrow  | aw    |       |
| Mountain chickadee            | y     | y     | Golden-crowned sparrow  | ps    | m     |
| Boreal chickadee              | aw    | y     | White-crowned sparrow   | SM    | SM    |
| Chestnut-backed chickadee     | Y     | Y     | Harris' sparrow         | aw    | aw    |
| Red-breasted nuthatch         | y     | y     | Dark-eyed junco         | sMw   | sMw   |
| White-breasted nuthatch       | y     | m     | Lapland longspur        | a     |       |
| Brown creeper                 | y     | y     | Snow bunting            | mw    | mw    |
| Rock wren                     | sm    | sm    | Bobolink                | ps    |       |
| House wren                    | sm    | sm    | Red-winged blackbird    | SMw   | sm    |
| Winter wren                   | Y     | Y     | Western meadowlark      | y     |       |
| Marsh wren                    | y     |       | Yellow-headed blackbird | PSa   | ps    |
| American dipper               | y     | y     | Rusty blackbird         | y     | psa   |
| Golden-crowned kinglet        | Y     | Y     | Brewer's blackbird      | SM    | sm    |
| Ruby-crowned kinglet          | y     | y     | Brown-headed cowbird    | psa   | ps    |
| Western bluebird              | sm    |       | Northern oriole         | ps    |       |
| Mountain bluebird             | sm    | sm    | Rosy finch              | mw    | mw    |
| Townsend's solitaire          | y     | sm    | Pine grosbeak subsp.    | y     | y     |
| Veery                         | ps    | ps    | Purple finch            | y     | sm    |
| Swainson's thrush             | sm    | sm    | Cassin's finch          | y     |       |
| Hermit thrush                 | sm    | sm    | House finch             | y     |       |
| American robin                | SMw   | PSa   | Red crossbill           | Y     | Y     |
| Varied thrush                 | psAW  | psAW  | White-winged crossbill  | y     | y     |
| Gray catbird                  | sm    | *     | Common redpoll          | MW    | MW    |
| American pipit                | sm    | sm    | Pine siskin             | Y     | Y     |

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| <b>Common Name</b> | <b>ICHmw</b> | <b>ICHwk</b> | <b>Common Name</b>     | <b>ICHmw</b> | <b>ICHwk</b> |
|--------------------|--------------|--------------|------------------------|--------------|--------------|
| Bohemian waxwing   | psAW         | psAW         | American goldfinch     | pSAw         |              |
| Cedar waxwing      | PSaw         | PSa          | Evening grosbeak       | psAW         | psAW         |
| Northern shrike    | mw           | mw           | House sparrow          | y            |              |
| European starling  | SMw          | SMw          | Say's phoebe           | sm           | sm           |
| Solitary vireo     | sm           | sm           | Tennessee warbler      | sm           | sm           |
| Warbling vireo     | sm           | sm           | Orange-crowned warbler | sm           | sm           |
| Red-eyed vireo     | sm           | sm           | Eastern phoebe         |              | ps           |

## Appendix E: Seasonal Abundance of Amphibians, Reptiles, and Mammals in BEC zones.

Lower case = uncommon, scarce, or rare; Upper case = common. **Species in BEC zones are not necessarily found in park.**

- P = spring (March-May)
- S = summer (June-August)
- A = autumn (September – November)
- W = winter (December – February)
- M = migratory (spring and autumn)
- Y = yearlong

| Common Name                     | ICHmw | ICHwk | Common Name                     | ESSFw | ESSFwp | Common Name                             | AT   |
|---------------------------------|-------|-------|---------------------------------|-------|--------|---|------|
| <b>Amphibians</b>               |       |       | <b>Amphibians</b>               |       |        | <b>Amphibians</b>                       |      |
| Long-toed salamander            | Y     | Y     | Long-toed salamander            | Y     | Y      | Long-toed salamander                    | Y    |
| Western toad                    | Y     | Y     | Western toad                    | Y     | Y      | <b>Mammals</b>                          |      |
| Pacific treefrog                | Y     | Y     | Spotted frog                    | Y     | Y      | Vagrant shrew                           | Y    |
| Leopard frog                    | y     | y     | <b>Mammals</b>                  |       |        | Common pika                             | Y    |
| Spotted frog                    | Y     | Y     | Common shrew                    | Y     | Y      | Southern red-backed vole subsp.         | y    |
| Wood frog                       | Y     | Y     | Pygmy shrew                     | y     | y      | Brown lemming                           | Yy   |
| <b>Reptiles</b>                 |       |       | Dusky shrew                     | Y     | Y      | Meadow vole                             | Y    |
| Painted turtle                  | Y     | y     | Water shrew                     | y     | y      | Northern bog lemming subsp.             | Y    |
| Western skink                   | y     |       | Vagrant shrew                   | Y     | Y      | Bushy-tailed woodrat                    | Y    |
| Northern alligator lizard       | y     | y     | Silver-haired bat               | S     | S      | Deer mouse                              | Y    |
| Rubber boa                      | y     |       | Hoary bat                       | S     | S      | Northern pocket gopher subsp.           | y    |
| Western garter snake            | Y     | Y     | California myotis               | S     |        | Hoary marmot                            | Y    |
| Common garter snake             | Y     | Y     | Western long-eared myotis       | S     |        | Woodchuck                               | Y    |
| <b>Mammals</b>                  |       |       | Little brown myotis             | S     | S      | Columbian ground squirrel               | Y    |
| Common shrew                    | Y     | Y     | Long-legged myotis              | S     | S      | Golden-mantled ground squirrel          | Y    |
| Dusky shrew                     | Y     | Y     | Snowshoe hare subsp.            | Yy    | Yy     | Cascade mantled ground squirrel         | y    |
| Water shrew                     | y     | y     | Common pika                     | Y     | Y      | Coyote                                  | Y    |
| Big brown bat                   | Y     | Y     | Southern red-backed vole subsp. | Y     | Y      | Gray wolf                               | Y    |
| Silver-haired bat               | Y     | Y     | Northern red-backed vole        | Y     | Y      | Red fox                                 | Y    |
| Hoary bat                       | s     | s     | Brown lemming                   |       | Yy     | Wolverine subsp. luscus                 | S    |
| California myotis               | S     | S     | Long-tailed vole                | Y     | Y      | Long-tailed weasel subsp.               | Y    |
| Western long-eared myotis       | s     | s     | Meadow vole                     | Y     | Y      | Long-tailed weasel subsp. altifrontalis | y    |
| Little brown myotis             | Y     | S     | Muskrat                         | Y     | Y      | Black bear subsp.                       | S    |
| Northern long-eared myotis      | s     | s     | Heather vole                    | y     | y      | Grizzly bear                            | psa  |
| Long-legged myotis              | S     | S     | Northern bog lemming subsp.     | Y     | Y      | Mountain goat                           | pSaW |
| Yuma myotis                     | S     | S     | Beaver                          | Y     |        | Bighorn Sheep subsp. canadensis         | Y    |
| Townsend's big-eared bat        | y     |       | Bushy-tailed woodrat            | Y     | Y      | Bighorn Sheep subsp. californiana       | Y    |
| Snowshoe hare subsp.            | Yy    | Yy    | Deer mouse                      | Y     | Y      | Moose                                   | s    |
| Common pika                     | Y     | Y     | Porcupine                       | Y     | Y      | Elk subsp. nelsoni                      | SA   |
| Southern red-backed vole subsp. | Y     | Y     | Northern pocket gopher subsp.   | Y     | Y      | Mule deer subsp. hemionus               | SA   |
| Long-tailed vole                | Y     | Y     | Northern flying squirrel        | Y     |        | White-tailed deer                       | sa   |

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| Common Name                              | ICHmw | ICHwk | Common Name                           | ESSFw | ESSFwp | Common Name                        | AT |
|--|-------|-------|---------------------------------------|-------|--------|------------------------------------|----|
| Meadow vole                              | Y     | Y     | Hoary marmot                          |       | Y      | Caribou (southeastern populations) | S  |
| Muskrat                                  | Y     | Y     | Golden-mantled ground squirrel        | Y     | Y      |                                    |    |
| Heather vole                             | y     | y     | Least chipmunk subspp.                | Y     | Y      |                                    |    |
| Northern bog lemming subspp.             | y     | y     | Least Chipmunk subsp. selkiri         | Y     | Y      |                                    |    |
| Beaver                                   | Y     | Y     | Red-tailed chipmunk subsp. simulans   | Y     | Y      |                                    |    |
| Bushy-tailed woodrat                     | Y     | Y     | Red-tailed chipmunk subsp. ruficaudus | Y     | Y      |                                    |    |
| Deer mouse                               | Y     | Y     | Red squirrel                          | Y     |        |                                    |    |
| Porcupine                                | Y     | Y     | Meadow jumping mouse subspp.          | Y     |        |                                    |    |
| Northern pocket gopher subspp.           | Y     |       | Western jumping mouse                 | Y     |        |                                    |    |
| Northern pocket gopher aubsp. segregatus | y     |       | Coyote                                | Y     | Y      |                                    |    |
| House mouse                              | Y     | Y     | Gray wolf                             | Y     | S      |                                    |    |
| Northern flying squirrel                 | Y     | Y     | Red fox                               | Y     | Y      |                                    |    |
| Hoary marmot                             | Y     | Y     | Cougar                                | Y     | S      |                                    |    |
| Yellow-bellied marmot                    | Y     |       | Lynx                                  | Y     | Y      |                                    |    |
| Woodchuck                                | Y     | Y     | Bobcat                                | Y     | Y      |                                    |    |
| Columbia ground squirrel                 | Y     | Y     | Wolverine subsp. luscus               | y     | y      |                                    |    |
| Golden-mantled ground squirrel           | Y     | Y     | River otter                           | Y     | y      |                                    |    |
| Yellow-pine chipmunk                     | Y     | Y     | Marten                                | Y     | Y      |                                    |    |
| Red-tailed chipmunk subsp. simulans      | Y     |       | Fisher                                | Y     | Y      |                                    |    |
| Red squirrel                             | Y     | Y     | Long-tailed weasel subspp.            | Y     | Y      |                                    |    |
| Meadow jumping mouse subspp.             | Y     | Y     | Least weasel                          |       | y      |                                    |    |
| Western jumping mouse                    | Y     | Y     | Mink                                  | Y     | Y      |                                    |    |
| Coyote                                   | Y     | Y     | Badger                                | y     | y      |                                    |    |
| Gray wolf                                | Y     | Y     | Black bear subspp.                    | Y     | Y      |                                    |    |
| Red fox                                  | Y     | Y     | Grizzly bear                          | SAW   | SAW    |                                    |    |
| Cougar                                   | Y     | Y     | Mountain goat                         | Y     | S      |                                    |    |
| Lynx                                     | Y     | Y     | Bighorn sheep subsp. canadensis       | s     | s      |                                    |    |
| Bobcat                                   | Y     | Y     | Moose                                 | pSAw  | S      |                                    |    |
| Wolverine subsp. luscus                  | Y     | Y     | Elk subsp. nelsoni                    | SA    | SA     |                                    |    |
| River otter                              | Y     | Y     | Mule deer subsp. hemionus             | SA    | SA     |                                    |    |
| Marten                                   | Y     | Y     | White-tailed deer                     | PSA   | PSA    |                                    |    |
| Fisher                                   | y     | y     | Caribou (southeastern populations)    | Y     | Y      |                                    |    |

## Appendix F: Rare and Endangered Flora (ABFD)

Rare and endangered flora species within the Arrow Boundary Forest District: Shading indicates confirmation within Kokanee Glacier Provincial Park (To date, inventories have been limited to areas surrounding Kokanee Glacier Cabin only).

| Scientific Name   | English Name                 | G Rank | Provincial | COSEWIC       | BC Status |
|---|------------------------------|--------|------------|---------------|-----------|
| <i>Agastache urticifolia</i>                              | nettle-leaved giant-hyssop   | G5     | S3         |               | BLUE      |
| <i>Agoseris lackschewitzii</i>                            | pink agoseris                | G4     | S2S3       |               | BLUE      |
| <i>Arabis holboellii</i> var. <i>pinetorum</i>            | Holboell's rockcress         | G5T5?  | S2S3       |               | BLUE      |
| <i>Arnica longifolia</i>                                  | seep-spring arnica           | G5     | S2S3       |               | BLUE      |
| <i>Aster ascendens</i>                                    | long-leaved aster            | G5     | S2S3       |               | BLUE      |
| <i>Astragalus microcystis</i>                             | least bladderly milk-vetch   | G5     | S1         |               | RED       |
| <i>Astragalus vexilliflexus</i> var. <i>vexilliflexus</i> | bent-flowered milk-vetch     | G4TNR  | S2S3       |               | BLUE      |
| <i>Botrychium simplex</i>                                 | least moonwort               | G5     | S2S3       |               | BLUE      |
| <i>Carex amplifolia</i>                                   | bigleaf sedge                | G4     | S2S3       |               | BLUE      |
| <i>Carex epapillosa</i>                                   | blackened sedge              | G5     | S2S3       |               | BLUE      |
| <i>Carex lenticularis</i> var. <i>lenticularis</i>        | lakeshore sedge              | G5T5   | S2         |               | RED       |
| <i>Carex scoparia</i>                                     | pointed broom sedge          | G5     | S2S3       |               | BLUE      |
| <i>Castilleja tenuis</i>                                  | hairy owl-clover             | G5     | S1         |               | RED       |
| <i>Cheilanthes gracillima</i>                             | lace fern                    | G4G5   | S2S3       |               | BLUE      |
| <i>Clarkia pulchella</i>                                  | pink fairies                 | G5?    | S3         |               | BLUE      |
| <i>Clarkia rhomboidea</i>                                 | common clarkia               | G5     | S1         |               | RED       |
| <i>Coreopsis tinctoria</i> var. <i>atkinsoniana</i>       | Atkinson's coreopsis         | G5T5   | S1         |               | RED       |
| <i>Crepis occidentalis</i> ssp. <i>pumila</i>             | western hawksbeard           | G5T5   | S1         |               | RED       |
| <i>Delphinium sutherlandii</i>                            | Sutherland's larkspur        | GNR    | S2S3       |               | BLUE      |
| <i>Dicentra uniflora</i>                                  | steer's head                 | G4?    | S2S3       |               | BLUE      |
| <i>Dryopteris cristata</i>                                | crested wood fern            | G5     | S2S3       |               | BLUE      |
| <i>Epilobium glaberrimum</i> ssp. <i>fastigiatum</i>      | smooth willowherb            | G5TNR  | S2S3       |               | BLUE      |
| <i>Epilobium leptocarpum</i>                              | small-fruited willowherb     | G5     | S2S3       |               | BLUE      |
| <i>Erysimum asperum</i>                                   | prairie rocket               | G5     | S1         |               | RED       |
| <i>Floerkea proserpinacoides</i>                          | false-mermaid                | G5     | S2S3       | NAR<br>(1984) | BLUE      |
| <i>Hesperochiron pumilus</i>                              | dwarf hesperochiron          | G4     | S1         |               | RED       |
| <i>Hesperostipa spartea</i>                               | porcupinegrass               | G5     | S2         |               | RED       |
| <i>Heterocodon rariflorum</i>                             | heterocodon                  | G5     | S3         |               | BLUE      |
| <i>Hypericum scouleri</i> ssp. <i>nortoniae</i>           | western St. John's-wort      | G5TNR  | S2S3       |               | BLUE      |
| <i>Impatiens ecalcarata</i>                               | spurless touch-me-not        | G3G4   | S2S3       |               | BLUE      |
| <i>Lewisia triphylla</i>                                  | three-leaved lewisia         | G4?    | S2S3       |               | BLUE      |
| <i>Ligusticum verticillatum</i>                           | verticillate-umbel lovage    | G4G5   | S2S3       |               | BLUE      |
| <i>Linanthus harknessii</i>                               | Harkness' linanthus          | G4?    | S1         |               | RED       |
| <i>Linanthus septentrionalis</i>                          | northern linanthus           | G5     | S2S3       |               | BLUE      |
| <i>Lotus unifoliolatus</i> var. <i>unifoliolatus</i>      | Spanish-clover               | G5T5   | S2S3       |               | BLUE      |
| <i>Melica smithii</i>                                     | Smith's melic                | G4     | S2S3       |               | BLUE      |
| <i>Melica spectabilis</i>                                 | purple oniongrass            | G5     | S2S3       |               | BLUE      |
| <i>Mertensia paniculata</i> var. <i>borealis</i>          | tall bluebells               | G5TNR  | S2S3       |               | BLUE      |
| <i>Mimulus breviflorus</i>                                | short-flowered monkey-flower | G4     | S1         |               | RED       |
| <i>Mimulus breweri</i>                                    | Brewer's monkey-flower       | G5     | S2S3       |               | BLUE      |

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| Scientific Name                                       | English Name            | G Rank       | Provincial | COSEWIC | BC Status |
|---|-------------------------|--------------|------------|---------|-----------|
| <i>Oxytropis campestris</i> var. <i>columbiana</i>    | Columbia River locoweed | G5T3         | S3         |         | BLUE      |
| <i>Polemonium occidentale</i> ssp. <i>occidentale</i> | western Jacob's-ladder  | G5?T5?       | S2S3       |         | BLUE      |
| <i>Polygonum polygaloides</i> ssp. <i>kelloggii</i>   | Kellogg's knotweed      | G4G5T3<br>T5 | S2S3       |         | BLUE      |
| <i>Rubus nivalis</i>                                  | snow bramble            | G4?          | S2         |         | RED       |
| <i>Salix boothii</i>                                  | Booth's willow          | G5           | S2S3       |         | BLUE      |
| <i>Scirpus pallidus</i>                               | pale bulrush            | G5           | S1         |         | RED       |
| <i>Scutellaria angustifolia</i>                       | narrow-leaved skullcap  | G5           | S2S3       |         | BLUE      |
| <i>Senecio hydrophiloides</i>                         | sweet-marsh butterweed  | G4G5         | S1         |         | RED       |
| <i>Senecio hydrophilus</i>                            | alkali-marsh butterweed | G5           | SH         |         | RED       |
| <i>Solidago gigantea</i> ssp. <i>serotina</i>         | smooth goldenrod        | G5TNR        | S1         |         | RED       |
| <i>Stellaria obtusa</i>                               | blunt-sepaled starwort  | G5           | S2S3       |         | BLUE      |
| <i>Trichostema oblongum</i>                           | mountain blue-curls     | G5           | S1         |         | RED       |
| <i>Trifolium cyathiferum</i>                          | cup clover              | G4           | S1         |         | RED       |
| <i>Viola septentrionalis</i>                          | northern violet         | G5           | S2S3       |         | BLUE      |

## Appendix G: Rare and Endangered Flora (KLFD)

Rare and endangered flora species within the Kootenay Lake Forest District: Shading indicates confirmation within Kokanee Glacier Provincial Park. (To date, inventories have been limited to areas surrounding Kokanee Glacier Cabin only).

| Scientific Name  | English Name                | G Rank  | Provincial | COSEWIC   | BC Status |
|--|-----------------------------|---------|------------|-----------|-----------|
| <i>Acorus americanus</i>                                 | American sweet-flag         | G5      | S2S3       |           | BLUE      |
| <i>Anemone canadensis</i>                                | Canada anemone              | G5      | S2S3       |           | BLUE      |
| <i>Anemone piperi</i>                                    | Piper's anemone             | G4      | S1         |           | RED       |
| <i>Artemisia ludoviciana</i> var. <i>incompta</i>        | western mugwort             | G5TNR   | S2S3       |           | BLUE      |
| <i>Bidens vulgata</i>                                    | tall beggarticks            | G5      | S1         |           | RED       |
| <i>Calamagrostis montanensis</i>                         | plains reedgrass            | G5      | S2         |           | RED       |
| <i>Callitriche heterophylla</i> ssp. <i>heterophylla</i> | two-edged water-starwort    | G5T5    | S2S3       |           | BLUE      |
| <i>Carex adusta</i>                                      | lesser brown sedge          | G5      | S1         |           | RED       |
| <i>Carex amplifolia</i>                                  | bigleaf sedge               | G4      | S2S3       |           | BLUE      |
| <i>Carex comosa</i>                                      | bearded sedge               | G5      | S2S3       |           | BLUE      |
| <i>Carex heleonastes</i>                                 | Hudson Bay sedge            | G4      | S2S3       |           | BLUE      |
| <i>Carex lenticularis</i> var. <i>lenticularis</i>       | lakeshore sedge             | G5T5    | S2         |           | RED       |
| <i>Carex scoparia</i>                                    | pointed broom sedge         | G5      | S2S3       |           | BLUE      |
| <i>Carex scopulorum</i> var. <i>bracteosa</i>            | Holm's Rocky Mountain sedge | G5TNR   | S2S3       |           | BLUE      |
| <i>Carex tenera</i>                                      | tender sedge                | G5      | S2S3       |           | BLUE      |
| <i>Carex vulpinoidea</i>                                 | fox sedge                   | G5      | S2S3       |           | BLUE      |
| <i>Cheilanthes gracillima</i>                            | lace fern                   | G4G5    | S2S3       |           | BLUE      |
| <i>Clarkia pulchella</i>                                 | pink fairies                | G5?     | S3         |           | BLUE      |
| <i>Crassula aquatica</i>                                 | pigmyweed                   | G5      | S3         |           | BLUE      |
| <i>Delphinium bicolor</i> ssp. <i>bicolor</i>            | Montana larkspur            | G4G5TNR | S2S3       |           | BLUE      |
| <i>Downingia elegans</i>                                 | common downingia            | G5      | SX         |           | RED       |
| <i>Dryopteris cristata</i>                               | crested wood fern           | G5      | S2S3       |           | BLUE      |
| <i>Elodea nuttallii</i>                                  | Nuttall's waterweed         | G5      | S2S3       |           | BLUE      |
| <i>Elymus virginicus</i> var. <i>submuticus</i>          | beardless wildrye           | G5T4T5  | SH         |           | RED       |
| <i>Epilobium halleianum</i>                              | Hall's willowherb           | G5      | S2S3       |           | BLUE      |
| <i>Epipactis gigantea</i>                                | giant helleborine           | G3      | S2S3       | SC (1998) | BLUE      |
| <i>Glycyrrhiza lepidota</i>                              | wild licorice               | G5      | S2         |           | RED       |
| <i>Helenium autumnale</i> var. <i>grandiflorum</i>       | mountain sneezeweed         | G5TNR   | S2S3       |           | BLUE      |
| <i>Heterocodon rariflorum</i>                            | heterocodon                 | G5      | S3         |           | BLUE      |
| <i>Hypericum scouleri</i> ssp. <i>nortoniae</i>          | western St. John's-wort     | G5TNR   | S2S3       |           | BLUE      |
| <i>Idahoia scapigera</i>                                 | scalegod                    | G5      | S2         |           | RED       |
| <i>Impatiens aurella</i>                                 | orange touch-me-not         | G4?     | S2S3       |           | BLUE      |
| <i>Impatiens ecalcarata</i>                              | spurless touch-me-not       | G3G4    | S2S3       |           | BLUE      |
| <i>Juncus confusus</i>                                   | Colorado rush               | G5      | S1         |           | RED       |
| <i>Juncus regelii</i>                                    | Regel's rush                | G4?     | S3         |           | BLUE      |
| <i>Lewisia triphylla</i>                                 | three-leaved lewisia        | G4?     | S2S3       |           | BLUE      |
| <i>Ligusticum verticillatum</i>                          | verticillate-umbel lovage   | G4G5    | S2S3       |           | BLUE      |
| <i>Linanthus septentrionalis</i>                         | northern linanthus          | G5      | S2S3       |           | BLUE      |
| <i>Lupinus arbustus</i> ssp. <i>pseudoparviflorus</i>    | Montana lupine              | G5TNR   | S1         |           | RED       |
| <i>Megalodonta beckii</i> var. <i>beckii</i>             | water marigold              | G4G5T4  | S3         |           | BLUE      |

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| Scientific Name   | English Name               | G Rank   | Provincial | COSEWIC | BC Status |
|---|----------------------------|----------|------------|---------|-----------|
| <i>Melica bulbosa</i> var. <i>bulbosa</i>               | oniongrass                 | G5T5     | S2         |         | RED       |
| <i>Melica smithii</i>                                   | Smith's melic              | G4       | S2S3       |         | BLUE      |
| <i>Mertensia paniculata</i> var. <i>borealis</i>        | tall bluebells             | G5TNR    | S2S3       |         | BLUE      |
| <i>Monardella odoratissima</i> ssp. <i>odoratissima</i> | monardella                 | G4G5TNR  | S1         |         | RED       |
| <i>Muhlenbergia glomerata</i>                           | marsh muhly                | G5       | S3         |         | BLUE      |
| <i>Myriophyllum ussuriense</i>                          | Ussurian water-milfoil     | G3       | S3         |         | BLUE      |
| <i>Oxytropis campestris</i> var. <i>columbiana</i>      | Columbia River locoweed    | G5T3     | S3         |         | BLUE      |
| <i>Platanthera dilatata</i> var. <i>albiflora</i>       | fragrant white rein orchid | G5TNR    | S2S3       |         | BLUE      |
| <i>Polygonum polygaloides</i> ssp. <i>kelloggii</i>     | Kellogg's knotweed         | G4G5T3T5 | S2S3       |         | BLUE      |
| <i>Scrophularia lanceolata</i>                          | lance-leaved figwort       | G5       | S2S3       |         | BLUE      |
| <i>Senecio hydrophiloides</i>                           | sweet-marsh butterweed     | G4G5     | S1         |         | RED       |
| <i>Senecio hydrophilus</i>                              | alkali-marsh butterweed    | G5       | SH         |         | RED       |
| <i>Sphenopholis obtusata</i>                            | prairie wedgegrass         | G5       | S1         |         | RED       |
| <i>Stellaria obtusa</i>                                 | blunt-sepaled starwort     | G5       | S2S3       |         | BLUE      |
| <i>Thalictrum dasycarpum</i>                            | purple meadowrue           | G5       | S2S3       |         | BLUE      |
| <i>Thermopsis rhombifolia</i>                           | prairie golden bean        | G5       | S1         |         | RED       |
| <i>Wolffia borealis</i>                                 | northern water-meal        | G5       | S2         |         | RED       |

## Appendix H: Rare Natural Plant Communities (KLFD/ABFD)

Shading indicates occurrence within Kokanee Glacier Provincial Park (**Requires confirmation by on-site inventory**)

| English Name                                   | Biogeoclimatic Site Unit(s) | Provincial List | Forest District |
|--|-----------------------------|-----------------|-----------------|
| Subalpine fir / black huckleberry / bear-grass | ESSFwc1/00                  | Blue            | KLFD            |
| Douglas-fir / tall Oregon-grape / parsley fern | ICHdw/02                    | Red             | KLFD            |
| Western redcedar/Douglas-fir - mock-orange     | ICHxw/01                    | Blue            | KLFD            |
| Subalpine fir / black huckleberry / bear-grass | ESSFwc1/00                  | Blue            | ABFD            |
|  | ESSFwc4/00                  |                 |                 |
| Douglas-fir / tall Oregon-grape / parsley fern | ICHdw/02                    | Red             | ABFD            |

## Appendix I: Rare and Endangered Fauna (KLFD/ABFD)

Rare and endangered animal species within the Kootenay Lake and Arrow Boundary Forest Districts. Shading indicates confirmation within Kokanee Glacier Provincial Park. **No formal inventories have yet to be conducted.**

| Scientific Name                          | English Name   | G Rank | Provincial | COSEWIC       | BC Status |
|--|--|--------|------------|---------------|-----------|
| <i>Acipenser transmontanus</i> pop. 1    | White Sturgeon (Kootenay River population)           | G4T1Q  | S1         |               | RED       |
| <i>Aeronautes saxatalis</i>              | White-throated Swift                                 | G5     | S3S4B,SZN  |               | BLUE      |
| <i>Aechmophorus occidentalis</i>         | Western Grebe  | G5     | S1B,S3N    |               | RED       |
| <i>Argia vivida</i>                      | Vivid Dancer   | G5     | S2         |               | RED       |
| <i>Ardea herodias herodias</i>           | Great Blue heron, herodias subspecies                | G5T5   | S3B,S4N    |               | BLUE      |
| <i>Asio flammeus</i>                     | Short-eared Owl                                      | G5     | S3B,S2N    | SC (1994)     | BLUE      |
| <i>Botaurus lentiginosus</i>             | American Bittern                                     | G4     | S3B,SZN    |               | BLUE      |
| <i>Catherpes mexicanus</i>               | Canyon Wren  | G5     | S3         | NAR (1992)    | BLUE      |
| <i>Chrysemys picta</i>                   | Painted Turtle                                       | G5     | S3S4       |               | BLUE      |
| <i>Coluber constrictor</i>               | Racer  | G5     | S3S4       |               | BLUE      |
| <i>Corynorhinus townsendii</i>           | Townsend's Big-eared Bat                             | G4     | S2S3       |               | BLUE      |
| <i>Cottus punctulatus</i>                | Rocky Mountain Sculpin                               | G5TNR  | S2S3       |               | BLUE      |
| <i>Cottus confusus</i>                   | Shorthead Sculpin                                    | G5     | S2S3       | T (MAY 2001)  | BLUE      |
| <i>Dolichonyx oryzivorus</i>             | Bobolink   | G5     | S3B,SZN    |               | BLUE      |
| <i>Euphydryas gillettii</i>              | Gillette's Checkerspot                               | G2G3   | S2S3       |               | BLUE      |
| <i>Everes comyntas</i>                   | Eastern Tailed Blue                                  | G5     | S3         |               | BLUE      |
| <i>Falco mexicanus</i>                   | Prairie Falcon                                       | G5     | S2B,SZN    | NAR (1996)    | RED       |
| <i>Gulo gulo luscus</i>                  | Wolverine, luscus subspecies                         | G4T4   | S3         | SC (2003)     | BLUE      |
| <i>Martes pennanti</i>                   | Fisher   | G5     | S2         |               | RED       |
| <i>Melanerpes lewis</i>                  | Lewis's Woodpecker                                   | G4     | S3B,SZN    | SC (NOV 2001) | BLUE      |
| <i>Oncorhynchus clarki lewisi</i>        | Cutthroat Trout, lewisi subspecies                   | G4T3   | S3SE       |               | BLUE      |
| <i>Otus kennicottii macfarlanei</i>      | Western Screech-Owl, macfarlanei subspecies          | G5T4   | S1         | E (MAY 2002)  | RED       |
| <i>Ovis canadensis</i>                   | Bighorn Sheep  | G4     | S2S3       |               | BLUE      |
| <i>Parnassius clodius altaurus</i>       | Clodius Appolo, altaurus subspecies                  | G5T3T4 | S3S4       |               | BLUE      |
| <i>Plethodon idahoensis</i>              | Coeur d'Alene Salamander                             | G3G4   | S3         | SC (NOV 2001) | BLUE      |
| <i>Pyrgus communis</i>                   | Checkered Skipper                                    | G5     | S3         |               | BLUE      |
| <i>Rana pipiens</i>                      | Northern Leopard Frog                                | G5     | S1         | E (MAY 2000)  | RED       |
| <i>Rangifer tarandus</i> pop. 1          | Caribou (southern population)                        | G5T2Q  | S1         | T (MAY 2000)  | RED       |
| <i>Recurvirostra americana</i>           | American Avocet                                      | G5     | S2B,SZN    |               | RED       |
| <i>Rhinichthys umatilla</i>              | Umatilla Dace  | G4     | S2         | SC (1988)     | RED       |
| <i>Salvelinus confluentus</i>            | Bull Trout   | G3     | S3         |               | BLUE      |
| <i>Sphyrapicus thyroideus thyroideus</i> | Williamson's Sapsucker, <i>thyroideus</i> subspecies | G5TU   | S3B,SZN    |               | BLUE      |
| <i>Sterna forsteri</i>                   | Forster's Tern                                       | G5     | S1B,SZN    | DD (1996)     | RED       |
| <i>Tamias ruficaudus simulans</i>        | Red-tailed Chipmunk, simulans subspecies             | G5T4T5 | S3S4       |               | BLUE      |
| <i>Taxidea taxus</i>                     | Badger   | G5     | S1         | E (MAY 2000)  | RED       |
| <i>Thomomys talpoides segregatus</i>     | Northern Pocket Gopher, segregatus subspecies        | G5T2Q  | S2         |               | RED       |
| <i>Ursus arctos</i>                      | Grizzly Bear   | G4     | S3         | SC (MAY 2002) | BLUE      |

# Appendix J: KBLUP- Definitions of Mature and Old Growth Forests by NDT and BEC Unit, Management Zones and BEO.

Mature and Old Forest by NDT and BEC unit (shading indicates NDT/BEC applicable in Kokanee Glacier Provincial Park)

| Natural Disturbance Type | BEC Unit          | Mature (yrs) <sup>K</sup> | Old (yrs) <sup>K</sup> |
|--------------------------|-------------------|---------------------------|------------------------|
| NDT 1                    | ICH<br>ESSF       | >100<br>>120              | >250<br>>250           |
| NDT 2                    | ICH<br>ESSF       | >100<br>>120              | >250<br>>250           |
| NDT 3                    | ICH<br>ESSF<br>MS | >100<br>>120<br>>100      | >140<br>>140<br>>140   |
| NDT 4                    | ICH<br>IDF<br>PP  | >100<br>>100<br>>100      | >250<br>>250<br>>250   |

## Integrated Resource Management Zone (IRMZ)

The primary objective in the IRMZ designation is to balance environmental, economic and social benefits from the resource values within the zone. Resource management emphasis may vary throughout this designation, according to the distribution, availability and sensitivity of resource values.

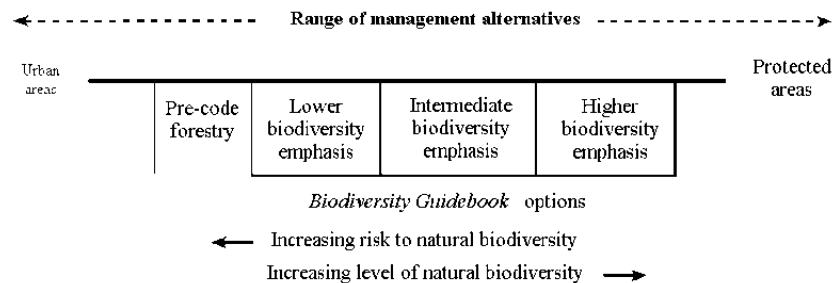
## Enhanced Resource Development Zone (ERDZ)

Lands designated as ERDZ indicate the suitability or potential suitability of those lands for relatively intensive resource development activities, aimed primarily at regional economic development and community and work force stability.

## Special Resource Management Zone (SRMZ)

This land use designation was assigned to areas with high concentrations of regionally significant and sensitive resource values, such as critical fish and wildlife habitat, ecosystems that are under-represented in the region’s protected area system, important viewscales, sensitive recreation areas and cultural heritage features.

## Biodiversity Emphasis Options



## Appendix K: Wildlife (Open Season) Hunting

| Species   | Management Units  | Open Season                                 |
|---|---|---|
| MULE (Black-tailed) DEER Bucks<br>(4 pt or better)      | 4-7 to 4-9, 4-14 to 4-19,<br>4-27 to 4-33**             | Oct 21. to Nov. 10                          |
| WHITE-TAILED DEER Bucks                                 | 4-6 to 4-9, 4-14 to 4-19,<br>4-27 to 4-33**             | Sept. 10 to Nov. 30                         |
| BLACK BEAR  | 4-1 to 4-9, 4-14 to 4-40                                | April 1 to June 30;<br>Sept. 10 to Nov. 30  |
| COUGAR  | 4-6 to 4-9, 4-14 to 4-19,<br>4-27 to 4-33, 4-38, 4-39** | Sept. 10 to Mar. 31                         |
| WOLF  | 4-1 to 4-9, 4-14 to 4-40**                              | April 1 to June 15;<br>Sept. 10 to March 31 |
| COYOTE  | 4-1 to 4-9, 4-14 to 4-40                                | Sept. 10 to March 31                        |
| SKUNK   | 4-1 to 4-9, 4-14 to 4-40                                | April 1 to April 30;<br>Aug. 1 to March 31  |
| RACCOON   | 4-1 to 4-9, 4-14 to 4-40                                | Sept. 10 to March 31                        |
| RAVEN   | 4-1 to 4-9, 4-14 to 4-40                                | April 1 to March 31                         |
| BOBCAT  | 4-1 to 4-9, 4-14 to 4-40                                | Nov. 15 to Feb. 15                          |
| WOLVERINE   | 4-1 to 4-9, 4-14 to 4-40                                | Nov. 1 to Jan. 31                           |
| SNOWSHOE HARE   | 4-1 to 4-9, 4-14 to 4-40                                | April 1 to April 30;<br>Aug. 1 to March 31  |
| COLUMBIAN GROUND SQUIRREL                               | 4-1 to 4-9, 4-14 to 4-40**                              | April 1 to March 31                         |
| BLUE GROUSE; SPRUCE (Franklin)<br>GROUSE; RUFFED GROUSE | 4-1 to 4-9, 4-14 to 4-40                                | Sept. 1 to Nov. 30                          |
| PTARMIGAN   | 4-1 to 4-9, 4-14 to 4-40                                | Sept. 10 to Nov. 30                         |
| DUCKS   | 4-1 to 4-9, 4-14 to 4-40                                | Sept. 11 to Dec. 25                         |
| COOTS   | 4-1 to 4-9, 4-14 to 4-40                                | Sept. 11 to Dec. 25                         |
| COMMON SNIPE  | 4-1 to 4-9, 4-14 to 4-40                                | Sept. 11 to Dec. 25                         |
| SNOW GEESE; ROSS'S GEESE                                | 4-1 to 4-9, 4-14 to 4-40                                | Sept. 11 to Dec. 25                         |
| CANADA GEESE; WHITE-FRONTED<br>GEESE                    | 4-1 to 4-9; 4-14 to 4-40                                | Sept. 11 to Dec. 25                         |
| PHEASANT Cocks  | 4-6, 4-7  | Oct. 15 to Nov. 30                          |

## Appendix L: BC Forest Service Road Maintenance Policy

### Policy Definitions:

- Industrial Use Forest Service Roads (FSR) are roads that are owned and operated by the ministry, but maintenance is delegated to an industrial user.
- Public Use Forest Service Roads are roads which access a year-round residential area with its own Post Office, or either a school located within it or school bus route to or from it. Populated reserves are included in this definition. They do not include roads that provide access to seasonal cabins, isolated residences, commercial operations, parks, or recreation sites.
- Public Use Forest Service Road maintenance standards include user safety maintenance activities such as road surface maintenance and sight line brushing as well those activities required for the protection of the environment. User safety maintenance activities will be commensurate with the types of vehicles and pattern of use.
- Wilderness Forest Service Roads are roads that are not defined as public or industrial use and where the responsibility for maintenance is not transferred or funded on a user-pay basis. Provision of access is not a ministry priority on wilderness roads.
- Wilderness FSRs maintenance standards include those activities required for the protection of the environment, activities do not include surface maintenance or site line brushing. As such, only bridge repair and those maintenance projects required to mitigate environmental problems, like mass wasting or washouts, which may impact residential or worker safety, improvements, or natural resources, will be carried out. Wilderness road maintenance activities will include culvert and bridge removal, waterbars, partial or full pullback of side slopes and cross ditches. Washouts or road slumps may not be repaired.

### Policy Highlights:

- Other than for roads used by the ministry's Timber Sales Program, the ministry, will no longer maintain Forest Service roads with industrial use and, with few exceptions, will no longer maintain Forest Service roads for motor vehicle access where there is no industrial use.
- The Ministry of Forests will continue to maintain public use Forest Service roads until maintenance responsibility is determined (where there is an industrial user, maintenance may be shared).
- Where possible, and in conjunction with other forest management initiatives, all Forest Service roads with industrial use will be converted to Road Permits or other form of tenure.
- Forest Service roads that do not access communities but are used to access popular recreation areas, private property, or commercial operations will be transferred to another agency or organization or maintained commensurate with the level of use by the ministry on a user-pay basis.
- Where responsibility for Forest Service road maintenance is not transferred or funded on a user-pay basis, those roads will be maintained to the new "wilderness" road standard, or deactivated.
- Roads may be temporarily closed, using a barricade, where it would be difficult to provide for a reasonable level of user safety (due to the threat of landslides and other mass-wasting events).
- Roads may be permanently deactivated (including a physical barricade) where:
  - it becomes apparent that necessary repair work on a closed road cannot be carried out;
  - the road is located at the back end of a drainage (with little or no current use and no potential for expansion of access); or
  - the cost of maintenance outweighs the cost of deactivation.

## **Appendix M: Summary of Public Comments: Draft Kokanee Glacier Provincial Park Management Plan**