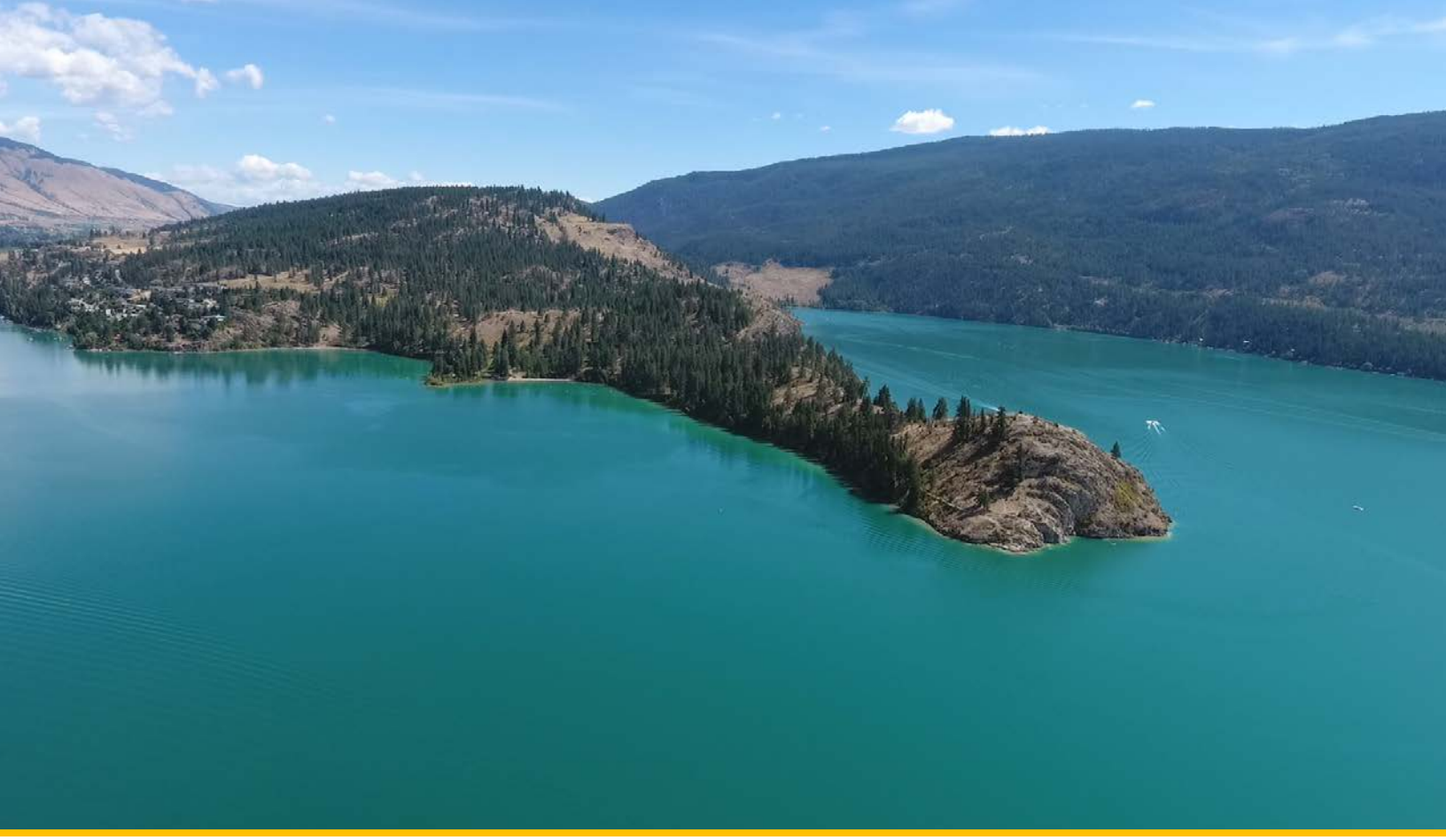

Kalamalka Lake Park

Management Plan

September 2019

BRITISH COLUMBIA | BC Parks

Cover photo credit: Jay Woodford (Synergist Media).

All other photos contained within this plan are credited to Ministry of Environment and Climate Change Strategy (unless otherwise stated).

This document replaces the Kalamalka Lake Park Purpose Statement and Zoning Plan (2003) and the Kalamalka Lake Protected Area Purpose Statement and Zoning Plan (2006).

Kalamalka Lake Park Management Plan

Approved by:

September 3, 2019

_____ _____

John Trewhitt
Regional Director
BC Parks - Kootenay Okanagan

Date

August 28, 2019

_____ _____

David Ranson
Executive Director
BC Parks - Provincial Services Branch

Date

Acknowledgements

The drafting of this management plan relied heavily on the input and knowledge from numerous individuals, groups, key stakeholders, local and regional government staff, and First Nations government, as well as those who generally share a deep passion for Kalamalka Lake Park and its surroundings.

Special gratitude is owed to the Friends of Kalamalka Lake Park, the Cosens Bay Property Owners' Society, North Okanagan Cycling Society, Okanagan Bouldering Society, North Okanagan Climbing Community, North Okanagan Naturalists' Club, and local horse riders for providing detailed and constructive feedback during the management planning process.

Plan Highlights

The management plan for Kalamalka Lake Park draws focussed attention to the significant role this park has in protecting sensitive foreshore areas of Kalamalka Lake along with an endangered grassland and open forest ecosystem. The park also provides high value recreational opportunities such as hiking, trail running, mountain biking, horse riding, rock climbing, bouldering, nature appreciation, boating and swimming.

The management plan includes the following key strategies:

- Utilize pro-active management methods, such as prescribed fire and fuel reduction/tree removal, to reduce forest ingrowth and to assist in restoration and maintenance of the open forest and grassland ecosystem.
- Work with government and non-governmental partners to focus inventory and monitoring on species and habitats considered 'at risk'.
- Within the Special Natural Feature and Nature Recreation zones, only consider new trail proposals if there is a strong rationale for new trail construction (e.g., addressing safety hazards, significant visitor use conflicts).
- Reduce human interference within Western Rattlesnake habitat. Seasonal closures of select portions of the park to the general public may be employed to assist in the protection of essential habitat and minimize disturbance.
- Continue to explore and prioritize private land acquisitions that would complement park values. Seek funding opportunities/partnerships that would enhance the probabilities of successful land securement.
- Explore opportunities to support horse use originating from the Twin Bays parking lot (e.g., horse use on a short section of the Grasslands Trail to the Corral Trail). Seasonal provisions for horse use at this specific location may be required.
- Direct and focus rock climbing and bouldering to the 'context area' identified in the Nature Recreation Zone located in the southern end of the park.
- Assess current climbing and bouldering routes for impact to park values in coordination with the climbing/bouldering community.
- Investigate the reconfiguration of motorized watercraft access locations in high use beach areas (e.g., Cosens, Jade and Juniper bays) to minimize risks/conflicts with swimmers and beach users.
- Where appropriate, develop interpretation opportunities that emphasize the importance of the area to First Nations, while respecting the sensitivity of cultural values. Encourage First Nations to contribute their knowledge and experience to interpretive signage/information at identified locations (e.g., kiosks/trail heads).
- Place emphasis on species inventory on those areas that have species at risk occurrences or unusual species diversity, or may be particularly sensitive to climate change (e.g., wetlands, Cosens Bay Lagoon).

Vision Statement

This **Vision Statement** describes the future state and management regime that is desired for Kalamalka Lake Park over the next 25 to 50 years. The park vision provides long-term direction for park managers, while aiding them in making decisions regarding current issues. It is based on prevailing environmental and socio-economic attitudes concerning protected areas. It is, however, dynamic and conceptual and therefore allows for change due to evolving ideas regarding conservation and recreation and evolving ecosystems due to climate changes.

With its stunning cyan-coloured waters, expansive grasslands, glacially sculpted terrain, biologically rich wetlands, and resilient forests, Kalamalka Lake Park remains one of the most prominent and revered natural legacies in the North Okanagan. The protection of Kalamalka Lake Park was shepherded by a passionate community, and that spirit of local stewardship endures.

Kalamalka Lake Park continues to be placed among one of the most popular day use destinations in the region, while retaining its intrinsic importance as a cultural and spiritual landscape for Indigenous peoples.

The steady increase in park visitation, in all seasons, has created challenges. However, implementing strategic management approaches has significantly reduced the impact of increased visitation on park values. This has been achieved by increasing public awareness of the park's unique and fragile ecosystem, as well as restoring and reclaiming sensitive grasslands, researching and monitoring of species at risk, and deploying preventative measures to address issues associated with recreational impacts and carrying capacity.

Kalamalka Lake Park remains a visually stunning natural backdrop to the communities of Vernon and Coldstream. The park continues to support healthy populations of flora and fauna, while being enjoyed and appreciated by thousands of visitors each year. The success of the park's management is largely a result of the continued collaboration with First Nations, park advocates and a dedicated public who share a common passion for this special protected place.

Table of Contents

List of Figures

List of Tables

List of Plates

1.0 Introduction

1.1 Management Plan Purpose

The purpose of this document is to guide the management of Kalamalka Lake Park. This management plan:

- articulates the key features and values of the park;
- identifies the types and levels of management activities;
- determines the appropriate levels of use and development;
- establishes the long-term vision and management objectives to be met; and,
- responds to current and predicted future threats and opportunities by defining a set of management strategies.

1.2 Planning Area

Kalamalka Lake Park (3,218 hectares) is located on the northern shores of Kalamalka Lake, bordering the edge of the District of Coldstream, approximately 10 kilometres from the city centre of Vernon (see Figure 1). Approximately two thirds of the park is within the regional district of the North Okanagan, whereas the remainder (the southern third of the park) is in the regional district of the Central Okanagan. Vehicular access to the park is either via Cosens Bay Road or Kidston Road, whereas foreshore access is facilitated by Kalamalka Lake.

Nearby parks and protected areas include Cougar Canyon Ecological Reserve (enclosed on three sides by Kalamalka Lake Park towards the southern boundary), Kekuli Bay Park (located 2 kilometres across Kalamalka Lake), Ellison Park (10 kilometres to the west), Campbell Brown (Kalamalka Lake) Ecological Reserve (located 1 kilometre across Kalamalka Lake Park's most southern tip) and Silver Star Park (20 kilometres northeast).

The park's landscape is largely open forest and grasslands, with distinct valleys such as Cosens Valley and Bear Valley situated at approximately 120-140 metres in elevation from the lakeshore. Cliffs dominate many portions of the foreshore interface areas of the park to the north, whereas approachable beaches are prevalent along the southwest foreshore boundary of the park. Numerous seasonal and year-round streams navigate their way into Kalamalka Lake from higher elevations (see Figure 3). The park contains many vegetation communities and fauna species that are considered 'at risk' both provincially and federally.[1]

1.3 Legislative Framework

Established as a Class A park in 1975, Kalamalka Lake Park originally comprised 978 hectares. In 2001, following the recommendations of the Goal 2 process of the Okanagan-Shuswap Land and Resource Management Plan (LRMP), the adjacent Kalamalka Lake Protected Area (2,223 hectares) was established under the provisions of the *Environment and Land Use Act* (See Figure 2). In 2008, the protected area

[1] Confirmation of species at risk within the park (individual species or ecological communities) is supported by provincial datasets, BC Parks inventory, and the State of the Park Analysis from 2006.

was cancelled and the lands added to the Class A park. Kalamalka Lake Park (3,218 hectares) is named and described in Schedule D of the *Protected Areas of British Columbia Act*.

1.4 Land Use Planning Direction and Recommendations

The Okanagan-Shuswap Land and Resource Management Plan (LRMP) provided specific management direction for each proposed protected area identified in the LRMP document, and general management direction for all of the protected areas. Specific direction in the LRMP document for the former Kalamalka Lake Protected Area stated the following recommendations:[2]

- The management category should be "Natural Environment".[3]
- Consider the area down by the lake (between the cabins and private land) as a rustic pack-in campground.
- No new roads.
- Any areas not tenured for livestock are to remain untenured.
- Consider using the viewpoint from the Allan Brooks Nature Centre when a future visual quality management inventory is done for this area.

1.5 Relationship with First Nations

The provincial protected areas system contains cultural and natural values that are significant to First Nations. Some parks are important as sources of natural medicines and foods, or as sacred sites.

The land established as Kalamalka Lake Park is located within the territories of the Splatsin, Secwepemc Nation and four bands of the Okanagan Nation Alliance (Okanagan, Lower Similkameen, Penticton and Upper Nicola).

The management plan encourages the expansion of relationships between BC Parks and these First Nations in a number of areas to ensure that management of the park considers and integrates their traditional uses and values. The management plan will not limit subsequent treaty negotiations.

1.6 Relationship with Communities

BC Parks maintains a close relationship with the District of Coldstream and regional governments to ensure that local community needs are considered within the management of the park.

There is considerable economic benefit to local and regional communities as both the upland and lakeshore areas of the park attract a high volume of visitors from outside the area. Of note, since the park was established, the population in Vernon and Coldstream has more than doubled.

Kalamalka Lake Park is fortunate to have a long standing non-profit stewardship group, The Friends of Kalamalka Lake Provincial Park, which has played a lead role in helping to manage and perform community outreach related to the park since early in its establishment.

---

[2] Not all recommendations emanating from the LRMP were to be fully implemented; rather the focus would be on determining acceptable activities based on operational feasibility and future management planning.

[3] Management categories as referenced in the LRMP are separate and distinct from BC Parks zoning categories. There are five different management categories for protected areas, as outlined in "A Protected Areas Strategy for BC": strict preservation; wilderness; cultural and heritage sites; natural environment-based outdoor recreation; and intensive recreation and tourism sites.

Another community group is the Cosens Bay Property Owners' Society. The society represents the collective interests of the Cosens Bay community which is located immediately adjacent to the park. The society's focus is ensuring provincial standards are met with respect to road safety and maintenance for that portion of the Cosens Bay Road which traverses the park.

Other important park stewards include the North Okanagan Cycling Society (NOCS) – a dedicated volunteer group that assists in maintaining and promoting the park as a mountain bike destination; the North Okanagan Naturalists' Club – whose members contribute to species and habitat inventory within the park; the North Okanagan Climbing Community – a recently formed group comprised of both bouldering enthusiasts and rock climbers whose interests and use of the landscape within the park dates back several decades.

1.7 Historical Land Use

Prior to colonial times, the area was frequented by First Nations. The numerous sheltered bays provided a perfect setting for seasonal camps associated with fishing, whereas the surrounding hillsides and valleys provided excellent opportunities for traditional harvesting of flora and fauna. The origin of the name Kalamalka Lake is linked to First Nations - after an elder and a Chief known as Tanamalka, who lived in the immediate area.

The original core area of Kalamalka Lake Park was private land up until 1973. Prior to that time the lands were owned by an assortment of individuals spanning several decades, starting off with a military land grant in the early 1860s provided to Charles Houghton. Through several iterations of ownership (including Lord Aberdeen), the land came to be held by the Coldstream Ranch. During World War II, portions of the Coldstream Ranch properties functioned as a training ground for military manoeuvres and ammunition testing/simulation. In the early 1970s, concerns over a potential resort and residential development led members of the local community to lobby the provincial government to secure the lands for park purposes.

Plate 1: Vestiges of historic ranching are still prevalent in some areas of Kalamalka Lake Park.

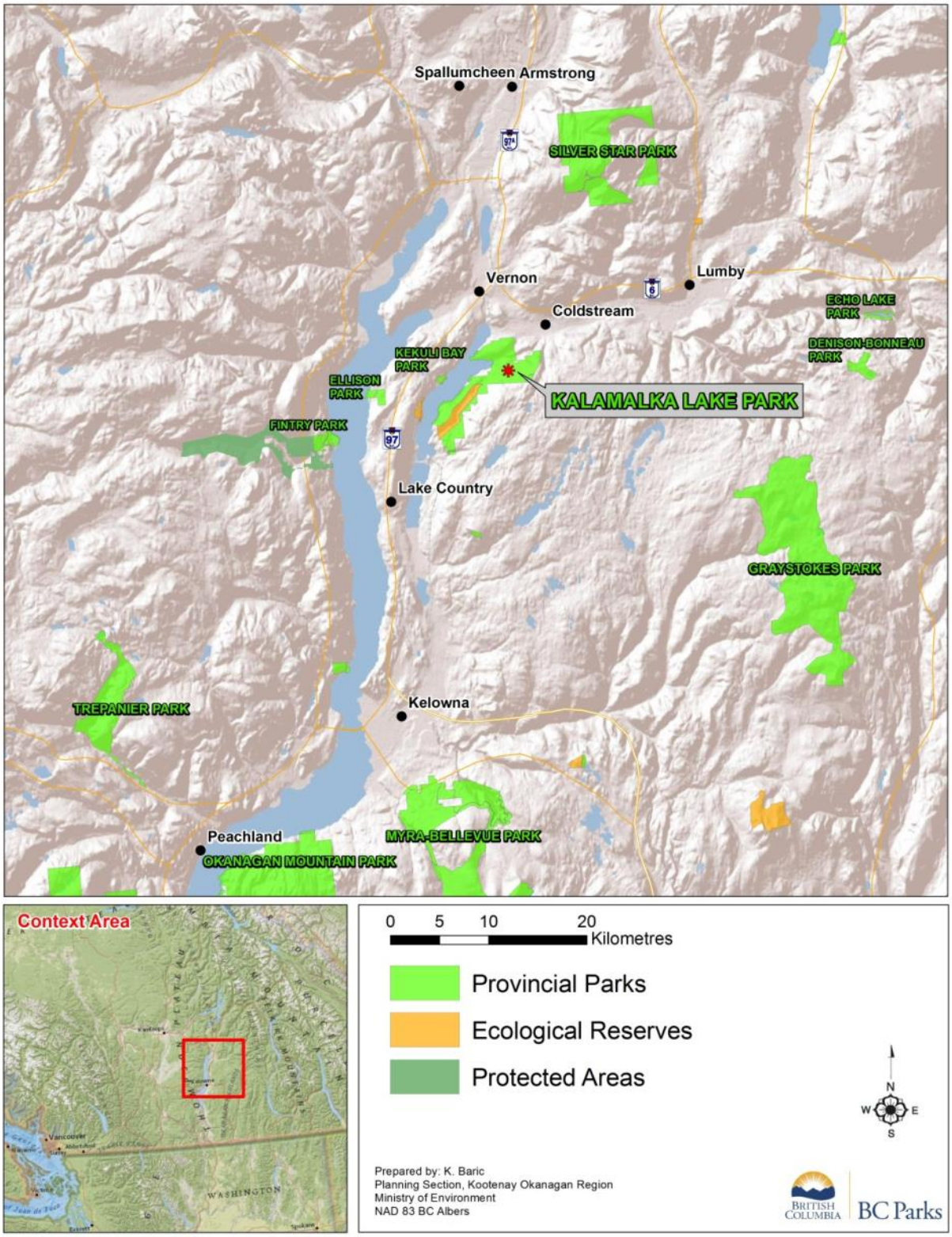

Figure 1: Regional context map of Kalamalka Lake Park

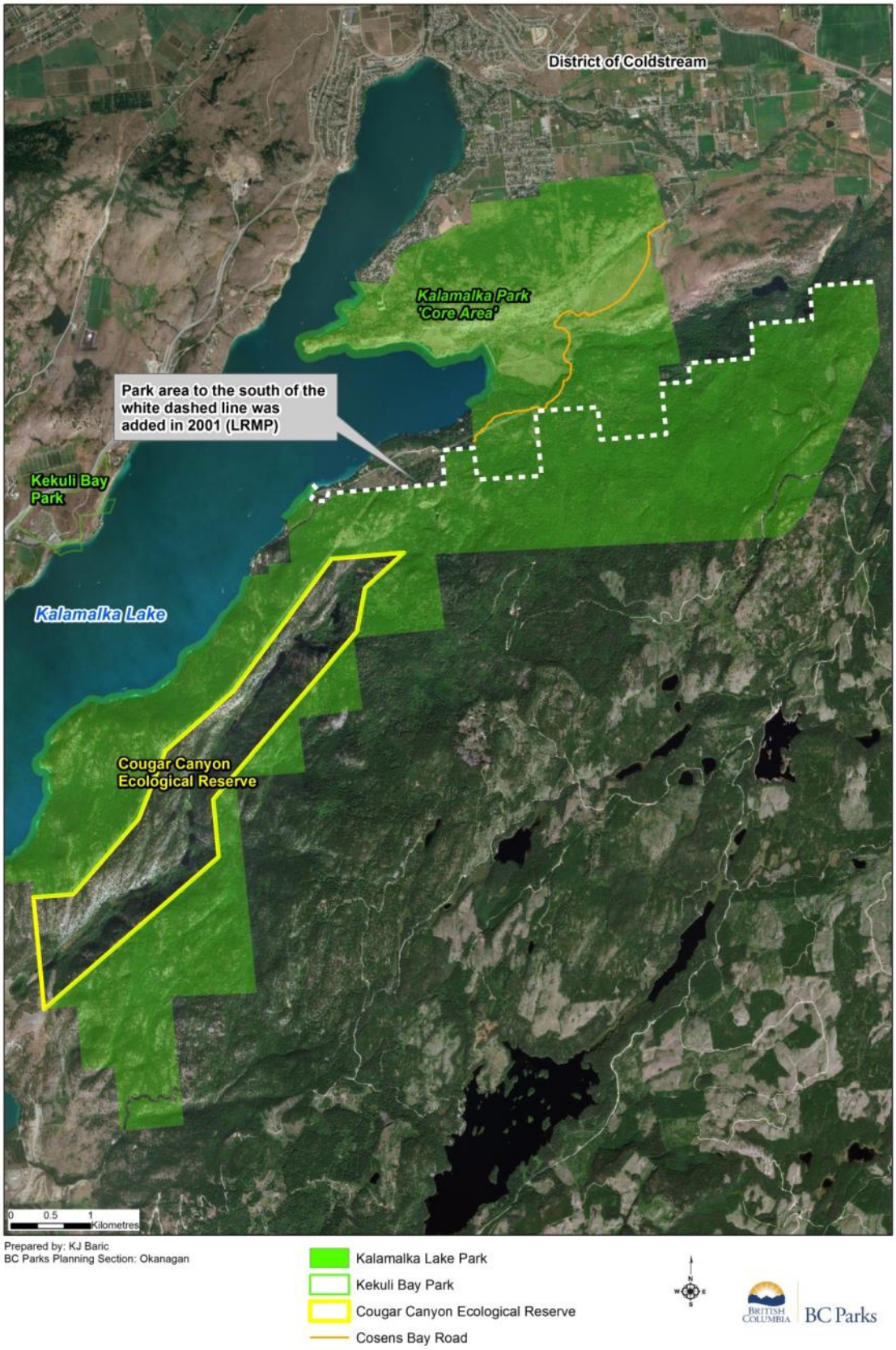

Figure 2: Context map of Kalamalka Lake Park

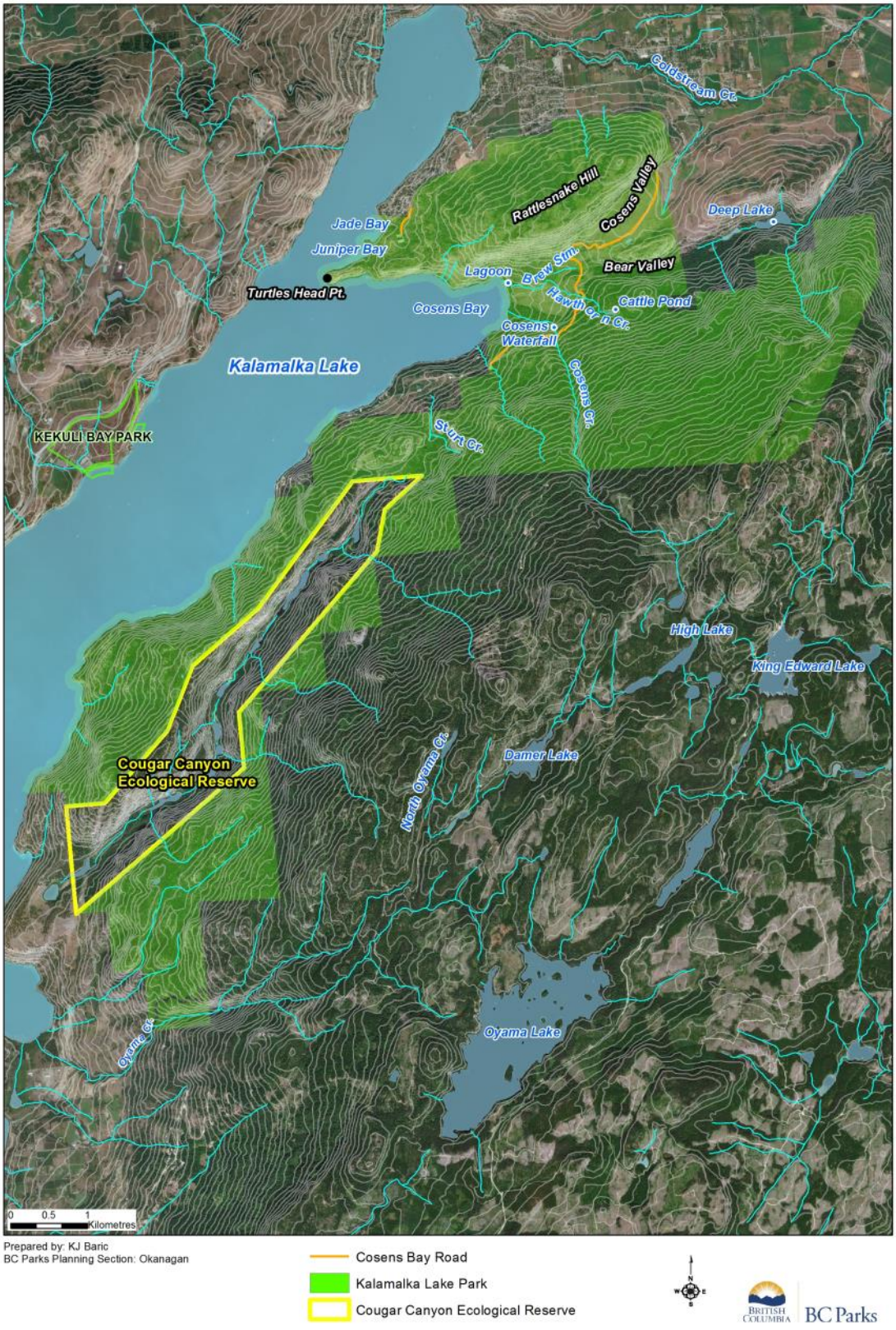

Figure 3: Water and land features of Kalamalka Lake Park and surrounding areas.

1.8 Adjacent Land Use

The District of Coldstream borders Kalamalka Lake Park to the north, comprised primarily of residential dwellings and small acreages with full services. Larger private holdings associated with the Coldstream Ranch are situated along the northeastern boundary of the park and are set aside primarily for agricultural use. The Cosens Bay cabin community, comprised of multiple private foreshore lots, is situated just south of the Cosens Bay proper and some of the lands above the cabin community are also privately held acreages. Provincial Crown land and foreshore lie adjacent to the remainder of the park.

1.9 Existing Permits and Authorizations

There are currently four primary forms of park use authorizations (park use permits) active within the park – land use occupancy, commercial recreation, research and park operator (for facility maintenance) as described in Table 1 below.

Permit Holder	Permit Type
Department of National Defence	Land Use Occupancy
Ministry of Transportation and Infrastructure	Land Use Occupancy (areas beyond the travelled portion of Cosens Bay Road)
Private Individual	Land Use Occupancy (Private Structure-foreshore)
Vernon Secondary School	Commercial Recreation (multi-year)
City of Vernon Recreation Services	Commercial Recreation (multi-year)
Kal Running and Triathlon Club (R.A.T.S.)	Commercial Recreation (multi-year)
Dirt 4 Life	Commercial Recreation (multi-year)
BRKN Pooch Partners (Division of 0916239 B.C. Ltd.)	Commercial Recreation (multi-year)
Kaloya Contracting Ltd	Park Operations Contractor
Federation of BC Naturalists	Research
North Okanagan Cycling Society	Commercial Recreation (multi-year)
Fortis BC	Land Use Occupancy
Olympic Cycle and Ski	Commercial Recreation (multi-year)
Private Individual	Commercial Recreation - Special Events

Table 1: Current park use permits in Kalamalka Lake Park.

1.10 Encumbrances

Fortis BC holds a statutory right of way (SRW) for a transmission line that traverses north/south through the park (see Figure 4). The SRW is included within the park boundaries. Authorization for Fortis BC to maintain the SRW is provided through a park use permit.

The travelled portion of Cosens Bay Road falls under the jurisdiction of the Ministry of Transportation and Infrastructure (MOTI).

There are two range tenures (RAN077000 and RAN077165) issued under the *Forest and Range Practices Act* which cover most of the former protected area portion of the park (with the exception of park land that resides west of Cougar Canyon Ecological Reserve). Currently, the range tenures are not active within the park.

The park was used extensively as a training area during World War II, resulting in an unknown number of unexploded ordnance (UXOs) remaining in the park. The foreshore areas of the park (Cosens Bay) and upland areas on either side of Cosens Bay Road are the areas of most concern. BC Parks works in close coordination with the Department of National Defence when the possibility of any ground disturbance or vegetation removal is considered in high UXO probability areas of the park.

There are two trapline territories that overlap the park. TR0825T079 covers a small area in the eastern portion of the park, whereas TR0822T042 covers the balance of the park. No traplines are currently active in the park.

Plate 2: The Fortis BC transmission line travelling through the core area of the park (Rattlesnake Hill).

Plate 3: The Fortis BC transmission line as it bisects the southern portions of the park.

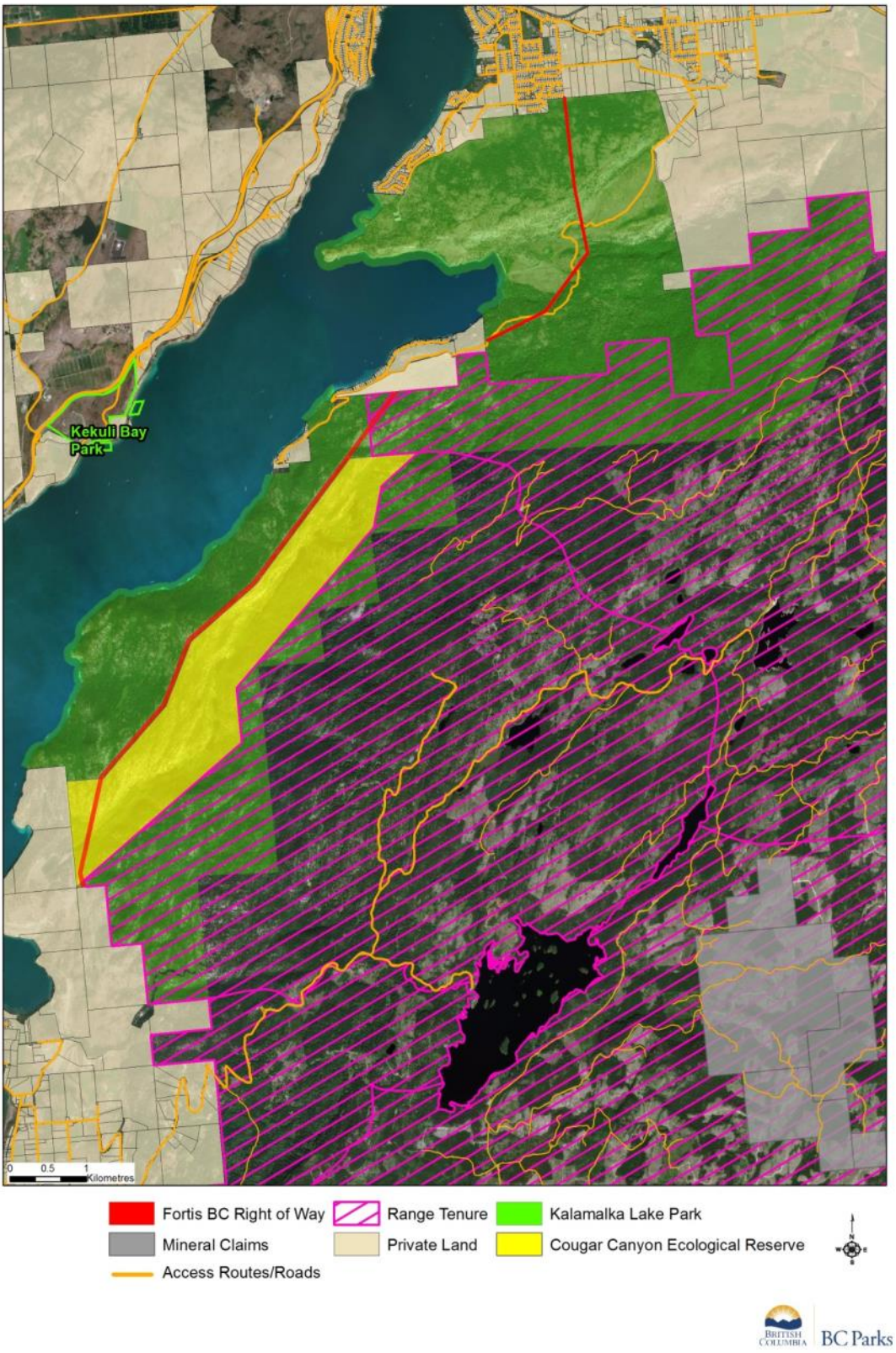

Figure 4: Map of land use and ownership adjacent to Kalamalka Lake Park.

1.11 Management Planning Process

The 2019 Kalamalka Lake Park Management Plan replaces both the 2003 Purpose Statement and Zoning Plan (PSZP) for the park area which existed prior to 2001 (978 hectares) and the 2006 PSZP which was created for the former protected area.

The management plan draws information and background from the following planning documents:

- Interpretation Assessment of Kalamalka Lake Park, October, 1975.
- A Plan for Kalamalka Lake Park, 1978.
- Cosens Bay Lagoon Study: Kalamalka Lake Park, June 1983.
- The Report of the Public Advisory Committee to the Minister of Lands, Parks and Housing, 1984.
- Resource Management Plan for Rattlesnakes in Kalamalka Lake Provincial Park, 1988.
- Kalamalka Lake Provincial Park Background Document, 1998.
- Kalamalka Lake Provincial Park Resource Management Plan, 1993.
- Kalamalka Lake Provincial Park Ecosystem Restoration Plan, 2002.
- State of the Park Analysis for Kalamalka Lake Provincial Park, Kalamalka Lake Protected Area and Cougar Canyon Ecological Reserve, 2006.
- Ellison and Kalamalka Lake Provincial Parks Ecosystem Restoration and Forest Health Strategy, 2008.
- Ecosystem Management Plan for Kalamalka Lake Provincial Park, Kalamalka Lake Protected Area, and Cougar Canyon Ecological Reserve, 2008.

An initial planning phase was conducted for the management planning process in the fall of 2017, with a follow up public information session held in January 2018. Over 200 submissions (both online and print form) were received by BC Parks. First Nations consultation was also initiated as was engagement with local (City of Vernon, District of Coldstream) and regional governments (North Okanagan Regional District and Central Okanagan Regional District). A draft plan was prepared in the summer and early fall of 2018. A follow up public information session was held in December 2018. Over 150 comment submissions were received on the draft management plan. The draft management plan was also distributed for comment to local and regional governments, in addition to specific First Nations whose consultative area boundaries overlapped with the park. A final draft management plan was prepared in the winter and early spring of 2019.

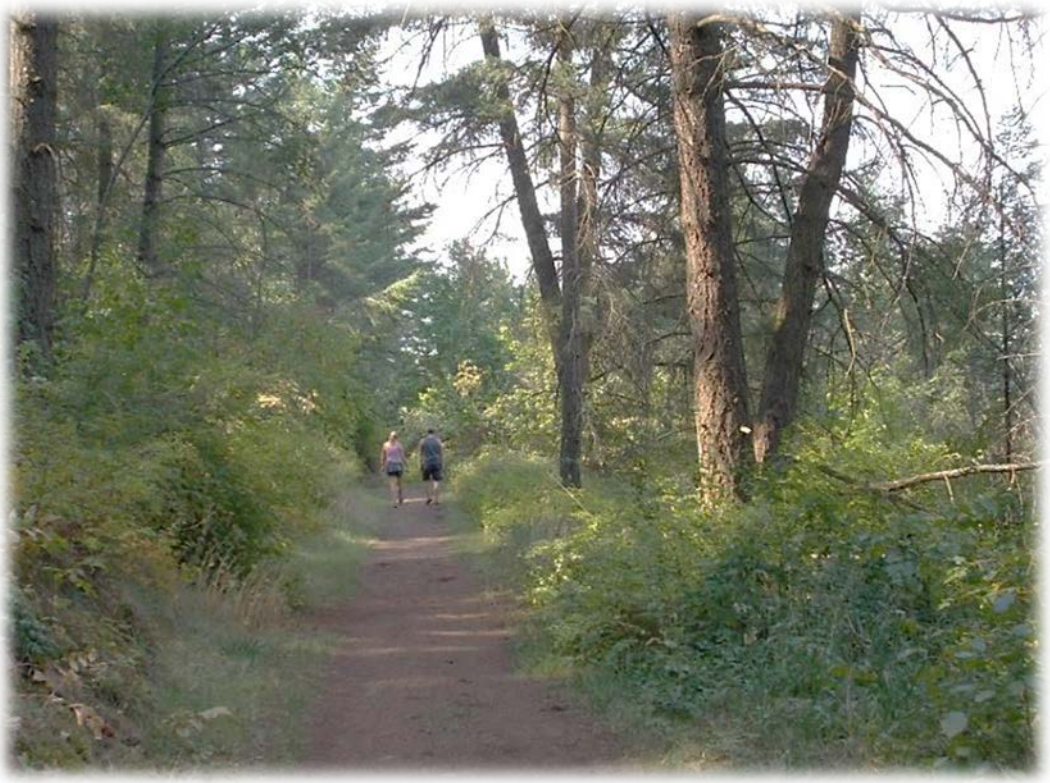

Plate 4: The north side of the Comin' Round the Mountain Trail offers ample forest cover.

Plate 5: The lagoon located at Cosens Bay is an ecologically significant feature of the park.

2.0 Values and Roles of the Protected Area

2.1 Significance in the Protected Areas System

One of the primary roles of Kalamalka Lake Park in the protected areas system of British Columbia is the protection of an open forest and grassland ecosystem that has become increasingly rare in the province. In the lower valley bottoms of the north Okanagan, the steady rise in residential and industrial development as well as the conversion of lands for agricultural activities has significantly changed the landscape over the last century. Today, the park retains areas of relatively intact plant communities and supports a diversity of fauna, many of which are considered at risk in British Columbia.

Another significant aspect of the park is that it provides an important recreational backdrop to the City of Vernon and the District of Coldstream. A variety of outdoor activities, such as cycling, dog walking, hiking, trail running, horse riding, rock climbing, bouldering, boating, swimming, and nature appreciation take place in the park, year-round. There are very few large tracts of easily accessible, non-privately held lands in the immediate vicinity of Vernon and the outlying rural areas that offer such a wide-ranging spectrum of recreation opportunities.

2.2 Biodiversity and Natural Heritage Values

Ecological Context

A large portion of the park (3,052 hectares) is located primarily within the North Okanagan Basin Ecosection with a very small portion (165 hectares) at higher elevations situated with the North Okanagan Highlands Ecosection. Currently, only seven percent of the North Okanagan Basin Ecosection is protected within the province. Despite its small size, the park contributes close to 15 percent to the total amount of the North Okanagan Basin Ecosection protected within the province.

In terms of biogeoclimatic (BEC) subzones and variants, the park is comprised primarily of the following BEC variants (also see Figure 5):

- IDF dm1 (Interior Douglas-fir Dry Mild),
- IDF xh1 (Very Dry Hot),
- MS dm1 (Montane Spruce Dry Mild)
- ICH mk1 (Interior Cedar Hemlock Moist Cool)
- IDF mw1 (Interior Douglas-fir Moist Warm)

The IDF dm1 and MS dm1 are under-represented in protected areas in the province, with only 3.5% and 1.5% of these two subzones/variants protected province-wide. The IDF xh1 is slightly better represented in provincial protected areas; however, this BEC zone remains low at only 7.11% protected province-wide. The park contains approximately 2,406 hectares of IDF xh1 and this amount contributes significantly (13.4%) to the overall province-wide protection of this subzone/variant. The IDF xh1 is characteristic of grasslands and open forest (ponderosa pine and Douglas-fir), an ecosystem that has been under significant threat due to development and land conversion in the Okanagan valley. At the higher elevations, the park contains very minimal representation of the ICH mk1 and IDF mw1 BEC zones.

The park currently contains 19 ecological communities considered 'at risk' in the province (see Appendix 3).

BC Parks engages in Long Term Ecological Monitoring (LTEM) within the park.[4] Currently there are two sites associated with LTEM.

In terms of landscape linkages, Kalamalka Lake Park, along with other parks located along the eastern flank of the Okanagan valley (e.g., Skaha Bluffs, Myra-Bellevue, Okanagan Mountain, and Silver Star), plays a key role in maintaining essential habitat connectivity for a variety of species.

Fauna and Flora

Kalamalka Lake Park boasts an impressive inventory of fauna and flora. Larger mammals include Mule Deer, White Tail Deer, Elk, Black Bear, Cougar, Bobcat, Coyote, Lynx, and Beaver, whereas smaller wildlife include Deer Mouse, Field Vole, Northern Pocket Gopher, Columbian Ground Squirrel, Red Squirrel, Yellow-Bellied Marmot, Short-tailed Weasel, Snowshoe Hare, Northern Flying Squirrel, Northwestern Chipmunk, Porcupine, and Muskrat.

Reptile species include the Rubber Boa, Racer, Gopher Snake, Garter Snake, Western Painted Turtle, Northern Alligator Lizard, and Western Skink. The park also serves as a refugium for the Western Rattlesnake. Amphibian species include Long-toed Salamander, Great Basin Spadefoot, Western Toad, Spotted Frog, and the Pacific Chorus Frog.

Although not well documented, a vast range of invertebrate species exist within the park, some of which are considered endangered (most notably the Okanagan Robber Fly and Immaculate Green Hairstreak). The Okanagan Robber Fly has very limited range in the Okanagan valley, and was added to Schedule 1 of the federal *Species at Risk Act* as an endangered species in 2017. The Immaculate Green Hairstreak is associated with dry valley bottoms of the Okanagan and southern Interior regions, where the larvae feed on plants of the buckwheat genus. A variety of hybrid Swallowtail Butterfly is also known to frequent the park.

Plate 6: Rare invertebrates confirmed within the park include the Okanagan Robber Fly (left) and the Immaculate Green Hairstreak (right).

[4] BC Parks' Long Term Ecological Monitoring (LTEM) Program aims to monitor ecological changes occurring across B.C.'s landscape – from the marine and intertidal biome up to the alpine and sub-alpine biome. The data that results from 10, 20, 50 years of monitoring will be invaluable for describing trends and rates of change in our very diverse and topographically complex province.

The wetland areas of the park support habitat for a variety of invertebrates including water beetles, flat worms, leeches, Water Louse, Western Crayfish, Water Strider, Boatman, snails, stoneflies, dragonflies, damselflies, and various species of Diptera.

Over 130 bird species are known to occur in the park with an assortment of raptors including Golden Eagle, Bald Eagle, Red-tailed Hawk, Prairie Falcon, Peregrine Falcon and Turkey Vulture. Historically, the park contained a small population of Burrowing Owl.[5] Numerous species at risk are associated with the park (see Appendix 2). Note: Appendix 2 is not a comprehensive list of at-risk species present as inventories are currently being developed. A Conservation Risk Assessment (CRA) is in place for the park.[6]

Plate 7: The park contains habitat for Western Screech Owl (red listed) and the Western Rattlesnake (blue listed).

Impressive displays of wild flowers such as arrowleaf balsamroot, silky lupine, golden aster, yellow bell, Mariposa lily, shooting star, larkspur, three-flowered aven, yarrow, brown-eyed Susan and twin arnica adorn various areas of the park. A variety of smaller shrubs are also present, including, but not limited to, Rocky Mountain juniper, chokecherry, Oregon grape, prairie saskatoon, mock orange, devil's club, and thimbleberry.

Owing to the park's varied landscape features and gradients, tree species can range from western redcedar, Engelmann spruce, and western larch in areas such as Bear Valley and upper elevations along the High Rim Trail, to species that are more drought-tolerant such as ponderosa pine and Douglas-fir located on drier aspects.

---

[5] Burrowing Owl is considered an extirpated species in British Columbia, but reintroduction efforts are underway in other parts of the province.

[6] A Conservation Risk Assessment is a database of all known species/species management related issues related to a provincial park/protected area. The database is maintained by BC Parks (regional and headquarters staff).

Abundant grass species blanket the park. Bluebunch wheatgrass, various species of fescue (predominately Idaho fescue), needle and thread grass, and pinegrass can be found throughout. Poison ivy, while native to the landscape but considered a nuisance, grows abundantly in wetter areas and is particularly pronounced in beach accessible areas of the park.

Plate 8: Arrowleaf balsamroot is a sure sign of spring in Kalamalka Lake Park

The lagoon and pond features of the park also support an array of aquatic-based vegetation that supports and nourishes wildlife in this rich riparian environment. Vegetation within these biologically productive (eutrophic) wetlands includes water smartweed, hard-stemmed bulrush, common spike-rush, golden dock, common cattail, greater bladderwort, and yellow pond lily.

The Cosens Bay Lagoon is the largest wetland feature within the park. The lagoon's creation is attributed to a combination of pre-historically higher water levels, sand and gravel deposition (long-shore drift), and eventual lower lake levels thereby cutting off the water feature from the balance of the lake. There is very little inflow to the lagoon from upslope drainage (i.e., Hawthorn Creek) and no outlet; however, the lagoon is subject to rapid water fluctuations and has alkaline/saline characteristics. The lagoon was the subject of a study by provincial government staff in 1983 with a primary focus on detailing the sensitivities of the water feature in light of proposed recreational development (i.e., day use facilities at Cosens Bay, interpretive opportunities). Noted in the 1983 study were previous impacts from cattle grazing along the fringes of the lagoon.

Fish and Fish Habitat

Native populations of Rainbow Trout and Kokanee are found within Kalamalka Lake and these species utilize the more than 10 kilometres of waterfront of the park. The foreshore areas of the park, primarily south of Rattlesnake Point, also provide essential spawning habitat for kokanee.

The lake also contains many other introduced fish species such as Lake Trout, Cutthroat Trout, Prickly Sculpin, Yellow Perch, Northern Pikeminnow, Pumpkinseed, Mountain Whitefish, Peamouth Chub, Redside Shiner, and Largescale Sucker.

A chain of smaller lakes located primarily within the Cougar Canyon area contain fish, likely trout variety. This lake system is a closed system with no significant inlet or outflow tributaries. The fish within this small canyon lake system either represent the offspring of historically transported/fish

stocking by the public (for recreational fishery purposes) or may be a unique biological vestige as a result of the receding waters after the last ice age thus warranting further study.

Invasive Plants

As a result of human use (specifically the extensive cattle grazing which occurred within the core area of the park before park establishment), many weedy species of grass and introduced plant species have become prolific. Sulphur cinquefoil, Scotch thistle, burdock, tumble mustard, cheat grass, Dalmatian toadflax and several species of knapweed are but some of the less desirable species within the park which compete with native species. In some places (e.g. transmission line corridor/roadways), crested wheatgrass and bluegrasses were historically seeded to produce quick ground cover and to slow erosion. Areas impacted by invasive plants normally witness the significant reduction of native plants and in many areas of the park the encroachment is so severe that most native species have all but disappeared.

Wetland and foreshore areas of the park could be susceptible to aquatic invasive plant species, notably purple loosestrife and yellow flag iris (which currently are not found within the park but are located in nearby wetlands and foreshore areas).

Plate 9: Despite the outward appearance of a healthy grassland ecosystem in Cosens Valley, there are numerous invasive plant species that have all but displaced native species.

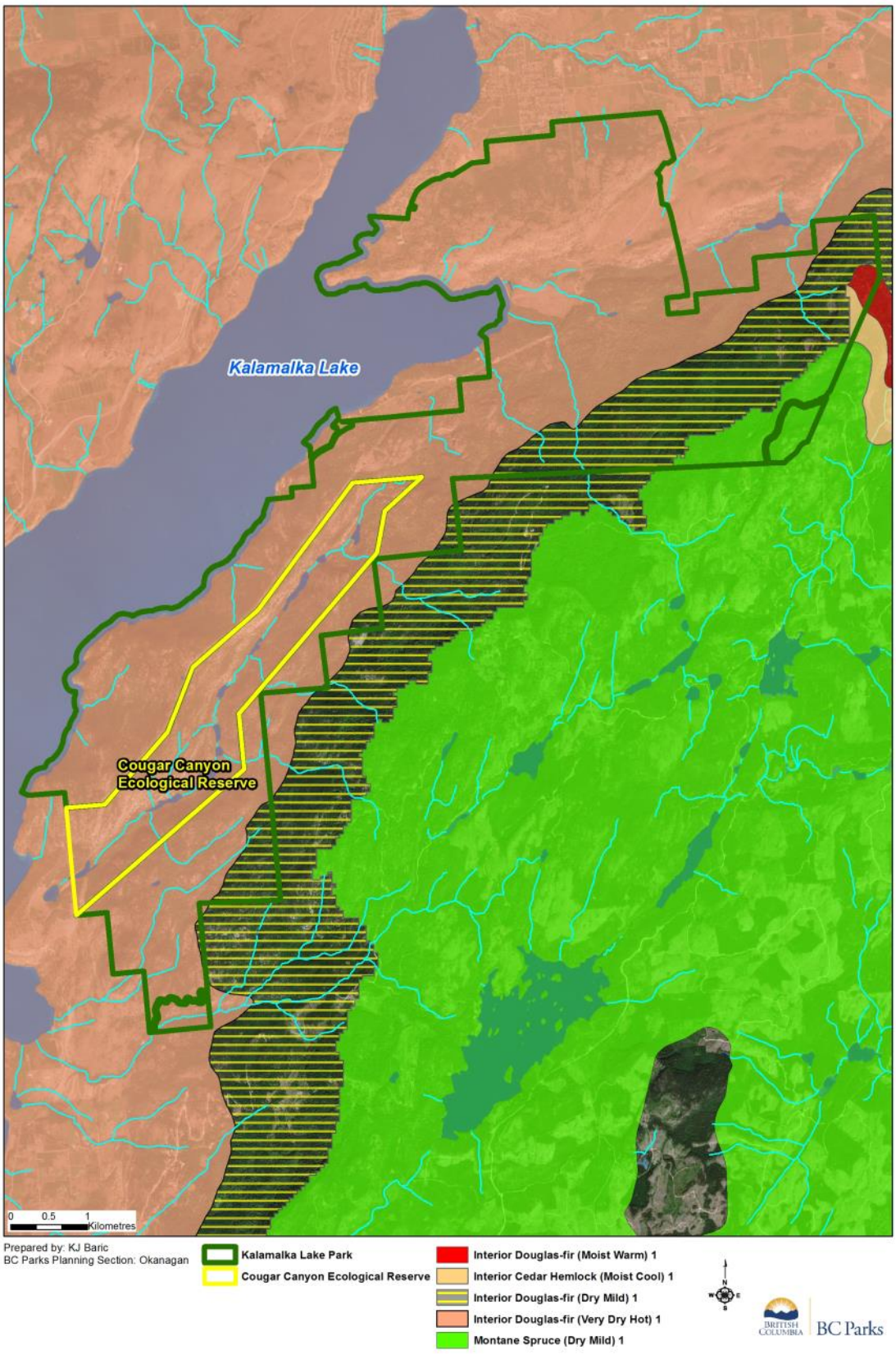

Figure 5: Biogeoclimatic subzones/variant representation in Kalamalka Lake Park.

Fire Maintained Ecosystems

Prior to European settlement, the park landscape and surrounding area would have been subjected to naturally occurring wildfire. Both natural and human-caused wildfires have been suppressed within the landscape area which is now the park since the early 1900s. Records indicate that the park has been subjected to numerous small wildfires and two moderately sized wildfires less than 70 hectares (see Figure 6); however the park has not been subjected to large scale wildfire for over a hundred years. Over the past 30 years, prescribed fire and forest thinning have been utilized within small areas of the park to restore open forest/grassland communities and to assist in reducing fuel loads and mitigating fire hazard.

The park is primarily within the NDT (Natural Disturbance Type) 4 designation.[7] This identifies an ecosystem with frequent stand-maintaining fires. The NDT 4 ecosystem includes grassland, shrubland, and forested communities that normally experience frequent low-intensity fires. In grasslands, these fires limit the encroachment of most woody trees and shrubs, although commonly after fire events (prescribed fire or natural) invasive weed proliferation becomes a significant factor to consider in land management.

Plate 11: Prescribed fire/and forest thinning has been utilized in the park over the last several decades.

Plate 12: The ecosystems within the park have evolved as a result of naturally occurring fires.

[7] Natural Disturbance Types (NDT) is a useful tool, developed for British Columbia as part of the Forest Practices Code Biodiversity Guidebook. These 'types' categorize the province into zones based on the frequency and severity of pre-European disturbance events.

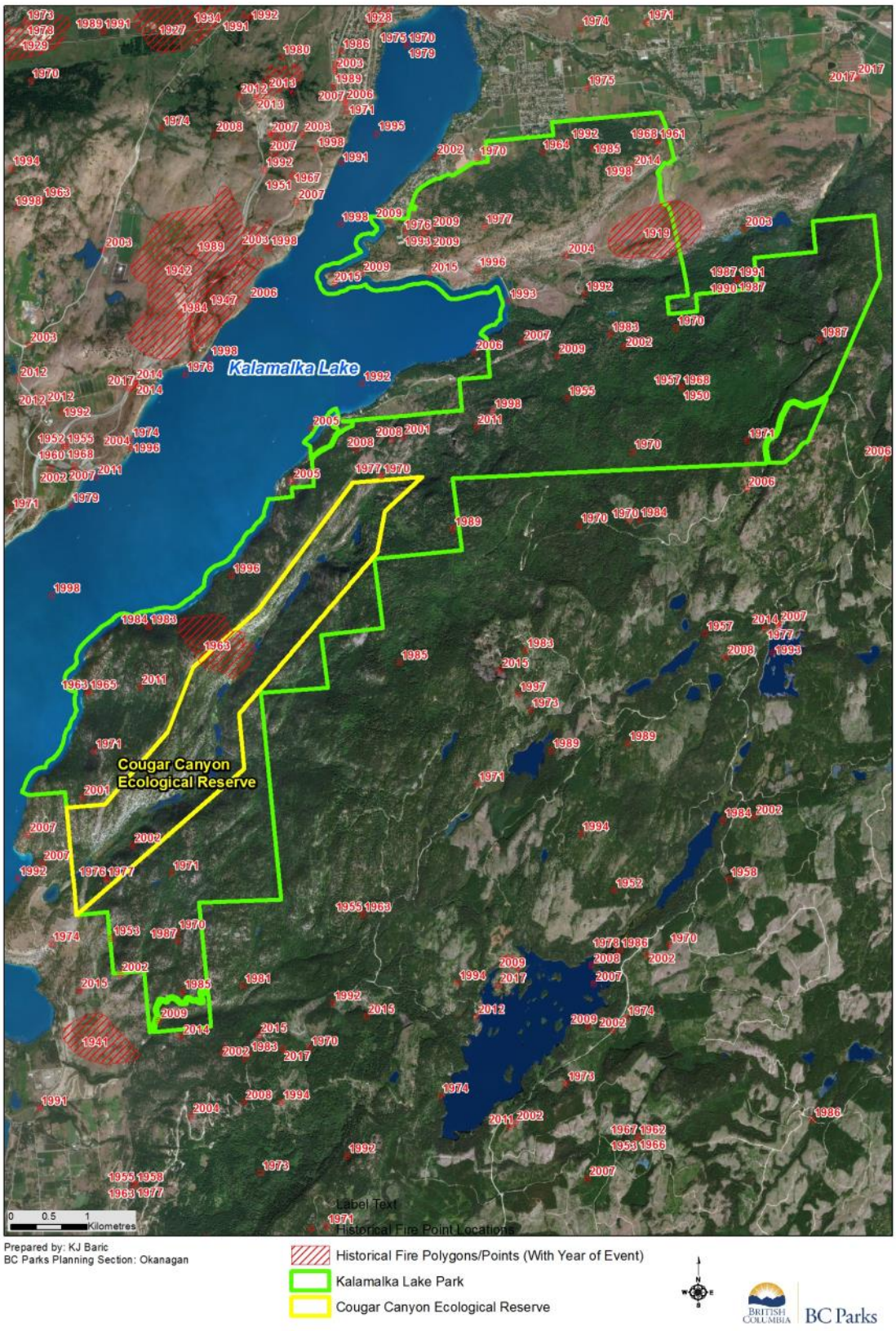

Figure 6: Map of historical fire locations with year of event.

Figure 7: Comparison of aerial photos from 2015 image (top) to 1938 image (below).

2.3 Cultural Values

Indigenous Cultural Values

Within the park there are six registered archaeological sites associated with historic and pre-historic Indigenous use, and it is suspected that the park landscape contains many more archaeological values that remain undiscovered. The former use sites included kekulis (circular pit houses), seasonal camping sites and food storage areas. The park is still utilized for traditional use activities and cultural practices by First Nations.

Non-Indigenous Cultural Values

The prominent bay within the park, Cosens Bay, is named after Cornelius Cosens who was a settler in the area (circa 1890s). He later sold his land in the vicinity of Cosens Bay to the Earl of Aberdeen. A cabin associated with Cornelius's homesteading was once situated in the park but was relocated outside the park. Remnants of a corral are visible at the trailhead of the Corral Trail and there are vestiges of fences associated with ranch operations prior to park establishment scattered throughout the park.

The park landscape was subjected to training manoeuvres during World War II. Apart from unexploded ordnance, the park retains no vestiges of former military use.

2.4 Recreational Values

Hiking/Trail Running

There are several kilometres of popular, year-round, hiking trails located within the park. The most notable are Bear Valley (which leads to the High Rim Trail[8] portion within the park), Coldstream, Cosens Bay, Crest, Grassland, Jade, Juniper and the Cougar Canyon Climbing/Bouldering Area Trail. The park has many other trails that have shared use with mountain biking (specifically from points south of Cosens Bay Road leading to higher elevations in the park) and horse riders focussed mainly in the Rattlesnake Hill area (e.g., Comin' Round the Mountain trail). Trail running is also a frequent activity in the park and is commonly focussed on trails within the core area as well as the High Rim Trail.

[8] The High Rim Trail is a recreational route which connects Vernon to Kelowna with an extension (the Okanagan Highland Trail) to Okanagan Mountain Park. Its original development dates back to the early 1990's through the coordination and support of the Western Canada Wilderness Committee.

Plate 10: The park offers a diverse trail system (Lookout Trail - left and Twin Bays Trailhead - right).

Mountain Biking

The popularity of mountain biking has grown considerably since the establishment of the park. Currently, there are over 50 kilometres of trails suitable for cycling within the park and an equivalent number of trails on adjacent Crown land (primarily to the south of the park). Mountain biking occurs throughout the year, with most use concentrated on areas that are free of snow or where conditions are suitable and safe for travel. With the advent of 'fat tire' bikes (some models being assisted by battery power- e.g., eBikes), winter mountain bike use is becoming more prevalent. Under BC Parks oversight, the North Okanagan Cycling Society (NOCS) maintains most of the multi-use trail system within the park under both a volunteer agreement and park use permit.

Plate 11: A NOCS co-sponsored trailhead marker (left) and a standard trailhead marker (right).

Plate 12: The park is a year-round mountain biking destination (left photo credit - Robb Thompson).

Horse Riding

Horse riding occurs in many areas of the park and access is gained primarily from the parking area located at the Cosens Bay Road entrance. Trails frequented by horse riders include Comin' Round the Mountain, High Rim Trail and the Cosens Bay Trail.

Suitable parking for vehicles with horse trailers has become a more pronounced issue in recent years, as the main parking lot at Cosens Bay Road is neither designed nor has the space to accommodate vehicles with trailers; commonly, vehicles with horse trailers park along the shoulder of Cosens Bay Road, adjacent to the parking lot**.**

Plate 13: Horse trailers utilizing the Cosens Bay Road entrance parking lot.

Hunting

While the core area of Kalamalka Lake Park (i.e., the park area that pre-dated the 2001 LRMP addition) is closed to hunting and to the discharge of firearms, the remainder of the park is open to hunting opportunities (subject to regulations and open seasons as defined in the *Wildlife Act*). The current hunting closure boundary follows legal lot lines to the south which is not readily discernible for hunters in the field. In 2019, a proposal to create more logical boundary lines with the respect to the hunting closure was put forward for consideration by BC Parks to the Wildlife Branch - a proposal that utilizes popular multi-use trails as a reference point (see Figure 8). A 50 metre setback of the hunting boundary from the trails is proposed.

Plate 14: Horse riders travelling along the Cosens Bay Trail.

Plate 15: A shared use trailhead sign at the Cosens Bay Road entrance.

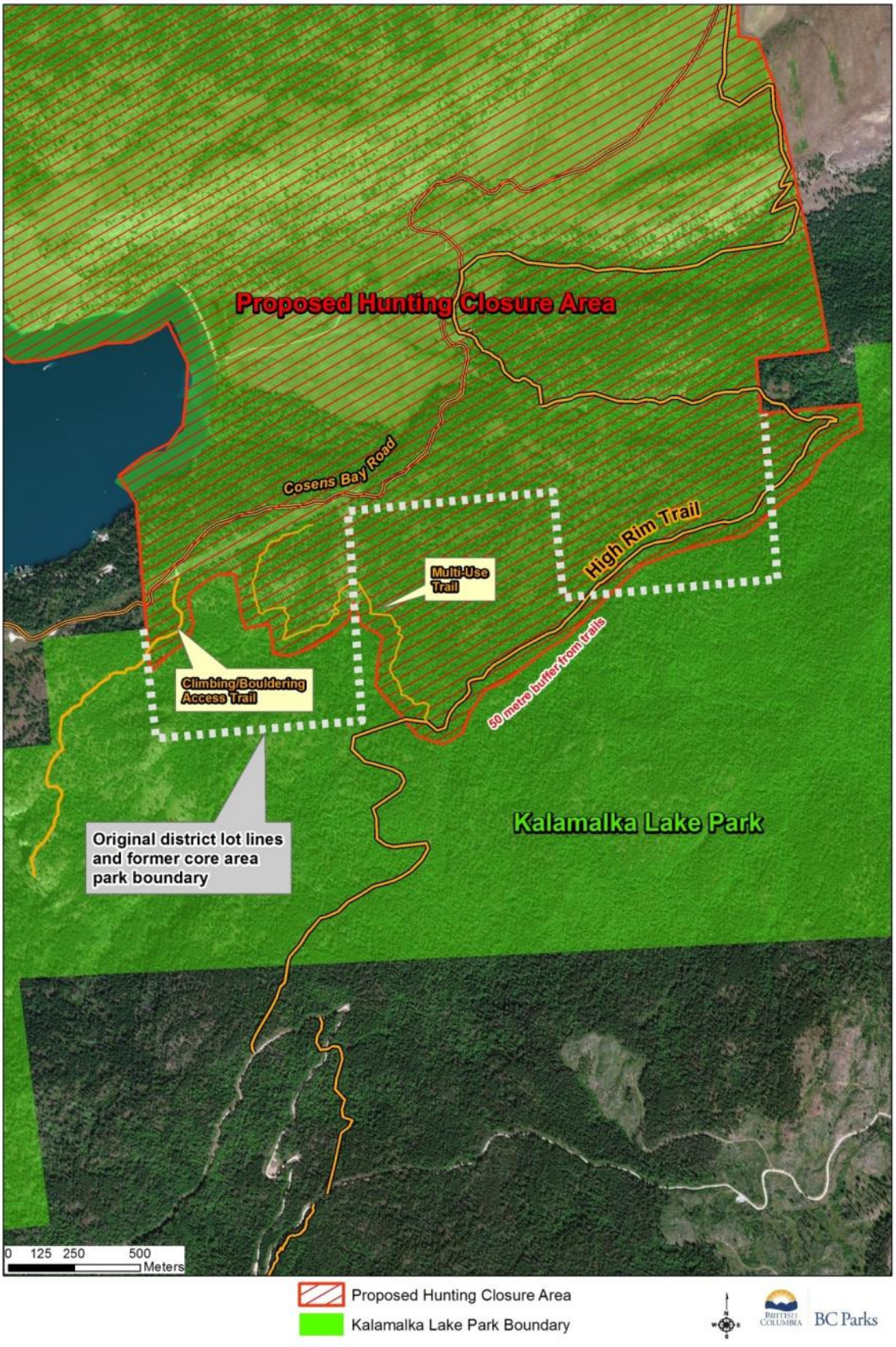

Figure 8: Map of proposed hunting closure revision for Kalamalka Lake Park.

Rock Climbing/Bouldering

Within the park landscape, rock climbing and bouldering has been occurring for over 30 years (prior to the former protected area being designated) and is concentrated in the area just south of the Cougar Canyon parking lot (see Figure 9). There are over 200 climbing routes and ten key bouldering areas that offer challenges for a wide range of skill levels. The bouldering area is reputed to be the second largest bouldering concentrations in the Okanagan valley. There is no climbing or bouldering activity permitted in the Cougar Canyon Ecological Reserve, nor is rock climbing or bouldering sanctioned in other areas of the park. Much of the route development for climbing has not involved coordination or oversight from BC Parks. As such, BC Parks is striving to establish formal relationships and promote outreach/awareness within the climbing community to help mitigate and address possible impacts to ecological values of the park. The majority of rock climbing in the park utilizes rock bolting for clip-in points.

Plate 16: The view towards Cougar Canyon and the area frequented by rock climbers and bouldering enthusiasts.

Plate 17: Directional signage on the climbing/bouldering trail towards Cougar Canyon.

Plate 18: The 'Wildcat' bouldering site and bouldering at an area known as Orion's Belt (photo credit - Loic Markley).

Swimming and Boating

Swimming opportunities are offered at the three main beach areas within the park; Jade Bay, Juniper Bay and Cosens Bay. Designated swimming areas are demarcated by buoys to restrict motorized boat traffic from entering.

The foreshore areas of the park are also highly popular with motorized vessels, smaller boats and personal watercraft. Typically, these forms of vessels moor offshore or use peripheral areas of the beach (outside of designated swimming areas) for landing at Cosens Bay and a small portion between Jade and Juniper bays. Kayaking, canoeing and paddle boarding are also prevalent along the foreshore of the park.

Steep cliff terrain above the lake, namely at Turtle Head's Point, attracts some park users (particularly youth) to cliff jumping. The activity is discouraged and ample signage is erected outlining its danger and risks.

Plate 19: Cosens Bay is a popular boating destination.

2.5 Facilities

Access Roads and Parking

Parking lots and access roads are situated along the District of Coldstream interface. There are no vehicle accessible routes that approach through the former protected area portion of the park.

The Twin Bays section of the park is located at the terminus of Kidston Road (a small section of park road links the end of the municipal road to the Twin Bays parking lot). There is an informal access point at the south end of Cunliffe Road (adjacent to a municipal water tower); however this entrance is not a BC Parks sanctioned access and parking (located outside the park) is very limited. The Red Gate parking lot is located along Kidston Road, while the Cosens Bay Road parking lot is located at the terminus of the paved portion of Cosens Bay Road.

Cosens Bay Road (unpaved) traverses through 4.5 kilometres of the park as a single lane gravel road to the eastern boundary of the community of Cosens Bay. The travelled section of the road is maintained by the Ministry of Transportation and Infrastructure (MOTI). A park use permit, held by MOTI, provides further provisions in the maintenance/operations scope for the road beyond the travelled portion (e.g. extending beyond the road shoulder). The Cougar Canyon Climbers/Bouldering parking lot is located at the 4 kilometre mark along Cosens Bay Road. Figure 10 illustrates the current parking lot locations and approximate capacities.

Plate 20: Directional signage on public roads (left) leads visitors to parking lots such as Twin Bays (right).

Day Use Picnic/Beach Areas, Toilet Buildings, and Dog Beaches

There are designated day use picnic areas located at Cosens, Jade and Juniper bays. Each site contains numerous picnic tables as well as table modifications for the use of portable barbeques. Pit toilets for men and women are located at all the above locations. A pit toilet located at the Twin Bays parking lot is wheelchair accessible as is one of the picnic tables at Juniper Bay – a paved path facilitates ease of access. No water is provided for visitor use consumption in the park.

There are two designated dog beaches within the park. One dog beach is located just south of the Crest Trail (east of Turtle Head's Point), commonly referred to as Pebble Beach, and the other is at

the southern end of the Cosens Bay day use beach. With the exception of the dog beaches, where dogs must be kept under control, the balance of the park requires that dogs be on leash at all times. Further restrictions are currently in place that prohibits dogs in specific park areas (Cosens, Jade and Juniper bay beaches) during peak/high use season (April 1 to October 31).

Open fires are not permitted in the park and there are no facilities such as fire rings or fire pits available for public use. Because of the significant risk to natural values, lack of support facilities (e.g., potable water), and high visitor use, camping is not a sanctioned activity in the park.

Plate 21: Pebble Beach and its trailhead marker (located at the Twin Bays parking lot).

Plate 22: Juniper Bay in summer.

Plate 23: Cosens Bay Road is a key access corridor for park visitors and residents of Cosens Bay.

Plate 24: The Cosens Valley and Cosens Bay Road.

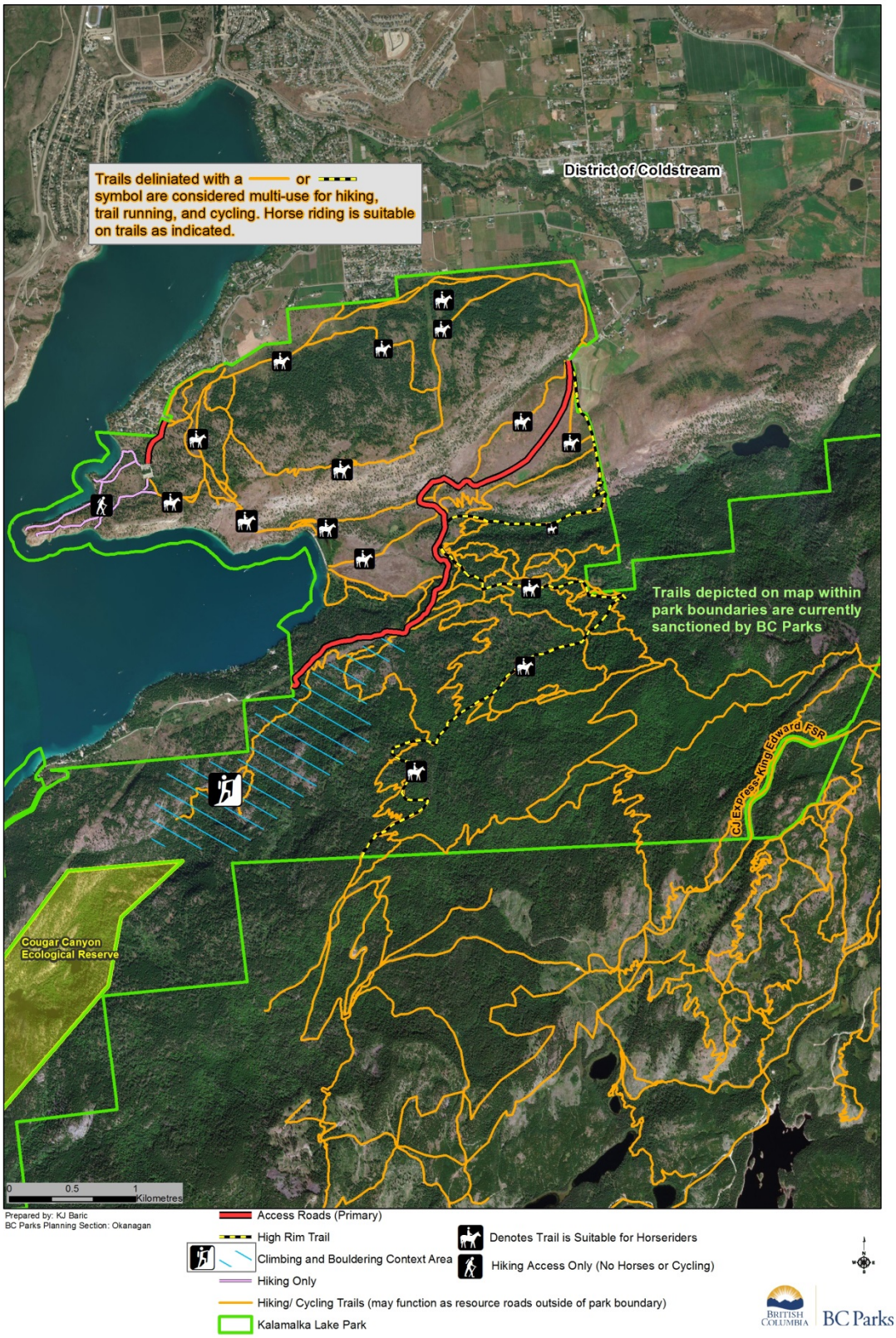

Figure 9: Map of trail system within Kalamalka Lake Park.

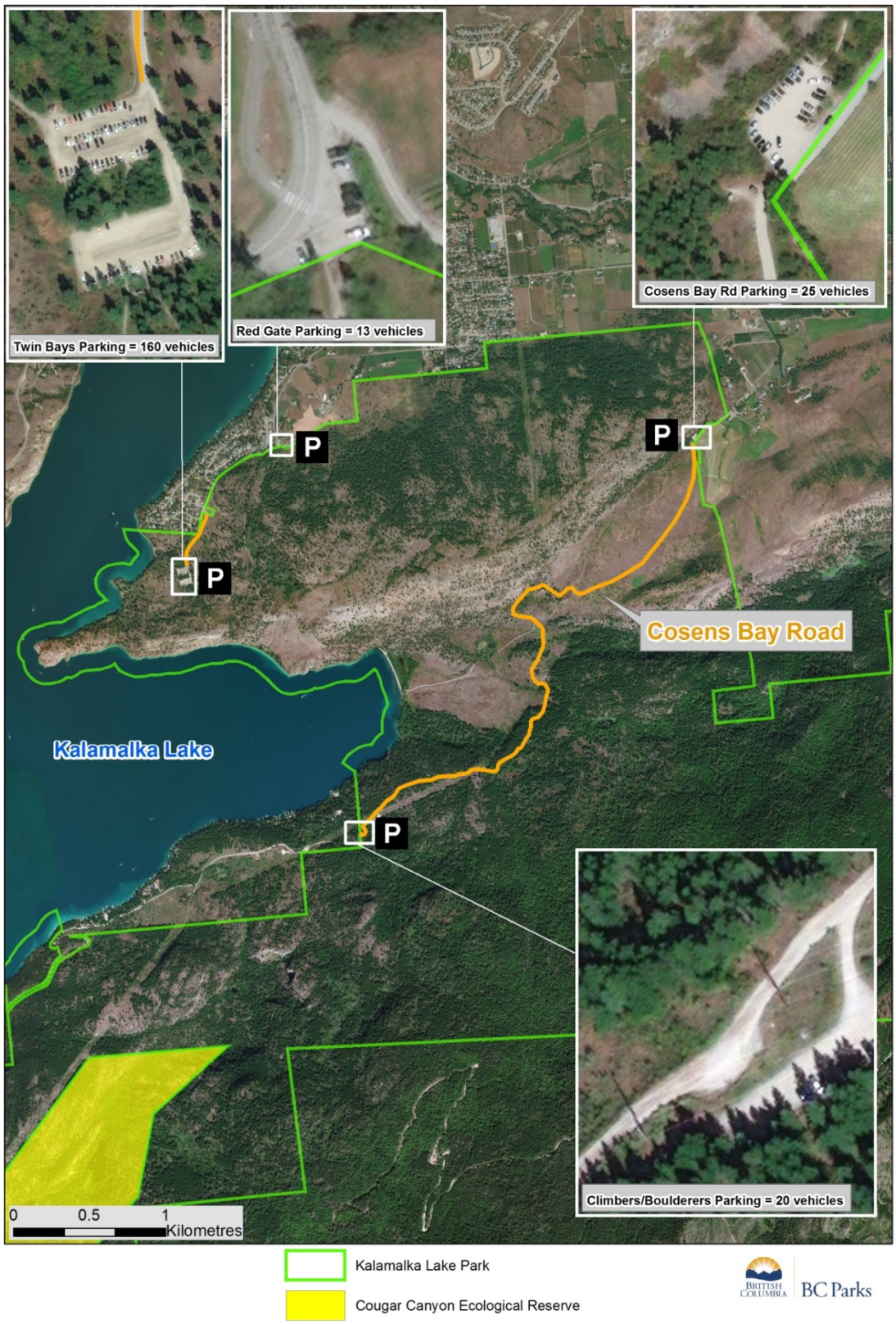

Figure 10: Map of the current parking lots/access locations.

2.6 Research and Education

Ongoing monitoring and species inventory has occurred within the park since its establishment, with particular emphasis on 'at risk' species such as Western Rattlesnake and the Okanagan Robber Fly. The majority of this study has been concentrated in the original core area of the park (i.e., not those lands added as part of the Okanagan-Shuswap LRMP in 2001).

The park holds great potential to continue to explore a variety of research and education projects, including, but not limited to, the following:

- Focused study of Western Rattlesnake that utilize the park and what influences the Cosens Bay Road, high recreational use, and climate change may be having on snake populations, behaviour and habitat.
- Public education and scientific research on the park's unique grasslands and lakeshore ecosystem.
- Focussed inventory and monitoring of the Cosens Bay Lagoon and to update analysis/data records as presented in the previous 1983 study.
- Study of First Nations cultural/traditional use (spanning from pre-historic to contemporary).

2.7 Climate Change

Protected area management objectives typically aim at sustaining traditional or current representative ecosystems and species, but may be complicated by climatic changes that continue to alter the ecology of the area more rapidly than anticipated. Such alterations may be subtle, but more dramatic natural disturbances such as wildfire, insects and disease are also likely to increase in frequency and severity.

Ultimately, changing temperature and precipitation regimes in a particular area will alter the historical complement of plant and animal species, affect water supplies and potentially change traditional recreational use patterns. With the ongoing effects of human land use activities outside protected areas already applying pressures on both 'at risk' and representative species and ecosystems, ecological inventory and monitoring work at the park level can help inform land managers about the effects of climate changes in the absence of intense human land use. Park managers must better understand to what extent climate change effects can or should be tempered within parks to help natural systems adjust to support species that might otherwise be naturally extirpated or to mitigate possible negative impacts on recreational use and public safety.

Climate change may noticeably affect the current natural systems within Kalamalka Lake Park. Changes projected over the next fifty years include:

- general warming, particularly in winter, with higher precipitation (i.e., the park's biogeoclimatic zone category could shift to a Ponderosa Pine Zone- dry/warm);
- increased frequency and severity of natural processes such as wildfires, extreme precipitation events (flooding), forest insect infestations and droughts;
- changes in hydrology, including the reduction of snowpack at higher elevations and the timing of peak flows and low-water events;
- increase in weedy species that outcompete native vegetation in drought conditions;
- extirpation of some plant and animal species, for example, those in ecological pockets such as microclimates, or at the limits of their range; and,

- changes in ecosystem composition and structure.

Maintaining healthy, resilient ecosystems plays a key role in providing refugium for indigenous flora and fauna species and maintaining ecosystem function as climate continues to change and species adapt.

While Kalamalka Lake Park, specifically the grassland areas within the core area, has been impacted by various locally induced changes (historic grazing, military manoeuvres/ordnance testing) the ecosystems within the park still retain high biodiversity values that can assist in measuring and monitoring the effects of climate change.

Plate 25: The red hue sunsets from regional wildfires have become somewhat the norm during the summer season.

Plate 26: Seasonal changes often bring poor trail conditions that are amplified by frequent visitor use in the park.

3.0 Management Direction

3.1 Management Objectives and Strategies

3.1.1 Biodiversity and Ecological Values

Management Objective	Management Strategies
To protect biodiversity and ecological values.	• Utilize pro-active management methods, such as prescribed fire and fuel reduction/tree removal, to reduce forest ingrowth and to assist in restoration and maintenance of the open forest and grassland ecosystem. • Support initiatives (e.g., Okanagan Collaborative Conservation Program-*Okanagan Mountain to Kalamalka Lake Ecological Corridor*) that focus on enhancing landscape connectivity with adjacent provincial parks and conservation lands. • Work with government and non-governmental partners to focus inventory and monitoring on species and habitats considered 'at risk'. • Ensure the Conservation Risk Assessment for the park is up to date and reflects current threats. • Within the Special Natural Feature and Nature Recreation zones, only consider new trail proposals if there is a strong rationale for new trail construction (e.g., addressing safety hazards, significant visitor use conflicts). • Within the Special Natural Feature Zone, continue to monitor use of the Nature Recreation Zone-Linear (NR-L). If impacts to ecological and/or cultural values are evident, closure/rehabilitation of specific parts of the NR-L zone may be required or, if appropriate, allow for the relocation of specific trails that travel through the Special Natural Feature Zone to address impacts. • Take proactive measures to address and monitor invasive flora and fauna species. For plant species, utilize treatment methods (mechanical, chemical, or biological) that have the highest rates of success while placing key emphasis on limiting external impacts on native species/habitats as a result of treatment. • Conduct restoration trials (treatment, seeding or planting) to determine effective means to facilitate native plant recovery in areas heavily impacted by invasive plants. • Reduce human interference within habitat for Western Rattlesnake. Seasonal closures of select portions of the park to the general public may be employed to assist in the protection of essential habitat and minimize disturbance. • Prevent unauthorized motor vehicle use of trail routes and non-designated roads by gating access points, posting appropriate signage, and utilizing enforcement and compliance tools. • Pre-existing range tenure within those portions of the former protected area will be kept at the level of AUMs (Animal Unit Months) approved in

	the Okanagan-Shuswap LRMP. • Through signage and collaboration with horse riders, actively discourage grazing of park vegetation by horses (i.e., feeding of horses to occur outside of the park, prior to visitation). • Through park use permit provisions, ensure the transmission line corridor is monitored and mitigation is required for any habitat/vegetation disturbances associated with facilities, access and maintenance operations. • Ensure compliance (through signage, outreach and enforcement) with mandatory no smoking bans within the park. • Provide public information on trails and at information kiosks to inform visitors about the sensitive ecosystem values of the park and encourage low impact use. • Work with the park operator staff (through training programs and information sharing) to ensure routine maintenance within the park does not negatively impact wildlife, species at risk and/or habitat. • Assess the impact to natural values of rock climbing and route development on cliffs and crevices, including its impact on rock-dwelling species. • Continue to explore and prioritize private land acquisitions that would complement park values. Seek funding opportunities/partnerships that would enhance the probabilities of successful land securement.

3.1.2 Recreation Values

Management Objective	Management Strategies
To provide for a range of recreational activities and opportunities.	***Mountain Biking*** • Continue to encourage stewardship relationship with the North Okanagan Cycling Society and other groups. Ensure such groups are working under the provision of a park use permit/volunteer agreements. • Discourage the use of cut off trails (through barrier fencing and signage) and rehabilitate damaged areas. • Align management of mountain bike use within the park with BC Parks policy and guidelines - this includes policy on the use of eBikes within provincial parks. ***Horse Riding*** • Allow horse riding on trails within the Nature Recreation Zones (with the exception of the trail to the Twin Bays and Head Point area which is for hiking access only). • Explore opportunities to support horse use originating from the Twin Bays parking lot (e.g., horse use on a short section of the Grasslands Trail to the Corral Trail). Seasonal provisions for horse use at this specific location may be required. • Encourage horse riders accessing the park with horse trailers to utilize the Twin Bays parking lot to assist in managing capacity issues at the Cosens Bay Road entrance.

	Rock Climbing and Bouldering • Direct and focus rock climbing and bouldering to the 'context area' identified in the Nature Recreation Zone located in the southern end of the park (see Figure 18). • Assess current climbing and bouldering routes for impact to park values in coordination with the climbing/bouldering community. • Consider future expansion of climbing and bouldering opportunities in the Climbing and Bouldering 'context area' following a BC Parks Impact Assessment and evaluations coordinated by BC Parks and user groups. • Encourage rock climbing and bouldering clubs/associations (Climbers Access Society, North Okanagan Climbing Community) to participate in stewardship/volunteer agreements. ***Boating/Foreshore Use*** • Encourage boating activities in specific foreshore areas of the park that currently provide easy and safe access to designated beach and day-use facilities. • Investigate the reconfiguration of motorized watercraft access locations in high use beach areas (e.g., Cosens, Jade and Juniper bays) to minimize risks/conflicts with swimmers and beach users. ***General (Multi-Use)*** • Deploy seasonal/full-time closures or re-routing of specific trails should natural values of the park be at risk. • Explore opportunities to broaden visitor experiences to include facilities (e.g., smooth surface/low gradient trail access) which support those with physical challenges. • Monitor visitor access and parking areas and develop strategies to avoid congestion, address safety concerns and security issues, and minimize impacts to grasslands and sensitive areas. • Consider seasonal (short-term) closures of select multi-use trails during periods of snowmelt (extreme muddy conditions) to avoid increased trail erosion and braiding. • Encourage horse rider/mountain bike stewardship of the park (e.g., reduce utilization of the trails when conditions are wet/undergoing thaw). • Subject to a BC Parks Impact Assessment, and limited to only short-term trial trails, consider innovative trail maintenance methods (e.g., trail grooming for mountain biking) to improve trail conditions/recreational opportunities during periods of heavy snow. • Monitor and enforce visitor compliance with mandatory dog on-leash park regulation (Park Act: Park, Conservancy and Recreation Area Regulation, section 19). • Require dogs to be on leash at all times (`in control' within dog beach areas) and enforce seasonal area closures for dogs in select portions of the park (e.g., Cosens, Jade and Juniper bays). • Explore opportunities for dog off-leash areas within the park. • Allow hunting in specific areas of the park (see Figure 8) and amend regulations as necessary. • Use signage and outreach (e.g., BC Parks website) to ensure park users are

	aware that access to adjacent private lands (i.e., Coldstream Ranch, Cosens Bay community) requires permission of the land owner(s). • Work with the park operator staff to ensure delivery of consistent messaging concerning park regulations including dogs on-leash restrictions and seasonal dog closure areas (e.g., main beach areas at Cosens, Jade and Juniper bays).

3.1.3 Facilities

Management Objective	Management Strategies
To provide safe and user friendly facilities that minimize conflicts between user groups and have a minimum impact on park values.	***Day Use/Picnic Areas*** • Continue to provide basic amenities at day use/picnic areas (pit toilets, picnic tables, benches, waste receptacles) at key locations within the park, in areas zoned appropriately for such use (e.g., Nature Recreation Zone). • Do not provide campfire/fire pits within the park (significantly reduces the risk of wildfire ignition). • To enhance protection of natural values and address carrying capacity issues related to high visitor use, do not allow camping/overnight use of the park. ***Trailheads*** • Focus park access on key trailhead locations (Red Gate, Twin Bays, Cougar Canyon Climbers/Bouldering Parking Area, and the Cosens Bay Road entrance). • Ensure park information and key messaging is placed at key trailhead locations. ***Parking and Parking Lots*** • Explore opportunities that allow for expansion for parking at, or along approaches to, key trailhead locations (in accordance with the Intensive Recreation Zoning for the park). • Contingent on a BC Parks Impact Assessment, pursue development of a parking lot within the Intensive Recreation Zone-Conditional near the Cosens Bay Road entrance, only if private land acquisition for parking expansion is unsuccessful (within three years of approval of the management plan). • Based on findings/recommendations of a BC Parks Impact Assessment, allow for flexibility in the placement, size and configuration of the Intensive Recreation Zone-Conditional, with a primary focus on the land area that is within close proximity to the existing Cosens Bay Road entrance. • Revert the Intensive Recreation Zone-Conditional to Special Natural Feature zoning should private land be acquired for parking lot expansion (near Cosens Bay Road entrance). • Explore opportunities to reconfigure parking layout to better accommodate horse trailer use during non-peak season at Twin Bays parking lot. • Explore parking lot expansion at Red Gate (as per park zoning) and coordinate design and implementation with the District of Coldstream.

	Cosens Bay Road • Ensure the area which falls beyond the travelled portion of Cosens Bay Road, but is necessary for the safe use and upkeep of the road, is managed under provisions of a park use permit by the Ministry of Transportation and Infrastructure. • Actively discourage parking along Cosens Bay Road (except in designated areas) using signage/barriers and monitor for non-compliance. • Through signage and the BC Parks website, encourage hikers, cyclists and horse riders to utilize the trail system which parallels Cosens Bay Road instead of travelling on the road surface, which leads to safety issues and congestion.

3.1.4 Stewardship Values

Management Objectives	Management Strategies
To foster a strong relationship with park stewards in fulfilling the long-term management vision of the park.	• Continue coordination and outreach with groups (e.g., Friends of Kalamalka Lake Provincial Park, Cosens Bay Property Owners' Society, North Okanagan Cycling Society, North Okanagan Naturalists' Club, Okanagan Bouldering Society, North Okanagan Climbing Community and local horse riders) and individuals who pro-actively assist in the management and oversight of the park. • Work with the Park Operator (contractor) to ensure daily operations and maintenance do not impact the conservation values of the park.

3.1.5 Cultural Values

Management Objectives	Management Strategies
To protect indigenous cultural heritage values existing within the park and to promote collaborative engagement with First Nations.	• Work with First Nations to research and document indigenous cultural heritage values. • Explore opportunities to research and implement traditional use management and techniques. • Where appropriate, develop interpretation opportunities that emphasize the importance of the area to First Nations, while respecting the sensitivity of cultural values. Encourage First Nations to contribute their knowledge and experience to interpretive signage/information at identified locations (e.g., kiosks/trail heads). • As part of BC Parks' staff oversight of the park operations and maintenance, ensure park operator staff, permittees, contractors and volunteer staff are fully aware of, and educated about, provisions/responsibilities of the *Heritage Conservation Act* and 'chance find' (archeological deposits being exposed during unplanned ground disturbance) procedures as it applies to the high archaeological/cultural value areas of the park.
Non-indigenous cultural values	• Continue to acknowledge the ranching and colonial period characteristics of the park through printed and visual mediums (e.g., parks website, information kiosks).

	• Subject to health and safety, allow natural deterioration of historical structures (fences/corrals) associated with prior ranching use.

3.1.6 Climate Change

Management Objectives	Management Strategies
Improve the knowledge and understanding of the park's ecological and hydrological processes to assist in building resilience to the effects of climate change.	• Place emphasis on species inventory on those areas that have species-at-risk occurrences or unusual species diversity, or that may be particularly sensitive to climate change (e.g., wetlands, Cosens Bay Lagoon) • Explore opportunities to utilize prescribed fire to avoid extreme wildfire events. • Develop adaptive strategies with adjacent land/resource managers that allow species and ecosystems to connect across the landscape. • Draw on historical hydrological data, ongoing monitoring systems (e.g., Long Term Ecological Monitoring) inside and outside the park and projections of climate change effects to develop long-term hydrological forecasts for the park and key aquatic habitats for species at risk, etc.

3.2 Zoning Plan

This management plan uses zoning to assist in the planning and management of Kalamalka Lake Park. In general terms, zoning divides an area into logical units to apply consistent management objectives for protection of protected area values. Zones reflect the intended land use, existing patterns of use, degree of human use desired, and level of management and development allowed in the zone. Zoning provides visitors and managers with a quick visual representation and appreciation of how a particular protected area is managed.

Kalamalka Lake Park is separated into three broad management planning zones: Nature Recreation, Intensive Recreation, and Special Natural Feature (see Figure 11). The zoning allocation is summarized as follows:

- Nature Recreation Zone = **2,500 hectares**
- Nature Recreation Zone-Linear = **16 hectares**
- Intensive Recreation Zone = **6.6 hectares**
- Intensive Recreation Zone-Linear = **9 hectares**
- Special Natural Feature Zone = **686.4 hectares**

Total Park Area = 3,218 hectares

This zoning is intended to concentrate and focus recreation use and access in appropriate areas which can support current and future public use without having detrimental impacts on the park's sensitive ecosystems. Appropriate uses/activities for each broad management zone within the park are included in Appendix 1. Appendix 4 summarizes general attributes of each zone relevant to the park.

Special Natural Feature Zone (SNF)

Description

This zone applies specifically to those areas of the park such as Rattlesnake Hill, Cosens Valley, Bear Valley, the lower reaches of Cosens Creek (see Figure 12) and the Cosens Bay Lagoon (see Figure 17). The Special Natural Feature Zone encompasses 686.4 hectares (or 21 percent of the park).

Objective and Management Intent

The Special Natural Feature Zone contains environmentally valuable resources (e.g., extensive intact grassland and open forest plant communities) as well as important habitat for a variety of wildlife considered at risk (e.g., Western Rattlesnake, Western Screech Owl, Great Basin Spadefoot).

Recreational passage (hiking, trail running, cycling and horse-riding) through this zone is facilitated by the placement of the Nature Recreation Zone-Linear (NR-L). If impacts to ecological values are evident, closure/rehabilitation of specific NR-L zones may be required or, if appropriate, allow for the relocation of specific trails that travel through the Special Natural Feature Zone to address impacts.

New trail proposals within the Special Natural Feature Zone will only be considered if there is a strong rationale for new trail construction (e.g., addressing safety hazards, significant visitor use conflicts). Trail rerouting or new trail proposals in the Special Natural Feature Zone would be subject to a BC Parks Impact Assessment, additional assessments (e.g., archaeological) as required, and where appropriate, consultations with key stakeholders and First Nations.

Nature Recreation Zone (NR and NR-L)

Description

The Nature Recreation Zones are located in areas of the park where there is high visitor use. The zone allows for a variety of non-motorized activities (with the exception of motorized watercraft to access foreshore and boat accessible areas of the shoreline). Such activities include hiking, trail running, cycling, horse riding, boating, dog walking, rock climbing and bouldering (see Figure 11).

Objective and Management Intent

The objective of the Nature Recreation Zone is to protect scenic values and to provide for appropriate recreation opportunities in a largely undisturbed natural environment.

Although the multi-use trail network, as well as the day use beach areas are categorized as Nature Recreation Zones, in the future there may be a requirement to enhance zoning protection of certain areas of the park (e.g., Special Natural Feature zoning may replace Nature Recreation zoning in select areas if deemed necessary to provide enhanced protection of biodiversity/ecological values).

Nature Recreation Zone (NR)

The area encompassing the Nature Recreation (NR) Zone is approximately **2,500 hectares** (or 78 percent of the park).

This zone encompasses all of the foreshore areas of the park, along with the land areas which include Twin Bays (Jade and Juniper), Turtles Head Point, Cosens Bay beach and day use area, as well as the landscape that encompasses the extensive multi-use trail network which is

predominantly south of Cosens Bay Road (with the exception of portions of Cosens Valley and Bear Valley). The portions of Twin Bays and Turtles Head Point that are zoned for Nature Recreation are for pedestrian access only (no cycling or horses are permitted within this specific area of the NR Zone).

Rock climbing and bouldering activities are focused on the 'context area' as shown in Figure 18.

Nature Recreation Zone-Linear (NR- L)

The Nature Recreation Zone-Linear is approximately **16 hectares** (or 0.50 percent of the park). There are a total of approximately 27 kilometres of trails that are designated as NR-L. The NR-L zone is 6 metres wide (3 metres each side from the centerline of the trail) and is designed to provide a buffer within the sensitive areas zoned as Special Natural Feature. The NR-L Zone applies to those multi-use trails that reside in the high value grassland and open forest ecosystem predominantly associated with Cosens Valley, Bear Valley and Rattlesnake Hill.

Intensive Recreation Zone (IR)

Description

There are four areas where the Intensive Recreation (IR) Zone is applied; this includes parking lots/access roads located at Twin Bays, Cosens Bay Road entrance, Red Gate and the Cougar Canyon Climbing/Bouldering parking area. Total area for the IR zones at the following four locations is **6.6 hectares** (or 0.2 percent of the park).

Objective and Management Intent

The areas identified as IR Zones provide facilities for visitor use, specifically involving facilities related to motor vehicle access and parking.

- **Twin Bays Parking and Access Road (Figure 13)**

  This **3.5 hectare** zone includes the access road as well as the Twin Bays parking lot. The Twin Bays parking lot and entrance road also have a future development buffer (10 to 20 metres depending on location) to allow for possible future parking lot expansion and access road widening/parking.

- **Cosens Bay Road Entrance (Figure 14)**

  The Intensive Recreation Zone in this area of the park encompasses **0.5 hectares** and allows for future possible expansion of the existing parking lot (to the east).

  The Intensive Recreation Zone-Conditional (IR-C) identifies an additional **2 hectares** for consideration of a future parking lot to complement the existing parking lot and facility footprint at the Cosens Bay Road entrance.

- **Cougar Canyon Climbing/Boulder Parking (Figure 15)**

  This **0.5 hectare** Intensive Recreation Zone captures the existing footprint of the parking lot with possible expansion areas to the east and west should greater parking capacity be necessary in the future.

- **Red Gate (Figure 16)**

  The **0.1 hectare** Red Gate Intensive Recreation Zone provides the ability for expansion of parking facilities at this location.

Intensive Recreation Zone-Linear (IR-L)

The total area of this zone is **9 hectares** (0.3 percent of the park). This zone applies to the corridor surrounding Cosens Bay Road as it traverses the park for a distance of 4.5 kilometres. The zone is 20 metres in width (10 metres from centreline). Note: graphic representations of this zone in the zoning maps also include the existing travelled portion of Cosens Bay Road, which is within the jurisdiction of the Ministry of Transportation and Infrastructure.)

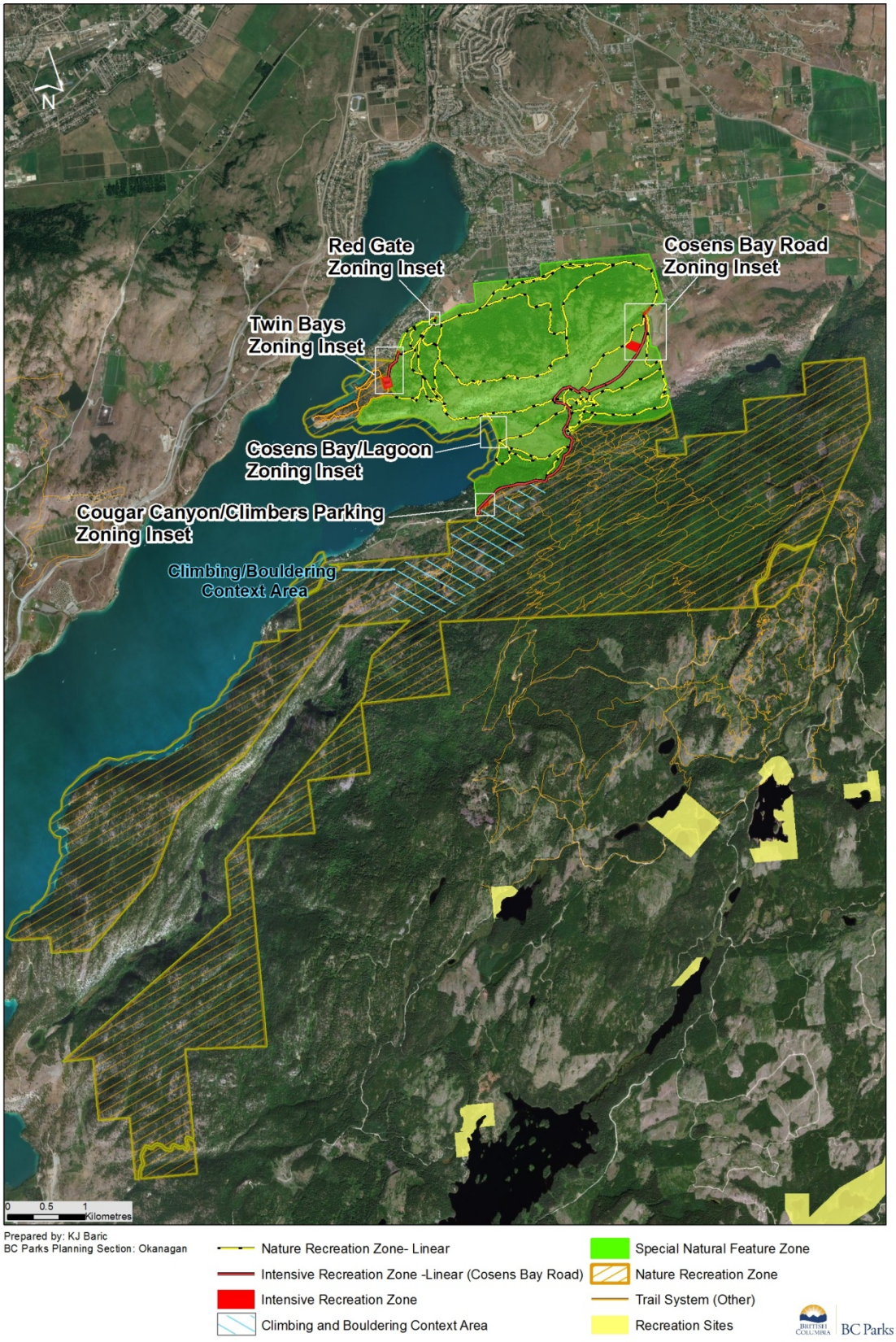

Figure 11: Map of zoning (park overview).

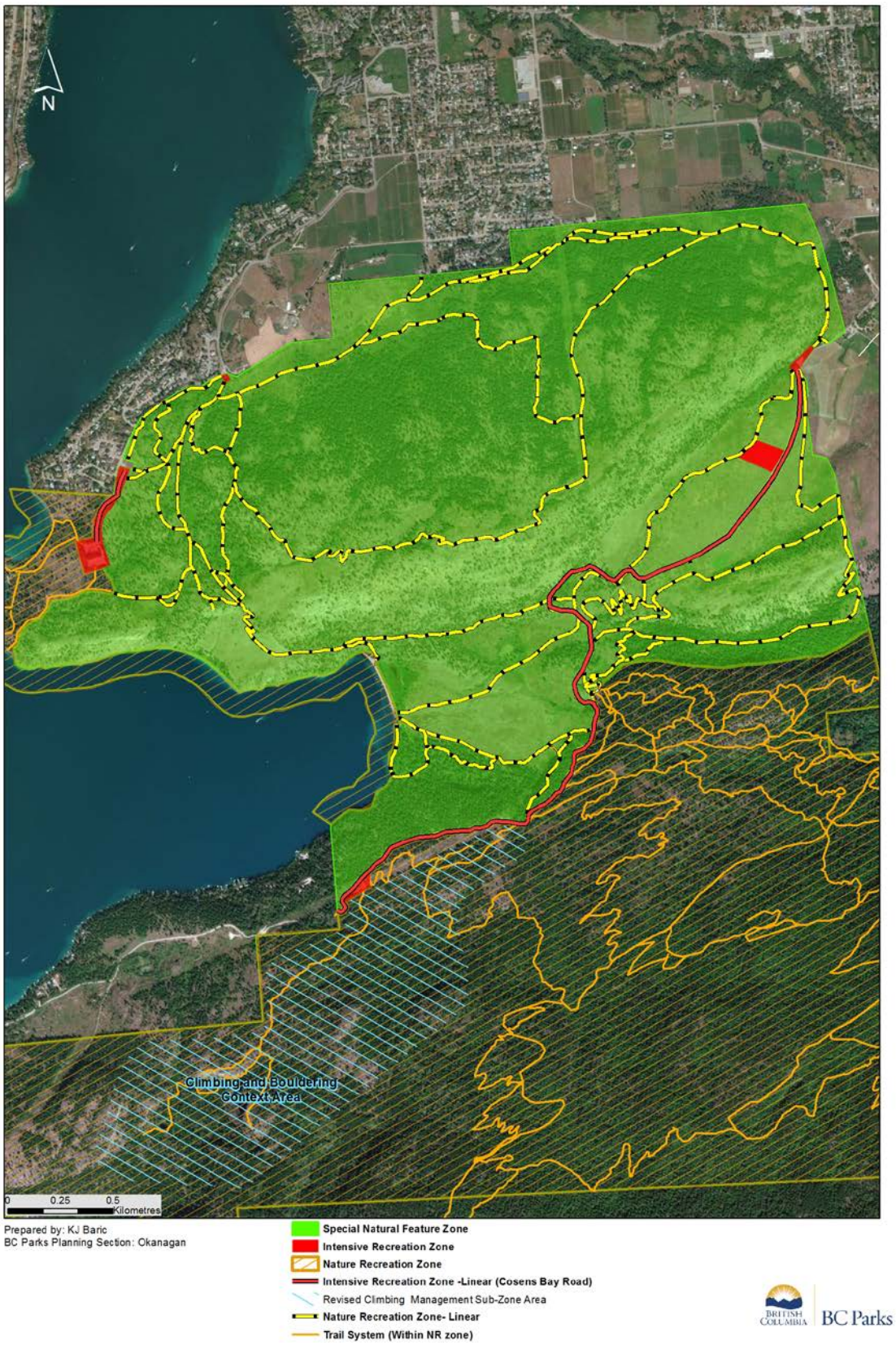

Figure 12: Zoning map of the Special Natural Feature Zone.

Figure 13: Zoning map of Twin Bays parking/access.

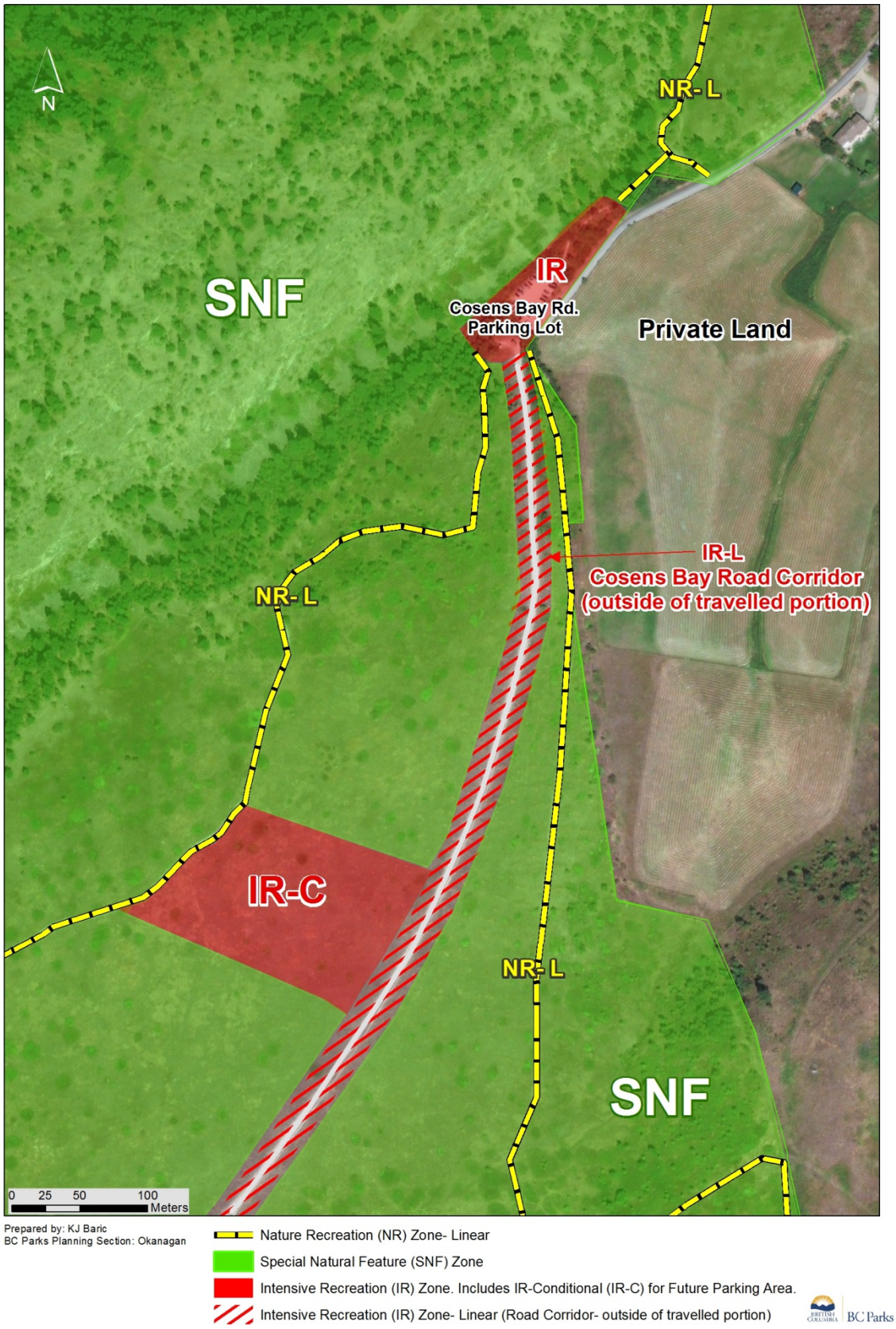

Figure 14: Zoning map of the Cosens Bay Road entrance area.

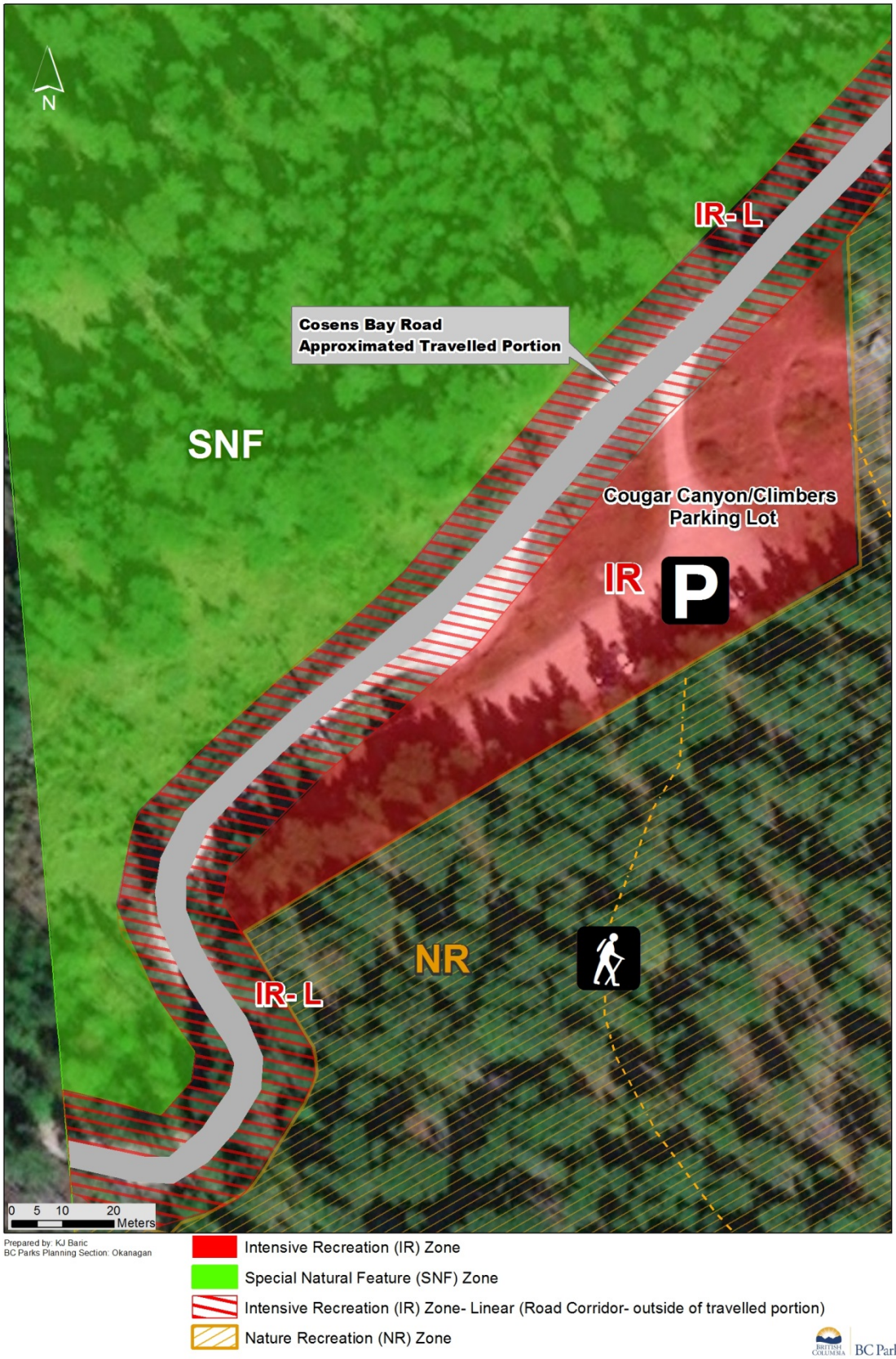

Figure 15: Zoning map of the Cougar Canyon climbing/bouldering parking area.

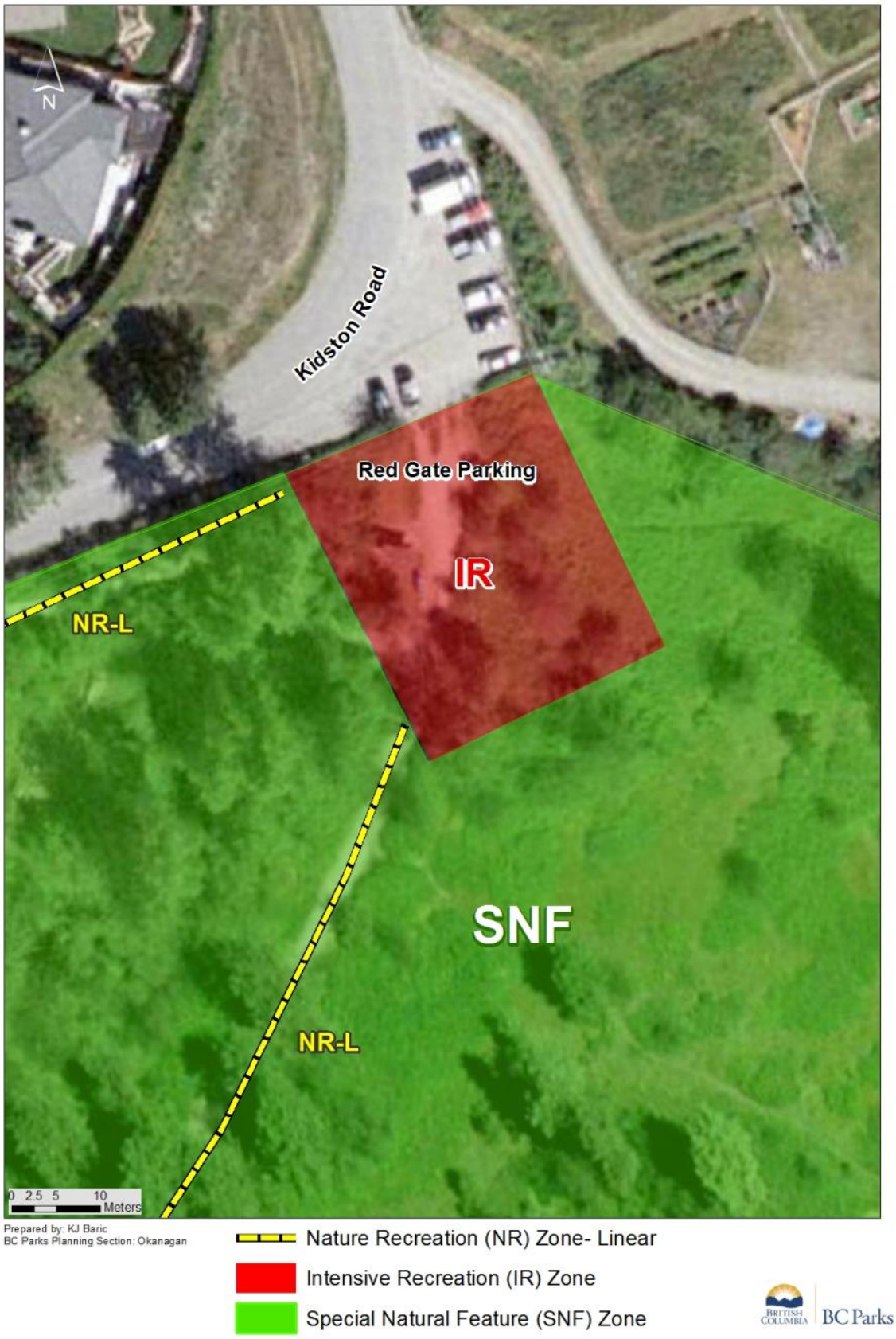

Figure 16: Zoning map of the Red Gate parking area.

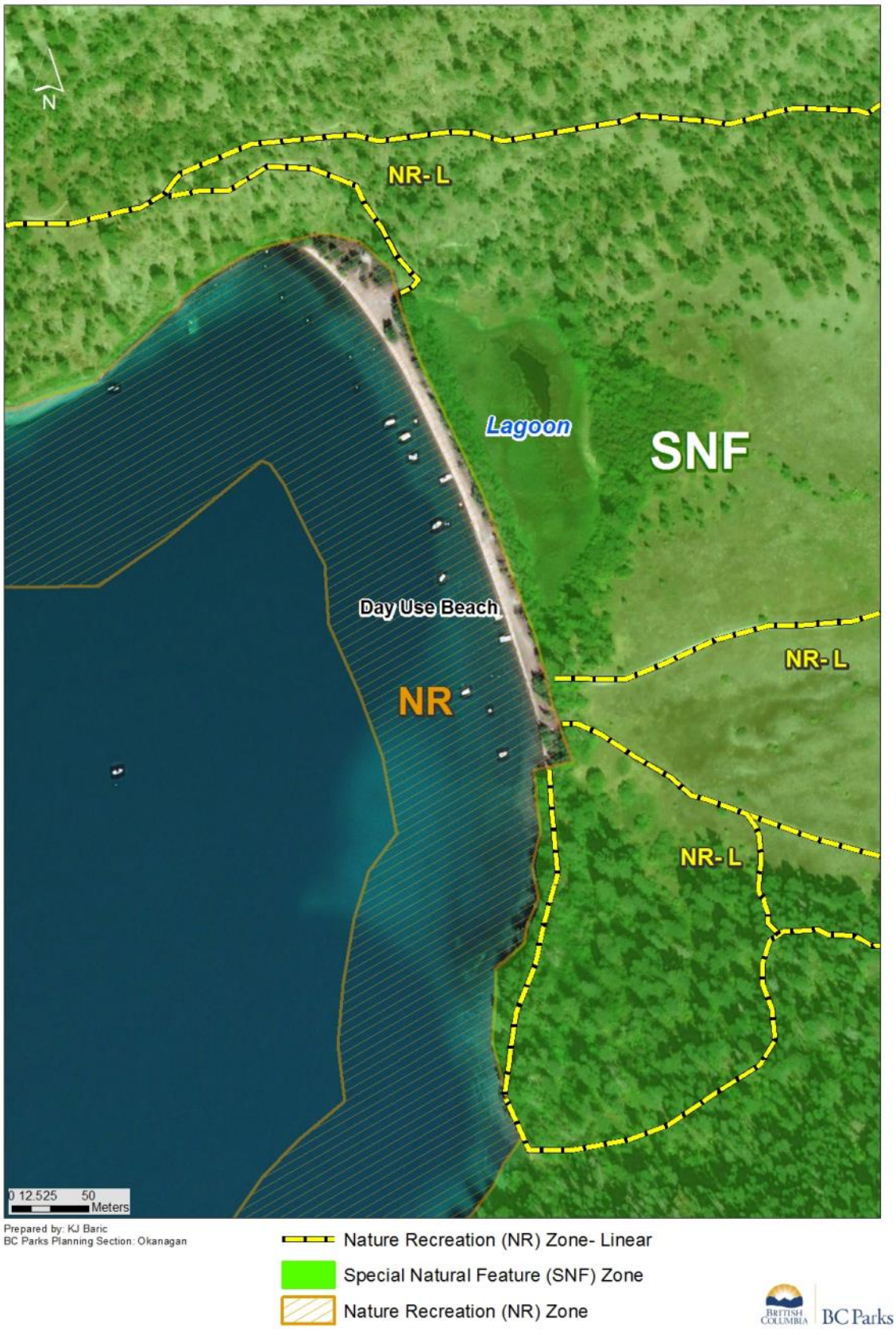

Figure 17: Zoning map of Cosens Bay/lagoon area.

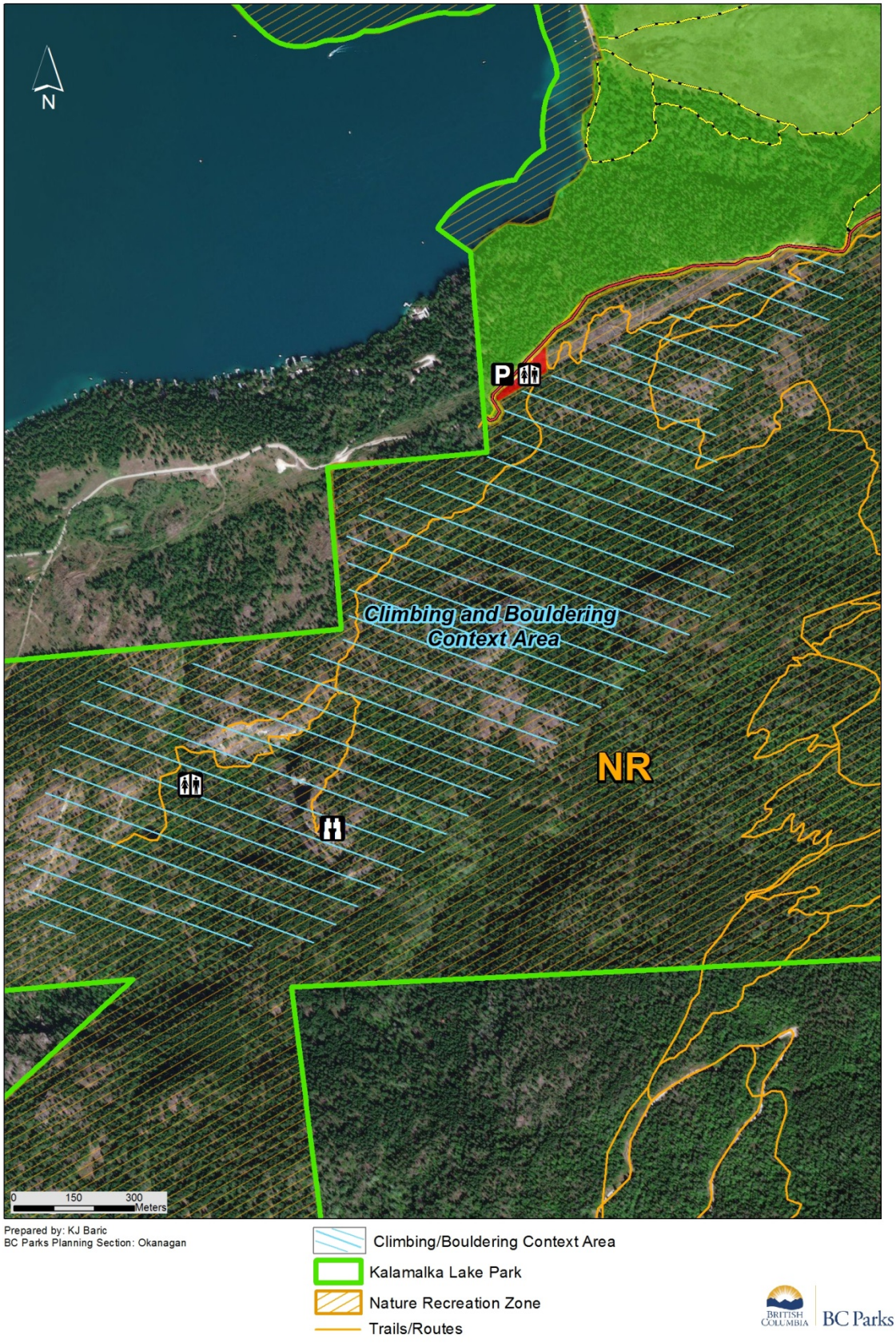

Figure 18: Zoning map of the climbing/bouldering area (NR Zone)

4.0 Plan Implementation and Future Validity/Review

4.1 Implementation Plan

BC Parks will seek project-specific funding and partners to implement many of the strategies embodied within this management plan and some strategies will be considered a higher priority than others (based on several factors such as minimizing impacts to ecosystem values). Moreover, specific projects will be evaluated for their priority in relation to the overall protected areas system. Many of the initiatives contemplated are not funded as part of core BC Parks activities so seeking funds with outside partners will be a key aspect of the management plan implementation.

4.2 Plan Validity Assessment and Review

In order to ensure the management of Kalamalka Lake Park remains relevant, BC Parks staff will complete an internal assessment of this management plan every 5 years at which time minor administrative updates may be identified and completed (e.g., update protected area details or maps where needed, etc.).

If the internal assessment reveals that management direction is no longer adequate, a formal review by BC Parks, First Nations and stakeholders will be completed to determine whether a plan amendment or a new plan is required. A formal plan review and amendment process would include an opportunity for public input, local and regional government comment, and consultation with First Nations.

5.0 Appendix 1: Appropriate Use Table

The following table lists existing and potential future uses in Kalamalka Lake Park. This is not an exhaustive list of uses that may be considered in this park.

The table is provided to summarize the uses which the management planning process has confirmed to either be appropriate or not appropriate in the park. The table also gives a general indication of the management direction for other uses. The table must be reviewed in conjunction with the other sections of the management plan, including the role descriptions, vision, objectives and strategies.

Appropriate Use Table Legend		
N	**Not an appropriate use**	The use is not appropriate in the indicated zone. If the use currently exists but the management planning process has determined that the use is no longer appropriate in all or part of the park, the management plan will include strategies for ending the activity (e.g., phasing out, closing).
Y	**May be an appropriate use**	Some level or extent of this use may be appropriate in the zone(s) indicated. If the activity/use already exists, the management plan provides guidance on the appropriate level of use and may address specific restrictions or planned enhancements (e.g., capacity, designated areas for a particular activity, party size, time of year, etc.). For new or expanded uses, this symbol indicates that the use may be considered for further evaluation and approval. The appropriateness of some activities may not be confirmed until a further assessment (e.g., BC Parks Impacts Assessment Process) or evaluation process (e.g., park use permit adjudication) is completed.
Y1	**Appropriate use as per section 30 or 31 of the Park Act**	The use is not normally appropriate in the park but was either occurring pursuant to an encumbrance or Crown authorization at the time the park was designated, or was authorized by BC Parks prior to July 13, 1995, and is allowed to continue.

	Special Natural Feature Zone	Nature Recreation Zones	Intensive Recreation Zones	Comments
Activities/Uses				
Aircraft Landing and Takeoff	N	N	N	
Boating (human powered and electrical)	-	Y	-	
Boating (combustion engine)	-	Y	-	Landing in designated areas only (Cosens Bay beach, Twin Bays).
Camping – designated sites	N	N	N	
Camping – wilderness style-undesignated sites/no trace.	N	N	N	
Commercial recreation (facility-based)	N	N	N	
Commercial recreation (non-facility based)	N	Y	Y	Park use permit required.
Filming (commercial)	N	Y	Y	Park use permit required.
Grazing (domestic livestock)	N	Y1	N	Only those portions of the NR zone subject to current range tenure (southern area of the park).
Highlining/Slacklining	N	N	N	
Hiking/Trail Running	N	Y	Y	Hiking/trail running through the SNF zone is facilitated by NR-L zones (designated trails only).
Hang Gliding and Para Gliding Launching	N	N	N	
Horse use/pack animals (not exotic)	N	Y	Y	No horse use in the NR zone in the Twin Bays/Turtles Head Point area.
Hunting	N	Y	N	Only in the NR zone in the south area of the park. See revised hunting allowable areas (Figure. 8).
Land-based mechanized activity (e.g., mountain biking).	N	Y	Y	NR, NR-L and IR zones only. No cycling in the NR zone in the Twin Bays and Turtles Head Point area.
Land-based motorized activity	N	N	Y	Cosens Bay Road/Twin Bays entrance road only. Licenced highway vehicles only.
Rock Climbing/Bouldering	N	Y	N	Identified 'Context Area' within the NR zone south of Cosens Bay Road (see Figure 18).
Skiing (backcountry-unassisted)	N	Y	N	
Trail Grooming	N	Y	N	For winter mountain biking use. Subject to trial basis and only on

	Special Natural Feature Zone	Nature Recreation Zones	Intensive Recreation Zones	Comments
Activities/Uses				
				select NR-L trails (identified after BC Parks Impact Assessment Process).
Trapping	N	Y	N	Park use permit required.

	Special Natural Feature Zone	Nature Recreation Zones	Intensive Recreation Zones	Comments
Facilities/Infrastructure				
Activities/Uses				
Administrative buildings and compounds	N	N	N	
Backcountry huts and shelters	N	N	N	
Boat Launches/Docks	-	N	-	
Campgrounds	N	N	N	
Communication sites	N	N	N	
Interpretation and Information Buildings	N	Y	Y	Interpretation kiosks only.
Mooring Buoys	-	Y	-	Under park use permit only.
Roads and parking lots	N	N	Y	As identified in the IR zones.
Trails (hiking, trail running, cross-country skiing, mountain biking)	N	Y	Y	Utilizing the NR and IR zones.
Utility Corridors (power/transmission lines and other rights-of-way)	Y1	Y1	Y1	Existing Rights of Way only, as authorized under park use permit.

6.0 Appendix 2: Species at Risk

Species	Status			Record in park
	Provincial[1]	COSEWIC[1]	SARA Schedule	
Birds				
Canyon Wren	Blue	Not at Risk	N/A	Confirmed
Peregrine Falcon *anatum* subspecies	Red	Special Concern	Listed	Confirmed
Prairie Falcon	Red	Not at Risk	N/A	Unconfirmed
Western Screech Owl *macfarlanei* subspecies	Red	Endangered	Listed	Unconfirmed
Lewis's Woodpecker	Red	Threatened	Listed	Confirmed
Flammulated Owl	Blue	Special concern	Listed	Unconfirmed
Grasshopper Sparrow	Red	-	-	Confirmed
Mammals				
Spotted Bat	Blue	Special Concern	Listed	Confirmed
Townsend's big-eared bat	Blue	-	-	Confirmed
Western Harvest Mouse	Blue	Special Concern	Listed	Confirmed
Badger	Red	Endangered	Listed	Unconfirmed
Reptiles/Amphibians				
Gopher Snake *desertcola* subspecies	Blue	Threatened	Listed	Confirmed
Racer	Blue	Special Concern	Listed	Confirmed
Western Rattlesnake	Blue	Threatened	Listed	Confirmed
Great Basin Spadefoot	Blue	Threatened	Listed	Likely; not confirmed
Western Painted Turtle	Blue	Special Concern	Listed	Confirmed

Species	Status			
	Provincial[1]	COSEWIC[1]	SARA Schedule	Record in park
Plants				
Crested woodfern	Blue	-	-	Unconfirmed
Orange touch me-not	Blue	-	-	Unconfirmed
Peach-leaf willow	Red	-	-	Unconfirmed
Many-headed sedge	Blue	-	-	Unconfirmed
Invertebrates				
Immaculate Green Hairstreak	Blue	-	-	Confirmed
Okanagan Robber Fly	Red	Endangered	-	Confirmed

7.0 Appendix 3: Ecological Communities at Risk

Ecological Community	Provincial Ranking	Probable area within the park (zoning designation)
Baltic rush/common silverweed	Red	SNF
Black cottonwood / Douglas-fir / common snowberry - red-osier dogwood	Red	SNF, NR
Bluebunch wheatgrass - arrowleaf balsamroot	Blue	SNF
Bluebunch wheatgrass - junegrass	Blue	SNF
Common cattail Marsh	Blue	SNF
Douglas-fir – ponderosa pine / pinegrass	Blue	SNF, NR, IR
Douglas-fir-ponderosa pine/snowbrush/pinegrass	Blue	SNF, NR, IR
Douglas-fir - western larch / pinegrass	Red	SNF, NR
Douglas-fir / Common Snowberry - Birch-leaved Spirea	Blue	SNF, NR
Douglas-fir / Douglas Maple - Red-osier Dogwood	Red	SNF, NR
Douglas-fir / Pinegrass - Kinnikinnick	Blue	SNF, NR
Hard-stemmed bulrush Deep Marsh	Blue	SNF
Hybrid white spruce / black gooseberry	Blue	NR
Idaho fescue - bluebunch wheatgrass	Red	SNF, NR
MacCalla's Willow / Beaked Sedge	Blue	SNF
Ponderosa pine / bluebunch wheatgrass – pinegrass	Blue	SNF, NR, IR
Trembling aspen / common snowberry / Kentucky bluegrass	Red	SNF, NR
Western redcedar - Douglas-fir / false Solomon's seal	Red	NR
Western redcedar - Douglas-fir / red-osier dogwood	Blue	NR

8.0 Appendix 4: General Zoning Descriptions

	Special Natural Feature Zone	Intensive Recreation Zone	Nature Recreation Zone
Objective	To protect and present significant natural values, features or processes because of their special character, fragility or natural value.	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	Generally low.	Relatively high density and long duration types of use.	Relatively low use but higher levels associated with nodes of activity or access.
Means of Access	Various; may require special access permit.	All-weather public roads or other types of access where use levels are high (see "Impacts" below).	Motorized (powerboat, snowmobile, all-terrain vehicle), non-motorized (bicycle) and non-mechanized (canoe, horse, foot). Aircraft and motorboat access to drop-off and pick-up points will be permitted.
Location	Determined by location of special natural value(s); may be surrounded by or next to any of the other zones.	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 motorized means such as boat or airplane.
Zone Size	Small, usually less than 2,000 hectares.	Small, usually less than 2,000 hectares.	Can range from small to large.
Boundary Definition	Area defined by biophysical characteristics or the nature and extent of the special natural values (adequate to afford protection).	Includes areas of high facility development in concentrated areas.	Boundaries should consider limits of activity and facility areas relative to ecosystem characteristics and features.
Recreation Opportunities	Sightseeing and nature appreciation. May be subject to temporary closures or permanently restricted access.	Vehicle camping, picnicking, beach activities, powerboating, canoeing, kayaking, strolling, bicycling, nature and cultural appreciation, fishing, snow play, downhill and cross-country skiing, snowshoeing, and specialized activities.	Walk-in and boat-in camping, power boating, hunting, canoeing, kayaking, backpacking, bicycling, historic and nature appreciation, fishing, cross-country skiing, snowmobiling, river rafting, horseback riding, heli-skiing, heli-hiking and specialized activities.
Facilities	Interpretative facilities only; natural values are to be protected.	May be intensely developed for user convenience. Campgrounds, landscaped picnic or play areas, trail accommodation or interpretative buildings, boat launches, administrative buildings, service compounds, disposal sites, parking lots, etc.	Moderately developed for user convenience. Trails, walk-in and boat-in campsites, shelters, accommodation buildings, facilities for motorized access (e.g., docks, landing strips, fuel storage, etc.)
Impacts on Natural Environment	None; natural values to be maintained unimpaired.	Includes natural value features and phenomena in a primarily natural state, but where human presence may occur with the presence of recreation facilities and 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.
Management Guidelines	High level of management protection with ongoing monitoring. Oriented to maintaining natural values and, where appropriate, a high quality recreational and interpretative experience. Active or passive management, depending on size, location and nature of the natural value. Visitor access may be restricted to preserve the recreation experience and to limit impacts.	Oriented to maintaining a high-quality recreation experience. Intensive management of resource and for control of visitor activities. Operational facilities designed for efficient operation while being unobtrusive to visitors.	Oriented to maintaining a natural environment and high quality recreation experience. Visitor access may be restricted to protect or maintain the recreation experience or to limit impacts. Separation of less compatible recreational activities and transportation modes. Designation of transportation routes may be necessary to avoid potential conflicts (e.g., horse trails, cycle paths, hiking trails).