Lac du Bois Grasslands Protected Area

Management Plan

Final Public Review Draft

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BRITISH COLUMBIA | BC Parks

Lac du Bois Grasslands Protected Area

Management Plan

Approved by:

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Vision

This vision statement describes the future state and management that is desired for Lac du Bois Grasslands Protected Area. The protected area vision provides long-term direction for managers while aiding them in making decisions regarding current issues.

First Nations and BC Parks work collaboratively to manage Lac du Bois Grasslands Protected Area, increase cultural heritage and traditional ecological knowledge, and sharing that knowledge with visitors to enhance appreciation of all protected area values.

The diverse native grassland, aquatic and forest ecosystems and associated species are healthy and thriving in Lac du Bois Grasslands Protected Area. Native plant cover and vigour is sufficient to protect soils from erosion, minimizing the ability of invasive and non-native plants to spread. Past weed infestations have been controlled and greatly diminished in size. The riparian habitat in the Thompson River floodplain of the Tranquille area is regenerating to a cottonwood and willow ecosystem and is a focal point for regional species attracted to wetlands.

Popular recreational activities are largely informal and nature-based, including hiking and mountain biking, wildlife viewing, scenic viewing and nature study, and take place in harmony with ecological values. Eco-tourism and cultural tourism bring regional and international visitors to the grasslands.

Grasslands continue to support grazing use that is managed for protected area biodiversity objectives. Compatible management of land adjacent to the protected area, especially to the west on the north slopes of the Thompson River Valley, ensures that the protected area has not become an "island of protection". A high priority for conservation has ensured the protected area's ecological integrity[1].

The protected area plays an important role in informing and educating the public about grassland ecology and stewardship, with active participation of local communities, researchers and visitors.

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

Plan Highlights

Protecting the ecological integrity of Lac du Bois Grasslands Protected Area is a high priority. The protected area contains nationally significant grassland ecosystems that are easily accessible for public recreation use. It is also the only protected area where the three main grassland ecosystem types -- lower, middle and upper grasslands -- occur in close proximity, allowing the interaction of the elements of these three ecosystem types during this time of rapid climate change, and providing for an important role in the presentation of grasslands for public enjoyment, awareness, and education.

The protected area also contains dry forest, ponds and small lakes, wetlands and riparian edges, cliffs and talus, shrubby areas and aspen groves. The Tranquille Pond area is a provincially significant riparian and delta habitat.

The variety of habitat types supports a diversity of species, including those provincially "at risk" (rare, threatened, endangered), comprising ten known species of wildlife and seven species of plants, with the potential to support many more that are as yet unverified.

Lac du Bois Grasslands Protected Area also contains cultural features and landscapes representative of the historic use of the grasslands. Several uses and activities were incorporated into the protected area from previous commitments, including grazing and grazing exclosures, university research, recreational gold panning on the Tranquille River, designated travel routes for recreational vehicles, and provision for future road and utility access to private property lots within the protected area.

Key strategies will be to:

- improve inventory of ecological and cultural values and impacts;
- direct attention to vegetation management, ecosystem restoration and wildlife.
- continue cooperation and collaboration with numerous other agencies, groups, First Nations and stakeholders.
- formalize access and provide for low impact recreation.
- use appropriate marketing of the protected area for nature-based tourism compatible with protected area values.
- visitor services that provide information and orientation to visitors, interpretation and education about protected area values, and important management messages.

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1.0 Introduction

1.1 Management Plan Purpose

The purpose of this management plan is to guide the management of Lac du Bois Grasslands Protected Area. This management plan:

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

1.2 Planning Area

Lac du Bois Grasslands Protected Area is in south central British Columbia, at the confluence of the North and South Thompson River valleys, on the doorstep of the City of Kamloops (Figure 1). It encompasses 15,712 hectares of valley slopes, rolling grasslands and dry forest, with an area of deeply incised terrain along the Tranquille River on the west.

Access is by roads that run adjacent to or through the protected area. The Lac du Bois Road is the main access into the protected area interior, while the Tranquille-Criss Creek and Dairy Creek Roads provide access to the west and northeast respectively (Figure 2).

Lac du Bois Grasslands Protected Area primarily protects a grassland ecosystem that is contiguous with larger grassland areas to the east and south. The local grassland areas within and adjacent to the protected area have always been somewhat separated from these larger grassland areas by the North Thompson and Thompson rivers and Kamloops Lake, likely affecting movement of species between the two areas. However, residential and highway development associated with the City of Kamloops, and the more intensive use of the larger grassland areas to the south for ranching, has increasingly isolated the ecosystems of the protected area.

Two ecological reserves are adjacent to the Lac du Bois Protected Area (Figure 2). The McQueen Creek Ecological Reserve covers 35 hectares of middle grassland in the northeast corner of the protected area and protects a rough fescue ecosystem. The Tranquille Ecological Reserve protects 235 hectares of ungrazed grasslands, ponderosa pine and Douglas-fir forests on the north side of the Dewdrop Flats. Ecological reserves are established for their scientific research and educational significance. The ecological reserves have separate management plans.

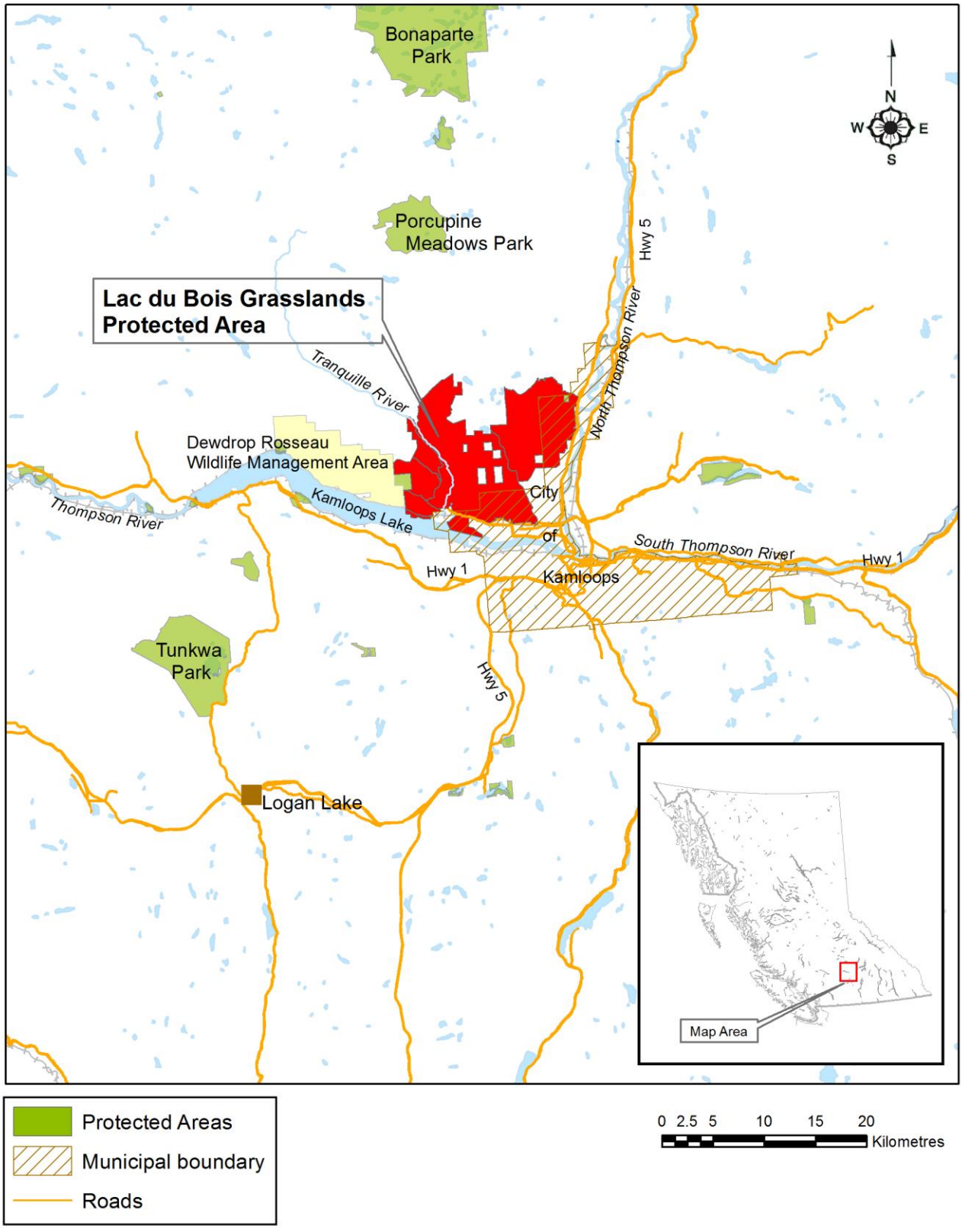


Figure 1: Context Map for Lac du Bois Grasslands Protected Area

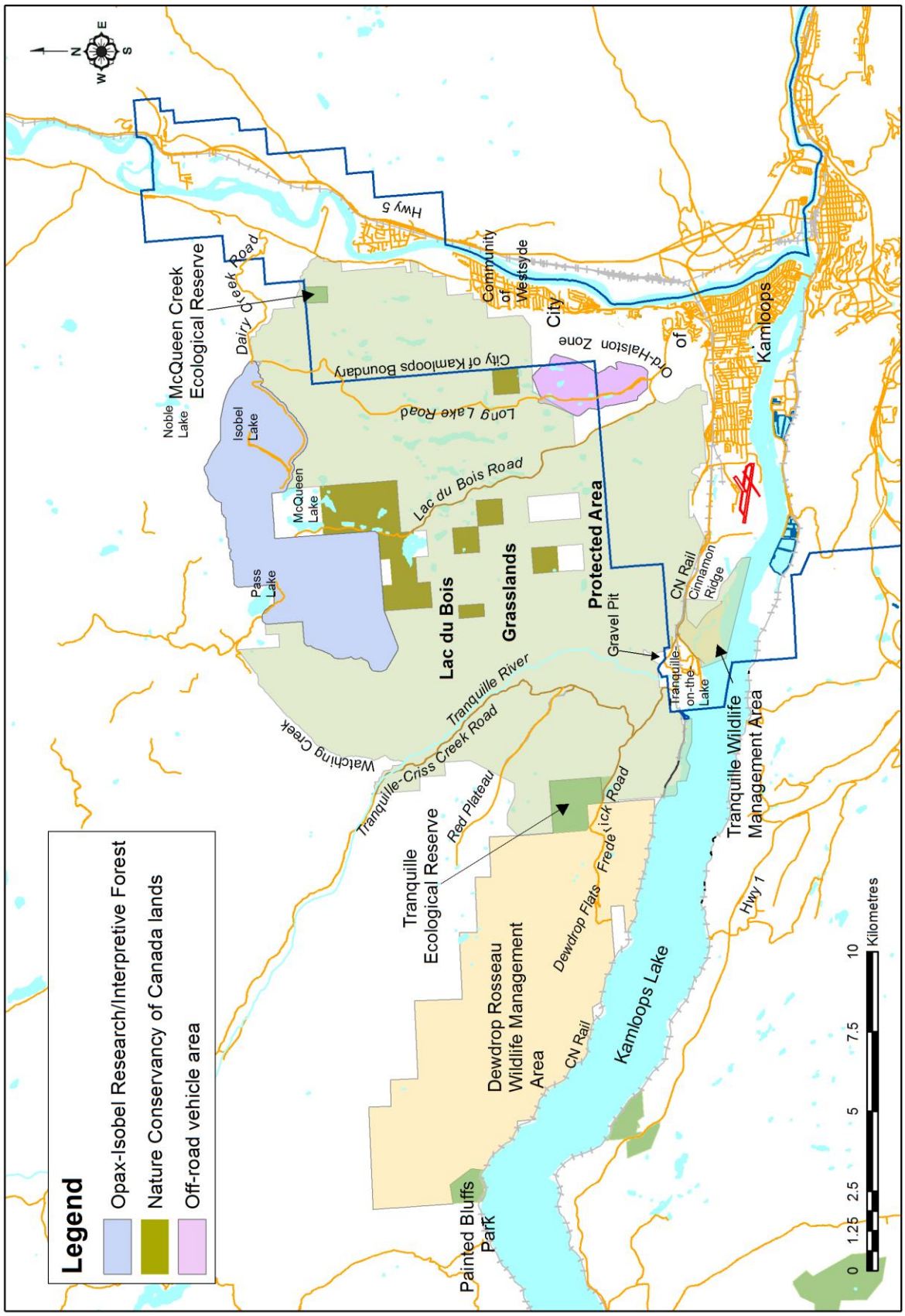


Figure 2: Map of Lac du Bois Grasslands Protected Area

1.3 Legislative Framework

The establishment of Lac du Bois Grasslands Protected Area was recommended through the Kamloops Land and Resource Management Plan in 1996. It was established as a protected area in April 1996 by Order in Council 585 under the *Environment and Land Use Act*. Order in Council 811 in 2008 enabled the construction and operation of a water storage facility for the City of Kamloops. Additions to the protected area (Battle Bluffs and Batchelor Lake areas in the southwest and southeast respectively) required re-establishment by Order in Council 208 in April 2013. Order in Council 117 in 2017 enabled the research, construction, use, operation and maintenance of an oil pipeline by Trans Mountain Pipelines.

The Tranquille Wildlife Management Area (278 hectares), established under the *Wildlife Act* in 1987, is included within Lac du Bois Grasslands Protected Area in the south (Figure 2).

In protected areas established under the *Environment and Land Use Act*, usually at least one activity that is not normally allowed in a park is permitted (e.g., a proposed industrial road, pipeline, transmission line, or communication site). Allowable activities are determined when the area is established, and authorization for the activity is provided in the establishing order in council.

1.4 Adjacent Land Use

The Kamloops region has a tradition of ranching, and the Lac du Bois area has a long history of use for livestock grazing. Lands surrounding the protected area are managed for a variety of uses including: range use, wildlife management, interpretive forest, research, all-terrain-vehicle (ATV) use, community watershed, timber production, and community and residential use.

Areas surrounding Lac du Bois Grasslands Protected Area play an important role in management of protected area values (Figure 2). Adjacent designated areas include:

- **Isobel Lake Interpretive Forest** – 2,700 hectares to the north of the protected area is managed for demonstrating and interpreting forest management, and includes:
  - Recreation facilities: 3 km interpretive trail, 10 kilometre trail for non-motorized recreation, 19 unit campsite on Isobel Lake, 13 unit campsite on Pass Lake.
  - McQueen Lake Environmental Education Centre: cabins, lodge, and nature trails operated under lease by the Kamloops School District.
  - Opax Mountain Silvicultural Systems Research Project site coordinated by Kamloops Forest Region Research Section is gathering information about the structure and function of Douglas-fir forests. The studies provide information on biological diversity of dry Douglas-fir forests, tree regeneration, site productivity and tree growth, forest insects and diseases, microclimate and snow accumulation. The information is relevant to management of the forested areas of the protected area. It includes a one-kilometre interpretive trail.

- **Noble Lake** area – north of Isobel Lake Interpretive Forest and Dairy Creek. A motorcycle and ATV trail network is planned to provide users with trails away from the grasslands in the protected area.
- **Watching Creek:** The Kamloops LRMP directed that the north side of Watching Creek be managed as a visually sensitive area where the objective is to ensure an acceptable viewscape to an elevation of 900 metres.
- **Dewdrop-Rosseau Wildlife Management Area (WMA)** – comprising 5,616 hectares to the west of the protected area is managed for habitat, wildlife viewing, range use, nature study, public education and non-motorized recreation opportunities.
- **Ord-Halston Zone:** Southeast of the protected area and within the city limits of Kamloops. The area is heavily used for recreation, including hiking, wildlife viewing and, during suitable winters, sledding. A designated ATV and motorcycle area within this zone has many kilometres of trails and a dirt track for organized races.

The Red Plateau area west of the protected area and north of the Dewdrop-Rosseau WMA is Provincial Forest and is a timber operating area and range area.

Private property adjoins the eastern-most boundary (Community of Westsyde in Kamloops), and at two other important locations:

- North of the protected area – large property around Lac du Bois owned by the Nature Conservancy of Canada (Figure 2) and managed to ensure its long-term conservation.
- South of the protected area – the private Tranquille on the Lake property includes the lower reaches of the Tranquille River and surrounding cultivated fields. The area includes critical riparian habitats as well as access to the lower Tranquille River and Kamloops Lake. Current plans are to develop the property as a tourist, farming and residential resort.

Other adjacent uses include:

- Ministry of Transportation and Infrastructure – gravel pit near south boundary.
- A rock quarry on the southeast boundary.
- CNR tracks along the southern boundary of the protected area.
- City of Kamloops: Cinnamon Ridge composting facility is adjacent to the Tranquille Special Features Zone.

There are three private land inholdings, one owned by an individual and two by a local rancher, and a further five owned by the Nature Conservancy of Canada (Figure 2).

1.5 Management Commitments/Agreements

Various land management plans (a Coordinated Resource Management Plan in 1976, a Crown Land Plan in 1982, a Local Resource Use Planning Process in 1992, the Lac du

Bois-Dewdrop Local Resource Use Plan and the Kamloops Land and Resource Management Plan (LRMP) in 1996):

- provided a planned grazing system;
- designated an ATV closure area west of Lac du Bois Road;
- designated an ATV play area outside of the Protected area;
- highlighted conflicts between the many users of the area; and,
- gave direction that was expected to continue after Lac du Bois Grasslands Protected Area was established.

These plans also gave direction to continue the co-operative relationships with other government agencies, stakeholders, non-government organizations, and the community, and to use communications and education with protected area users as an important management tool. The Kamloops LRMP also provided specific direction and provided management linkages to other agencies and groups, described in Appendix 2.

1.6 Existing Permits and Authorizations

There are several activities and structures authorized under park use permit:

- Thompson Rivers University conducts various short- and longer-term research studies and educational activities associated with university courses. This includes research on climate change, impacts of grazing, grassland hydrology and range management.
- Telus has a fibre optic transmission line and associated infrastructure in the east and southeast section of the protected area.
- Trans Mountain Pipeline has a pipeline that crosses the southeast corner and eastern section of the protected area.
- Five other research permits are held by the Ministry of Forests, Shuswap Nation Tribal Council Society and individuals.
- Two filming permits.
- Two provincially licenced traplines overlap the protected area boundaries.
- One grazing permit in the Tranquille area.
- Seven permits for existing structures (roads to infrastructure, airport navigation beacons, communication sites and transmission lines, water lines and watering structures and municipal water storage tanks).
- Three commercial recreation permits for mountain biking, education and trail runs.

1.7 Management Planning Process

A background document for Lac du Bois Grasslands Protected Area was first prepared in 2000, providing information for the management planning process. Specific to the Tranquille area, an additional background report was prepared in 2007 and an assessment of alternative management options provided in 2010.

BC Parks consulted with First Nations, other government agencies, public interest groups and the general public in the development and review of this management plan. Public participation has been an important aspect of previous planning efforts for the area.

The Kamloops LRMP and the Lac du Bois – Dewdrop LRUP processes involved a wide variety of interest groups and government agencies. Due to a number of outstanding issues related to grazing and potential additions and boundary adjustments, the 2004 draft management plan has been used for management guidance since that time.

Consultation with First Nations and the City of Kamloops, beginning in 2010, resulted in identifying potential additions to the protected area. These were added to the protected area in 2013. In 2013, public consultation took place specific to these additions. At the same time, the 2004 draft plan was opened to public consultation. The resulting 2017 draft management plan was then subject to public review by First Nations, government agencies, stakeholders and interest groups and a 30-day public review on the BC Parks website. Further collaboration with First Nations occurred to 2019 due to high interest in the protected area. A private land donation and a lapsed mineral claim were added in 2023. A final opportunity to review the draft management plan by all interested parties was provided in 2023.

1.8 Relationship with First Nations

Lac du Bois Grasslands Protected Area is within the asserted territory of the following First Nations:

- Stk'emlupsemc te Secwepemc Nation (Tk'emlups te Secwepemc and Skeetchestn Indian Band)
- Neskonlith Indian Band
- Nooaitch Indian Band
- Coldwater Indian Band
- Cook's Ferry Indian Band
- Siska Indian Band
- Oregon Jack Creek Indian Band
- Lower Nicola Indian Band
- Lytton First Nation
- Nlaka'pamux Nation Tribal Council
- Nicola Tribal Association

The Tk'emlups te Secwepemc is the closest to the protected area, is considered the First Nations caretaker, and considered a partner in collaborative management of the protected area by BC Parks .

First Nations have a strong sense of guardianship and connection to the land within their traditional territories and may develop their own ideas on management actions within the

protected area. BC Parks seeks an ongoing relationship with First Nations to find common interests and direction for the future management of Lac du Bois Grasslands Protected Area.

1.9 Relationship with Communities

Residents and ranchers in the local communities not only have a recreational interest in the protected area, but there is also an important economic role in terms of tourism and ranching.

The City of Kamloops is immediately adjacent (Figure 1) to the protected, and there is a close working relationship with BC Parks. Activities in the protected area also provide economic spin-offs for the area.

2.0 Values and Roles of the Protected Area

2.1 Significance in the Protected Areas System

Lac du Bois Grasslands Protected Area is the second largest area of protected grasslands in British Columbia and is one of the few protected areas that fulfils a main role of conserving grasslands. It contains three grassland communities and dry Ponderosa pine and Douglas-fir forests in a small area. Seven different variants of three biogeoclimatic zones are protected. The protected area is of considerable size, and is complemented by compatible adjacent land use activities, that contribute in supporting its ecological integrity. These grasslands provide habitat for a significant number of species at risk.

No other parks or protected areas of this size in the southern interior of the province can boast the variety of habitats and species. The biophysical diversity also provides a variety of settings for outdoor recreation, including wildlife viewing and nature study, hiking, orienteering and mountain biking. The openness of the landscape adds a feeling of wilderness within sight of an urban area.

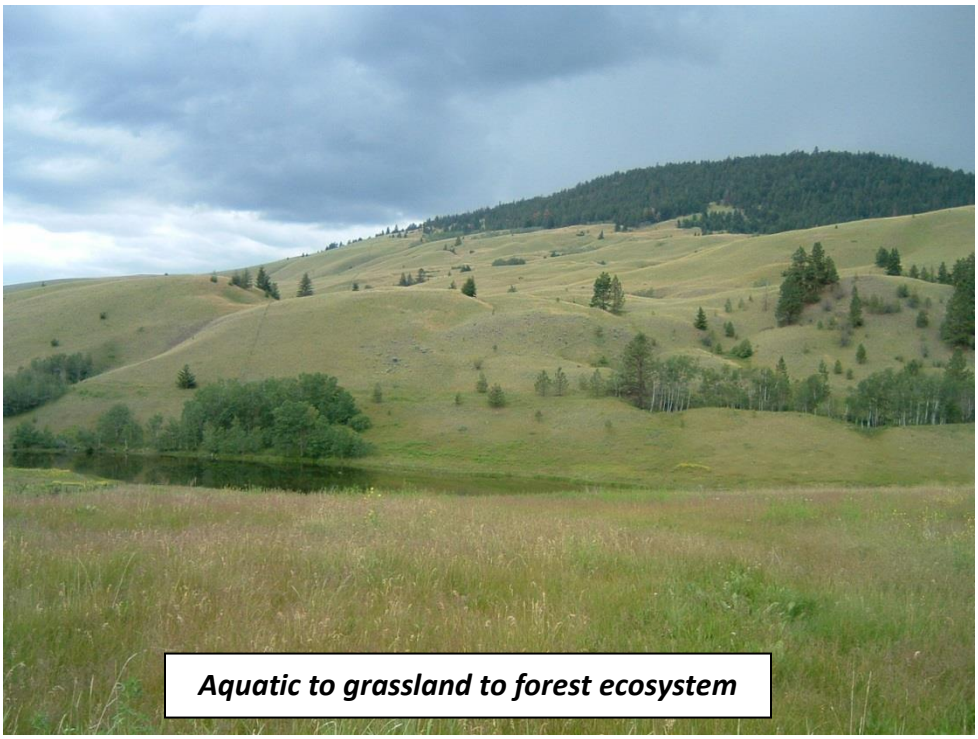
2.2 Biodiversity and Natural Heritage Values

Ecological integrity occurs when an area or network of areas supports natural ecosystem composition, structure and function, and a capacity for self-renewal. Although largely isolated from the greater grassland ecosystems to the east and south, Lac du Bois Grasslands Protected Area is a large and diverse enough area to be able to contribute to sustaining the ecological integrity of the grassland and open forest ecosystems that it represents. Combined with the adjacent Dewdrop Rosseau Wildlife Management Area to the west and the Nature Conservancy of Canada lands within and to the north, almost all the local open grassland area has some degree of protection.

Several factors contribute to the overall ecological importance of Lac du Bois Grasslands Protected Area. Among them are:

- Large size of the protected area and compatibility with land uses and management in much of the adjacent areas.
- Loss of grassland habitats elsewhere in the southern interior.
- Location at the transition between low elevation grasslands and coniferous forests.
- Diversity of habitat types.
- A dry climate with short winters and hot summers.
- Many populations at the northern limits of their range are thought to possess the genetic traits required to adapt to extremes and environmental changes.
- Home to several listed species at risk.
- Critical habitat for migrating bird species, especially waterfowl.

The protected area rises in a step-like fashion from the valley sides along the North Thompson and Thompson Rivers, and over a short distance supports a complete elevational sequence of lower, middle and upper grasslands that includes six major plant communities within a relatively compact area.



Aquatic to grassland to forest ecosystem

Lac du Bois Grasslands Protected Area contains nearly 25% of the total bunchgrass that is protected in the province. It also accounts for a significant percentage (41 to 93%) of the two bunchgrass and two dry, hot forest ecosystems that are found within the provincial protected areas system. Old-growth trees are found in the ponderosa pine and Douglas-fir forests of the protected area. The black cottonwood riparian ecosystem is another important habitat.

Fire, insects, diseases, and changes in climate are natural ecosystem disturbances. Forest insects have also had an impact on forest structure at times.

Wildlife fi8nd habitats within a diversity of grasslands, dry ponderosa pine and Douglas-fir forests, lakes, ponds, wetlands, riparian areas, river delta areas, rocky slopes, rugged canyons, rolling topography and cliffs.

The protected area contains important habitats used by regionally significant populations of California Bighorn Sheep, Mule Deer, and some White-tailed Deer. Black Bear, Coyotes, foxes and many species of grassland and forest dependent small mammals can also be found. The variety of bird species is particularly large and diverse, including resident, migratory and nesting species. Reptiles and amphibians representative of all species found in the southern interior also occur.

Lac du Bois Grasslands Protected Area is very important for migratory birds. The combination of the Thompson River delta in the Tranquille pond area, the many small lakes and ponds on the grasslands, and the surrounding grasslands create an internationally significant area for migrating and nesting birds.

California Bighorn Sheep

Lac du Bois Grasslands Protected Area supports 17 recorded species at risk, including 7 plants, 6 birds, one mammal, one amphibian and two snakes (Appendix 4). Seven species are listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The Burrowing Owl is listed by COSEWIC as Endangered and Red listed by the Conservation Data Centre (CDC). The Great Basin Spadefoot is in the Threatened category and Long-billed Curlew, Pacific Great Blue Heron, Flammulated Owl, Lewis' Woodpecker, and Monarch Butterfly are in the Species of Special Concern category.

Studies have identified numbers and habitat needs of rare and endangered plants, Sharp-tailed Grouse, Burrowing Owl, bats, snakes, and Long-billed Curlews. Sharp-tailed Grouse studies have identified critical areas for the protection of this provinciallysignificant population.

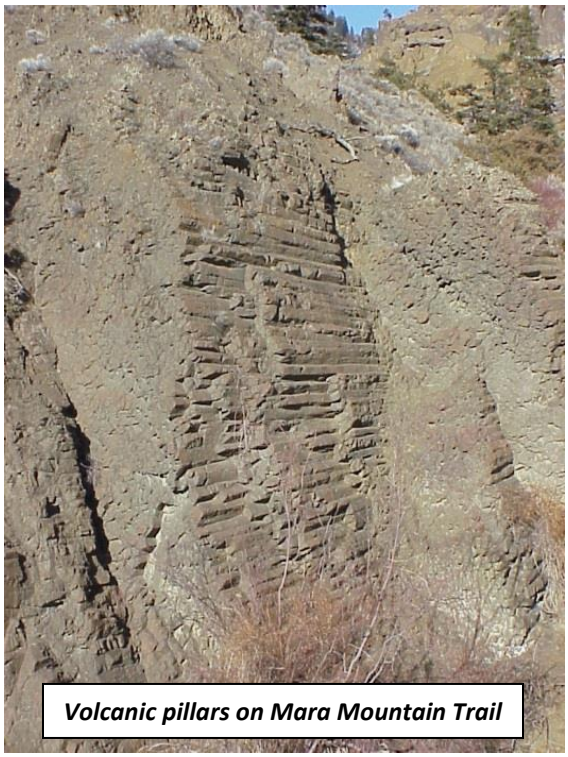
Numerous small lakes, ponds, potholes and wetlands occur throughout the protected area, particularly in the eastern grasslands. Many are permanent, some dry out annually and others can be dry for many years. The largest lakes are the Long Lake chain of lakes, important for waterfowl, and Deep Lake, the only lake that supports recreational fishing. The delta at the mouth of the Thompson River at the Tranquille Pond area floods every spring and early summer, and a small pond often remains open through the winter and early spring to provide important habitat for over-wintering and migrating waterfowl.

Small wetland

Glacial landforms dominate the middle grasslands around Long Lake

The generally south-facing aspect of most of the protected area forms the backdrop to the City of Kamloops and gives visitors many opportunities to enjoy wide-open views.

Glacial features of drumlins, eskers and kettle lakes are responsible for the diverse terrain of the grasslands. Outcrops of resistant basalts create spectacular cliffs and talus slopes in the Dewdrop area, and on Mara and Opax Hills. The lower slopes of Mara Hill display many unique ancient formations including contorted metamorphosed sediments, basalt "log piles," hoodoos, and canyons.



Volcanic pillars on Mara Mountain Trail

2.3 Cultural Values

First Nations used the grasslands and forests for hunting and gathering of natural materials for food, clothing, medicine and tools long before arrival of fur traders in the

early 1800's. Much of the protected area has high potential for archaeological sites. "Battle Bluff" is a translation from a Secwepemc name for the place where a significant battle was celebrated. Traditional First Nation uses of the protected area continue.

Lac du Bois Grasslands Protected Area played a significant part in the early history and development of the province, especially the Kamloops area. Fur traders were the first Europeans to arrive, making use of the rolling grasslands to pasture horses. French-speaking fur traders are responsible for the French names (such as Lac du Bois) of several local features. The discovery of gold on the Tranquille River in 1857 saw prospecting and placer mining for gold in the Tranquille River Valley.

The gold rush resulted in an influx of settlers and rapid development of the livestock industry that brought ranchers and homesteaders. By 1921 though, all homesteads in the protected area had been abandoned. While there is a wealth of information available on the cultural history of the Lac du Bois area, it has not been systematically collated or related to features/areas on the ground.

2.4 Recreation Values

Lac du Bois Grasslands Protected Area is easily accessible, located adjacent to the city of Kamloops with a population of approximately 98,000. Together with its near-urban setting, it is unique from other grassland protected areas in offering:

- a variety of recreation settings, including numerous small water bodies and riparian habitats; dry forests with old growth; canyons, cliffs and hoodoos;
- a traverse of extensive rolling lower, middle and upper grasslands within a short distance of each other, considered one of the province's distinctive landscapes;
- shoreline along a large valley bottom lake, and a delta area;
- a rich cultural history.

This has made Lac du Bois Grasslands a popular area for hiking, mountain biking, horseback riding and ski touring, orienteering, wildlife viewing, photography and motorized recreation on specified open roads.

Tourism and commercial use are limited by the sensitivity of dry grasslands, wildlife species and populations sensitive to disturbance, and the restricted social carrying capacity of the wide-open landscape. Although the protected area has not been used much for commercial recreation in the past, interest has been expressed for activities including guided nature tours and horseback riding.

2.5 Research and Education

Lac du Bois Grasslands Protected Area plays an important role for research, education and interpretation on grassland ecosystems, historic use of grasslands and grassland stewardship, and provides a major connection to nature for residents and visitors to Kamloops. This includes research into grazing and grasslands, climate change, hydrology, wetlands and individual wildlife species by government agencies and

universities. The diversity of geology, landforms, ecosystems and wildlife provides many opportunities for public education and interpretation.

2.6 Other Protected Area Attributes

Local ranchers continue to use the grasslands for livestock grazing, and planned pasture use has been adapted over time as grassland communities have been better understood. Fourteen water licenses on springs, lakes and waterways within the protected area have historically been used to provide water for livestock and for the Tranquille on the Lake property. The Tranquille River is part of a community watershed. Ducks Unlimited has a water licence to maintain wetlands in the Long Lake chain.

2.7 Climate Change

In British Columbia, climate change effects vary by region. Lac du Bois Grasslands Protected Area falls within the Thompson-Nicola Regional district. Predictive[2] modelling indicates that, from 2040 to 2069, mean annual temperature, annual precipitation, frost-free days and growing degree days will likely increase substantially; whereas snowfall and summer precipitation will likely substantially decrease. These climatic changes will likely result in changes to ecosystem composition and function across the landscape.

Water is the major limiting factor in grassland ecosystems. Any changes in precipitation patterns would likely have the greatest impact. Changes may result in a lower water table, impacting existing streams, wetlands, ponds and small lakes within the already dry ecosystems within Lac du Bois Grasslands Protected Area. This in turn could affect vegetation and wildlife.

Lac du Bois Grasslands Protected Area has characteristics that would enable resistance to climate change effects. The size, connectivity to similar adjacent ecosystems and elevational gradient may allow species to migrate and adapt to a certain level of change. The proximity of the various ecosystems would facilitate dispersal to species' desired range of conditions. However, the future of species associated with the higher elevation forested ecosystems within the protected area may be less certain. Depending upon the degree of climate change, the grassland associated species are more likely to persist and possibly expand.

[2] Pacific Climate Impacts Consortium, Plan2Adapt. Web based analysis tool accessing in 2015. URL at http://www.pacificclimate.org/analysis-tools/plan2adapt

3.0 Management Direction

3.1 Management Objectives and Strategies

The following sections begin with a listing of known issues, interests and opportunities obtained during public consultations, and knowledge and information provided by other agencies and BC Parks staff. This is information only and does not provide management direction. A more detailed summary of public input and issues is provided in the accompanying document Summary of Issues and Interests for Lac du Bois Grasslands Protected Area, 2018 (Appendix 5).

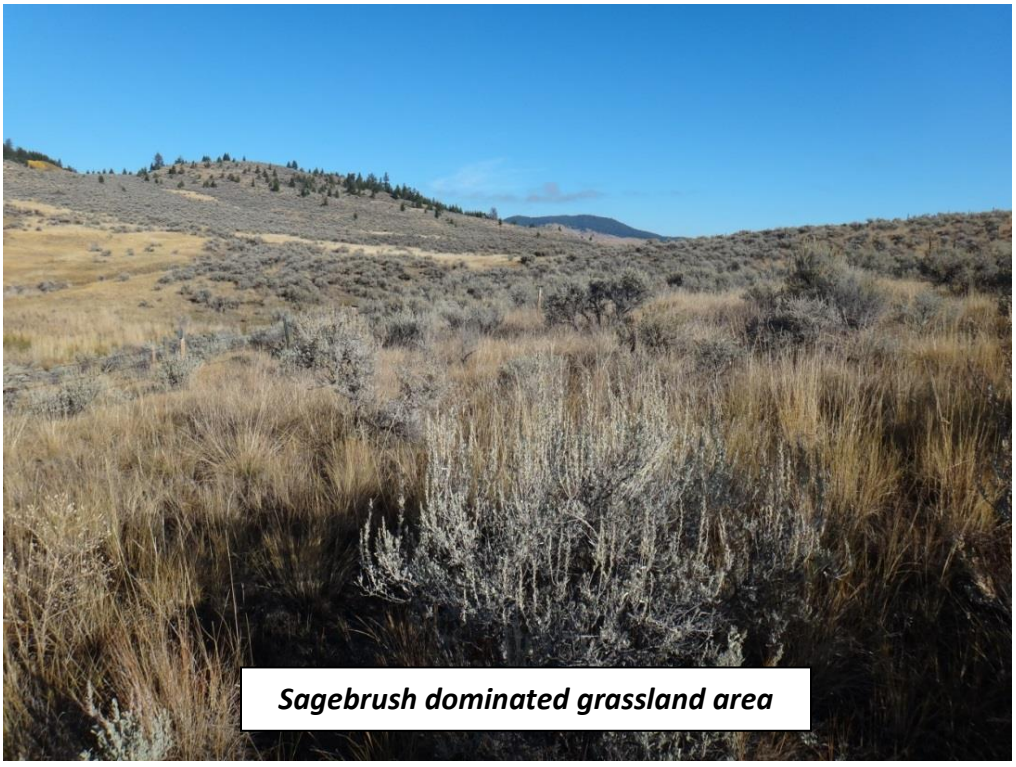
Expectations from the Kamloops LRMP were strongly considered or implemented directly during development of this management plan. This included direction to honour pre-existing rights and tenures.

3.1.1 Ecosystems and Natural Heritage

Public input and identified needs focussed on the following ecosystem aspects:

- protection of ecological integrity as a high priority;
- impacts of research;
- impacts to sensitive habitats (riparian, grassland features) by grazing and off-road vehicles;
- consider expansion of cottonwood riparian ecosystem;
- forest ingrowth into grassland;
- need for inventory and habitat mapping;
- address potential for fire and insect or disease outbreaks;
- address impact of climate change;
- impacts of fire suppression on vegetation;
- address weed infestations and non-native species; and,
- impacts on species at risk.

Hayfield and cattle wintering at the Tranquille area



Sagebrush dominated grassland area

Forest ingrowth into grassland area

Management Direction for Ecosystems and Natural Heritage

Management Objectives:

- Sustain ecological integrity by maintaining essential ecosystem composition, structure and function.
- Provide for continuity of ecosystems to allow for altitudinal migration of ecosystem components and connectivity of habitats.

Management Strategies:

- Ecological integrity and healthy wildlife populations will be a priority over other uses and activities.
- Employ an ecosystem-based management approach that considers entire ecosystems and human interactions at a broad scale and long-term time frame.
- Consider and build upon the 2001 Ecosystem-based Operational Plan for Lac du Bois Grasslands Protected Area that provided initial criteria for defining ecologically sensitive areas and valued ecosystem components requiring different levels of consideration in the management of activities within the protected area.
- Complete terrestrial ecosystem mapping to current standards and update ecosystem inventory and information on individual species to provide an information base for ecosystem-based planning.
- Work with ministries of Forests and Water, Land and Resource Stewardship to assess the present condition of the forests of the protected area, including the extent of forest encroachment and ingrowth into grasslands.
- Allow natural processes, such as fire, insects and disease cycles, to occur in a manner that maintains the integrity of natural conditions while considering implications to adjacent areas. Consider management actions to maintain ecosystems, wildlife habitat and vegetation, or to increase resiliency in the face of climate influences, including planned use of prescribed fire, fuel management, tree

Management Direction for Ecosystems and Natural Heritage
removal, or seeding or planting native species. Such artificial treatments should be minimized and used only where natural processes would pose too great a safety threat or result in conditions that are outside of the natural ecosystem variability. • Implement the Lac du Bois Grasslands Protected Area Fire Management Plan (2022). • Maintain vegetation communities dominated by native plant species with connectivity between habitat elements. • Retain special ecosystem elements that are critical to wildlife species such as trees and snags (except where there is a hazard to people or facilities that cannot be mitigated), shrubby areas, and riparian areas. • Encourage, support and, where appropriate, undertake research and long-term monitoring to ensure appropriate and up-to-date ecological information is used in decision-making. • Support the development of partnerships among agencies, colleges and universities to do non-destructive research across a variety of disciplines. • Work with the various agencies conducting research in the protected area to develop a priority list for research and monitoring, and to ensure impacts on ecosystem components and research activities are considered. • Encourage volunteers to participate in scientifically-designed monitoring activities that would provide a larger database of basic information that could be used to track changes and manage values in the protected area. • Encourage management of adjacent lands for retention of ecosystem and habitat values.
Management Objective: Protect and maintain water resources and their contribution to ecological processes and habitats within the protected area. **Management Strategies:** • Maintain Tranquille pond as a feeding and refuge area for waterfowl and shorebirds. • Consider creation of artificial wetlands or restoration of impacted wetlands where conditions (silting, drying) are resulting in declining habitats, especially for species at risk, e.g., reversing long-term effects of silting by deepening the existing pond or excavating new ponds at Tranquille, and creating new ponds for Great Basin Spadefoots in areas where traditional ponds have remained dry for extended periods of time that threaten their survival. This strategy is not restricted to these areas or species but is aimed at continuation of ecosystem components that may be threatened by unusual or historical changes. •
Management Objective: Protect and manage for the retention and restoration of rare, endangered and sensitive plants and plant communities. **Management Strategies:** • Identify and protect sensitive vegetation from adverse impacts of grazing and recreational uses. • Maintain and enhance riparian areas in the Tranquille Pond area by ensuring a diverse natural plant community and planting as necessary. • Enhance the expansion of a cottonwood ecosystem in the Tranquille Special Natural Feature Zone (SNFZ) through natural recruitment or planting. Conversion of the hay field to a cottonwood/willow/riparian/wetland community is a long-term goal.
Management Objective: Manage grazing use to protect and restore the protected area's biodiversity while recognizing existing rights. This will require a close relationship with Ministry of Forests. **Management Strategies:** • Manage disturbance to achieve a variety of grassland communities that optimizes natural biological diversity. The trend will be the replacement of agronomic species with native bunchgrasses and forbs.

Management Direction for Ecosystems and Natural Heritage
• Manage grazing to avoid impacts on riparian areas, water quality, shrubby areas and aspen copses, and restore them where possible. Some areas may require fencing to exclude cattle and the provision of. alternate sources of clean water for cattle. Protect sensitive ecosystems (including wildlife such as the SARA-listed Great Basin Spadefoot). • Manage cattle grazing regime such that cattle are not in pastures prior to range readiness nor at critical times of plant development for rare and endangered plants. • Cattle must be removed as per timelines specified in range use agreements or earlier should stubble height be reduced below best management practices required to recover grassland ecosystem integrity. • Ranchers with grazing licences in the protected area will be required to manage for wildlife values, wetlands, and riparian areas. Management strategies should be directed towards a mosaic of use levels (including ungrazed areas), maintenance of browse species on ungulate winter range, reduction of forest encroachment, maintenance of riparian areas, invasive plant control strategies, management towards desired plant communities, water quality objectives, and others. • Manage benchmark sites of ungrazed or minimally grazed areas as established by the Kamloops LRMP as detailed in Table 1. There may be occasions, for conservation reasons, when grassland conditions are such that cattle will be allowed to use these areas more intensively for a short period of time. Established photo monitoring points should be used to study the change in grassland plant composition.
Management Objective: • Control noxious weeds and prevent the spread of non-native species. • Discourage the introduction of non-native species. **Management Strategies:** • Work with the Ministry of Forests, grazing licensees and other partners for inventory, monitoring and control of weeds and non-native agronomic species. • Update the Weed Management Plan on an on-going basis to broaden the scope of control methods. • Priorities for weed management should be: 1. Prevention 2. Detection and early eradication of new, isolated patches. 3. Containment of existing sites. 4. Aggressive bio-control for large infested areas beyond the scope of conventional treatment. • Encourage weed awareness by land managers and the general public. • Undertake limited containment activities where these will provide the most impact and the least environmental consequences. • Use biological control methods where effective insects are available. Chemical control will be considered as an interim measure until effective bio-control agents are available or as a first response in situations where they would effectively stop a new infestation. • Consider methods to control the growth and spread of reed canary grass in the Tranquille SNFZ.
Management Objective: Work in cooperation with agencies managing lands adjacent to the protected area to achieve mutual benefit. **Management Strategies:** • Continue liaison with all agencies. • Work with the City of Kamloops to: o Address common concerns regarding management of the protected area. o Integrate urban growth and operations with management of protected area values.

Management Direction for Ecosystems and Natural Heritage

• Continue liaison with the Nature Conservancy of Canada and ranchers as major owners of private land within and adjacent to the protected area.
• Create awareness among protected area visitors of private land boundaries through use of signs and other communications.
• Continue liaison with Tranquille on the Lake owners to:
  – Develop a co-ordinated conservation plan, including the recovery and protection of habitats, especially along Tranquille River and adjacent to the Tranquille Special Natural Feature Zone.
  – Maintain recreation access to Tranquille River and the Kamloops Lake foreshore.
  – Ensure that plans for recreation activities in the protected area are compatible with protected area values.
  – Seek cooperation with managing the needs of conservation, e.g., maintaining bighorn sheep movement corridors.
• Maintain liaison with adjacent land managers and property owners to:
  – Consider future additions to the protected area if land with natural, cultural, and/or recreational values in adjoining areas becomes available, including any areas of Crown land surplus to the needs of the City of Kamloops (one area, shown in Figure 4, was approved as additions in 2013 but was not added due to the presence of a mineral registration; this will be added should the registration not be renewed).
  – Investigate options with private landowners for cooperative long-term management of private land in-holdings and surrounding lands, including willingness to sell or enter into agreements/covenants.

Management Objective: Protect the landforms and geologic features of the protected area for their contribution to landscape representation, wildlife habitat, biodiversity and aesthetics, and inherent value. **Management Strategies:** • Inventory geologic features and processes as part of general inventory programs. • Geologic sites considered to be fragile or potentially damaged by human activity should be protected through public education, access restriction, limiting information, or special management prescription.

Table 1. Areas identified requiring special grazing management (from KLRMP)

Location	Area (ha)	Prescription	Fenced
Lower Grasslands (BGxh2)			
Cinnamon	290	Ungrazed and Minimally Grazed	Yes
Batchelor Lake	7	Ungrazed and Minimally Grazed	Yes
Battle Bluff	583	Minimally Grazed	No
Tranquille Canyon West	162	Minimally Grazed	No
Total ha within BGxh2:	**1042**		
Middle Grasslands (BG xw1)			
Long Lake Chain	65	Ungrazed	Yes
McQueen Creek ER	~17	Ungrazed	Yes
Hadley Ridge	31	Minimally Grazed	No
Total ha within BGxw1:	**96**		
Ponderosa Pine (PPxh2)			
McQueen Creek ER	~17	Ungrazed	Yes
McQueen Creek ER Extension	260	Minimally Grazed	No

Tranquille ER	235	Ungrazed	Yes
Dewdrop Cliffs	226	Minimally Grazed	No
Opax Hill and Tranquille Canyon	~425	Minimally Grazed	No
Total ha within PPxh2: approximately 1163			
Upper Grasslands -Interior Douglas fir (IDF xh2a)			
Clapperton Ridge	230	Ungrazed	No
Total ha within IDF xh2a: 230			
Interior Douglas fir (IDFxh2)			
Opax Hill and Tranquille Canyon	~750	Minimally Grazed	Yes and No
Total ha within IDFxh2: approximately 750			
Interior Douglas fir (IDFdk1)			
Opax Hill and Tranquille Canyon	~250	Minimally Grazed	No
Total ha within IDFxh2: approximately 250			
Other Exclosures, various BEC	< 40	Ungrazed	Some
TOTAL HECTARES WITHIN THE PARK: 3341			

October to April **----** ***Tranquille SNFZ*** **----** *May to August*

3.1.2 Wildlife

Public input and identified needs related to wildlife included:

- protection of wildlife and their required habitats from human impacts;
- the need to consider the effects of adjacent land management on the wildlife within Lac du Bois Grasslands Protected Area.

The blue-listed Western Rattlesnake

Management Direction for Wildlife

Management Objective: Ensure provision of a natural diversity of fish and wildlife species, populations and their habitats within the protected area.

Management Strategies:

- Provide for security for migratory birds in the Tranquille SNFZ.
- Improve knowledge of species and critical habitats that are present in the protected area by encouraging inventory, research and monitoring.
- Manage wildlife as an integral part of maintaining healthy grassland and forested ecosystems.
- Prohibit domestic sheep and goats within the protected area to avoid disease transmission to wild sheep herds. Work with adjacent property owners to ensure adequate awareness and provisions for preventing contact between wild and domestic animals.
- Manage recreation activities to ensure habitat for and viability of populations of wildlife species.
- Maintain awareness of changes in species ranges due to climate change, including movement of new species into the protected area.

Management Objective: Protect and restore species at risk as a priority.
Management Strategies:

- Continue studies and apply knowledge of rare and endangered species and habitats to improve BC Parks' knowledge of specific sites.
- Manage grazing in Sharp-tailed Grouse habitat to provide sufficient cover for leks and nesting areas.
- Maintain, restore and enhance habitat for Lewis' Woodpecker, Burrowing Owl, Flammulated Owl, Painted Turtle, Great Basin Spadefoot Toad, Great Blue Heron and all other species at risk.
- Prevent loss of Sharp-tailed Grouse to hunting through mis-identification.
- Allow groups to erect and maintain artificial habitat structures where past management or land use has temporarily resulted in loss (e.g., Bluebird and Wood Duck nest boxes, Burrowing Owl dens, Western Screech Owl, bats).
- Minimize roads and trails near hibernacula or near other areas where snakes are likely to concentrate.

3.1.3 Cultural Heritage

Although Lac du Bois has a long cultural history, an incomplete inventory of cultural heritage information and artifacts limits the ability to manage for these values.

The Stk'emlupsemc te Secwepemc Nation has traditionally used the territory around the Thompson River and Kamloops Lake. Without a full understanding of the use of this entire area it is difficult to understand the contribution of Lac du Bois Grasslands Protected Area to First Nation's culture and history. Traditional use and values of this area to First Nations are largely unknown.

Management Direction for Cultural Heritage

Management Objective: Protect and present the protected area's cultural values.
Management Strategies:

- Work cooperatively with First Nations to determine the presence of First Nations' cultural features. Improved communication with First Nations would be of benefit regarding implications of protected area use and management for aboriginal rights and interests.
- Encourage other agencies and groups to undertake comprehensive research and archaeological studies to determine the importance of various areas around Kamloops Lake and the Thompson River, including the relative importance of the protected area within this larger area.
- Develop interpretive material in collaboration with First Nations relating to their use of the protected area.
- Collect and collate important cultural resource information.
- Assess the potential for developing material that recognizes the historic and cultural values of lower Tranquille River.

3.1.4 Access

Public input and identified needs related to access included:

- management of sensitive ecosystems subject to ease of access and demand for recreational activities from an adjacent urban centre;
- recreational uses coincide with use of sensitive habitats by wildlife;
- trail based recreation may contribute to spread of weeds and erosion;
- need to improve facilities and access points to facilitate recreation;

- the need to consider safety with respect to traffic and failing trails; and
- the need to provide legal access and potential utilities to private properties within the protected area.

Occasional mud-bogging causes lasting damage

Garbage dumping is an ongoing issue

Management Direction for Access

Management Objective: Formalize visitor access to and through the protected area to protect values.
Management Strategy:
Identify and formalize strategic points of access and/or trailhead parking around the protected area in consultation with managers of adjacent land. Secure, improve, develop and/or formalize the following protected area access points.

- Westsyde (vicinity of McQueen Creek, Deep Lake, others to be determined)
- Pruden Pass/Tranquille
- Frederick Road
- Lac du Bois Road – specific locations to be determined
- Long Lake (McQueen Creek) Road - specific locations to be determined
- Tranquille-Criss Creek Road
- Northeast corner of the park at Dairy Creek Road
- Tranquille Pond parking area and access to viewing platform
- South side of Mara Hill
- Lower Tranquille River – Pine Park right of way
- The Pimple
- Dewdrop trail
- Watching Creek

Management Objective: Manage motorized recreation access to minimize impact on protected area values.
Management Strategies:

- Motorized recreation will be permitted only on designated open roads (see Figure 3). Roads will be closed during times when they are susceptible to environmental damage, e.g., spring closures when roads are soft. Ongoing environmental damage or safety concerns may result in permanent closure if solutions cannot be found.
- Continue to represent BC Parks and participate on the Thompson Rivers District ORV working group to ensure protected area values are upheld.
- Motorized access outside of permitted areas will be controlled by:
  - Marking protected area boundary at strategic locations
  - Using media releases and education campaigns
  - Blocking routes at strategic locations
  - Fencing if required
  - Enforcement
- The Long Lake Road will remain the only motorized recreation access east of Lac du Bois Road. This road may be improved to more effectively prevent off-road use and to provide better access to existing trailheads. This road will serve as the access corridor from the ATV area to the Noble Lake area for recreational motorcycle and ATV use provided environmental impacts are prevented.

Management Objective: Ensure a coordinated access development and management approach with other agencies.
Management Strategies:

- Work with the City of Kamloops to formalize establishment of main protected area portals, to coordinate minor points of access, and to manage unauthorized access.
- Continue liaison with the Ministry of Forests to ensure that forestry activities do not result in unplanned development of access to the protected area, and to manage access for range purposes.
- Continue liaison with the Ministry of Transportation and Infrastructure regarding maintenance and use of the main access roads.
- Work with Tranquille on the Lake property owners to provide for public recreational access to the lower Tranquille River area.
- Government agencies and range tenure holders will be permitted limited motorized vehicle access to conduct research and land/grazing management activities subject to prevention of damage to environmental values.

Management Objective: Ensure owners of private land within the protected area have access to their property.
Management Strategy:

- Upon request of the landowners, mutually identify and secure a right-of-way allowance that is wide enough to include utilities to each parcel of private land within the protected area.

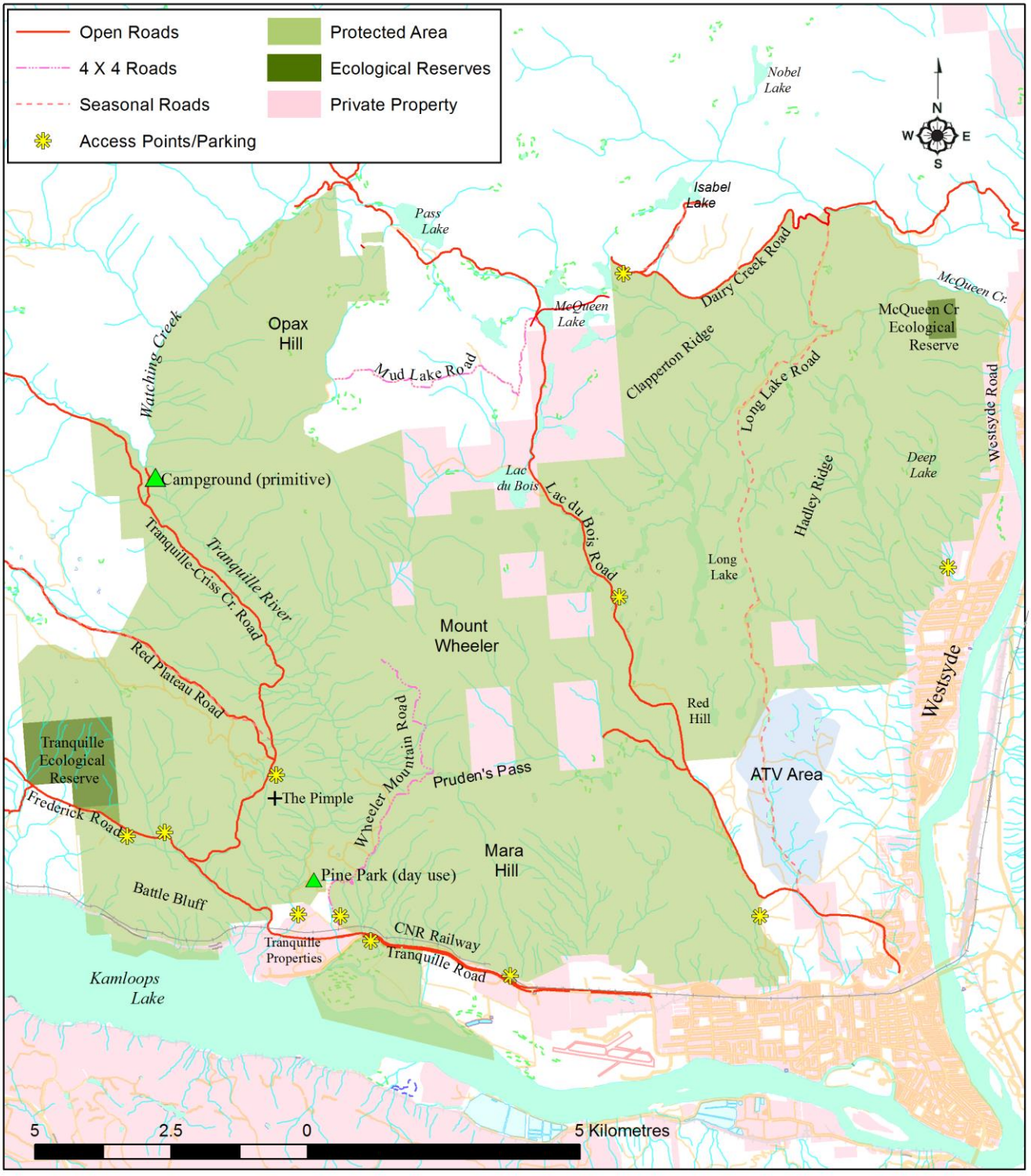


Figure 3: Access Map for Lac du Bois Grasslands Protected Area

3.1.6 Outdoor Recreation Opportunities and Facilities

Public input and identified needs related to recreation and facilities included:

- formalization of recreation use patterns and trail use in consideration of conservation values;
- maintaining a suitable isolated experience with expected increases in visitors;
- maintain or improve visual quality impacted by past activities;
- address issues with recreational gold panning on the Tranquille River;
- trespass onto private property by recreational users; and
- consider opportunities for ecotourism and commercial recreation.

Scars from off-road motorcycles last a long time

Overzealous gold digging that is far over the line

Management Direction for Outdoor Recreation Opportunities and Facilities
Management Objective: Provide opportunities for low impact recreation compatible with the protected area's landscape setting and ecological values. **Management Strategies:** • Provide a basic infrastructure necessary for visitor appreciation of the protected area, to formalize use, to protect the special habitats and features found in the park, and for public safety. • Continue to manage most trails to support multi-use for non-motorized recreation. • Provide alternative access to the Cinnamon Ridge trailhead to stop visitors from crossing the CNR railway tracks. • Maintain and develop new opportunities for public viewing and non-consumptive appreciation of wildlife that have minimal disturbance to wildlife. • Work with the City of Kamloops and mountain bike association to manage mountain bike use in the protected area and adjacent areas. • Permit public camping only at the Watching Creek campsite, and re-evaluate whether this activity should continue based upon access issues, damage, cleanliness and site capacity. •
Management Objective: Ensure that recreation use does not impact the protected area's natural and cultural values. **Management Strategies:** • Monitor recreation use over time to evaluate impacts on the park's natural and cultural values, assess conflicts between recreation user groups and impacts from specific users. If impacts are occurring that could exceed limits of acceptable change, additional management of special areas, such as seasonal closures to avoid critical wildlife periods, total closures, or use of quotas may be necessary. • Continue to allow hunting and fishing within the capacity of species requirements. Continue no hunting or shooting in the Tranquille SNFZ. • • Work with the City of Kamloops to control unauthorized access from Westsyde and the southern boundary of the protected area.

Management Objective: Allow recreational gold panning at a level and scope that is within the intent of Kamloops LRMP direction, but reassess the compatibility of this activity if it compromises ecological and aesthetic values or public safety.

Management Strategies:

- Permit gold panning within the confines of the watered portion of the Tranquille River; undermining of creek banks, sluice boxes, or borrow pits will not be permitted.
- Use on-going monitoring of gold panning to assess impacts, seek input and cooperation from the gold panning community as an initial step with any issues and provide enforcement as necessary.
- Re-evaluate continuation of this activity based on impacts to fish habitat, ongoing issues with garbage, erosion from random access trail development, excessive substrate disturbance in the river, use of illegal equipment, digging in surrounding protected area lands and the number of gold seekers that are exceeding any rational definition of "recreational" gold panning.

Management Objective: Provide continuation of access to the popular Pine Park area.
Management Strategy: Work with Tranquille on the Lake to maintain parking and a trail into Pine Park.

Management Objective: Manage protected area recreation use to minimize impact on private land.
Management Strategy: Discourage use of private land by park recreational users.

Management Objective: Maintain and enhance the protected area's unique aesthetic environment.

Management Strategies:

- Ensure that protected area facilities are developed and maintained with a high level of consideration for achieving harmony with the aesthetic nature of the protected area and surrounding features.
- Liaise with other agencies, including Ministry of Forests, to mitigate potential conflicts with protected area visual values.
- Continue to rehabilitate hill-climbing scars and unnecessary trails that impact protected area aesthetics.
- Liaise with the appropriate agency to ensure that forested slopes adjoining and visible from the protected area are managed to meet appropriate visual quality objectives.

Management Objective: Promote and encourage use of the protected area for tourism compatible with protected area values.

Management Strategies:

- Participate in commercial recreation and tourism opportunity studies for the Kamloops area.
- Support use and appropriate marketing of the protected area for nature-based and cultural tourism products compatible with conservation values.
- Evaluate applications for commercial recreation opportunities based on potential impact to protected area values, impact on other recreation users, applicant capability, long-term sustainability, and cost-benefit to the park.
- Maintain on-going dialogue with Tranquille on the Lake as their plans are developed to allow for potential uses that are compatible with protected area values, and to optimize mutual benefits.

Valued volunteers provide trail opportunities

3.1.7 Management Services

Public input and identified needs related to management services confirmed the effectiveness and desire to continue the previous co-operative strategy in providing for management of the Lac du Bois area, utilizing the expertise of other agencies and volunteers.

Management Direction for Management Services
Management Objective: Support the existing cooperative management originally encouraged by previous planning initiatives. **Management Strategies:** • Ensure that other agencies and stakeholders are aware of protected area management direction and opportunities to assist in plan implementation, monitoring, and enforcement. • Encourage the public to participate in the Report all Poachers and Polluters (RAPP) program. • Encourage groups to take responsibility for education and self-policing of their members and others.
Management Objective: Identify additional opportunities for local groups to assist in stewardship of the protected area. **Management Strategies:** • Maintain contact with First Nations, other government agencies, non-government organizations, education institutions, youth groups, neighbourhood associations, and other organizations to identify joint stewardship opportunities. • Assess fire potential risk and threat to inform potential management opportunities, actions and tools that could be used to make park facilities, ecosystems, wildlife, visitors, and adjacent communities more resistant to potential wildfires.

- Work with local communities to develop recreational guidelines for visitors, especially where there are adjacent values.
- Investigate interest in establishment of a Protected Area Watch Committee.

3.1.8 Visitor Information/Visitor Experience

Public input and identified needs related to visitor information and experience included:

- the importance and need for communication, education and outreach to inform visitors of conditions and protection of values;
- ensure any marketing complements strategic management direction;
- highlighted the natural and cultural opportunities for presentation to visitors; and
- the need to inform potential visitors and local residents of the sensitive nature of protected area values due to its ease of access and proximity to the City of Kamloops.

Management Direction for Visitor Information/Visitor Experience

Management Objective: Promote the protected area for its national significance for protecting and presenting a natural grassland landscape, habitats and species.

Management Strategies:

- Participate in provincial marketing strategies, including the BC Parks website, and tourism publications.
- Participate in regional and local marketing initiatives, including tourism publications.

Management Objective: Provide information on the recreation opportunities and permitted uses in the protected area to enhance visitor use, enjoyment, and safety.

Management Strategies:

- Develop a comprehensive and coordinated orientation/information package that includes promotional material that could be provided on the BC Parks website, publications, and park signs. Specific information for the purposes of protection of values and/or other stakeholder interests and public safety are listed by theme in Table 2, along with corresponding management messages.
- Ensure that promotional material and signs provide adequate information to direct visitors to recreation opportunities suitable to their interests and abilities, and that respect conservation values.
- Use trailheads signs with weed awareness and weed prevention techniques in priority areas.
- Provide information on low impact wildlife viewing developments to facilitate viewing opportunities.
- Alert visitors to any safety concerns.
- Alert users to protected area rules and regulations.

Management Objective: Encourage provision of protected area interpretive opportunities based on the protected area values and management needs.

Management Strategy:

- Cooperate with other government agencies, non-government organizations, commercial recreation operators, other protected area stakeholders and First Nations to provide interpretative messages through personal service, signs and printed materials.

Management Objective: Encourage sharing of protected area information through education and extension.

Management Strategies:

- Arrange for regular media coverage of protected area values, special events, and stewardship opportunities.
- Share results of protected area values, research, and management with other agencies, organizations, individuals and media.
- Encourage involvement by local schools in learning about and appreciating the protected area.

Table 2: Public Messaging for Lac du Bois Grasslands Protected Area

Theme	Concern	Management Message
Protection of protected area ecological values	• Dry grasslands and riparian areas are particularly sensitive to inappropriate uses.	• Protected area uses are managed to protect sensitive conservation values.
	• Motorized recreation uses can significantly impact park ecosystems both directly and through fragmentation and the spread of weeds.	• Motorized uses must be restricted to designated routes and seasons of use.
	• Weed infestation and spread is an important concern for grassland ecology and the range resource.	• Protected area users can help prevent the introduction and spread of weeds.
	• Benchmark sites of ungrazed areas have important values for research and grassland ecosystem management that could be impacted by inappropriate uses.	• Vandalism of fences or unauthorized use of these areas would have significant impacts.
	• The protected area protects many species that are at risk or are otherwise sensitive to disturbance.	• It may be necessary to limit areas and/or seasons of recreational use to protect sensitive species and habitats.
	• Sharp-tailed grouse are being mistakenly identified as other grouse species and being shot by hunters.	• Hunters are responsible for proper identification of species. Mistaken identification could contribute to extirpation of at-risk species.
	• Dogs can disturb wildlife.	• Dogs must be kept under control to protect wildlife and other park users.
	• Tranquille River provides aquatic and riparian habitat and is part of a community watershed. • Some protected area users may disregard rules. • Garbage dumping, tree cutting, partying and vandalism are long-standing problems that impact natural and recreation values and public safety.	• Recreational gold panning and other uses must be managed to protect these values. • Visitors who disregard the *Park Act* or regulations can face heavy penalties. • Protected area visitors can help monitor use and can assist enforcement of rules through “Report all Poachers and Polluters”.
Protection of protected area recreation values	• Different types of recreation use may not be compatible.	• Being respectful of other users and following the rule of trail etiquette will help all visitors enjoy their experience.
Public safety	• Main protected area roads are also used by industrial traffic and school buses.	• Visitors should be aware of other road users, and exercise caution.
	• 4X4 roads are unmaintained and have steep sections and dangerous areas.	• Protected area visitors should be aware of these risks.
	• Steep slopes and cliffs on the Dewdrop cliffs, south side of Mara Hill and Tranquille River canyon may present a public safety concern for hikers.	• Visitors should be aware of these risks, stay on established routes and wear good footwear.

Theme	Concern	Management Message
	• Visitors may be unprepared for conditions within the grasslands.	• It is easy to be complacent with the open grassland nature of the protected area and its proximity to a city, but it is possible to easily get turned around, underestimate distance and lose sense of direction. This could be serious, especially if a supply of water has not been packed on a typical hot summer day. Trips away from roads need to be planned, take plenty of water and have adequate clothing. It is best to stay on trails.
	• Unaware protected area users may be at danger for encounters with wildlife including bears, cougar, rattlesnakes, and ticks.	• Protected area users should be aware of these risks, know how to avoid them, and what to do if the risk is encountered.
	• Recreationists crossing CNR track at Cinnamon Ridge create a safety hazard for themselves and train operators.	• Protected area users should not cross the CNR track.
Other agency and stakeholder interests	• Recreation users trespass on private property within the protected area and in the Lac du Bois area. • Fences and range improvement structures have historically been vandalized by recreation users.	• Protected area users must stay off private property unless they have permission for use by owners. • Destruction of fences impacts protected area values and ranchers and could result in criminal charges.

3.2 Zoning Plan

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

3.2.1 Nature Recreation Zone

Zone Description:

Most of the protected area is zoned as *Nature Recreation*, covering a total of 12,892 hectares or 82 % (Figure 4). This includes the more rolling terrain and the main areas that are grazed.

Objective and Management Intent:

The purpose of this zone is to protect scenic values and to provide for backcountry recreation opportunities in a largely undisturbed natural environment. Despite the protected area's ease of access and location in proximity to an urban centre, conservation values are extremely significant and sensitive to inappropriate types and levels of use.

Recreation will be primarily oriented to non-motorized trail use and nature-based activities. Vehicle access and motorized recreation will be restricted to designated trails and roads. Facilities will be:

- Limited to small areas, such as the camping area at Watching Creek and the day use area at Pine Park;
- Minimally developed to formalize use and protect protected area values; and
- Visually compatible with the natural setting.

The type, level and season of recreation use may be restricted in order to preserve the recreation experience or limit impacts.

3.2.2 Special Natural Feature Zone

Zone Description:

The size of this zone is 2,820 hectares, or 18 % of the protected area. This zone includes the Tranquille riparian area and various fenced, ungrazed benchmark areas and unfenced "limited livestock drift only" areas (Figure 4). They are named as eight distinct areas, but they will be managed in a similar manner.

Objective and Management Intent:

The purpose of this zone is to protect and present significant natural values, features or processes because of their special character, fragility or natural value. Additional areas may be added to this zone as more information becomes available.

In this zone, ecological conservation will take precedence over recreation and grazing use. Benchmark areas will contribute towards research and understanding of grassland ecosystems. Recreation activities are allowed if there are no resultant impacts to natural values.

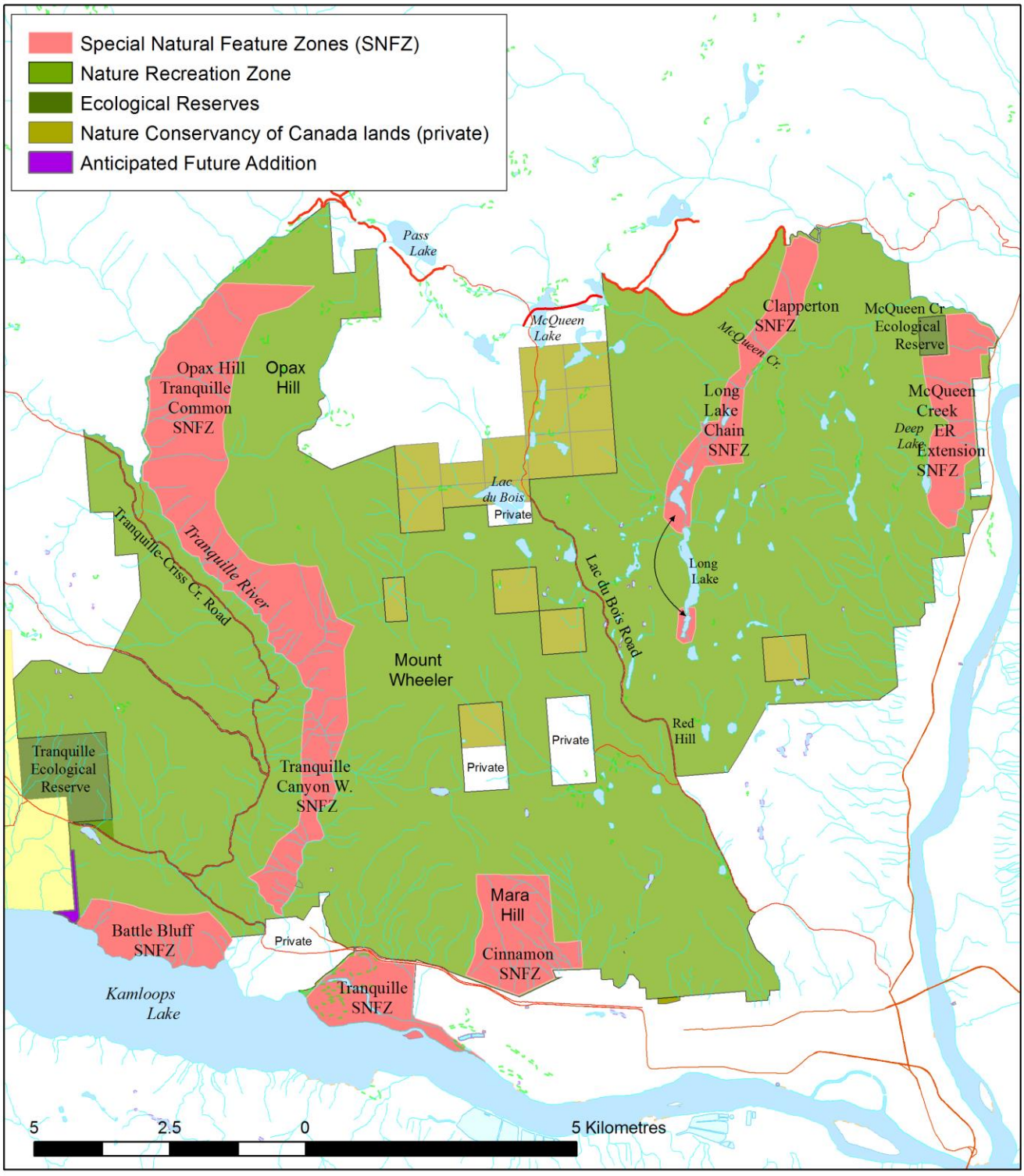


Figure 4: Zoning Map

4.0 Plan Implementation

4.1 Implementation Plan

This management plan provides the proposed direction for planning, management and development of Lac du Bois Grasslands Protected Area. The management plan forms the basis from which BC Parks and other agencies can set priorities to meet management objectives. Implementation of most of the strategies will be of an operational nature, but others such as invasive species control, on-going monitoring, and research will require more detailed planning.

Follow-through on these strategies is dependent on the availability of financial and staffing capacity of the ministry. In addition, implementation of actions is affected by the management needs of other parks in the Thompson Cariboo Region and the entire protected areas system. Many of the initiatives contemplated are not funded as part of core BC Parks activities so jointly seeking funds or outside partners will be a key aspect of the management plan implementation.

BC Parks will ensure that First Nations, public interest groups, individuals and stakeholders are consulted where appropriate in various follow up management planning processes.

In addition to any protected area specific policies highlighted in the management plan, there are numerous other provincial/regional policies and guidelines which will be considered during management plan implementation. This includes items such as: BC Parks' policies on conservation, permitting and impact assessment processes; and broader government commitments to reduce greenhouse gas emissions.

The BC Parks Impact Assessment Policy will be applied in this protected area. All reviewable actions will be subject to an assessment of the potential impacts. An action is defined as any proposed project, activity or management decision that has the potential to cause an impact on the natural, cultural heritage and/or recreational environment**.** Actions include, but are not limited to the following:

- new activities, including projects entirely or partly funded, assisted, conducted, regulated or approved by BC Parks (e.g., approval of a new recreational activity or research project, issuance of a commercial guide permit);
- substantial changes in continuing actions, such as considerable changes in operations, areas of use, or in methodology or equipment (e.g., changes to zoning, use of new equipment for routine maintenance); and,
- specific projects such as construction or management activities (e.g., public/private venture projects, expansion or development of facilities, conservation management projects, special projects and locally funded projects).

4.2 High Priority Strategies

The following strategies have been identified as high priorities for implementation:

1. Ranchers with grazing licences in the protected area will be required to manage for wildlife values, wetlands, and riparian areas. Management strategies should be directed towards a mosaic of use levels (including ungrazed areas), maintenance of browse species on ungulate winter range, reduction of forest encroachment, maintenance of riparian areas, invasive plant control strategies, management towards desired plant communities, water quality objectives, and others.
2. Work with the Ministry of Forests, grazing licensees and other partners for inventory, monitoring and control of weeds and non-native agronomic species.
3. Continue studies and apply knowledge of rare and endangered species and habitats to improve BC Parks knowledge of specific sites.
4. Allow natural processes to occur in a manner that maintains the integrity of natural conditions, while considering implications to adjacent areas. Reintroduction of natural processes or an artificial substitute (e.g., prescribed fire, cutting ingrowth) is an appropriate management action.
5. Develop a comprehensive and coordinated orientation/information package that includes promotional material that could be provided on the BC Parks website, publications, and park signs. Specific information for the purposes of protection of values and/or other stakeholder interests and public safety are listed by theme in Table 2, along with corresponding management messages.
6. Ensure that other agencies and stakeholders are aware of protected area management direction and opportunities to assist in plan implementation, monitoring, and enforcement.
7. Maintain contact with First Nations, other government agencies, non-government organizations, education institutions, youth groups, neighbourhood associations, and other organizations to identify joint stewardship opportunities.

4.3 Plan Assessment

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

If an internal assessment reveals that the management plan requires more significant updating or substantial new management direction is needed, a formal review by BC Parks may be initiated to determine whether the management plan requires an amendment or if a new management plan is required.

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

Appendix 1: Appropriate Use Table

The following table summarizes existing and potential future uses in Lac du Bois Grasslands Protected Area that are and are not appropriate in each zone. This is not intended to be an exhaustive list of all uses that may be considered in this protected area in the future.

Please note that appropriate uses may be geographically restricted (i.e., only allowed in certain areas of Lac du Bois Grasslands Protected Area) or are only appropriate at certain times of the year. Please ensure that you are well informed of any use restrictions as indicated in the table. It is important to review relevant sections of the management plan when interpreting the table.

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

Activity/Facility	Nature Recreation Zone	Special natural feature zone	Comments
Recreational Activities/Uses			
Aircraft Landing/Takeoff	N	N	
Boating (human powered and electrical)	Y	Y	Kamloops Lake and Thompson River only
Boating (combustion engine)	Y	Y	Kamloops Lake and Thompson River only
Camping (designated sites)	Y	N	Watching Creek only
Camping (wilderness style-undesignated sites)	N	N	
Fish Stocking	Y	Y	Existing stocked lakes and rivers only
Fishing	Y	Y	
Hang Gliding and Para Gliding Launching	Y	Y	
Hiking	Y	Y	
Hunting	Y	Y	Outside Tranquille SNFZ
Land-based Mechanized Activity (e.g., mountain biking)	y	Y	Designated trails only
Land-based Motorized Activity (e.g., 4x4, motorcycles, ATV-not including snowmobiles, snowcats or aircraft landings)	y	Y	On designated roads only
Horse and Pack Animal Use	y	Y	Horse only
Skiing (downhill and cross-country track based)	N	N	
Skiing (backcountry)	Y	N	
Snowmobiling	N	N	
Snowcat Use	N	N	
Recreation Facilities/Infrastructure			
Boat Launches	N	N	
Boat Wharves and Docks	N	N	
Cabins, Huts and Shelters (as defined in the Fixed Roof Accommodation Policy)	N	N	
Lodges (as defined in the Fixed Roof Accommodation Policy)	N	N	
Campgrounds (vehicle accessed))	Y	N	Watching Creek only
Picnic Areas (vehicle accessed)	Y	N	
Designated Camping Sites (not vehicle accessed)	N	N	
Parking Lots	Y	Y	At trailheads
Roads	Y	Y	Designated use only
Ski Facilities (vehicle accessed and serviced)	N	N	
Trails	Y	Y	
Visitor Information Buildings	N	N	
Other Activities/Infrastructure			
Commercial Filming	Y	Y	
Communication Sites and Towers	Y1	N	Existing facilities

Activity/Facility	Nature Recreation Zone	Special natural feature zone	Comments
Grazing	Y1	Y1	
Trapping	Y	Y	
Utility Corridors	Y1	Y1	Existing, and future private land inholdings
Water Control Structures	Y1	Y1	Existing only

Appendix 2. Management Direction from Kamloops LRMP

Management Direction:

Management Categories	Management Strategies
• Natural Environment • Heritage Areas and Natural and Cultural Sites • Intensive Recreation and Tourism	• Recreational gold panning (pan and shovel only) will be permitted within 100m along both sides of the Tranquille River. • Recreational gold panning on the Tranquille River will extend from the mouth of the river to the bridge outside of the RMZ. • An access corridor from Batchelor Hills to the Nobel Lake area will continue for recreational motorcycle use. The number of motorcycle trails in the RMZ will be reduced. • A replacement recreational motorcycle use area will be sought outside the RMZ. • Private land surrounded by the RMZ will not be affected by its protection status. Road and utility access to private land within the RMZ will be allowed, even where current access may not exist. • Ungrazed benchmarks have been identified and mapped in the RMZ. • The part of the Isobel Lake Interpretative Forest that is within the RMZ will continue to be used for educational purposes in keeping with the objectives of the RMZ. • The existing road access from Tranquille through the RMZ to Frederick Lake will continue to be allowed. Future upgrading of the road for industrial use will be allowed. • The Tranquille Wildlife Management Area (WMA) will remain a WMA within the overall bounds of this protection RMZ, subject to the continuation of currently allowed activities. • The control of knapweed, houndstongue, burdock and blue weed will continue in the RMZ. • Local level planning will address road access issues. • The area on the north side of Watching Creek will be managed for visual concerns to an elevation of 900 m.

Linkages to other agencies:

Ministry of Forests, Lands and Natural Resource Operations (FLNRO)
Grazing is allowed to continue in Lac du Bois Grasslands Protected Area, managed by the Ministry of Forests, Lands and Natural Resource Operations in consultation with BC Parks. Grazing is managed by an agreement between the two agencies that outlines how objectives are to be aligned for grazing and protected area values. The Kamloops LRMP Policy on Domestic Livestock Grazing in Protection Resource Management Zones provides additional direction for management of grazing (Appendix 3). Key points are as follows:

- The Ministry of Forests, Lands and Natural Resource Operations will manage grazing tenures using Range Use Plans that meet or exceed the Forest Practices Code (now the *Forest and Range Practices Act*).
- Representative Benchmark Sites or exclosures will be established, monitored and compared to adjacent grazed rangelands, and will generally be categorized for Strict Preservation.
- No new grazing tenures or Animal Unit Month (AUM) increases.
- A local level planning process may recommend that a reduction or removal of grazing tenures is needed to meet protected area management objectives.
- There is flexibility to allow new grazing use for vegetation management.

In Nature Recreation Zones (the main zone in Lac du Bois), the following points from LRMP members added clarification:

- Livestock use is an accepted use, subject to review that livestock use is compatible and that park goals are being met.
- Compatibility tests are to assess this over time, and adjustments made as appropriate.
- Compatibility tests are to occur in a site-specific manner, to aid management and planning decisions and determinations of incompatibility.
- 'Ungrazed benchmark areas' and long term monitoring will be established in several priority areas.
- Protected area goals are to be established through consensus with local stakeholders, including the range tenure holders. For important compatibility determinations, agencies are to seek consensus recommendations from local stakeholders.

On-going collaboration and communication with the Ministry of Forests, Lands and Natural Resource Operations will continue in order to monitor and manage grazing use and to coordinate plans for forest health, fire response and recreation use management.

The Tranquille Livestock Association, comprised of four ranchers, and one individual rancher hold grazing licences to graze cattle in Lac du Bois Grasslands Protected Area. The Ministry of Forests, Lands and Natural Resource Operations and BC Parks work with licensees in the development of Range Use Plans, and in determining any new range-related infrastructure or developments.

A significant proportion (18%) of the protected area has been identified for special grazing management (benchmark sites) in both grassland and forested ecosystems. Six hundred hectares is fenced and ungrazed, and approximately 2700 hectares is unfenced, limited livestock drift only (cattle allowed to move through area on way to primary grazing sites), or minimally grazed.

The Ministry of Forests, Lands and Natural Resource Operations (Fish and Wildlife Section) administers hunting regulations and manages the fresh water fishery and wildlife management areas. The Kamloops LRMP directed that the Tranquille Wildlife Management Area be included within Lac du Bois Grasslands Protected Area, with the specific intent to maintain the wildlife and habitat management objectives for the area. The Tranquille Wildlife Management Area and adjacent land formerly known as Lot 341 are now known as the Tranquille Special Natural Feature Zone. The Dewdrop-Rosseau Wildlife Management Area is adjacent to the west boundary of the protected area.

FLNRO also manages allocation of water to the 14 water licences in the protected area. These include the original 1903 license on the Tranquille River and water sources for troughs used by livestock. They also manage activities on surrounding Crown lands.

Agriculture and Agri-Food Canada conducted research under permit in the Lac du Bois Grasslands Protected Area until 2014. They maintained a series of fenced research pastures and exclosures to study the effects of various grazing regimes, impacts of climate change on grasslands and control of invasive species. The permit was transferred to the Ministry of Forests, Lands and Natural Resource Operations who are conducting more limited research, while Thompson Rivers University has continued with their research on climate change.

Ministry of Transportation and Infrastructure is responsible for the maintenance of Lac du Bois Road (4 km to 19 km), Tranquille-Criss Creek Road, and Frederick Road. They are also providing funding for a wildlife viewing platform at the Tranquille Pond with support from the City of Kamloops and stewardship groups.

Department of Fisheries and Oceans Canada manages migratory fish in the Tranquille River.

City of Kamloops

BC Parks continues to work with the City of Kamloops to integrate urban growth and city operations with protected area values.

The City is responsible for management of some roads and rights-of-way that provide access to the protected area, including Tranquille Road to the Tranquille River, the lower portion of Lac du Bois Road and access to the eastern boundary. A city by-law restricts motorized vehicle access to Crown lands within the city and adjacent to the protected area.

Private Land Owners

There are seven parcels of private land located within the protected area boundaries with on-going operational level contact by BC Parks staff. Future road access and utility right-of-way was assured at the time of the protected area designation.

Recreation Groups
The Pine Park day use area, comprised of a washroom (not open to the general public) and picnic area is maintained by volunteers, primarily for the use of school groups.

Agricultural Land Reserve
Most of the grasslands are in the Agricultural Land Reserve.

Appendix 3. Kamloops LRMP Policy for Domestic Livestock Grazing in Protection Resource Management Zones

PART 1:

Preamble

The Protected Areas Strategy for British Columbia states for discussion purposes, that "grazing will not be permitted except for expressed management purposes" in Protected Areas (PAs). This statement has been interpreted as a blanket exclusion of grazing, raising significant concerns and uncertainty within the agriculture industry. The Kamloops Land and Resource Management Planning Table, for example, found this interpretation unacceptable and requested the Regional Protected Areas Team (RPAT) to develop a policy that allows grazing while not compromising Protected Areas Strategy (PAS) goals and values.

This policy must recognize that:

- properly managed livestock grazing may be an acceptable use in some PA management categories;
- the best available scientific information and expertise should be used to identify PAs, benchmarks and allowable uses;
- establishment of a network of ungrazed benchmarks is of critical importance and value. They are required to provide representation of natural ecosystems for long term scientific research, to evaluate and improve range management practices, and monitor changes in native plant and animal communities;
- in PAs grazing will be managed to avoid damaging environmentally sensitive areas including wetlands, estuaries, riparian zones, critical wildlife habitats, alpine areas, steep slopes...etc.;
- ranching provides important heritage and cultural values that should be included in some PAs; and
- exclusion of livestock grazing from all PAs would have an unnecessary socio-economic impact on the ranching industry.

Policy:

Domestic livestock grazing may be allowed within Protected Areas, where it is compatible with the long term PAS goals. Some Protected Areas will remain ungrazed while others where grazing occurs will generally contain ungrazed benchmarks.

Conditions of the Policy:

1) Grazing within Management Categories: The PAS document proposes five management categories. Each Protected Area may be zoned into one or more of the five categories. Livestock grazing will not occur in Category 1 (strict preservation), and seldom in Category 5 (intensive recreation). Grazing may occur in Categories 2 (wilderness), 3 (heritage and culture) and 4 (natural environment). Livestock will not be allowed to degrade environmentally sensitive areas within Protected Areas. Generally, livestock grazing will not be introduced where it does not occur at the time of designation. However, livestock grazing will be allowed in categories 2-5 to achieve specific PA management objectives.

2) Ungrazed Benchmarks: Ungrazed benchmarks are ecologically representative of local ecosystems, from which livestock grazing will be excluded. They will be used to evaluate adjacent management practices and must be of sufficient size to detect long term biophysical changes. Benchmarks should be of sufficient size to include, where practical, representation of the full spectrum of locally occurring ecosystems, such as wetlands, riparian areas, grasslands, and deciduous and coniferous forests. Where it is not practical to capture this representation in a single large benchmark, the PA may contain several small benchmark sites connected through special management of the surrounding lands. Livestock will be excluded from benchmarks by natural features, fencing or other management tools.

3) Benchmark Selection and Planning Responsibility: The Regional Protected Area Team (RPAT) will consult with range management specialists and affected range tenure holders, to identify benchmarks and their connectivity requirements for the appropriate land use planning table (CORE and LRMP). The planning table will identify and recommend general management objectives and categories for each proposed PA. A subsequent local planning table involving relevant stakeholders and agencies will prepare a detailed management plan for each established PA. Resource management within each PA will be considered within the broader land use planning context. Any changes in grazing patterns or use as a result of PA management directions will be introduced over time through direct negotiations with tenure holders.

Prepared by: Grazing Subcommittee, Kamloops RPAT, Dec. 16, 1993, and revised Jan. 17, 1994 and February 1, 1994: D. Lloyd and B. Ivanco, MoF, P. Holman BCE, R. Tucker, J. Steves and J. White MoF (Range), G. Strachan and D. Blumenauer MoAFF, M. Hanry, R. Madsen, D. Tudhope and P. Whitfield BCP.

February 1, 1994

PART 2:

1. **Regional Protected Areas Team (RPAT) proposed policy (Part 1)**: The sub-committee endorses the philosophy of the "Proposed Policy for Domestic Grazing in

Protected Areas" February 1st 1994 draft, prepared and agreed to by consensus, by the Kamloops RPAT and grazing committee of RPAT.

The LRMP has modified this proposed policy by the following:

2. **Domestic livestock grazing may be allowed within protected areas, where it is compatible with long term Protected Areas Strategy (PAS) goals**. In general, existing tenures will be allowed, and these will be renewable and transferable (can be sold with the ranch, or handed down to descendants). In the "strict preservation" category, and specific "wilderness" category sites, domestic livestock grazing may gradually be phased out (see below).
   a) **Domestic Livestock Grazing Continues:** In the "Natural", "Cultural Heritage" and "Intensive Recreation", and some of the "Wilderness" Protected Area (PA) categories, properly managed grazing may be compatible with PA goals, and therefore grazing may continue, subject to ongoing review that the PA goals are being met. Also, this grazing will be subject to special management requirements, as necessary to achieve the PA goals (special management plan).
   b) **Domestic Livestock Grazing Phased Out:** In the "Strict Preservation" and in specific "Wilderness" PA categories, grazing will be phased out slowly over a long period of time to meet the goals of protection of "natural" ecosystems. The reason for "phase out" in "strict preservation" category is that domestic cattle are "not native" and therefore domestic livestock grazing is considered inconsistent with the goal of this category.

      "Phasing out" will be fair, and accomplished under the direction of the Ministry of Forests and Range, with full co-operation of the rancher (except with non-compliance with the management plan). Please see section 3.

      No new tenures will be issued, and no increases in animal unit months (AUMs) will be granted.

   The management plan will recognize the gradual phase out of grazing in these stated areas.

3. **Grazing can be "phased out" by the following methods**. These apply to excluding grazing from "strict preservation" and specific "wilderness" category areas:
   a) **Voluntary tenure relinquishment**: When a rancher voluntarily relinquishes his/her range tenure and no longer wants to graze livestock on Crown land, the range tenure will be amended to exclude the "strict preservation" category and specific "wilderness" category, before the tenure is re-allocated* as a new opportunity.

   b) **Willing transfer to new tenure area**: When an adjacent grazing tenure opportunity becomes available, which is economical and feasible for the rancher

to use, the range tenure will be amended to: exclude the "strict preservation" category, and/or specific "wilderness" category, and to include an equivalent Crown range area of the new opportunity. These new opportunities may arise either through range improvements, or access improvements on the remaining grazed rangeland areas, or through the relinquishment or cancellation of another grazing right, or AgroForestry operations.

c) **Willing sale**: When a ranch is voluntarily listed for sale, the Crown (or other interested groups) may purchase the complete ranch (the deeded land plus the grazing tenure), or a portion of it. This would require a market value assessment. This may be of value for heritage ranches such as Coldstream or Empire Valley.

d) **Cancellation due to non-compliance**: A Forest Service grazing tenure can be cancelled due to non-compliance with the Range Act, range tenure and management plan conditions. That portion of the range tenure which occurs in the "strict preservation" and specific "wilderness" category areas may be excluded, before the tenure is re-allocated* as a new opportunity.

e) **Willing change to a recreation tenure**: Where appropriate, the opportunity would be provided to allow the grazing tenure holder to "trade" for available back-country recreation tenures, in co-ordination with the existing, or proposed recreation tenures. Existing government policies may need to be changed to create this opportunity.

***Re-allocation may occur only if it is feasible to use the remaining AUMs and area**.

4. **Special Management**: The grazing tenure holder may be subject to special management requirements as defined in the PA management plan. Therefore, the grazing tenure holder may have increased management costs associated with the Protected Area. In some proposed Protected Area sites this special grazing management may currently exist, and therefore minimal changes to management may be required.

   The management plan requirements should be based in the best scientific information and expertise available, regarding grazing effects (positive or negative) on the goals of the PA. Plans should be consistent with the LRMP (or similar public stakeholder/agency group) and other higher level plans. Plans provide the objectives and guidelines by which the unprotected area will be managed.

5. **Ungrazed Benchmarks**: Benchmarks from which livestock are excluded will be established on certain sites in the Protected Area. Page 2 of the Proposed Policy of the Kamloops RPAT describes the ungrazed (by domestic livestock) benchmarks:

   "*Ungrazed benchmarks are ecologically representative of local ecosystems, from which livestock grazing will be excluded. They will be of sufficient size to detect long term biophysical changes. Benchmarks should be of sufficient size to include, where*

practical, representation of the full spectrum of locally occurring ecosystems, such as wetlands, riparian areas, grasslands, and deciduous and coniferous forests. Where it is not practical to capture this representation in a single large benchmark, the PA may contain several small benchmark sites connected through special management of the surrounding lands. Livestock will be excluded from benchmarks by natural features, fencing or other management tools." Benchmarks will require adequate monitoring to evaluate long term impact.

6. **Domestic Livestock Grazing as a Vegetation Management Tool**: The above recommendations do not preclude that domestic livestock grazing may be used as a tool, in all categories in Protected Areas, to replace and mimic natural wildlife grazing use, for vegetation and ecosystem management purposes.

7. **Future Planning**: We recommend that the specific details and ongoing amendments of the special management plans for the PAs be determined by local planning groups, which include all relevant stakeholders and agencies, including the range tenure holder. Also, detailed on-the-ground assessments are to include the local relevant stakeholders. PA management plans and future amendments should be consistent with the LRMP and higher plans (which provide the general guidelines for the special management plans).

(Approved by consensus at the LRMP meeting on June 30, 1994)

Criteria for a Healthy Grasslands

A healthy grassland ecosystem includes:

- a good distribution of large, healthy bunchgrass plants. Healthy bunchgrass plants have long, deep roots that help to make them more drought resistant. They are also critical nesting sites for a number of ground-nesting birds, including the sharp-tailed grouse.
- a healthy cryptogamic crust of lichens, bryophytes, algae, fungi and cyanobacteria. The crust performs a number of functions: it helps to stabilize the soil, regulates surface water infiltration and evaporation, traps aeolian sediments, adds nutrients to the soil, is habitat for microorganisms, and a seedbed for vascular plants[3].
- a component of sage and an array of early-blooming flowering plants.
- healthy shrubs and trees component on cooler and moister north-facing slopes, and seepage areas

[3] Williston, Patrick. 1994. Floristics and Successional Patterns of Microbiotic Crusts in Ponderosa Pine Forests of Southern Inland British Columbia. M. Sc. Thesis, Department of Botany, UBC.

Disturbance of grasslands can cause destruction of the cryptogamic crust and exposure of mineral soils that can become a seedbed for non-native species, and can be a source of erosion. Overgrazing of bunchgrass plants by wildlife or livestock reduces the size of the plants above ground and their below-ground root system, as well as reducing the amount of cover they provide to the surrounding soil. The plants are less able to withstand dry periods, and may disappear over time. Their place in the grassland ecosystem may be taken over by native plants that are better adapted to the new conditions such as needle and thread grass, and pussytoes, or by non-native species such as knapweeds.

The grasslands ecosystems of Lac du Bois Grasslands Protected Area were altered between the 1840s and 1960s as a result of year-round grazing by large numbers of horses, cattle or sheep, and more recently by uncontrolled motorized recreation activity. Most of the grasslands of the protected area were described as "dust bowls" during the 1930s, but better management of cattle numbers, movements, and seasons of use, especially since the 1970's, have considerably improved their condition and diversity. Control of recreation activity has also reduced the amount of new erosion in the grasslands.

Management of the grassland ecosystems of the protected area requires an understanding of past uses, the present state and condition of the grassland communities, the needs of a range of grassland-dependent wildlife species, the requirements of the livestock industry, and a vision of the potential for the grasslands communities.

The Kamloops LRMP Policy on Domestic Livestock Grazing specified that Benchmark Sites of Ungrazed Areas were to be established and that monitoring is to occur over time to track changes in the grassland ecosystems. A significant proportion (20%) of the park has been identified for special grazing management in both grassland and forested ecosystems. These areas were determined through a consensus-based approach in several meetings with LRMP members and grazing tenure holders in 1999-2000. Table 3 shows that 600 ha is fenced and ungrazed, and approximately 2700 ha is unfenced limited livestock drift only or minimally grazed. A corresponding map showing the areas referenced in Table 3 is attached as Appendix X. The McQueen Creek Ecological Reserve (#110) covers 35 hectares of middle grassland in the northeast corner of the park, and protects a rough fescue ecosystem that is in good condition and little affected by grazing or recreation. The Tranquille Ecological Reserve (#29) protects 235 hectares of ungrazed grasslands, ponderosa pine and Douglas-fir forests on the north side of the Dewdrop flats in the ponderosa pine subzone.

The range of ecosystems found within the park are represented in these identified areas including open grasslands in lower, middle and upper elevations, lakes, ponds and wetlands, aspen copses, open forests, steep slopes, and cliffs. These areas allow plants to evolve in a natural way to assess what grasslands should look like with limited cattle

grazing. They may also support a different suite of species that are adapted to those conditions. There may be occasions when grassland conditions are such that cattle will be allowed to use these areas more intensively for a short period of time. Photo monitoring points have been established to study the change in grassland plant composition.

Appendix 4: Species at Risk

Red- and Blue- listed Species within Lac du Bois Grassland Protected Area

Common name	Scientific name	Status
Plants		
Tiny tassel	*Crossidium seriatum*	Blue
Geyer's onion	*Allium geyeri var. tenerum*	Blue
Tall beggarticks	*Bidens vulgata*	Blue
Scarlet gaura	*Gaura coccinea*	Red
Mock-pennyroyal	*Hedeoma hispida*	Red
Western low hawksbeard	*Crepis modocensis ssp. Rostrata*	Red
Oregon checker-mallow	*Sidalcea oregana var. procera*	Red
Animals		
Western Screech-owl, Macfarlanei Subspecies	*Megascops kennicottii macfarlanei*	Red
Flammulated Owl	*Psiloscops flammeolus*	Blue
Bobolink	*Dolichonyx oryzivorus*	Blue
Burrowing Owl	*Athene cunicularia*	Red
Lewis's Woodpecker	*Melanerpes lewis*	Blue
Sharp-tailed Grouse, Columbianus Subspecies	*Tympanuchus phasianellus columbianus*	Blue
American Badger	*Taxidea taxus*	Red
Great Basin Spadefoot	*Spea intermontana*	Blue
Western Rattlesnake	*Crotalus oreganus*	Blue
North American Racer	*Coluber constrictor*	Blue

Red- and Blue-listed Plant Communities Known or Suspected to Occur in Lac du Bois Grasslands Protected Area

Common Name	Scientific Name	Status
BGxh2 – Thompson Very Dry Hot Bunchgrass Variant		
Big Sage / Bluebunch Wheatgrass	*Artemisia tridentata / Elymus spicatus*	Red
Black Cottonwood / Common Snowberry - Red-osier Dogwood	*Populus balsamifera ssp. Trichocarpa / Symphoricarpos albus - Cornus stolonifera*	Red
Ponderosa Pine / Red Three-awn	*Pinus ponderosa / Aristida longiseta*	Blue
Rough Fescue – Bluebunch Wheatgrass	*Festuca campestris - Elymus spicatus*	Red
Wooly Sedge - Arctic Rush	*Carex lanuginose - Juncus arcticus*	Red
BGxw1 - Nicola Very Dry Warm Bunchgrass Variant		
Big Sage / Bluebunch Wheatgrass	*Artemisia tridentata/ Elymus spicatus*	Red
Bluebunch Wheatgrass - Junegrass	*Elymus spicatus - Loeleria macrantha*	Red
Giant Wildrye	*Elymus cinereus*	Red
Rough Fescue – Bluebunch Wheatgrass	*Festuca campestris - Elymus spicatus*	Red
Saltgrass – Sedge	*Distichlis stricta – Carex spp.*	Red
Trembling Aspen / Snowberry / Kentucky Bluegrass	*Populus tremuloides / Symphoricarpos albus / Poa pratensis*	Red
PPxh2 - Thompson Very Dry Hot Ponderosa Pine Variant		
Big Sage / Bluebunch Wheatgrass	*Artemisia tridentata/ Elymus spicatus*	Red
Black Cottonwood / Water Birch	*Populus balsamifera ssp. Trichocarpa / Betula occidentalis*	Red
IDFxh2a – Thompson Very Dry Hot Interior Douglas-fir Variant - Grassland Phase		
Bluebunch Wheatgrass - Junegrass	*Elymus spicatus - Loeleria macrantha*	Red
Trembling Aspen / Snowberry / Kentucky Bluegrass	*Populus tremuloides / Symphoricarpos albus / Poa pratensis*	Red
IDFxh2 - Thompson Very Dry Hot Interior Douglas-fir Variant		
Spruce - Ladyslipper	*Picea glauca – Cypripedium*	Red
IDFdk1a - Thompson Dry Cool Interior Douglas-Fir Variant – Grassland Phase		
Bluebunch Wheatgrass - Junegrass	*Elymus spicatus - Loeleria macrantha*	Red
Trembling Aspen / Snowberry / Kentucky Bluegrass	*Populus tremuloides / Symphoricarpos albus / Poa pratensis*	Red
MSxk - Very Dry Cool Montane Spruce Subzone		
Bluebunch Wheatgrass - Junegrass	*Elymus spicatus - Loeleria macrantha*	Red
Hybrid White Spruce / Horsetail / Leafy Moss	*Picea engelmanii x glauca / Equisetum / Mnium spp.*	Blue
Vasey's Big Sage - Pinegrass	*Artemisia tridentata ssp. vaseyana – Calamagrostis rubescens*	Red

Potential Red and blue-listed Wildlife Species in Lac du Bois Grasslands Protected Area

Common Name	Scientific Name	Status
Mammals		
Fringed Myotis	*Myotis thysanodes*	Blue
Western Small-footed Myotis	*Myotis ciliolabrum*	Blue
Spotted Bat	*Euderma maculatum*	Blue
Townsend's Big-eared Bat	*Corynorhinus townsendii*	Blue
Pallid Bat	*Antrozous pallidus*	Red
Great Basin Pocket Mouse	*Perognathus parvus*	Blue
Badger	*Taxidea taxus*	Red
California Bighorn Sheep	*Ovis canadensis californiana*	Blue
Birds		
Western Grebe	*Aechmophorus occidentalis*	Red
American White Pelican	**Pelecanus erythrorhynchos**	Red
Double-crested Cormorant	*Phalacrocorax auritus*	Red
American Bittern	*Botaurus lentiginosus*	Blue
Great Blue Heron	*Ardea herodias*	Blue
Green Heron	*Butorides virescens*	Blue
Trumpeter Swan	*Cygnus buccinator*	Blue
Swainson's Hawk	*Buteo swainsoni*	Red
Ferruginous Hawk	*Buteo regalis*	Red
Gyrfalcon	*Falco rusticolis*	Blue
Peregrine Falcon	*Falco peregrinus anatum*	Red
Prairie Falcon	*Falco mexicanus*	Red
Sharp-tailed Grouse	*Tympanuchus phasianelles columbianus*	Blue
Sandhill Crane	*Grus canadensis*	Blue
American Golden Plover	*Pluvialis dominica*	Blue
American Avocet	*Recurvirostra americana*	Red
Baird's Sandpiper	*Calidris bairdii*	Red
Long-billed Curlew	*Numenius americanus*	Blue
Red-necked Phalarope	*Phalaropus lobatus*	Blue
California Gull	*Larus californicus*	Blue
Caspian Tern	*Sterna caspia*	Blue
Forster's Tern	*Sterni forsteri*	Red
Flammulated Owl	*Otus flammeolus*	Blue
Burrowing Owl	*Athene cunicularia*	Red
Short-eared Owl	*Asio flammeus*	Blue
White-throated Swift	*Aeronautes saxatilis*	Blue
Lewis's Woodpecker	*Melanerpes lewis*	Blue
Sage Thrasher	*Oreoscoptes montanus*	Red
Brewer's Sparrow	*Spizella breweri breweri*	Red
Lark Sparrow	*Chondestes grammacus*	Red
Bobolink	*Dolichonyx oryzivorus*	Blue
Amphibians		
Great Basin Spadefoot	*Spea intermontana*	Blue
Reptiles		
Painted Turtle	*Chrysemys picta*	Blue
Racer	*Coluber constrictor*	Blue
Great Basin Gopher Snake	*Pitouphis catenifer deserticola*	Blue
Western Rattlesnake	*Crotalus viridus*	Blue

Appendix 5: Summary of Issues and Interests for Lac du Bois Grasslands Protected Area, 2018

The following is a summary of input obtained during the planning process. This information was obtained from the public, stakeholders, government agency staff and information from the Kamloops Land and Resource Management Plan. It is summarized by section presented in the Park Management Plan for Lac du Bois Grasslands Protected Area.

Ecosystems and Natural Heritage

Riparian areas provide important wildlife habitat and occur around the ponds and creeks that cattle use to access water sources. Shrubby areas, also potentially impacted by grazing, are critical habitat for nesting and migrating birds and small mammals, and as winter forage for Mule Deer. The "at risk" Clay-coloured Sparrow is found nesting in snowberry patches in the lower-middle grasslands. The Sharp-tailed Grouse requires long grass for nesting and uses shrubby areas when their young are most vulnerable to predation. Cattle grazing and range research at this critical time of year may compromise nesting success or increase predation by reducing cover.

The riparian areas at Tranquille support a large diversity of at-risk and other bird species and also provide the opportunity to expand one of the rarest vegetation communities in the province – the cottonwood riparian ecosystem.

Historically, all of these habitat types are thought to have been in much better condition prior to the area being used for grazing, and are identified as areas of concern in the protected area. Monitoring is needed to determine the extent of the concern and to provide potential management strategies.

Knowledge of natural values, including inventory and habitat mapping (especially for species at risk) is incomplete, which may limit the ability to manage for ecological values.

Consideration must also be given to the potential for fire outbreaks and uncontrolled insect or disease infestation that could impact adjacent lands and private property. BC Parks has a responsibility to safeguard important cultural and recreation values and facilities, and to be a good neighbour to adjacent Crown land managers and private owners. Active management may therefore be required.

Grasslands are recognized as being provincially limited in extent, and threatened by development and land use activities. Of all the grassland protected areas, Lac du Bois

Grasslands Protected Area is the most accessible and accommodating for public recreation use. Ecosystem responses to rapid climate changes may also impact ecosystems and species habitats. On the other hand, fire suppression has altered the normal disturbance cycle, resulting in forest encroachment and in-growth and expansion of sagebrush.

Extensive weed infestations in large areas has led to loss of natural plant communities and wildlife habitat, and is a significant threat to natural grassland and riparian communities in the Lac du Bois Grasslands area. Weed infestation also impacts visual and recreation values and, in some areas, has impacted grazing opportunities.

The greatest invasive plant threats are blueweed, Russian knapweed, hoary alyssum, Dalmatian toadflax and sulphur cinquefoil. Common burdock and Manitoba maple are of particular concern in riparian areas and aspen copses. Treatments near water are much more difficult to undertake, and it is therefore extremely important to prevent spread of invasives into these sensitive and important habitats. The protected area is also vulnerable to the spread of new alien weeds such as rush skeletonweed.

The threat posed by the extensive weed infestations will require special efforts to resolve. These situations present management challenges that will require co-operation between all agencies and users, as well as innovative solutions.

Many other non-native species also occur, including Kentucky bluegrass, Canada bluegrass, crested wheatgrass and others. Reed canary grass is a major invasive in the Tranquille Pond area, spreading throughout the entire riparian ecosystem.
Grassland habitat has been reduced through forest encroachment, although the full extent of this problem has not been assessed.

There are also significant numbers of species at risk and provincially important populations of more common species that may be impacted by some of the activities and demands within the area or by climate change induced hydrological changes.

Private properties within and adjacent to the protected area have significant recreation and/or conservation values; there may be options to acquire some of these lands over time or to develop cooperative management agreements/covenants. Private lands also require landowner understanding of protected area values and appropriate use.

The Nature Conservancy of Canada owns 928 hectares of land (Figure 2), with interests in maintaining conservation values that provides potential for a close, mutual working relationship.

Wildlife

Wildlife habitats and populations are sensitive resources. Expressed concerns largely focussed on species at risk, including:

- The Flammulated Owl and Burrowing Owl, as well as being dependent upon specific habitat characteristics, are much sought after by bird watchers and may be sensitive to disturbance.
- Breeding success of California Bighorn Sheep in the Dewdrop area may be compromised by uncontrolled human presence. Domestic animals (sheep, goats) could also carry viruses that could severely impact wild sheep herds that use the area.
- Sharp-tailed Grouse are sensitive to disturbance by grazing livestock, recreationists, bird dogs or being flushed from dancing grounds.
- Habitat management concerns for bats include impacts from sustained, severe trampling of wetland edges by cattle. Damage to riparian vegetation reduces potential roosting sites and the variety and amount of insects available for bats. Disturbance of hibernating Townsend's Big-eared Bats could be disastrous to the population.
- White-nose Syndrome is now a significant threat with infected individuals found in Washington State.
- Snake hibernacula are vulnerable to disturbance in early spring. Snakes use road surfaces to thermoregulate and thus are vulnerable to mortality
- Spawning beds in the Tranquille River may be sensitive to disturbance by recreational gold panning.
- Concern has also been expressed over the impact of cattle use, especially on riparian areas during the winter and in early spring.
- Painted turtles are found in the Tranquille Special natural feature zone and may be impacted by cattle trampling. Young turtles overwinter in the soft mud around water bodies, making them particularly vulnerable. Great Basin Spadefoot are found on the edge of various ponds in the southern part of the protected area. They also overwinter underground.

Wildlife use habitat in surrounding areas. Loss of habitat in adjacent areas could impact wildlife populations in the protected area. Riparian habitat along Kamloops lakeshore and lower Tranquille River may be sensitive to proposed development of the adjacent, privately-owned Tranquille lands.

Access

The proximity to a large urban centre, ease of access and the protected area's popularity for a variety of recreational activities, combined with environmental sensitivity and occurrences of species at risk and critical wildlife habitat, requires that a high degree of vigilance be taken to protect values. Usually there is some separation between areas of high recreational use and high conservation value. This is not the case in Lac du Bois, suggesting a high level of management direction is needed to address public demand for access and potential conflicts. Access management and visitor education and appreciation should be key priorities for management and planning.

Sensitive grassland ecosystems, species at risk and wildlife can be impacted by recreational use. Lac du Bois is used throughout the year, but most recreationists seem to prefer spring and fall, both of which are critical times for some wildlife species. Trail-based recreation may contribute to spread of weeds and erosion. Improvement of access and development of park facilities could encourage over-use in some areas, and could conflict with conservation and other resource values.

In some areas, facilities or improvements could be made to support appropriate recreation uses. This includes road improvements and formalized trails and trailheads. A lack of trails and facilities in some areas results in unrealized recreation/tourism opportunities such as horseback riding, mountain biking and guided tours. The condition of the Long Lake (McQueen Creek) Road during spring thaw and resulting rutting limits use of a traditional recreational route through the park. There are limited funds for maintaining or upgrading roads and existing facilities for accepted uses, such as fences around ungrazed benchmarks that require long-term maintenance.

The main access roads are also used by industrial traffic and school buses, creating potential for safety hazards, particularly during winter. Roads used by 4X4s are unmaintained and have steep sections and dangerous areas; sections of the Wheeler Mountain Road are failing, creating significant erosion and a safety hazard.

Legal access and potential utilities need to be provided to private properties within the protected area.

Outdoor Recreation Opportunities and Facilities

Although Lac du Bois is appreciated by recreational users, there is high potential for improvement. Existing recreation use patterns and most trails have evolved in an ad hoc fashion and need to be formalized with consideration of protected area conservation and other resource values.

The open landscape of grasslands attracts many visitors from the nearby urban area for a variety of activities. Levels of recreation use are expected to increase due to marketing and current trends that show increasing popularity of the types of recreation opportunities provided by the protected area. There is concern about potential loss of the sense of peacefulness, isolation, and “wildness” of this recreation setting, and impacts on conservation values.

The open, expansive grasslands are susceptible to visual impacts from inappropriate developments, potentially impacting the viewscapes. Some past uses have caused damage. Hill-climbing scars, and old trails in some areas, impact visual quality. Management strategies are needed to maintain or improve the visual experience of visitors.

Other specific issues must be addressed, such as the scope and level of disturbance from gold panning on Tranquille River that has been beyond the intent of Kamloops LRMP direction for "recreational use," and is impacting water quality, fisheries values, aesthetics and public safety. Trespass by recreation users on parcels of private property within and adjacent to the protected area is of concern to property owners, including recreationists crossing the CNR track to access the lower slopes and trails of Mara Hill and the popular Cinnamon Ridge Trail. The popular Pine Park area is accessed through private land and needs a secure public right-of-way.

The protected area provides potential opportunities for commercial recreation. There are opportunities for ecotourism, with specific interest by First Nations. Tranquille on the Lake owners are interested in tourist resort/residential development, and there are opportunities for the film industry.

Visitor Information/Visitor Experience

Communication, education and outreach are important tools for protected area management and user enjoyment. Visitor information assists with pre-trip planning and plays a role in establishing expectations of the protected area experience, resource and facility conditions, management limitations, level of contact with other users, and potential conflicts or safety considerations.

Communications products provide important management tools and can be used to influence visitor behaviour. Interpretation enhances awareness, appreciation and understanding of the protected area environment, and encourages personal responsibility towards protected area stewardship. Presently, a lack of interpretive and/or wildlife viewing facilities does not allow for optimal appreciation of the protected area's natural values.

Marketing and promotion can have an important impact on the type and level of use that will be drawn to the protected area. For this reason, marketing strategies must complement strategic protected area management direction.

Lac du Bois Grasslands Protected Area has unparalleled opportunities to offer education through first-hand experience with:

- A large grassland representative of the dry landscapes of the southern interior.
- A variety of grassland habitats, valley bottom riparian areas, and dry forests.
- A variety of grassland plant and animal species. Included are rare and at-risk species, migrating and nesting waterfowl and other wetland wildlife, California Bighorn Sheep, and species of special interest because of limited distribution in British Columbia or ease of observation.
- A cultural landscape with historic association with aboriginal use, the fur trade, placer mining and the beginnings of the gold rush, homesteading and ranching.

- A multi-use landscape in a near-urban setting that combines conservation with grazing use, research, and recreation.

Awareness of these “sense of place” qualities of the protected area will attract visitors, from international tourists to Kamloops area residents. However, the access limitations arising from the narrow, unpaved Lac du Bois Road, coupled with the often challenging nature of the terrain at the main access points into the protected area, will influence the type and number of visitors that will be able to enjoy the area. Despite these limitations, of all British Columbia’s large grassland protected areas, Lac du Bois has the potential to attract the highest use due to its proximity to an urban centre and main transportation hubs, ease of access, and historic use. For this reason, another very important aspect of the protected area awareness message could be the sensitivity of grasslands and riparian environments and the importance of responsible use. Lac du Bois Grasslands Protected Area is an integral part of the local community; as such, it should be highlighted as a regular topic in the local media, education system and minds of local citizens.