



# **Mara Meadows Park**

## **Management Plan**

**July 2018**



**BC Parks**

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# Mara Meadows Park

## Management Plan

### Approved by:



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July 9, 2018

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Date



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July 5, 2018

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Date

## Acknowledgements

Special thanks to Jeremy Ayotte, Ecological Reserve Warden for Mara Meadows Ecological Reserve, who assisted greatly in the development of this management plan. The management plan also pays tribute to John Coffey, who passed away in 2012. As the Ecological Reserve Warden at Mara Meadows, he was instrumental in gathering important biological data related to both the ecological reserve and the park for over a decade.

BC Parks also wishes to acknowledge Ray Cormier, Rights and Title Director and staff with the Splotsin, who provided valuable information concerning the important cultural context of the Mara Meadows complex.

## Vision Statement

The purpose of the vision statement is to identify the future state and management regime that is desired for Mara Meadows Park over the next 25 to 50 years. The management vision provides long-term direction for protected area managers, while aiding them in making decisions regarding current issues. It is based on currently prevailing environmental and socio-economic attitudes concerning protected areas. However, the vision statement is also dynamic and conceptual and therefore allows for change due to evolving ideas regarding conservation and evolving ecosystems due to climate changes.

*Mara Meadows Park continues to serve as a critical natural buffer and safeguard to the adjacent Mara Meadows Ecological Reserve. Moreover, the forests, riparian and wetland plant communities play a key role in maintaining the natural hydrological cycle of the adjacent ecological reserve. In keeping with its original intent to complement the sensitive landscape characteristics of one of the province's most ecologically significant wetland complexes, the park's continued protection of upstream water sources and riparian areas, remnant old-growth forests, and rich meadow assemblages has enhanced the biological diversity of this unique area.*

*Recreation use of the area remains at low levels, so as not to negatively impact the values of the neighbouring ecological reserve. Improved study of the park with respect to vegetation communities/species occurrence, and hydrological processes, often coinciding with monitoring and research associated with the nearby ecological reserve, has significantly enriched the knowledge of the park's natural values.*

*The Secwepemc peoples regard the Mara Meadows complex as 'Psta'qst'iya' (the place of Trapper's Tea). The park's importance to First Nations from both a pre-historical and contemporary traditional use context continues to be honoured and respected.*

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# 1.0 Introduction

## 1.1 Management Plan Purpose

The purpose of this management plan is to guide the management of Mara Meadows Park. This management plan:

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

## 1.2 Planning Area

The 212 hectare Mara Meadows Park is located in the Shuswap River Highlands Ecoregion, approximately 12 kilometres east of Salmon Arm at the headwaters of Larch Hills Creek and Violet Creek within the North Okanagan Regional District.

Nearby parks and protected areas include Upper Violet Creek Park (adjacent to the northwest boundary), Mara Meadows Ecological Reserve (adjacent to the southwest boundary), Enderby Cliffs Park (10 kilometres southeast), Kingfisher Creek Ecological Reserve (25 kilometres northeast), Silver Star Park (35 kilometres south), and Mount Griffin Ecological Reserve (44 kilometres northeast) (see Figure 1).

Mara Meadows Park was identified for protection as part of the Okanagan-Shuswap Land and Resource Management Plan (LRMP). Mara Meadows Park protects the watershed around the north and east sides of the Mara Meadows Ecological Reserve (established in 1972), an alkaline fen-meadow complex that supports an exceptional array of vascular and non-vascular plants. The ecological reserve currently holds the greatest concentration of native orchids known from a specific location in British Columbia. Mara Meadows Park also extends north beyond the ecological reserve to protect the riparian features of the upper Larch Hills Creek watershed (flowing northeast into Rosemond Lake).

Much of the area outside of existing protected lands in this general area has been affected by industrial logging for over one hundred years. Evidence of past horse logging (e.g., haul roads) and tree falling by cross-cut saws (stumps with staging board notches), and overgrown bridge crossings using logs are still visible within the park. Portions within the adjacent ecological reserve were subjected to ditching and water diversion in the 1960s in an ill-fated effort to drain the large wetland/bog at the core of the ecological reserve. The visual and ecological impacts of wetland drainage are still highly prevalent in the ecological reserve and these past practices also affect the current hydrological cycle of the ecological reserve and park.



Mara Meadows and Mara Lake were named after John Andrew Mara who owned a store in Seymour Arm at the north end of Shuswap Lake in 1865, and eventually became a politician at both the provincial and federal government levels.

Primary accesses to the park are from either the Larch Hills-Rosemond Lake Forest Service Road (west side of Park) or the Larch Hills-Mara Meadows Forest Service Road (east side of park).



**Plate 1: Old skid roads associated with logging dating back to the early 1900s traverse the park.**



**Plate 2: Early logging (note the notch on the right for the staging board) focussed on western redcedar. The park contains numerous stumps of large trees felled over 100 years ago. Areas were often burned following harvesting resulting in charred stumps.**

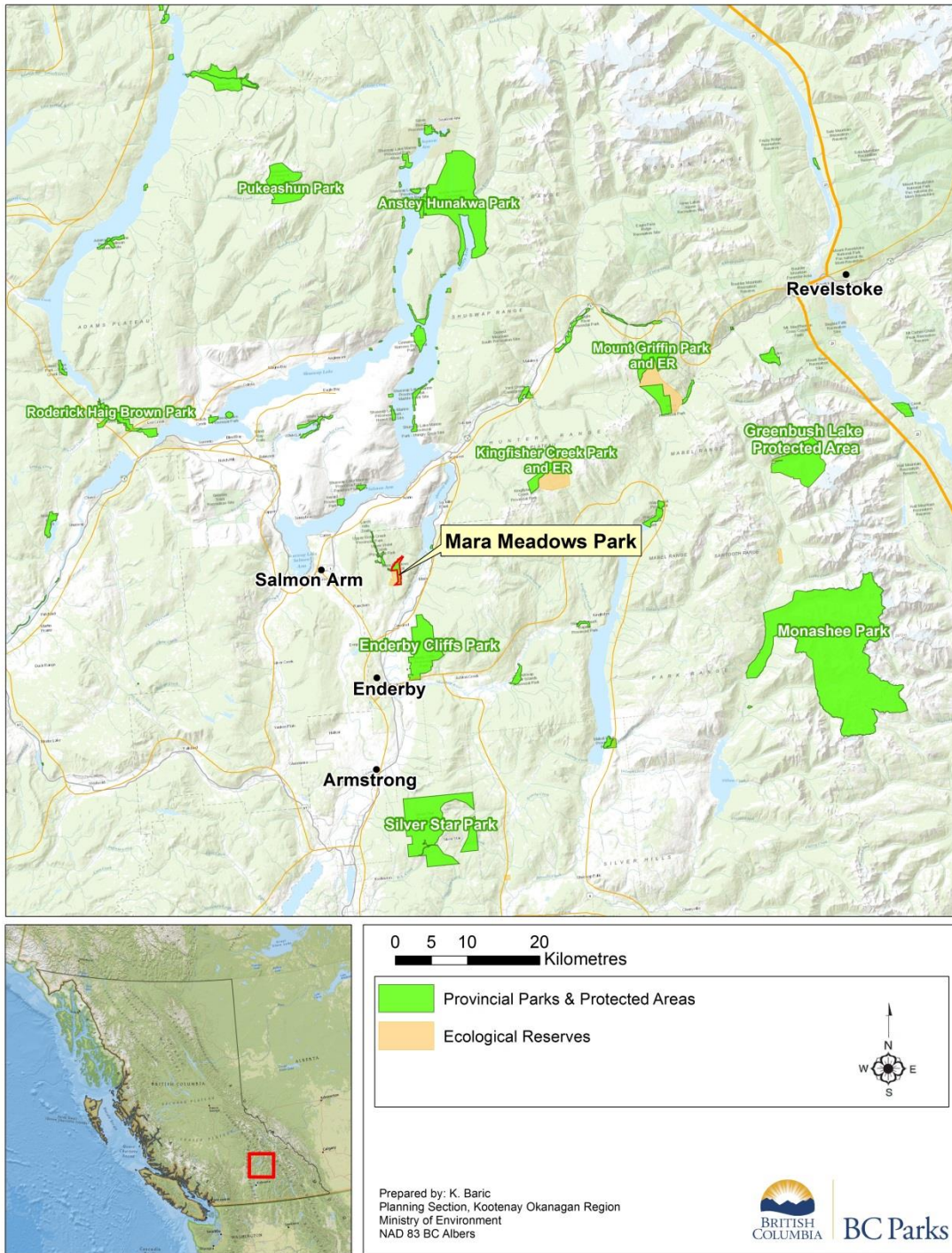


Figure 1: Context Map of Mara Meadows Park



**Figure 2: Map of Mara Meadows Park**

### 1.3 Legislative Framework

Mara Meadows Park was recommended through the Okanagan-Shuswap LRMP and formally established as a Class A park by the *Protected Areas of British Columbia (Conservancies and Parks) Amendment Act, 2008*. The park is presently named and described in Schedule D of the *Protected Areas of British Columbia Act*.

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

### 1.4 Adjacent Land Use

Mara Meadows Park is bordered by Crown land on all sides, with the adjacent ecological reserve along its southwestern flank. The ecological reserve is closed (except under permit). A small portion of Woodlot 1572 is located along the park's southeastern boundary.

The Larch Hills-Rosemond Lake Forest Service Road (FSR) travels along the western boundary of the park, while two other unnamed resource roads run along the southeastern boundary of the park.



**Plate 3:** An infrequently used corral is located within the park along the southern edge of the Larch Hills-Rosemond Lake FSR. Note the presence of chicory (an invasive plant species) in flower in the foreground.

## **1.5 Management Commitments/Agreements**

Mara Meadows Park was established as part of the recommendations of the Okanagan-Shuswap LRMP. The park was identified for protection as it complements Upper Violet Creek Park and Mara Meadows Ecological Reserve, which contains a unique calcareous fen ecosystem with diverse flora including rare orchids. The park protects a major portion of Mara Meadows Creek on the north side of the ecological reserve and forested upland along the east side.

## **1.6 Existing Permits and Authorizations**

The upper half of the park is overlapped by one range tenure (see Figure 3). The park is within trapping territory TR0825T055.

## **1.7 Management Planning Process**

To initiate the management planning process, a Terms of Reference document was developed in 2009. Background information was also gathered from communications with the current Ecological Reserve Warden, Jeremy Ayotte. Mr. Ayotte also contributed substantially to the development of the management plan for Mara Meadows Park, drawing upon his extensive knowledge of the adjacent ecological reserve.

## **1.8 Relationship with First Nations**

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

Mara Meadows Park is located within the asserted traditional territories of the Okanagan Nation and the Shuswap Nation Tribal Council. Member bands/nations of the Shuswap Nation Tribal Council that may have interest in the park are Neskonlith Indian Band, Adams Lake Indian Band, Little Shuswap Indian Band and Splotsin. The Splotsin are the nearest geographically, with head offices in Enderby.

The management plan will not limit subsequent treaty negotiations. The park continues to be available for the exercising of aboriginal rights, including harvesting and hunting (subject to conservation and public safety requirements).

## **1.9 Relationship with Communities**

Mara Meadows Park is located within the Larch Hills community. Although the park receives very little public visitation, the Larch Hills area is very popular from a recreational perspective, particularly in winter months, with the operation of the Larch Hills Nordic Centre/Society. The Society operates an extensive cross-country ski area just north of Mara Meadows Park, within portions of Upper Violet Creek Park.

The Shuswap Trail Alliance is an active, non-profit, non-governmental organization that promotes non-motorized activities within the Larch Hills area. BC Parks currently has a volunteer agreement with the Shuswap Trail Alliance; however, Mara Meadows Park lacks any formal recreational trails so the focus of BC Parks' relationship with the alliance is primarily for neighbouring parks such as Upper Violet Creek Park.

The adjacent ecological reserve has a long history of dedicated ecological reserve wardens, all of whom reside or resided in the local community. As Mara Meadows Park and the adjacent ecological reserve are regarded as very much the same land unit, the interest in the park by the active ecological reserve warden is significant.



**Plate 4: The core area of the park contains a series of wetlands, many of which have witnessed a significant rise in the water table over the past several decades resulting in tree mortality along the fringes of the wetlands.**

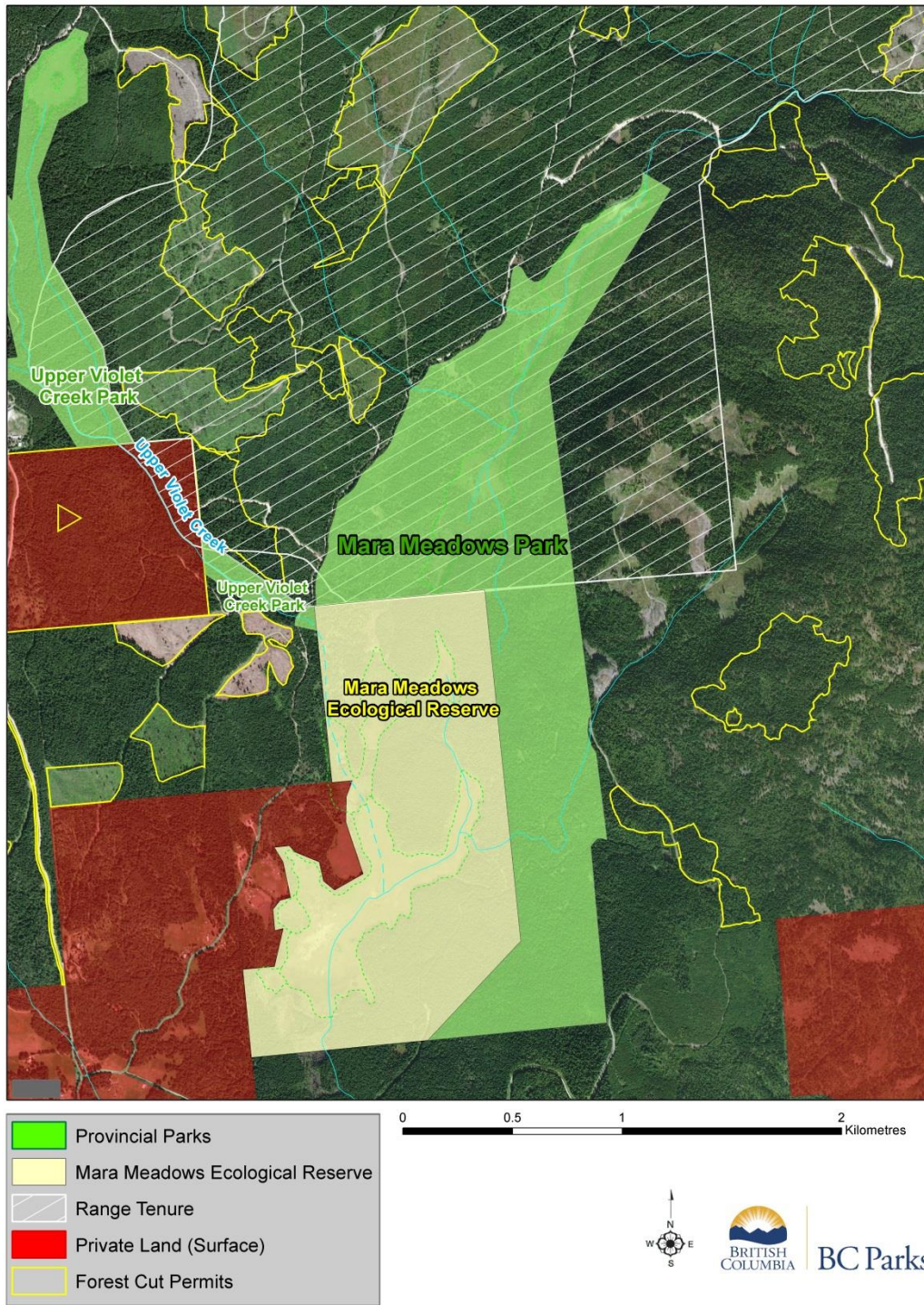


Figure 3: Map of adjacent tenures/land use.



**Plate 5: BC Parks relies heavily on dedicated volunteers in gathering important information regarding the Mara Meadows complex (park and ecological reserve). Shown here are Area Supervisor, Kevin Wilson (right), and Peter Bailey (former ecological reserve warden).**



**Plate 6: Current ecological reserve warden Jeremy Ayotte (left) works with Kirk Safford of BC Parks (right) on monitoring and research within the neighbouring ecological reserve.**



## 2.0 Values and Roles of the Park

### 2.1 Significance in the Protected Areas System

Mara Meadows Park protects a unique, under-represented mid-elevation headwaters area covering terrestrial and aquatic ecosystems. The park forms a critical part of a watershed that drains into a large alkaline, calcareous fen (captured largely by the Mara Meadows Ecological Reserve), which supports a rare assemblage of orchids.

The park likely contains many of the floral species at risk found in the adjacent ecological reserve. With its remnant stands of old-growth forest and rich riparian values, it is viewed very much as a refuge for many terrestrial and aquatic species, particularly since the land area around the park has undergone extensive logging.

Within the park are areas where two ecological communities of special concern (blue listed) are likely to occur:

- Douglas-fir / shrubby penstemon – pinegrass (*Pseudotsuga menziesii* / *Penstemon fruticosus* - *Calamagrostis rubescens*) and,
- western redcedar - Douglas-fir / red-osier dogwood (*Thuja plicata* - *Pseudotsuga menziesii* / *Cornus stolonifera*).

The park protects an under-represented Biogeoclimatic (BGC) variant - ICH dw4 (Interior Cedar Hemlock dry warm) - in the Shuswap River Highlands Ecoregion. Only 2.7% of this BGC variant is protected province-wide.

From a fisheries perspective, the park provides intact rearing and spawning habitat for Rainbow Trout, while from a wildlife perspective, the park contains important winter range for Mule Deer.

### 2.2 Biodiversity and Natural Heritage Values

#### Ecosystem Representation

Mara Meadows Park is situated within the Interior Cedar Hemlock moist wet biogeoclimatic (BGC) variant ICH dw4 - also known as the Shuswap Dry Warm variant. The natural disturbance regime, NDT 3, in this area represents “ecosystems with infrequent stand-initiating events”.<sup>1</sup> Important ecological factors that influence plant and wildlife species in

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<sup>1</sup> Natural Disturbance Types (NDTs) are a useful tool, developed for British Columbia as part of the Forest Practices Code Biodiversity Guidebook. These NDTs categorize the Province into zones based on the frequency and severity of pre-European disturbance events.

this zone are the long, cool, snowy winters and the warm, dry summers creating dense stands of conifer forests.

The park contains a mix of upland forests dependent on soil nutrients and drainage qualities. The forest typically contains mixed age classes of western redcedar, western hemlock, Douglas-fir, larch, lodgepole pine and western white pine. The understory in riparian areas at the north end of the park adjacent to Larch Hills Creek can be quite dense with shrubs dominated by red-osier dogwood, black gooseberry, Douglas maple and vaccinium species (e.g., huckleberry).



**Plate 7: A mosaic of forest stands consisting of Black Cottonwood, Western red-cedar, and Douglas-fir can be found within the park.**



Plate 8: Numerous aspen trees reveal, through claw marks, evidence of bear occurrence within the park.

### **Fish and Wildlife Habitat**

Typical wildlife species supported by the forests of the ICH dw4 include Moose, Mule Deer, White-tailed Deer, Black Bear, Cougar, Ruffed Grouse, Barred Owl, Saw-whet Owl, and the Rubber Boa (a federally-listed species of special concern). Other species that are likely found within the riparian areas at the north end of the park include Beaver, Muskrat, Western Terrestrial Garter Snake, Northern Alligator Lizard, Western Skink, Western Toad, Pacific Chorus Frog, and the Wood Frog. There are also several 'at risk' wildlife species that may occupy the riparian areas within the park such as the Coeur d'Alene Salamander (a federally-listed species of special concern) and the Northern Long-eared Myotis.

Wildlife species that occupy this Shuswap Dry Warm ICH zone are able to either survive or avoid the deep snows of the long winters. Black Bear dens are likely to occur within Mara Meadows Park given that the park provides somewhat of an undisturbed/unroaded refuge within a larger matrix of rural properties and industrial logging blocks. The patchwork of disturbed and dry openings within the park also provides Black Bears with huckleberry (*Vaccinium spp.*) during the fall berry feeding period when bears bulk up prior to hibernation.

A complete list of species at risk is referenced in Appendix 1.

### **2.3 Cultural Values**

Psta'qst'iya is the name given to the area known as Mara Meadows by the Splat'sin people of the Secwepemc. Psta'qst'iya is an interior Salish language name for Trapper's Tea (*Ledum glandulosum*). Trapper's tea occurs only in limited areas within Secwepemc territory. The

aromatic leaves are used to make tea which is used largely for medical purposes as a pain reliever.



**Plate 9: Trapper's Tea is an important traditional plant of First Nations. Photo credit Jim Riley.**

The broader landscape in which the park resides is referred by the Secwepemc as Tsk'maws (in between) or by its English name, Larch Hills, a culturally significant area to the Splat'sin. Splat'sin community members conduct several additional cultural activities in the Mara Meadows area including hunting for ungulates (Moose and Mule/White-tail Deer) and traditional harvesting.

The park is within a broader Traditional Use Study (TUS)<sup>2</sup> area of the Neskonlith Indian Band and Adams Lake Indian Band, in addition to being identified, along with the surrounding land area, as a Traditional Use Site<sup>3</sup> for berry harvesting by the Little Shuswap Indian Band.

There are no known archaeological sites within the park. One registered archaeological site, a cache pit (cultural depression), exists just outside the boundary of the adjacent ecological reserve. Most archaeological values in the surrounding area (outside the park) have been recorded as a result of assessments associated with forest harvesting activities.

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<sup>2</sup> The title of the TUS is "*Land Traditions of the Neskonlith and Adams Lake Shuswap*".

<sup>3</sup> A Traditional Use Site is a geographically defined site that has been traditionally used by one or more groups of people for some type of activity. These sites will often lack the physical evidence of human-made artifacts or structures, and maintain cultural significance to a living community of people. Traditional Use Sites are usually documented with the assistance of oral historical or written archival sources. Examples include: sacred sites, resource gathering sites such as berry-gathering grounds and culturally modified trees, and the site of a legendary or past event of cultural significance.

## 2.4 Recreation Values

Mara Meadows Park receives a low level of recreational use. The predominant use in the park is from the local community and focuses on hiking and nature appreciation and, within specific times of year, hunting. Easy road access, particularly along the park's northern boundary provides opportunities for the public to utilize, on foot, many of the park's old skid roads that penetrate deeper into the park towards the meadows and Mara Meadows Creek.

## 2.5 Climate Change and Hydrology

It is now recognized by the scientific community that increasing atmospheric "greenhouse gases" are causing long-term shifts in climate patterns worldwide. In the southern interior of British Columbia, the trend is toward warmer, drier summers and more precipitation in winters (primarily as rain, rather than snow). The exact effects of such climate change on any ecosystem are impossible to predict with a high degree of confidence; and this holds true for the ICH dw4 variant in which the park is located. Nevertheless, climate modelling suggests that the current mean annual temperature for the park area is expected to rise by 3 degrees Celsius and the annual precipitation is forecasted to increase from its current 616 mm to 700 mm by 2050.

The rising temperatures and changed precipitation that have been projected as characteristic of the future climate may change the hydrology, thus posing a threat to the rare and specialized flora associated with the meadow complexes within the park. Changes in water level and rates of evapotranspiration could alter the composition of the wetland systems, thus impacting the outstanding diversity and unique habitat for which this park and adjacent ecological reserve were designated.

The hydrology of the Mara Meadows / Violet Creek drainage has not undergone extensive study. The Larch Hills is likely the main water source to the meadows, with other sources of water coming from the low ranges to the east of the park/ecological reserve. A considerable amount of this water is subsurface, with very little water reaching the park over the surface. The water sampled at the surface of the park contains high levels of calcium carbonate, therefore indicating the water has been transported subsurface over considerable distance. In recent years, the water table in the park has been rising, resulting in die-off of many of the forest stands located within the central portion of wetlands. It has been speculated that beaver dams within the lower tributaries has prompted higher water levels in upstream areas. Despite the manipulation of lower streams by beavers, damming by the beavers is considered to be an asset in a future where temperatures are rising and more precipitation is falling as rain, especially relevant in wetland complexes.

Adjacent land use (i.e., forest harvesting and land clearing) has the potential to affect the hydrological cycle and processes, as does the potential impact from well drilling and septic field installation for new residential developments in the surrounding area.

## 3.0 Management Direction

### 3.1 Management Objectives and Strategies

Management Context	Management Objectives and Strategies
<p>The park lacks baseline ecological data and inventories.</p> <p>There is currently no comprehensive fauna or flora species inventory of the park.</p>	<p><b>Management Objective:</b> Increase knowledge of the park’s ecological values.</p> <p><b>Management Strategy:</b></p> <ul style="list-style-type: none"> <li>• Integrate the study/monitoring of the adjacent ecological reserve with the park.</li> <li>• Place emphasis on gathering species inventories for the park with a specific focus on those considered ‘at risk’.</li> </ul>
<p>Wetland components and hydrological processes associated with the park may be changing as a result of human-induced activities (including climate change) both inside and outside the park.</p>	<p><b>Management Objective:</b> Seek to understand the natural range of variation of the hydrological processes associated with the wetlands in the park while factoring in future climate change into management decisions.</p> <p><b>Management Strategies:</b></p> <ul style="list-style-type: none"> <li>• Promote research, monitoring and study within the park and adjacent ecological reserve to better understand the hydrology of, and between, wetland complexes.</li> <li>• Promote study of geology, geomorphology (e.g., karst potential), and ground water to better understand key features and drivers of Mara Meadows source waters.</li> <li>• Encourage research/monitoring of the effects of climate change on park values and ecosystem functions.</li> <li>• Work with the Crown agencies responsible for forest tenuring and operations and with forest licensees to minimize effects of forest harvesting activities on the park (e.g., windthrow, invasive plant spread, edge effects). Encourage adequate buffer protection of the park and encourage prompt road deactivation after silvicultural obligations are completed.</li> <li>• Provide better information to woodlot and private land owners regarding the potential effects of their developments on the park and adjacent ecological reserve and of the value of the protected lands matrix in this area.</li> <li>• Work with the ministry responsible for range and the range tenure holder to ensure cattle do not negatively impact wetland and riparian area vegetation, soils and hydrology.</li> </ul>

<p>Recreational use within the park is currently low. Increased use may negatively impact the park and adjacent ecological reserve values.</p>	<p><b>Management Objective:</b> Focus recreational activity to current use areas with an emphasis on low-impact, non-motorized, day use opportunities.</p> <p><b>Management Strategies:</b></p> <ul style="list-style-type: none"> <li>• Ensure park boundary signage is placed in key areas and discourage use in areas that are within close proximity to the adjacent ecological reserve.</li> <li>• Use barriers/signage to discourage off-road motorized vehicles from venturing into the park from adjacent forest service road/resource roads.</li> </ul>
<p>Exploring approaches to work collaboratively with First Nations in the protection of cultural heritage values within the park.</p>	<p><b>Management Objective:</b> Traditional management and cultural practices have occurred, and continue to occur in the Shuswap River Highlands and the area is of high importance to First Nations.</p> <p><b>Management Strategy:</b></p> <ul style="list-style-type: none"> <li>• Subject to resources and funding, and in collaboration with First Nations, perform historical and ethnographic research (e.g., archaeological investigation/assessments).</li> <li>• Identify threats to cultural heritage values (if recorded) and implement protective measures that ensure sensitive sites are not impacted by land use activities.</li> <li>• In collaboration with members of the Splotsin, identify known concentration areas of Trapper’s Tea (Psta’qst’iya) and ensure traditional harvesting activities are not adversely affected by external factors (i.e., off-road vehicle use, unsanctioned trail development, illegal harvesting by non-indigenous people).</li> <li>• In consultation with First Nations, investigate future deployment of cultural zoning where appropriate to ensure enhanced protection of traditional use/archaeologically sensitive areas of the park.</li> </ul>
<p>Non-native plant species are known to occur in the park, particularly on road right of ways (e.g., shoulders off of the travelled portion) or areas of grazing use.</p>	<p><b>Management Objective:</b> Prevent the establishment of new invasive species and control existing invasive species from spreading to new areas.</p> <p><b>Management Strategy:</b></p> <ul style="list-style-type: none"> <li>• Monitor the park for invasive plants and implement appropriate preventative and treatment options (biological, chemical or mechanical) as needed.</li> </ul>

## 4.0 Zoning

Zoning assists in the planning and management of protected areas. In general terms, zoning divides an area into logical units to apply consistent management objectives. The zones reflect the intended land use, the degree of human use desired, and the level of management and development allowed in specified areas.

There are six types of zones in the BC Parks Zoning Framework. At one end of the spectrum, the Intensive Recreation Zone indicates a portion of a protected area that is appropriate for high levels of recreation and facility development. At the opposite end, the Wilderness Conservation Zone indicates an area of a protected area that receives the highest level of resource protection and minimal human presence. In addition, there are four other zones providing a range of conservation and use priorities - Nature Recreation Zone, Special Feature Zone, Wilderness Recreation Zone and Cultural Zone. The Nature Recreation Zone is the only zone applicable in Mara Meadows Park. In the future, there may be a requirement to utilize 'Cultural Zones' in Mara Meadows Park should aboriginal use studies or analysis of the park environs yield specific areas within the park of cultural importance to First Nations.

### **Nature Recreation Zone**

#### ***Description***

Mara Meadows Park, in its entirety (212 hectares), is zoned Nature Recreation.

#### ***Objective and Management Intent***

Motorized use is not permitted in the park and the recreational focus of the park is on day-use activities (e.g., wildlife viewing, nature appreciation and hunting).



## 5.0 Appropriate Use Table

The following table summarizes existing and potential future uses in Mara Meadows Park. This is not an exhaustive list and in the future, other uses may occur in this park.

Please note that appropriate uses may be geographically restricted (i.e., only allowed in certain areas of Mara Meadows Park or are only appropriate at certain times of the year). It is important to review relevant sections of the management plan when interpreting the table.

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

Activity/Facility	Nature Recreation Zone	Comments
<b>Recreational Activities/Uses</b>		
Camping	N	To accommodate special events/specific requests associated with First Nations use of the park. BC Parks and respective First Nations would discuss annual events/outings prior to use.
Fishing	Y	
Hiking	Y	
Hunting	Y	As per land use planning direction
Land-based Mechanized Activity (e.g., mountain biking)	Y	Limited to current deactivated skid roads. No new trail construction.
<b>Recreation Facilities/Infrastructure</b>		
Campgrounds (vehicle accessed)	N	
Picnic Areas (vehicle accessed)	N	
Parking Lots	N	
Roads	N	
Trails	Y	To utilize existing deactivated skid roads.
<b>Other Activities/Infrastructure</b>		
Botanical Forest Product Harvest	N	Except for traditional harvesting/gathering by First Nations (subject to conservation and safety provisions).
Commercial Filming	Y	Under PUP only.
Grazing	Y	Within current range tenure area only (see Figure 3).
Log Storage and Dump Sites	N	
Trapping	Y	Not in high use areas and under PUP only.
Utility Corridors	N	

## 6.0 Plan Implementation

### 6.1 Implementation Plan

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

### 6.2 Plan Assessment

In order to ensure that the management direction for Mara Meadows Park remains relevant and effective, BC Parks staff will ensure that the management plan is assessed by BC Parks staff on a regular basis (i.e., at least every 5 years). Minor administrative updates may be identified and completed at any time (e.g., 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 updating or substantial new management direction is needed, a formal review by BC Parks may be initiated to determine whether the plan requires an amendment or if a new plan is required.

## 7.0 Appendix 1

The following are lists of ‘at risk’ ecological communities and flora and fauna species found in Mara Meadows Park. It combines analyses from BC Species Explorer, the Conservation Risk Assessment data, and observations/records from ecological reserve wardens working at nearby Mara Meadows Ecological Reserve.

### **Red and Blue List Context**

The Ministry of Environment and Climate Change Strategy categorizes ‘species at risk’ utilizing the red and blue lists. The following is a brief description of the designations:

#### ***Red List:***

Includes any ecological community and indigenous species or subspecies that is extirpated, endangered, or threatened in British Columbia. Extirpated elements no longer exist in the wild in British Columbia, but do occur elsewhere. Endangered elements are facing imminent extirpation or extinction. Threatened elements are likely to become endangered if limiting factors are not reversed. Red-listed species and subspecies may be legally designated as, or maybe considered candidates for legal designation as Extirpated, Endangered or Threatened under the Wildlife Act. Not all red-listed taxa will necessarily become formally designated. Placing taxa on these lists flags them as being at risk and requiring investigation.

#### ***Blue List:***

Includes any ecological community and indigenous species and subspecies considered to be of special concern (formerly vulnerable) in British Columbia. Elements are of special concern because of characteristics that make them particularly sensitive to human activities or natural events. Blue-listed elements are at risk, but are not Extirpated, Endangered or Threatened.

### **The Conservation Framework Prioritization Tool**

This tool ranks B.C. species and ecosystems of conservation concern for management action, based on five clearly defined criteria:

- ✓ global and provincial status
- ✓ trends
- ✓ threats
- ✓ stewardship responsibility
- ✓ feasibility of recovery

Each species or ecosystem receives a rank of 1 (highest) through 6 (lowest) under each of the three goals and is managed under the goal in which it receives the highest score.

### **Species at Risk in Mara Meadows Park**

#### ***Ecological Communities at Risk***

There are no red-listed ecological communities that are likely to occur within the park.

The following two ecological communities are blue listed in the province and have the potential to occur within the park:

- Douglas-fir / shrubby penstemon - pinegrass (*Pseudotsuga menziesii* / *Penstemon fruticosus* - *Calamagrostis rubescens*) - Priority 2/Goal 2
- western redcedar - Douglas-fir / red-osier dogwood (*Thuja plicata* - *Pseudotsuga menziesii* / *Cornus stolonifera*) - Priority 2/Goal 2

#### ***Flora Species at Risk***

- *Cinclidium subrotundum* (moss, red listed)
- *Dryopteris cristata* (fern, blue listed)
- *Eleocharis rostellata* (sedge-relative, blue listed)
- *Liparis loeselii* (orchid, red listed)
- *Orthotrichum elegans* (moss, blue listed)
- *Pseudocalliergon turgescens* (moss, blue listed)
- *Rhynchospora capillacea* (sedge-relative, red listed)

#### ***Fauna Species at Risk***

The following red-listed vertebrate species may be present within the park:

- Swainson's Hawk (*Buteo swainsoni*)
- Western Screech-Owl, macfarlanei subspecies (*Megascops kennicottii macfarlanei*)

The following vertebrate species are blue listed in the province and may be found within the park:

- Great Basin Spadefoot (*Spea intermontana*)N
- Western Toad (*Bufo boreas*)
- American Bittern (*Botaurus lentiginosus*)
- Barn Swallow (*Hirundo rustica*)

- California Gull (*Larus californicus*)
- Great Blue heron, herodias subspecies (*Ardea herodias herodias*)
- Olive-sided Flycatcher (*Contopus cooperi*)
- Rusty Blackbird (*Euphagus carolinus*)
- Fisher (*Martes pennanti*)
- Racer (*Coluber constrictor*)
- Western Painted Turtle - Intermountain - Rocky Mountain Population (*Chrysemys picta* pop. 2)

One red-listed species may also be found within the park boundaries:

- Lance-tipped Darner (*Aeshna constricta*)

The following blue-listed invertebrate species may be found within the park boundaries:

- Immaculate Green Hairstreak (*Callophrys affinis*)
- Monarch (*Danaus plexippus*)
- Emma's Dancer (*Argia emma*)
- Pronghorn Clubtail (*Gomphus graslinellus*)
- Twelve-spotted Skimmer (*Libellula pulchella*)
- Western River Cruiser (*Macromia magnifica*)
- Abbreviate Pondsnail (*Stagnicola apicina*)
- Black Gloss (*Zonitoides nitidus*)
- Magnum Mantleslug (*Magnipelta mycophaga*)
- Pale Jumping-slug (*Hemphillia camelus*)
- Silky Vallonia (*Vallonia cyclophorella*)
- Umbilicate Sprite (*Promenetus umbilicatellus*)