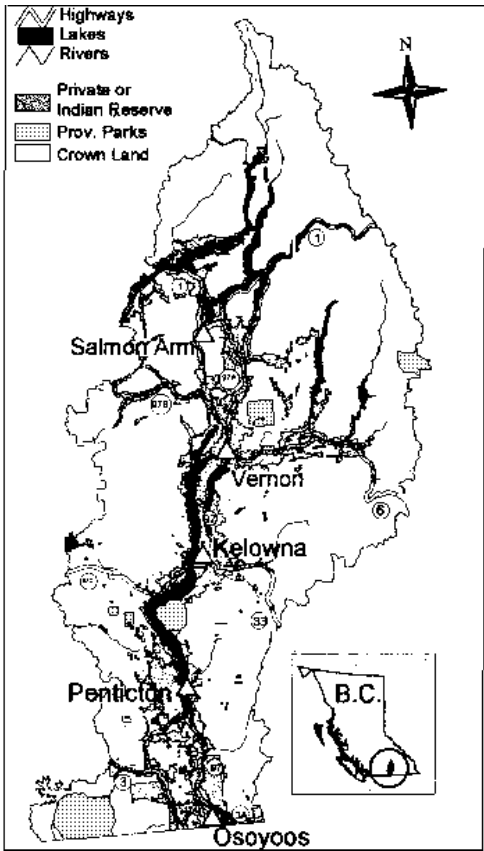


# Okanagan - Shuswap Land and Resource Management Plan



A Component of British Columbia's  
Land Use Strategy



Approved Plan  
April 11, 2001

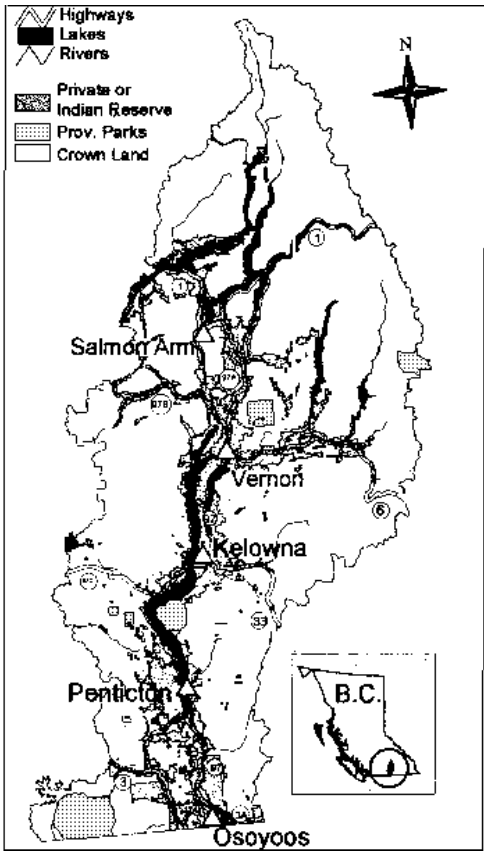


Funding provided by the Crown Land Use Planning  
Enhancement (CLUPE) fund of Forest Renewal BC

# Okanagan - Shuswap Land and Resource Management Plan



A Component of British Columbia's  
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## Executive Summary

The Okanagan – Shuswap Land and Resource Management Plan (LRMP) covers approximately 2.5 million hectares. The planning process was initiated in July 1995 and completed in September 2000. The plan was approved by government in January 2001.

The plan was developed by over 30 public and government participants representing a wide range of values such as water, timber, wildlife, fisheries, mining, recreation, tourism, conservation and agriculture. First Nations expressed an interest in the process but chose not to participate. They were kept informed about the process on an ongoing basis through a dedicated liaison position, as well as through the provision of meeting summaries and other LRMP material.

The LRMP provides direction for the management of the Crown land and resources within the plan area. Through their recommendations package the participants clearly articulated their vision for a balanced land use strategy. The plan includes management direction that applies across the entire plan area (i.e., general management), resource management zones (RMZs) where integrated resource management is practiced based on objectives and strategies specific to that RMZ, as well as almost fifty new protected areas. The level of detail found in this plan is greater than that found in previous LRMPs. This should provide the clarity required for efficient implementation.

Some of the highlights of the plan include:

- Resource management zones covering 93% of the Crown land base outside of protected areas. Because the RMZs apply to particular resource attributes or values where they occur on the land base; there is extensive overlap between many of these zones. The result of this overlap is that operationally no zone can or should be considered in isolation of the other RMZs that may cover the same area. Therefore, management in any one area should meet the management direction in all overlapping RMZs.
- Mineral exploration and development is permitted and encouraged in all areas, with the exception of protected areas.
- Commercial timber harvesting and related access development are allowed in the vast majority of the planning area. There are currently some restrictions on commercial timber harvesting in caribou habitat.
- 49 new protected areas (22 Goal 1 and 27 Goal 2), totaling approximately 123,000 hectares and increasing the protected area portion of the land base by 5% to a total of 7.9%. These areas include some of the rarest ecosystems in the province.
- The plan recognizes the significance of riparian management and its implications to water, fish and wildlife. Additional protection for fish streams and larger non-fish bearing streams was afforded by allocating a 'budget' of 10,000 hectares of timber harvesting land base for 'enhanced riparian reserves'.

## Okanagan - Shuswap LRMP Approved Plan

- The plan provides specific direction on managing for biodiversity by establishing the 'biodiversity emphasis option' assignments for each of the landscape units in the plan area, as well as guidance for the designation of old growth management areas.
- Caribou are a wildlife species of concern in the plan area. The plan establishes approximately 9,500 hectares of 'caribou reserves' in the timber harvesting land base portion of the Mountain Caribou Habitat RMZ. In addition, another 10,000 hectares has been identified where timber harvesting will be deferred while research is undertaken that will aid in defining caribou habitat management requirements. Further action will be based upon the results of this research, which is expected to be available in seven years.
- The establishment of an 'Implementation and Monitoring Committee' that will provide advice on activities relating to plan implementation and effectiveness monitoring on an ongoing basis.



Okanagan-Shuswap  
Land and Resource Management Plan

12440-04/Table  
September 9, 2000

Provincial Government  
c/o Thompson - Okanagan IAMC  
Ministry of Forests  
515 Columbia Street  
Kamloops BC V2C 2T7

Dear IAMC members:

Re: Consensus Recommendations on a Land and Resource Management Plan  
for the Okanagan - Shuswap.

It gives us great pleasure to enclose for your consideration a report that contains recommendations for a Land and Resource Management Plan for the Okanagan - Shuswap region of British Columbia.

We are also pleased to inform you that the package of recommendations contained in the report reflect a consensus of all members of the Okanagan - Shuswap LRMP process. In arriving at this consensus, it was agreed that members would not be restricted from communicating with government agencies with respect to specific concerns or issues that they have regarding certain matters discussed in the enclosed report, so long as they do so in a manner that does not undermine or derogate from the consensus. In this regard, some members of the Table may forward to you, over the next several days, letters that identify such issues or concerns.

Thank you for the opportunity to participate in the development of an LRMP for the Okanagan - Shuswap and your patience in providing us with the necessary time and resources to complete this project in manner that we believe will benefit the region for many years to come.

Yours Sincerely,

The Members of the Okanagan-Shuswap LRMP Process  
(signature page attached)

Attachment







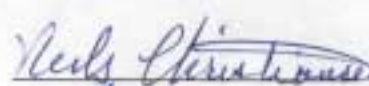

DJ/SC/dt

Members of the Okanagan-Shuswap LRMP Process

Signature	Name	Sector
<u>B.D. St. George</u>	<u>B.D. ST. GEORGE</u>	<u>CHAMBERS of COMMERCE</u>
<u>K.M. Campbell</u>	<u>K.M. CAMPBELL</u>	<u>RECREATION</u>
<u>Barbara Westerman</u>	<u>Barbara Westerman</u>	<u>CONSERVATION/ ENVIRONMENTAL</u>
<u>G.W. Hazell</u>	<u>GARY HAZELL</u>	<u>TOURISM NORTH</u>
<u>Terry Burke</u>	<u>TERRY BURKE</u>	<u>SUMMER MOTORIZED RECREATION</u>
<u>Len Bawtree</u>	<u>LEN BAWTREE</u>	<u>NORTH OKANAGAN CATTLEMENS ASS</u>
<u>Len Bawtree</u>	<u>LEN BAWTREE</u>	<u>WOODLOT ASS'N</u>
<u>Isobel Pritchard</u>	<u>ISOBEL PRITCHARD</u>	<u>Recreation</u>
<u>Connie Harris</u>	<u>Connie Harris</u>	<u>Public Recreation</u>
<u>Harold King</u>	<u>HAROLD W. KING</u>	<u>FEDERATION OF B.C. NATURALISTS</u>



Members of the Okanagan-Shuswap LRMP Process

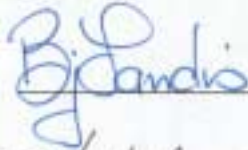
Signature	Name	Sector
	<u>CLIVE JOHNSON</u>	<u>SOUTH OKANAGAN ENVIRONMENTAL SECTOR</u>
	<u>BOB HELFRICH</u>	<u>SHUSWAP DEM. FOREST ASSOC.</u>
<u>Don Couch</u>	<u>Don Couch</u>	<u>Shuswap Okanagan Forest Assoc.</u>
	<u>Simon Goodfrench</u>	<u>BC TRAPPERS ASSO.</u>
	<u>Jim Cooperman</u>	<u>Shuswap Environmental Action Society</u>
	<u>Mark Gaudin</u>	<u>Ranching</u>
	<u>Lloyd Manchester</u>	<u>Canadian Earthcare Society</u>
<u>R.P. Taylor</u>	<u>RON TAYLOR</u>	<u>B.C. Wildlife Federation</u>
<u>C.G. Norris</u>	<u>CLIFF NORRIS</u>	<u>BC Wildlife Federation</u>
	<u>NEILS CHRISTIANSEN</u>	<u>SALMON RIVER WATERSHED ROUNDTABLE</u>
	<u>MARC HUBBARD</u>	<u>OKANAGAN GUIDES ASS.</u>

Members of the Okanagan-Shuswap LRMP Process

Signature

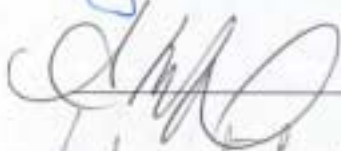
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Sector



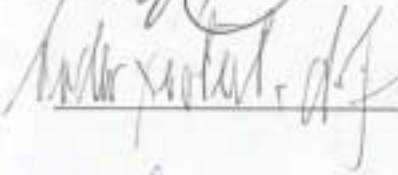
Benjamin J. Landis

IWA Canada  
Local 1-423



Allison McNeill

Thompson Okanagan-Tanana Regional District



I. S. Hansen

Recreation




JUDY L. JOHNSTON

Community



Gordon Rowland

I. L. A.



MICHAEL J. MERCER

WATER SUPPLY ASSOC.  
OF BRITISH COLUMBIA

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# Okanagan - Shuswap LRMP Approved Plan

## Part 1

In this section:

- What is in an LRMP?
- Purpose of the plan.
- Who was involved?
- How was the plan developed?
- Linkages with other processes.
- Context or legal framework for the plan.
- The resource management planning system.
- What are the “tools” used in the plan?
- Resource management direction within the structure of this document.

## Introduction

### What is the Okanagan-Shuswap Land and Resource Management Plan ?

The Okanagan - Shuswap Land and Resource Management Plan (LRMP) is a strategic Crown land use plan for the Okanagan - Shuswap. The plan covers all of the Crown land and resources, including the aquatic land of lakes and rivers within the plan area. The plan itself will consist of maps of resource management zones (RMZs) and new protected areas (PAs), text that contains land and resource management objectives and strategies that apply to the entire Crown land base, as well as additional objectives and strategies that are specific to each of the identified zones.

*The overall vision of the Okanagan - Shuswap LRMP Planning Table is “to produce a strategic land and resource management plan that will sustain the ecological, social and economic well-being of the plan area”.*

This document represents the recommendations of the Okanagan - Shuswap LRMP. The Okanagan - Shuswap LRMP forms one part of British Columbia's Land Use Strategy, and directs the management of all Crown land in the plan area for the next ten years.

This plan and the process used in developing it are consistent with provincial government policy for land use planning, as described in the Provincial Land Use Charter (1992) and Land and Resource Management Planning: A Statement of Principles and Process (1992).

### Purpose of the plan

The Okanagan - Shuswap area has never had a comprehensive land use plan. Instead, resource planning and management on Crown land has focused on specific land uses and values such as forestry, mining, tourism and parks under the authority of separate government ministries. As long as there were sufficient lands and resources to satisfy all needs, this approach to planning was adequate.



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In more recent times, however, increased demands for finite resources and a societal shift toward greater protection for environmental and recreational values have led to increasing conflict and uncertainty among resource interests. Increasingly, assumptions for a variety of land use and resource allocation decisions within the plan area were being challenged. In this atmosphere, decision making by resource managers became more contentious and difficult, and often was deferred. The need for a coordinated approach to strategic planning was clear.

The Okanagan - Shuswap LRMP is intended to address this need by incorporating the principles of sustainability and integrated resource management into a long-term, strategic vision for Crown land and resource development within the plan area. It is intended that the plan reflect a balance of social, economic and environmental values, and will assist statutory decision makers (SDMs) in making statutory determinations.

It is also hoped that the development of the LRMP will aid in the building of common ground, cooperation, and partnerships among government agencies, First Nations, associations, stakeholders, licensed tenure holders and private landowners with respect to the management of resources in the plan area.

## **Who was involved?**

The Okanagan - Shuswap LRMP was prepared by a team of approximately 55 representatives from the public and government. The participants represented a wide range of values using an interest-based approach to negotiations. A list of Table representatives, alternates, and their sector affiliations are found in Appendix II.

Local First Nations expressed an interest in the process, but chose not to participate. First Nations made presentations to the Table, on several occasions. The people who made these presentations did so as individuals, and not as official representatives of any of the Bands in the plan area. A contractor was retained to facilitate LRMP related communications between First Nations and process managers. First Nations signed separate agreements with the Province that provided for their review of LRMP map products, draft objectives and strategies, and the draft LRMP. The Table considered information generated by these reviews.

The following regional districts had representatives at the Table: Okanagan - Similkameen, Central Okanagan, North Okanagan and Columbia - Shuswap.

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In addition, quarterly meetings of the Process Advisory Committee (PAC) provided an opportunity for local government representatives to identify process issues and to establish a productive working relationship with LRMP process managers. (The Thompson - Nicola Regional District also participated in the PAC meetings.) In the fall of 1997 a consultant was contracted to provide ongoing communications linkages between local government and the LRMP process.

## How was the plan developed?

The first meeting of the Table took place in February of 1996. The next two meetings were devoted to training on interest-based negotiations, with the Table actually commencing the first phase of the LRMP process in May 1996. The process consists of four broad phases:

1. Process design
2. Plan Development
  - Building a toolkit
  - Building an agreement
3. Plan Approval
4. Implementation and Monitoring

*Details on the ground rules can be found in the "Okanagan - Shuswap LRMP Terms of Reference" (Appendix I)*

The "process design" phase involved establishing the framework, objectives, ground rules, and work plan that served as a guide for development of the LRMP. This phase included activities such as:

- Contacting public stakeholders.
- Selecting a public participation approach and providing training.
- Preparing sector interest statements and goals.

In the "building a toolkit" phase, the LRMP Table developed a common understanding of the resource information. This information was compiled in preparation for the "building an agreement" phase. Critical information included:

- "Focus" or "resource value" maps
- Draft resource management objectives
- Information on protected areas values
- Base case multiple accounts analysis of environmental, social and economic factors
- An overview of potential zoning strategies
- A myriad of supporting or background information that the Table requires in order to implement an analysis and make informed decisions

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*The guiding principles for consensus were accommodation, cooperation and interest-based negotiation*

In the "building an agreement" phase the information that had been gathered, through careful analysis and negotiations, was used to come up with a consensus plan for the area. The following activities took place during this phase:

- Examining compatible land uses
- Establishing resource management zones, defining landscape units and assigning biodiversity emphasis
- Analyzing impacts
- Agreement and ratification by the Table

In the "approval phase" the Table recommendations were submitted to government, approved by Cabinet, and the final document was distributed.

Once Cabinet approved the plan, an Implementation and Monitoring Committee (IMC) was established to ensure that the plan is implemented appropriately. This Committee will reflect the interests that were represented at the planning Table.

All known resource values were considered in the LRMP process and decisions were made by consensus of the Table.

## **Linkages with other planning processes**

The LRMP is one of several provincial-planning processes in the region. Other processes include:

- "Growth Management Strategies", which are developed by regional districts, and seek to ensure planned development at the regional district level, with a primary emphasis being the management of settlement through the regional district's zoning and servicing powers.
- The "Okanagan Valley Transportation Plan" (OVTP) and "Trans Canada Corridor Management Plan", which will identify and assess performance deficiencies, determine problems, and develop and evaluate options for provincially and federally funded transportation infrastructure and services. These plans will develop investment strategies for funding transportation needs.
- The "Protected Areas Strategy" (PAS) – created by the provincial government in 1992 to coordinate BC's protected areas programs and objectives. The objective is to protect 12% of the province's land base by the year 2000. Specific lands are protected for their special values for wildlife, wilderness, recreation, culture and heritage and as representative examples of natural diversity. The first PAS goal (Goal 1) is to protect large (greater than 3000 ha) areas, which are representative examples of

# Okanagan - Shuswap LRMP Approved Plan

the natural diversity of the province, the major terrestrial marine and freshwater ecosystems, the characteristic habitats, hydrology and landforms, the backcountry or wilderness recreation opportunities, and the cultural heritage values of each ecosection. The second goal (Goal 2) is to protect small special natural, cultural heritage and recreational features. These "Goal 2" sites usually range in size from a few hectares to several hundred hectares.

These planning processes are being strategically coordinated with the LRMP in order to ensure that government initiatives are achieved in a holistic manner. Collectively these initiatives will help provide important economic and environmental direction to government in managing ongoing development and potential resource use conflicts.

## **Context or Legal Framework for the LRMP**

All land use and resource management activities within the Okanagan - Shuswap LRMP area are subject to laws of general application (e.g., legislation, regulations, and codes) for Crown land and resource management. Examples include the Forest Act, Forest Practices Code of BC Act, Agricultural Land Reserve Act, Water Act, Waste Management Act, Land Act, Highways Act, Municipal Act, Mines Act, Mineral Tenure Act, Mining Rights Amendment Act, Range Act, among others. In addition, policies, guidelines, protocol agreements, and interagency memoranda of understanding exist to implement these laws and regulations.

Cabinet-approved LRMPs become policy direction for all agencies involved in Crown land and resource management. They are also intended to provide further clarification and guide resource use and development. Parts of an LRMP can achieve the force of law for activities regulated by the Forest Practices Code of BC Act through higher level plan (HLP) designation. (This is amplified below.) In all cases, however, if there is a conflict between anything set out in this plan and provisions of statutes, or regulations made under statutes, then the statute or regulation will govern. There are certain exceptions to this general rule in the case of higher level plans where the Forest Practices Code specifically allows higher level plans to specify requirements different from the regulations with respect to certain requirements such as cut block size and green-up. Nothing in this document should be construed to fetter the discretion of statutory decision-makers.

It is not intended that the management direction in this plan is to override safety (e.g., WCB) guidelines and regulations.

# Okanagan - Shuswap LRMP Approved Plan

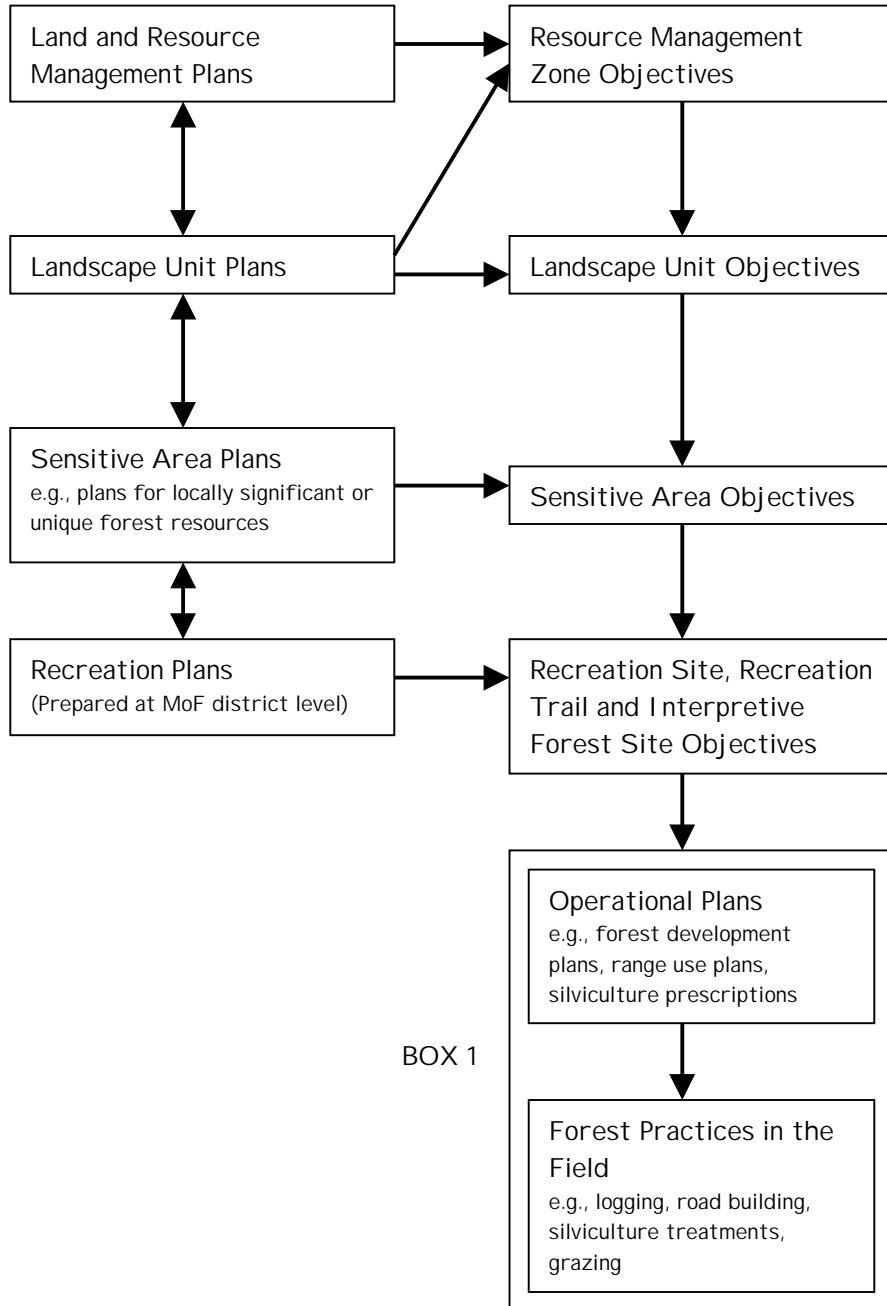
## The Resource Management Planning System

*Planning Hierarchy and Relationship to Forest Practices Code.*

Resource management plans in British Columbia are prepared at a variety of levels ranging from broad, strategic plans such as LRMPs to site-specific and detailed plans for small areas (see Box 1). Planning at each of the levels has their own characteristics and is structured to achieve particular purposes.

### STRATEGIC MANAGEMENT PLANS

### HIGHER LEVEL PLANS (Forest Practices Code)



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Prior to the enactment of the Forest Practices Code there was no legislation governing the development of resource management plans and no regulatory framework for requiring these plans to be considered in subsequent resource management decisions.

*Resource Management Planning in British Columbia within and outside the Forest Practices Code and outside the Forest Practices Code*

Provisions in resource management plans that pertain to forest resource uses and management practices may be implemented as legally enforceable provisions by being formally established as a "higher level plan" under the Forest Practices Code. Provisions of resource management plans that cannot be implemented through operational plans (e.g., provisions respecting non-forest resources) are implemented through other laws, and government programs and policy including:

- land designation under other statutes (e.g., Park Act designation or a protected area)
- research and inventory initiatives
- public information/education initiatives
- resource tenuring programs with associated conditions/restrictions on resource use and development
- regulatory efforts
- application of resource use guidelines and best management practices
- habitat and resource enhancement/rehabilitation initiatives.

*Content of Higher Level Plans*

The Forest Practices Code of British Columbia Act directs that provincial forests may be used in a way that is consistent with one or more of the following:

- timber production, utilization and related purposes
- forage production and grazing by livestock and wildlife and related purposes
- recreation, scenery and wilderness purposes
- water, fisheries, wildlife, biological diversity and cultural heritage resource purposes
- any purpose permitted by or under the regulations.

Therefore, higher level plans in provincial forests may only direct the Management of these resources and resource uses.

# Okanagan - Shuswap LRMP Approved Plan

## **Tools for Communicating Resource Management Direction**

The following tools are used in the LRMP plan to communicate resource management direction.

### Goals

- Describe a future vision
- Worded generally to establish broad aims
- Not normally quantitative
- No time specified for their achievement
- Normally apply to the whole planning area

### Objectives

- Outline end results that will achieve broader goals.
- Describe desired future conditions for individual resources or resource uses.
- Measurable.
- Time specific.
- Geographically specific.
- Can apply to whole plan area or specified parts of plan area.

### Strategies

- Describe how to achieve an objective.
- Pertain to activities and how those activities are to be conducted.
- Sometimes called "plan policies", "management actions", "guidelines".
- Can apply to whole plan area, to classifications/zones, or to individual management areas.
- Often stated as conditions that will apply to future resource use activity, but may also direct future processes.

### Zones or Geographic Designations

- Zones or geographic designations that communicate a management direction for a specific area or polygon.

### Maps

- Communicate spatial application of objectives and strategies.
- Show location of management areas/zones; biophysical/ecological units; capability/suitability classes; resource sites or features; legal and administrative boundaries.

# Okanagan - Shuswap LRMP Approved Plan

## Indicators

- Measurement criteria used during plan monitoring to assess the effectiveness of plan strategies in achieving plan goals and objectives (part of implementation and monitoring framework).

## Resource Supply Levels

- Represent a projected level of output of resources or the rate at which a desired outcome will be achieved.

## Descriptions of Management Intent

- Supplemental information that more fully describes objectives/strategies or their rationale.
- Help envision the desired “look” of a particular area.
- External guidelines.
- Cross-references to desirable existing resource management guidelines or “best management practices”

## Resource Management Direction Within the Structure of this Document

As shown in the table of contents, this document consists of eleven parts, plus appendices. Tools for communicating resource management direction are found specifically in Part 3, “General Resource Management” and in Part 4, “Polygon Specific Resource Management Zones”.

There are five different categories of management direction in this LRMP document.

- Higher Level Plan (HLP) objectives and strategies (as discussed earlier in Part 1) must pertain to “forest resources” implemented through the Forest Practices Code of British Columbia Act. They provide legally binding direction that must be implemented through an operational plan, and should provide certainty but not constrain flexibility. These are found in Parts 3 and 4 of the document.
- Non-HLP objectives and strategies must provide “on the ground” management direction, and are Cabinet approved direction that must be considered by the statutory decision-maker when managing Crown land resources. These are also found in Parts 3 and 4.



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- Some of the objectives and strategies can be described as “implementation” items in that they generally direct future processes - e.g., inventories, research and data collection, future lower level plans, etc. One of the first jobs of the Implementation and Monitoring Committee will be to provide advice to government on prioritizing these items for implementation based on available resources.
- Advice to the provincial government are items that generally do not direct on the ground management, and make recommendations on changes to existing legislation, tenure reform, compensation issues, direction for incorporation into provincial licensing documents, stewardship agreements, etc. These generally have provincial implications and are found in Part 8 of the document.
- Advice to the local government includes items that fall under the jurisdiction of regional or municipal governments. Material in this section can generally be summarized as suggestions for local governments to consideration when developing community plans or land use bylaws. These are summarized in Part 9.

There are introductions for each of the specific resource values or uses in Parts 3 and 4 of this document. The introduction provides an overview of the current state of the resource, provides a brief summary of what some of the main issues are for that resource or use, and lists the goals that were identified through the LRMP process for the resource.

Following the introduction is the “Objectives and Strategies” section, which contains the specific management direction for the resource value. Within this section, objectives can be identified as those items that are numbered using whole numbers (1, 2, 3, ...)

*Example of an objective*

*3) Maintain or enhance habitat opportunities for rare elements dependent upon grasslands.*

After each management objective are the management strategies that pertain to that objective. These are indented, and numbered using a decimal associated with the number of the objective (i.e., strategies 1.1, 1.2, 1.3, etc. would be pursuant to objective; strategies 2.1, 2.2, 2.3, etc., would relate to objective 2; etc.). By implementing the strategy or strategies pursuant to a particular objective it is assumed that the objective has been met.

*Example of a strategy*

*3.1) Any regulated resource use activities occurring on grasslands must take into account habitat requirements of rare elements.*

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Where additional information regarding the intent of the management objective or strategy is required, a shaded box containing the intent is inserted immediately after the objective or strategy that it pertains to.

*3.2) Protect rare plant communities within grasslands by planning management activities so that those communities persist.*

*Example of an intent*

*Intent:*

*i) That these communities will persist in a viable condition.*

*ii) Government is to identify and field confirm all rare plant communities.*

## **Implementation**

As part of the implementation process, an Okanagan - Shuswap LRMP Implementation and Monitoring Committee (IMC) will be established to provide advice on activities relating to plan implementation and effectiveness monitoring on an ongoing basis. Any changes to the content of this document, including policy changes, reassignment of responsibilities and/or costs from government to licensed resource users, etc., is to be referred through the LRMP Implementation and Monitoring Committee. More details on the implementation of this plan can be found in the Implementation and Monitoring section (Part 11).



## Part 2

In this section:

- An overview of the plan area.
- Details on the communities, economy and environment of the area.

## Characteristics of the Okanagan - Shuswap LRMP Plan Area

### Plan Area Overview

Covering approximately 2.5 million hectares, the plan area is made up of the Penticton, Vernon and Salmon Arm Forest Districts. It is one of the largest and most ecologically complex areas within the province. Approximately 320 km long and 140 km wide, it stretches south from Seymour River/Shuswap Lake to the Canada - U.S.A. border and west from the Monashee Mountains to the Okanagan Range. The area features many lakes including Okanagan, Shuswap, Osoyoos, Mabel, Sugar, Kalamalka, Wood, Vaseux and Skaha.

The region represents a diversity of ecosystems and biogeoclimatic zones. In particular, the region is also noted for its arid landscape, which is unique in Canada. The area also includes the largest number of rare, endangered and threatened species in British Columbia, due to the relative rarity of ecosystems in the southern Okanagan, and the high level of urban development and population growth.

Wildlife species present within the area include two species of deer, moose, cougar, mountain goat, big horn sheep, grizzly and black bears, and elk. Fish species are also abundant within the region, with fish present in most lakes and streams. The plan area also contains important salmon spawning streams, which support the coastal salmon fishery.

The area's natural resources provided the foundation for the establishment of the local economy, with its early economy based on primary industries, such as agriculture, forestry and mining. More recently, the local economy has become much more diversified, with significant manufacturing, tourism and service sectors. However, the area's natural resources continue to make an important contribution to the health and growth of the local economy - both

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through ongoing activity in the forestry, agriculture and mining sectors, and through the provision of scenic views and recreational amenities that continue to attract new residents and tourists to the area.

## The Community

In recent years, the Okanagan - Shuswap LRMP area has been one of the fastest growing areas in BC. Much of this growth can be attributed to improved highway links to the Lower Mainland with the completion of the Coquihalla Highway, the quality of life offered by the area (pleasant climate, scenic values, recreational amenities) and new opportunities offered by a growing economy. This has enhanced the area's attractiveness to businesses, as well as to retirees.

Population growth in the plan area is expected to continue at rates exceeding the provincial average. Forecasted rates of growth indicate that the population would reach around 440,000 by 2010.

Currently 312,807 persons reside in the plan area. The population primarily resides in urban areas with approximately 74% living in cities or smaller communities. The region's population is slightly older than the provincial average, and is expected to remain so.

Several First Nations Bands reside or have traditional territory within the plan area. The 1995 Status Indian population of Bands within the LRMP region (including all reserves of those Bands within the LRMP) totals 6,211 individuals.

## The Economy

Historically, the economy was based on primary industries, such as agriculture, forestry and mining. Over the years, the economy has become quite diversified, with strong primary, manufacturing, tourism and service sectors. Contributors to the economy's growth and diversification include: the further processing of primary resources (e.g., wood manufacturing plants, food processing plants); both community based tourism (such as golfing, automobile touring) and outdoor/adventure tourism (such as houseboating, skiing and fishing); population growth; good rail and highway connections to the Lower Mainland, the rest of Canada, the US and offshore markets; and local governments' pursuit of new industries such as communications, electronics and high-tech products and services.

Overall the economy is dominated by the "non-resource" sectors - those sectors not directly dependent on Crown land and resources. The largest share of personal after-tax income in the plan area (46%) is from non-employment, a combination of transfer payments, investment income and pension income, as well as income generated through the spending of this income.

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Sectors of the economy considered as the most directly dependent on Crown land and resources are the agriculture, forest, mining and tourism sectors. These "resource-based" sectors account for 19% of total after tax basic income, and 32% of total employment (including direct employment in those sectors, plus the sectors that provide goods and services to the sector and its employees). The relative importance of various sectors of the economy varies amongst sub-regions within the plan area.

The Columbia - Shuswap Regional District (CSRD) has traditionally relied on forestry (log harvesting and processing) and agriculture as its primary industries. For the Salmon Arm area - the portion of CSRD within the planning area - forestry activity remains an important sector. However the area economy has been shifting towards the service industries and tourism sectors, as the area is becoming more popular as a tourism and retirement destination.

The North Okanagan Regional District (NORD) supports a diversified economy, that has been growing faster than the provincial average. Forestry, agriculture, manufacturing and tourism all are important sectors within NORD's economy, although this varies across the communities.

The economy of the Regional District of Central Okanagan (RDCO) is not significantly dependent on any particular industry sector. The non-resource sectors account for the majority of basic income, including pensions and investments, other, non-primary resource industries, and the public sector. Kelowna also acts as a service, health and education center for the area. The strong service infrastructure is a key factor in the region's ability to attract retirees to the area, and rapid growth supports a relatively large construction industry.

The Regional District of Okanagan - Similkameen (RDOS) also has a diversified economy. The communities of Penticton and Summerland act as the service centers for the area and the rural communities of Osoyoos, Oliver and Keremeos, and support the more traditional sector of agriculture, especially tree fruits. The influx of retirees is reflected by the area's high dependence on pension and investment income.

## **The Environment**

The plan area supports a wide variety of provincially significant wildlife, wildlife habitat and biodiversity. Grassland and semi-arid ecosystems in the south make up some of the most threatened habitats in the province, and the plan area includes the only true desert habitat in Canada. As elevation increases, ponderosa pine and Douglas-fir forests give way to lodgepole pine, sub-alpine fir and spruce, which are common in the south and central plateaus. The northern part of the plan area is much wetter and supports cedar and hemlock forests at low elevations, and sub-alpine fir and spruce at upper elevations, before rising to rugged mountains. Each of these ecosystems

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provides a variety of habitats for numerous wildlife species. The plan area supports about 300 species of birds, 74 species of mammals, 11 reptiles, 9 amphibians, and 10 - 20,000 invertebrate species.

There are 12 ecosections, based on broad climatic and physiographic features, and 7 biogeoclimatic zones, based on climax vegetation species, in the plan area. Only the North Okanagan Basin and South Okanagan Basin ecosections are unique to the LRMP area. They support the greatest variety of wildlife species and rare ecosystems including a true desert habitat. The majority of the rare species are associated with the drier valley bottom ecosystems, comprised of grasslands and low elevation parkland (open) forests. Above this extremely arid valley, habitat ranges through open grasslands, forested plateaus with lakes and wetlands, moist timbered areas and alpine tundra at the higher elevations.

The plan area has several "rare" ecosystems (rare because they are of limited distribution or because historic land use practices have altered these ecosystems). Rare ecosystems range from specific very old cedar-hemlock forests located in the wettest valley bottoms of the northern part of the plan area, to the very dry desert ecosystems of the Southern Okanagan.

Maintenance of biodiversity (the diversity of plants, animals and other living organisms in all their forms and levels of organization) is key to maintaining the health of the environment.

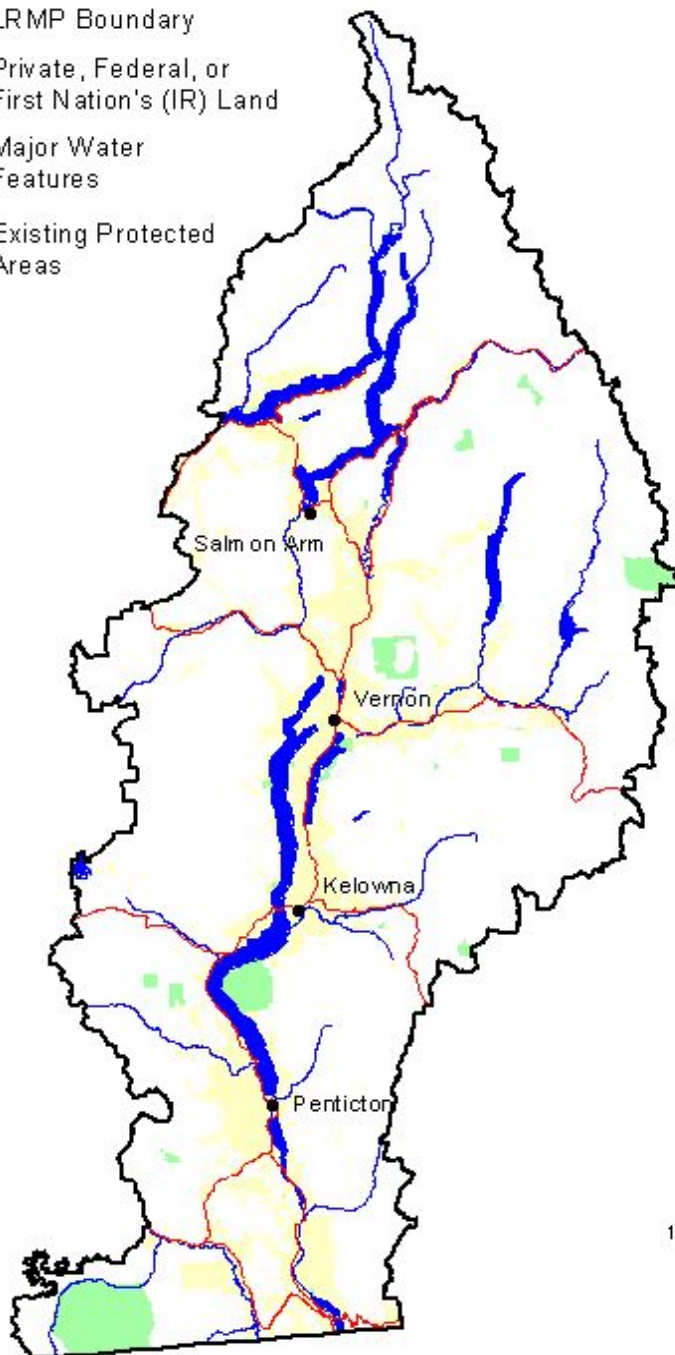
The watersheds of the plan area contribute significantly to the overall production of salmon in the Fraser River basin, including the internationally renowned Adams River sockeye, as well as other sockeye, chinook, coho and pink salmon populations. The Shuswap lake system provides vital rearing area for hundreds of millions of salmon fry making it one of the most important salmon producing areas in BC. Many Thompson River coho populations that are at risk depend on the quantity and quality of aquatic habitats in the plan area. The Okanagan River sockeye population is also threatened and is one of the only two remaining populations in the Columbia River drainage.

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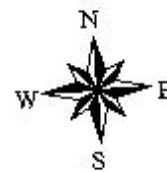
## Characteristics of the Plan Area

### Base Information

- ∕ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



Major Highways



10 0 10 20 30 40 Kilometers

Created by the LMRP  
DATA MANAGEMENT  
TEAM - March, 2001

File name: char\_plan\_area\_2.jpg





## Part 3

This section contains:

- Description of General Resource Management.
- Objectives and strategies for General Resource Management for the following resources or uses:
  - Agriculture
  - Air Quality
  - Crown Land
  - Ecosystem Management-Forests (including Biodiversity Emphasis Option assignment)
  - Energy
  - Fish and Aquatic Habitat
  - Forest Health
  - Guide-Outfitting (Licensed)
  - Heritage Resources
  - Land and Soils
  - Mining
  - Range
  - Recreation
  - Riparian and Wetlands
  - Timber and Silviculture
  - Tourism
  - Transportation
  - Trapping
  - Water
  - Wildlife (rare species, marten, and fisher )

## General Resource Management

### Introduction

This section includes specific management objectives and strategies, which define how the Crown resources are to be managed.

General Resource Management objectives and strategies apply to all Crown land in the plan area. This is in contrast to the objectives and strategies for the Polygon Specific Resource Management Zones, which only apply to the portion of the plan area covered by the polygon in question. (This is explained more fully in the introduction to Part 4). The objectives and strategies are categorized according to the resource value or resource use they apply to (e.g., Fish and Aquatic Habitat, Water, Timber and Silviculture).

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*How do objectives and strategies fit in the picture?*

The objectives and strategies apply to all agencies, resources and activities, and are the fundamental building blocks of the plan. Objectives describe a desired future condition with respect to a particular resource or resource use. Strategies describe “how” the objective will be achieved. For this LRMP they correspond directly to the objective they serve. In addition to objectives and strategies, some sections of the plan provide additional clarification for the objectives and strategies in the form of intent statements. The intent statements (located in the shaded boxes under the objectives or strategies) are designed to reduce the potential for conflicting interpretation by providing:

- clarification to enable operational implementation;
- supporting rationale and/or technical definitions that would otherwise be unwieldy in a strategy;
- external guidelines; and,
- cross references to desirable existing resource management guidelines or “best management practices”.

The intent statements are not designed to replace strategies.

More detailed information on objectives and strategies can be found in Part 1.

## General Resource Management

In this section:

- How to ensure that water needs for agriculture is met.
- Location of ALR.
- Provisions for dealing with Agriculture/Wildlife conflicts.

## Agriculture

### Introduction

*For more information on the economic contribution of Agriculture to the area refer to Section 3 of the Okanagan Shuswap LRMP Socio-Economic and Environmental Profile report*

The agricultural sector is an important and diversified sector within the plan area economy. There are a total of about 4,600 farms (covering 170,000 hectares) in the plan area producing a wide range of commodities. These commodities include berries, cattle, dairy products, forage for livestock, ginseng, grain, grapes, horses, poultry, tree fruits, and vegetables.

The plan area is the major producer of tree fruits in BC, accounting for over 95% of BC's commercial tree fruit harvest, and 98% of provincial grape production.

There were 555 cattle farms in 1995 - 14% of the total farms in the plan area. While cow-calf production for beef cattle predominates, there is also backgrounding and finishing activity in the area, with several feedlots located in the plan area.

Processing of agricultural products is a significant activity in the Okanagan-Shuswap. In addition to the tree fruit processing sector, there is a wide range of agricultural processing plants including dairy and poultry, several feed and flourmills, breweries and wineries. There are now over 50 wineries, which, in addition to generating agricultural product sales, provide a significant economic boost to the tourism sector through wine tours and other wine related activities. Agricultural landscapes also provide a scenic backdrop for many front country tourism visitors.

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## **Agricultural Land Reserve**

The Land Commission Act established the Agricultural Land Reserve (ALR) in 1974. There are about 221,237 hectares of ALR in the plan area, and it is estimated that about 52,510 hectares (24%) of this is Crown land. The ALR in the area represents around 5% of the total provincial reserve. The rate of exclusion of ALR land in the plan area has typically exceeded provincial averages. Since the ALR was first established, ALR has declined by about 10% in the plan area, compared to 2% provincially.

## **Issues**

While the majority of agriculture operations occur on private land, Crown resources are a critical component in the agriculture industry in the Okanagan-Shuswap.

The cattle ranching sector depends on Crown land for grazing purposes with around 75% of the commercial cow herd using Crown land for forage. The availability of an affordable Crown forage resource is essential to the viability of the majority of ranches. The issues around the use of rangelands are covered in the Range section.

A reliable and abundant supply of water is critical to this sector. Water for irrigation is essential for all the major crops in the plan area. About 63% of total area under crops were irrigated in 1995, compared to 20% provincially. In the southern part of the plan area, 94% of the cropland was under irrigation in 1995. Limitations to water availability are one of the key issues limiting growth in this area. New and continued investment in farming activities requires assured irrigation water. To the extent that Crown land and resource management affects water quality and quantity, all agricultural activity is potentially affected, although a land use plan does not dictate allocation.

Another issue facing the agriculture industry is conflict with wildlife, including deer browsing in newly planted orchards and crop damage from birds, particularly to grapes, soft fruits, and some apple varieties. Methods to control damage from wildlife come as a significant direct expense to farmers in the plan area.

Privately owned farm and ranch lands provide a significant portion of high value habitat for a number of wildlife species. For example, about 90 per cent of deer spring range are located on private land. If this land is to continue to provide habitat, the ranch or farm must remain viable; otherwise, it will be subject to development pressures.

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## Goals

The overall goal for this sector is to maintain a sustainable and economically viable agriculture industry while allowing opportunities for growth. This goal can be achieved by:

- maintaining an adequate Crown forage supply for the ranching sector;
- ensuring an adequate supply of water for agricultural uses;
- developing ways to mitigate wildlife/agriculture conflicts; and,
- ensuring arable Crown lands will continue to be available if needed.

## Objectives and Strategies

*Also see the Crown Land, Range, and Water sections for additional objectives and strategies that may have bearing on the agriculture and ranching industries.*

1) Where practicable, provide an adequate supply of water to meet current and future demand for agricultural uses (e.g., irrigation, livestock watering and processing).

Intent:

i) Recognizes that water is in limited supply in some areas, and that it may not be possible to meet this objective in such cases.

1.1) Provide future, more detailed planning processes with information on agricultural uses of water to ensure that the agriculture sector's water needs are integrated with those of others.

Intent:

i) To ensure that the agriculture sector's interests in water are addressed into any lower level planning processes.

ii) It is the responsibility of those conducting the lower level planning process to ensure that they have input from all the interests within the scope of that planning process. This input could be solicited either directly from the agriculture industry, or from the Ministry of Agriculture, Food and Fisheries.

1.2) Encourage the most effective and efficient use of irrigation works to provide water for irrigation purposes.

Intent:

i) Government agencies that work with users will promote water conservation practices.

1.3) Where feasible, utilize water from large lakes or reservoirs instead of from smaller streams.

Intent:

i) To minimize impacts to in-stream users of the water resource, and to maintain flows in streams.

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1.4) Monitor the economic and sustainability impacts for the agriculture industry of changes to water use or management.

1.5) Where mitigation strategies impact agriculture or range values they are to be brought to the attention of the Implementation and Monitoring Committee.

2) Minimize, where practical, conflicts between agriculture and fish and wildlife interests.

2.1) Promote partnerships/stewardship agreements between the agriculture industry and wildlife and fish managers aimed at benefiting agriculture, wildlife, and/or fish

2.2) Continue to support agriculture/wildlife and agriculture/fish conflict resolution forums.

2.3) Evaluate fish and wildlife population and habitat enhancement projects as to their potential impact to the agriculture sector, and develop measures to mitigate those impacts.

Intent:

i) Enhancement works on streams may provide off-site watering.

ii) Where a project creates or results in isolated conflict in localized areas, provide a plan to reduce or eliminate the conflict in those areas.

## General Resource Management

In this section:

- Provisions for air quality protection linked to management of Crown land.

## Air Quality

### Introduction

Air quality is affected by a large number of factors, including meteorological conditions, population density, the type and concentration of industry and the fuels used in industry, transportation and heating. For some of these sources (such as industrial point sources) there are air emission guidelines which control emissions. The presence of a generally stable air mass, an uneven distribution of precipitation, variable winds and summer sunshine combined with the surrounding hills and mountains, make the Okanagan Valley vulnerable to air pollution. Under inversion conditions, air pollution can reach harmful levels. Efforts to reduce pollution levels through wood waste chipping programs, encouraging the use of transit and alternative means of commuting, the use of cleaner burning fuels, restrictions on backyard and broadcast burning, and other measures have been introduced over the last number of years.

### Issues

Global environmental issues (e.g., global climate change and ozone depletion) could have an impact on the plan area environment, and affect health and rate of growth of the plan area's forests. However, the reduction of global emissions that would result from any marginal change in plan area activities on Crown land would be impossible to measure. Other than prescribed burning, the main factors affecting air quality are not directly related to Crown land use and zoning.

### Overall Goal

Where possible and where linked to the management of Crown land, the overall goal is to identify, manage and work to reduce the sources and amount of air pollution. This would include working within the airshed management planning processes.



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## Objectives and Strategies

1) Monitor air quality throughout the plan area.

1.1) In cooperation with Environment Canada and others, sample and monitor air quality, and use supporting data to determine appropriate management.

Intent:

i) To be done on an as needed basis, provided funding and resources are available.

ii) Monitoring on a regular basis is a long-term goal.

2) Reduce air pollution within the plan area.

2.1) Identify possible pollution sources.

2.2) In consultation and cooperation with local governments, stakeholder groups, and other planning processes (e.g., Growth Management Strategy), the Ministry of Environment, Lands and Parks may develop area and/or source specific air pollution mitigation measures.

2.3) The Ministry of Environment, Lands and Parks will encourage regional and local government to apply and use these mitigation measures.

2.4) Promote alternate means of transportation - e.g., walking, cycling, mass transit.

2.5) Promote use of clean burning alternate fuels.

2.6) Promote transportation efficiency (e.g. reduce traffic congestion).

2.7) Promote education of the public on air quality.

2.8) Promote economically viable alternatives to agricultural yard waste, and prescribed burning.

Intent:

i) Prescribed burning is recognized as a legitimate tool for preparing logged sites for reforestation, reducing the fire hazard, for controlling insects and disease, and for maintaining biodiversity and range.

ii) This may include electrical generation, and/or wood chip production where appropriate.

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3) Manage timing of release of sources of pollution.

3.1) Utilize venting indices information to control timing of burning.

Intent:

i) Allows for controlled/prescribed burning (under various legislation) in a manner that reduces impacts to air quality.

4) Co-ordinate air management planning to include various planning areas and planning levels.

4.1) As necessary, the Ministry of Environment, Lands and Parks, Environment Canada, the Ministry of Forests, local governments, and stakeholders should participate in air shed planning with other strategic and local air quality management processes (e.g., RDCO Growth Management Strategy).

4.2) Air pollution management strategies should be linked to Growth Management Strategies and transportation planning processes within the Okanagan - Shuswap LRMP plan area.



## General Resource Management

### In this section:

- How to continue opportunities to consider Land Act tenure, reserve, and designation applications for a broad spectrum of uses, resources and values on the majority of the Crown land base.
- Provisions for reduction and prevention of conflicting long-term commitments for use of Crown land and resources, especially near communities.
- Provisions for continued stewardship of the Crown land resource to recognize important forest, wildlife, fisheries, public recreation and other values.

## Crown Land

### Introduction

There are many users wishing to occupy Crown land. The most significant and visible commercial uses of Crown land and resources are forest harvesting and cattle grazing authorized by the Ministry of Forests, tourism authorized by the BC Assets and Land Corporation (BCAL), and mining related activities managed by the Ministry of Energy and Mines. There are many other non-forest uses including those authorized by the Ministry of Environment Lands and Parks Wildlife Branch (e.g., guide-outfitting and trapping), or through the British Columbia Assets and Land Corporation. Many of these other uses also make important and essential contributions to local economies.

Many of these varied forms of uses are short term, relatively low impact or site specific; thus, the majority of Land Act authorizations to use Crown resources typically take the form of permits, licenses and leases. Very little Crown land is actually sold or converted from Crown to private ownership. Approximately 6% of the Okanagan - Shuswap LRMP area is in private ownership. The majority of conversion of Crown to private ownership occurred in the plan area between 1895 and 1914.

A good portion of the upland immediately adjacent to the foreshore of Okanagan, Kalamalka, Shuswap and Skaha lakes is private property. These lakes provide abundant recreational opportunities for the upland property owners, as well as tourists and local residents.

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The focus of this section is on uses of Crown land administered under the Land Act. Some examples of these uses include: commercial recreation operations (downhill ski developments, destination resorts, guided nature viewing or hiking, heli-skiing); rock, sand and gravel quarries; telecommunication sites and utility corridors; community/institutional facilities such as fire halls, school sites, community parks and recreation facilities, etc.; and, private recreational lots and wharves. "Reserves" can also be established under this Act (usually by provincial government agencies) over Crown land that is deemed to have significant recreation, wildlife, or other resource values. Effectively, these reserves "flag" a piece of land to ensure that the agency that requested the reserve is involved in any future decisions regarding that piece of land, and/or that piece of land is not removed from Crown ownership.

## Issues

On the foreshore of the large lakes, there is a continuing need to ensure that existing developments and future proposals respect the foreshores and riparian habitats important to fish, wildlife, waterfowl and recreational attributes.

On the Crown upland, many of the Land Act authorizations for use and transfer of Crown land are within the valley bottom areas and close to existing communities. These same areas are also very often important public recreation areas, or provincially and nationally significant wildlife habitat. Decisions on dispositions of Crown land should not be based solely on economic considerations, but should also take these values into consideration.

Over the past decade, BC has experienced rapid growth in outdoor commercial recreation. While this growth can compliment and increase the economic diversity of the communities, unmanaged commercial use of Crown land can impact on other resource users and values. While a policy regarding commercial recreation has been introduced, implementation at a local level still requires the collection of information about existing and future opportunities. To that end it will be important to collect more information regarding the potential for additional commercial recreation opportunities. The need to balance non-commercial and commercial recreation interests is also recognized.

In some areas of the LRMP the ability to authorize Crown land use has been impacted by long term area based commitments of the forest resource such as woodlots. The possibility of further long-term commitments to timber production in possible future urban expansion areas continues to be a source of concern. There is a need to ensure that in the future, forest commitments and the needs of the communities and, to a lesser extent, the needs of the resort industry, be coordinated. Similarly, proposals to reserve lands for timber production only without opportunity for an efficient and local decision process to allow for other uses must be carefully analyzed.

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## Goals

The major overall goal for the plan area is to ensure that the majority of the Crown land base, outside of protected areas, continues to be available for a wide spectrum of Land Act applications. The LRMP, through its Resource Management Zones, objectives and strategies, will give strategic direction to land and aquatic Crown land use decisions made in response to Land Act applications.

Therefore, plans and zones need to be flexible enough to accommodate future needs reflecting technological and social changes and to provide strategic direction on how to address other values such as wildlife and public recreation in the land use decision. In addition, they should try to minimize conflicts between different foreshore/aquatic uses, and between foreshore/aquatic and upland land uses. Future decisions on Land Act dispositions by any administrator of this legislation should promote compatibility of land uses, minimizing conflicts, and minimizing alienation of sensitive habitats as outlined in the following objectives and strategies.

## Objectives and Strategies

### *Land Act dispositions*

1) Adjudicate Land Act applications and reserve proposals recognizing land and resource values and existing tenures.

Intent:

- i) To provide for the continued administration of the Land Act throughout the plan area except protected areas.
- ii) Land and resource values include sensitive cultural and heritage features, wildlife and fisheries habitat, recreation areas, timber and range values, etc.

1.1) Utilize information from other agencies and local governments under the referral system, guidelines and other sources for decisions on allocations of Crown land.

Intent:

- i) Applies to allocations under the Land Act.
- ii) The information collected is used to consider the impacts on other resources and Crown commitments.

1.2) Ensure that there is an opportunity for public comment on permits, licenses, and other applications that affect Crown land. (implementation)

Intent:

- i) Provide a list of new Land Act applications to the Implementation and Monitoring Committee.
- ii) This covers applications under the Land Act, waste management permits, water licenses, etc. - i.e., all non Forest Practices Code (FPC) and Mineral Exploration Code (MX Code) related activities.

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1.3) When considering Land Act applications, strive to separate incompatible uses and combine compatible uses by directing specific uses to appropriate areas where practicable.

Intent:

- i) To also take into account land and resource values that will be identified in the future (e.g., other red- and blue-listed species).
- ii) Issues of particular concern are conflicts between upland and adjacent foreshore and aquatic uses, as well as between different aquatic/foreshore uses.
- iii) Tenures on foreshore areas should be compatible with the zoning that may exist for the adjacent upland area.

1.4) Establish "reserves from application", or "designated use areas" under the Land Act that provide for a single or restricted use.

Intent:

- i) This is current management, and allows provincial agencies to apply under the Land Act for reserves or designations to ensure, at an operational level and site specific basis, that lands with important or unique resources or attributes are not alienated or tenured under the Land Act. Such Land Act designations do not preclude the taking of applications under the Forest Act, Mineral Tenure Act, or other acts.
- ii) Input to provincial or federal agencies, through lower level planning processes such as Local Resource Use Plans (LRUPs), Landscape Unit Plans, Growth Management Strategies, etc., may also result in agencies making Land Act reserve requests.

1.5) Attach provisions, where practicable, to the disposition to ensure that Crown land is used for the specified purpose.

Intent:

- i) An example would be agricultural dispositions being included into the Agricultural Land Reserve (ALR).

1.6) Promote "twinning" or multiple use of access, utility, and other corridors in decisions for Crown land dispositions.

Intent:

- i) To minimize impact on other resources such as productive forest base, visuals, ALR and wildlife habitat.

1.7) When considering Land Act applications and proposals, ensure the option is maintained for feasible access to lands beyond the area under application.

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2) Ensure that opportunities for Crown land dispositions and reserves are available in the future to meet a broad spectrum of conservation, settlement, economic development, and other societal needs.

Intent:

- i) Maintain options for future uses.
- ii) That dispositions consider both today's needs and future needs (e.g., planned future needs for ski hills).
- iii) To serve recreational, conservation, community and economic development needs, including infrastructure, throughout the plan area where these uses can appropriately co-exist with other resource and environmental values, and existing tenured uses.

2.1) Allocate only that amount of Crown land necessary for the proposed use.

2.2) Encourage provincial agencies to participate in strategic plans such as Growth Management Strategies, to determine future community expansion and infrastructure needs.

2.3) Undertake inventories and identify opportunities for Crown land disposition.

Intent:

- i) Maintain or enhance options for current and future uses.
- ii) "I identify opportunities" includes, but is not limited to, public and commercial recreation, recreational cottage lots, linear corridors, infrastructure, industrial uses, etc.

2.4) I identify specific sites where habitat conservation is a priority.

*Isolated Crown land parcels*

3) Ensure that isolated Crown land parcels are reviewed to highest and best use, and wherever possible are dealt with in a manner that achieves the most benefits to the Crown, the economy, environment and the community.

Intent:

- i) This objective and strategy are intended as direction in the marketing of small parcels of land that are returned to the Crown via tax forfeitures, escheat, partial highway severance, or surplus to another agency's needs. These parcels are isolated, have titles in the Land Title System, are often zoned, are often enclosed by private parcels, and for all intents and purposes are similar to private parcels.

3.1) Where private ownership is deemed appropriate by BCAL, offer for sale isolated parcels registered in the Land Title Office and deemed surplus by provincial agencies. These parcels must also be appropriately zoned or designated within a local government land use plan.



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3.2) Encourage local governments to enter into protocol agreements with MELP and BCAL, respecting notification and review of such parcels by local government prior to the parcel being put up for sale.

3.3) Give priority consideration to local government requests to acquire such land for infrastructure or other community purposes.

Intent:

i) Recognizes the significance of local government needs for infrastructure and community purposes.

*Environmental considerations  
for Land Act dispositions*

4) Where practicable, minimize the impacts on important habitats such as red- and blue-listed species, and minimize the impacts where practicable on regionally important species, and rare biological and physical features when making decisions on Land Act applications and reserve proposals.

4.1) Minimize, where practicable, the losses of habitat of red- and blue-listed species (as shown on the "High Potential for Red and Blue Listed Species" map) and regionally important species.

Intent:

i) Recognizes the importance of the existing land base for red- and blue-listed species, and the potential implications of further alienation of Crown land in this zone (i.e., "xh" BEC subzones).

ii) Regionally important species include a wide variety of wildlife such as mule deer, mountain goat and elk. Maps showing the locations of these species can be found in the wildlife related resource management zone sections (Part 4).

4.2) When considering Land Act applications and reserve proposals, reduce impacts to sensitive biological and physical features, and to sites with significant environmental values, by utilizing, where appropriate, impact assessments and habitat conservation plans.

Intent:

i) The intent is to accommodate the proposed activity recognizing all environmental values.

ii) Recognizes that in some cases a proposed land use may be incompatible with the underlying environmental value, and the application may not be approved.

iii) Impact assessments and habitat conservation plans are consistent with current management pursuant to the Land Act.

iv) Factors that determine when habitat conservation plans and impact assessments are required during the application process may include the type of proposed use and tenure, relative habitat values, Crown land allocation plans, wildlife inventories, etc.

v) Habitat conservation plans could include siting options, routing options, time windows, types of equipment, performance bonding, monitoring, use of buffers, habitat restoration, and/or habitat replacement. (Habitat

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replacement should consider impacts on long term agricultural viability in the area.)

vi) Recognizes that current practice is for costs related to assessments, inventories, etc., to be the responsibility of the proponent.

4.3) Use lower level planning processes to determine where to establish Land Act "reserves from application" and "designated use areas" to protect habitat and rare biological and physical features.

Intent:

i) These applications still have to go through the referral process referred to in strategy 1.1

4.4) Develop and use decision making tools to assist in making "highest and best use" land use decisions for future dispositions of Crown land under the Land Act in the bunchgrass (BG), ponderosa pine (PP), and very hot, dry interior Douglas-fir (IDFxh) biogeoclimatic units. (implementation)

4.5) Utilize detailed habitat inventory information in the Ecosystem Management - NDT4 RMZ section when making decisions on Land Act applications and when directing potential applicants to appropriate sites.

*Near urban recreation opportunities on vacant Crown land*

5) Where practicable, minimize impacts to recreational opportunities on Crown lands that are located adjacent to existing settled areas.

5.1) Use Land Act designations, reserves and tenures to implement the recommendations of approved lower level plans that address recreation and settlement conflicts.

Intent:

i) These applications still have to go through the referral process referred to in strategy 1.1

5.2) Consider public input, agency and local government comments when determining the type, configuration and conditions of Land Act designations, reserves and tenure.

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5.3) Consider, recognize, and protect, where practicable, recreation values when making land use decisions under the Land Act.

Intent:

i) The statutory decision-maker should consider recreation resource inventories if available, and consult with local recreation groups (e.g., posting the property and advertise the intent).

ii) "Recreation values" includes access to, beyond, and use of Crown land for recreation.

iii) Avoiding certain sales, modifying applications, using mitigative strategies, and using special permitting conditions, etc., are tools that can be used to avoid significantly impacting access to, or the use of areas with high recreation values.

iv) Where alternate access is proposed it should be physically suitable for the proposed type of use – e.g., not too steep and rocky for a trail, etc.

## *Foreshore management*

6) Minimize impacts to foreshore and riparian areas, and particularly those that are undisturbed.

6.1) Lakefront developments and/or alterations should be consistent with local government foreshore plans approved by regulatory agencies.

6.2) Encourage partnership agreements between local governments, the Ministry of Environment, Lands and Parks, the Department of Fisheries and Oceans (DFO), and the BC Assets and Land Corporation that assist in local management of the foreshore (e.g., head leases).

6.3) Promote ongoing public education and reporting to prevent unauthorized construction, filling and other environmentally harmful activities in foreshore areas.

7) Prevent unauthorized encroachment of private land owners' structures (e.g., wharves, weirs, boat houses, etc.) and fills on the foreshore.

7.1) Tenuring agencies should create and maintain an inventory of docks, fills, and structures that exist on the foreshore. This information should be shared among the different tenuring agencies.

8) Minimize conflicts between tenured foreshore/aquatic and upland land uses.

8.1) Land Act tenures on foreshore/aquatic areas should be compatible with local government zoning that may exist for the adjacent upland area.

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## *Public foreshore access*

9) Where practicable, maintain public access to, and along, the foreshore.

Intent:

i) "Maintain" does not mean unlimited public access in all situations (consider level of appropriateness), and does not mean that the agency will be the one to physically maintain access.

ii) This strategy is not intended to sanction trespass on private land.

9.1) Prioritize areas where public access is of greatest concern.

9.2) Consider, in conjunction with local government, removal of unauthorized structures and fills that impede access.

9.3) Promote continued public education regarding public and upland property owners' foreshore rights.

9.4) Encourage prompt reporting and follow-up to construction of unauthorized structures and fills that impede public access.





9.5) Consider partnerships with local governments that allow for local follow up to unauthorized construction and fills.

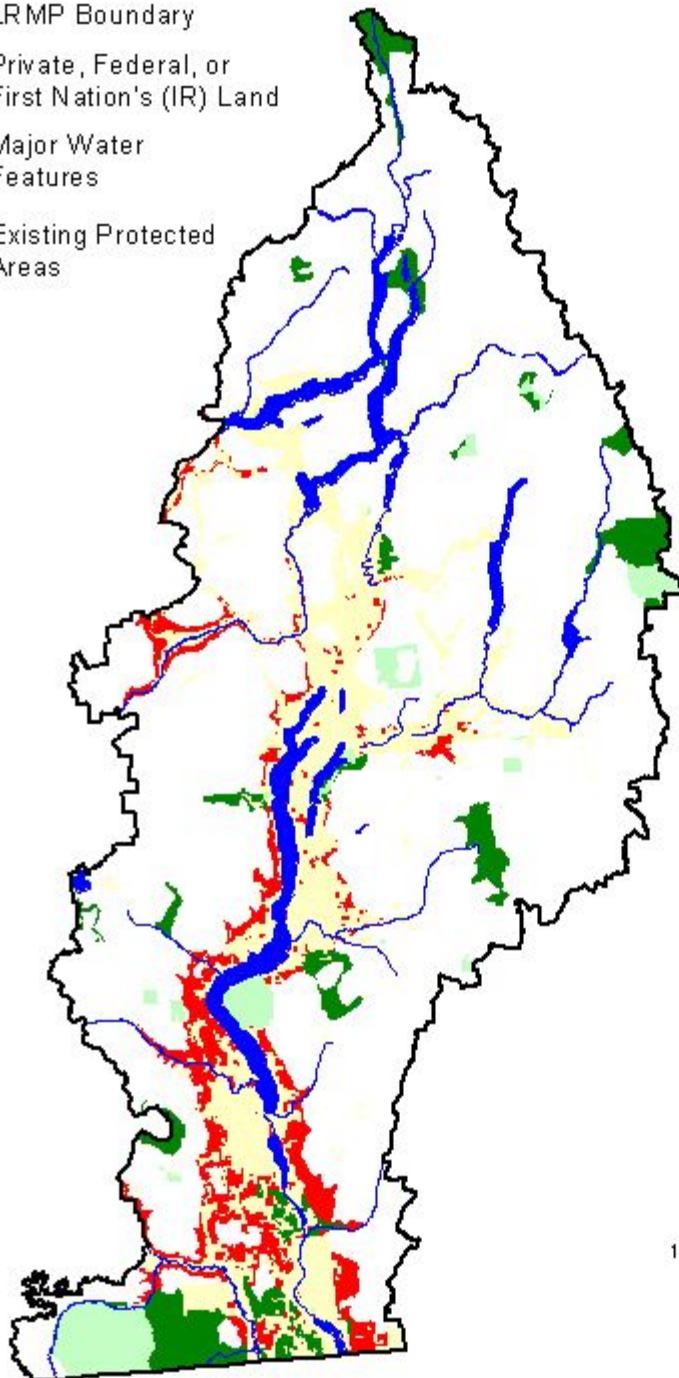




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## High Potential for Red and Blue Listed Species

### Base Information

-  LRMP Boundary
-  Private, Federal, or First Nation's (IR) Land
-  Major Water Features
-  Existing Protected Areas



-  Red and Blue Listed Species
-  Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

Created by the LMRP  
DATA MANAGEMENT  
TEAM - March 2001  
File name: rb\_2.jpg



## General Resource Management

In this section:

- How to manage for biodiversity in forested ecosystems within the plan area
- Provisions for maintaining rare forested ecosystems
- How to manage for wildlife tree patches within the plan area
- Biodiversity Emphasis Option assignment

## Ecosystem Management - Forests

### Introduction

*For more information on the forested ecosystems of the area refer to Section 9.2 of the Okanagan Shuswap LRMP Socio-Economic and Environmental Profile report*

There is a wide diversity of forested ecosystems within the plan area. Open-grown ponderosa pine and Douglas-fir forests dominate the very dry lower elevations of the main valleys in the south-central portion of the area. The plateaus along the eastern and western portions of the area are dominated by dry lodgepole pine forests at the mid elevations and spruce/balsam forests at the upper elevations. The east-central and northern portions of the area are much wetter and dominated by climax stands of western red cedar and western hemlock at the lower elevations and spruce/balsam stands at the upper elevations. Each of these ecosystems was historically influenced to some degree by the presence or absence of fire. The similarities in fire return intervals, and disturbance sizes and patterns form the basis for categorizing each of the ecosystems into natural disturbance types (NDT). This in turn is used to provide guidance for maintaining biodiversity in forested ecosystems (for a more thorough description of these relationships refer to the FPC Biodiversity Guidebook, and the Landscape Unit Planning Guide).

### Biodiversity

Biological diversity (biodiversity) is the diversity of plants, animals and other living organisms in all their forms and levels of organization. It includes the diversity of genes, species, and ecosystems and the functional and evolutionary processes that link them. The great diversity of physical features and prevailing climatic conditions within the plan area has resulted in a great diversity of habitats and species, and an area rich in biodiversity.



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Future maintenance of biodiversity is dependent on:

- the protection and connectivity of representative ecosystems as ecological benchmarks at the provincial and regional level;
- the maintenance and connectivity of representative habitats and seral stages at the landscape or watershed level;
- management for important attributes at the stand (site) level; and,
- protection of rare and endangered species and ecosystems.

## **Current Management**

The Forest Practices Code (FPC) has established a framework for managing for biodiversity on Crown lands for resources regulated by this Code (e.g., forests, range). There are recommendations for stand level biodiversity (e.g., wildlife tree patches and retention of timber when harvesting in riparian management areas), and landscape level biodiversity (e.g., old growth management areas) that will help to conserve biodiversity in forested ecosystems to some extent. Application of all FPC recommendations relative to biodiversity is limited by provincial FPC timber impact policy. The FPC also provides for assignment of biodiversity emphasis options (BEO), which will be undertaken as a part of the LRMP process.

Some resource activities (e.g., mining, trapping, tourism, etc.) are not regulated by (or are exempt from) the FPC. These activities (including roaded access) are allowed in all areas where standing timber is retained - e.g., old growth management areas (OGMAs), riparian management areas (RMAs), wildlife tree patches (WTPs). Mitigation measures that may be required are effected through standard project review processes on a site-specific or project-specific basis.

## **Issues**

Biodiversity can be affected by a disruption of the natural processes. This disruption can be through loss of habitat, habitat fragmentation, or impacts of industrial practices or urban encroachment. Sensitive habitats may be altered in the short or long term by human settlement, development activities (e.g., timber harvesting, mining, transportation corridors) and recreation activities in those areas.

The challenge is to develop meaningful indicators for biodiversity, and monitoring these as they apply to daily operations on the land base.

## **Coarse Woody Debris**

Downed wood, or coarse woody debris (CWD), plays numerous roles in forested ecosystems. Among other things, it provides a source of food and shelter for invertebrates and smaller wildlife, growing sites for trees, soil nutrients, and structure in streams to dissipate energy and maintain channel stability.

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## Issues

“Excessive” removal of current and future sources of CWD will significantly impact marten, and to a lesser degree fisher. Other species, such as many small mammals and snakes, some amphibians, numerous invertebrates and grizzly bear have strong associations with CWD.

Treatment of harvested sites (with excessive debris) for reforestation, slash disposal and wood chip production will continue. It is expected that there will be additional research into the retention of coarse woody debris.

## Goals

The overall goal is to maintain an abundance of biological and physical diversity native to the plan area, and maintain forested ecosystem functions and processes.

## Objectives and Strategies

1) Provide suitable well distributed habitat for wildlife tree dependent species.

1.1) Provide for wildlife tree patches (WTPs) in managed stands as per current policy.

Intent:

i) The intent is to be consistent with policy

1.2) In NDT4, assess individual large diameter stems (i.e., wolf trees), and retain those that are not safety concerns.

Intent:

i) These should be the first to contribute to WTP requirements.

ii) This will require balancing of an approximate 50-50 split of retaining individual stems and true “patches”.

iii) Costs of assessments are to be borne by proponents.

1.3) Where practicable, high value wildlife trees should be the first to contribute to wildlife tree patches.

Intent:

i) High value wildlife trees are described as those trees or standing dead stems that exhibit signs of current use, such as active nests or cavities, or signs of extremely high use in the past, such as several nests or multiple cavities, in one tree.

1.4) Encourage a diverse size range of wildlife tree patches (WTPs).

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## 2) Avoid disturbances to rare ecosystems.

2.1) Where practicable, avoid new road construction and permanently deactivate existing roads in rare ecosystems.

Intent:

i) Any intrusions into rare forested ecosystems are to be acceptable to the DEO as well as the statutory decision-maker (SDM).

2.2) Rare forested ecosystems are to be given priority for contribution to old seral stage targets, old growth management areas (i.e., areas that are presently and/or are being recruited for old seral), connectivity, and wildlife tree patches, for each Landscape Unit.

Intent:

i) The intent is to identify rare forested ecosystems as part of the Landscape Unit planning process.

2.3) Assess each rare ecosystem and determine the limitations or impediments to ecosystem function as a result of human interference. Develop a plan to remove, or significantly reduce, the interference to better allow the ecosystem to develop the desired structural characteristics and function in as close to a natural state as possible (e.g., noxious weed removal, understory burns, road rehabilitation, etc.). (implementation)

Intent:

i) MoF/MELP to undertake the assessment dependent upon resource availability.

## 3) Maintain representative old growth forests throughout the plan area.

3.1) The biodiversity emphasis option (BEO) assignment for each Landscape Unit (LU) is summarized in Table 1, and the subzone variant old growth targets are summarized for the entire LRMP area in Table 2.

Intent:

i) It was confirmed that the provisions found in strategies 3.1 – 3.4 are intended to deal with all biodiversity requirements (as set forth in the Landscape Unit Planning Guide) within the plan area for the life of the plan.

ii) It was confirmed that the subzone variant old growth targets are not intended to restrict the application of objectives and strategies associated with any RMZ (i.e., serve as a cap), unless specifically stated/provided under that RMZ. For example, for the connectivity corridor in Shorts-Chapperon unit, the size of the corridor and the management objectives/strategies agreed upon for the corridor would not be altered or restricted by subzone variant old growth target for this LU; however, it may be that some of the OGMAs required to meet

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this target would be placed within the corridor.

iii) A complete summary of the OGMA placement is found in Table 3.

iv) The THLB increments identified in Table 2 for specific subzone variants should be located in the oldest stands in balance with the priority placement objectives outlined in strategy 3.2.

3.2) OGMA's required to meet the timber harvesting land base (THLB) subzone variant old growth targets established for each Landscape Unit will be placed in a manner that is both biologically relevant (e.g., considers connectivity, age and spatial distribution etc.), while at the same time giving placement priority to areas that meet the following criteria, listed in no particular order (i.e., the order will be determined by the particular circumstances/needs of each Landscape Unit):

- rare ecosystems (high priority in most circumstances);
- caribou reserves;
- marten/fisher requirements;
- riparian reserves (statutory only) and management areas;
- Terrain Class 5;
- sensitive soils;
- Class A lakes (LMZs);
- wetlands;
- trail corridors;
- headwaters of streams;
- RMZ areas where, relative to other areas within the THLB, the objectives and/or strategies are more constraining on timber supply, timber availability and cost; and,
- considering representation to the site series or surrogate level (to be defined).

3.3) Stakeholder committees ("OGMA Advisory Committees") will be established to provide the District Manager and the Designated Environmental Official with advice on the placement of OGMA's using the criteria referred to in strategy 3.2.

Intent:

i) The stakeholder committees will be coordinated by the LRMP Implementation and Monitoring Committee, and will involve local licensed stakeholders and other interested parties.

ii) The intent is to have these committees organized by district.

iii) Consistent with the Kamloops Regional Landscape Unit Planning Strategy, OGMA locations are to be finalized by July 2002.

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3.4) Avoid harvesting in OGMA's until the structural and functional attributes can be identified and maintained during timber harvesting.

Intent:

- i) Once attributes are quantifiable, then opportunities may exist for harvesting in OGMA's. The attributes are those identified in the FPC Biodiversity Guidebook.
- ii) It is recognized that mineral exploration and mine development, trapping, grazing, and other resource development activities, including roaded access for these activities, are allowed in OGMA's, subject to standard legislation, regulations, and project review processes. If these activities result in removal or significant degradation of the OGMA, alternate patches will be identified or "recruited".

3.5) Once OGMA's have been located, and the enhanced riparian reserves, or other forest cover retention (e.g., FPC riparian wetland reserves; wildlife cover, such as required for moose, goats, etc.), have been planned or accounted for, the parties will discuss (within the context of implementation) whether there are any biodiversity representation issues within any Landscape Unit (LU).

Intent:

- i) The MELP old seral equivalency targets shown in Table 4 will be used in these discussions.
  - Table 4 lists the old seral equivalency targets for each LU BC variant - no total is identified in this table.
  - The only purpose of Table 4 is to serve as a piece of information in the above noted discussion.
  - The table will be modified/adjusted by the placement of OGMA's, enhanced riparian reserves, FPC riparian wetland reserves, wildlife cover for (e.g.) moose, goats, etc., and any surpluses available from other LUs.
- ii) MELP expects/believes that once this placement is completed, and applied to the table, the old seral equivalency targets in the table will be fully met.

4) Maintain functional connectivity (movement of plants and animals) at the regional, landscape and stand level.

4.1) Manage for connectivity at the Landscape Unit planning level by utilizing the OGMA budget, or by planning for harvested and leave areas that maintain mature/older stands in a connected manner for as long as possible.

Intent:

- i) No incremental timber supply impact at the LU level over and above to the agreed upon OGMA budget from managing for connectivity.

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## Coarse Woody Debris

*"Basic" levels of CWD are as described in objective 5 and its pursuant strategies.*

5) Retain "basic" levels of coarse woody debris (CWD) in managed stands.

### Intent:

- i) The following strategies are considered to be "basic" levels of CWD retention and apply across the landbase, unless specified otherwise to meet specific objectives (e.g. grizzly bear, marten, etc.). In other parts of this document, there are references to "basic" and "enhanced" levels of CWD.
- ii) The "Short Term Strategy for CWD Management" provides a background on the ecological importance of CWD, as well as existing policy and management considerations for CWD.
- iii) Implement in a manner that will not create a fire hazard or compromise other objectives such as range management, forest health and reforestation.
- iv) It is recognized that there is flexibility required in the implementation, monitoring and enforcement of managing for CWD.
- v) Where the following text indicates "to be determined on site", it is understood that this is to occur at the discretion of the licensee based on some determination of merchantability, and reasonable efforts are to be made to ensure that CWD does not needlessly end up in landing piles.
- vi) All stems that are to contribute to CWD are to be left in a safe manner (as described by WCB policy/regulations).
- vii) Preference is for CWD to be 25 cm or greater in diameter.
- viii) The results of monitoring any regional CWD will be brought forward as information to the Implementation and Monitoring Committee.

5.1) Retain, to the extent practicable, the following stems (or portions of) in managed stands:

- a) Timber grade firmwood reject (exclusive of tops and other material under 25 cm in diameter).
- b) Poorer quality grade 4, to be determined on site by the proponent.
- c) Timber grade 5 in Riparian Management Areas.

### Intent:

- i) In those hemlock stands where the grade 04 hemlock utilization incentive applies, it is assumed that there will be sufficient CWD provided by the non-hemlock 04 material below cutting specifications and any voluntary CWD retained. Retain as much as practical to the extent that it does not jeopardize the licensee's qualification for the 04 incentive.
- ii) The preference is to have material remain scattered throughout the cutblock, and where piling is necessary attempt to locate unburned piles near block edges or along riparian habitats.
- iii) Avoid retaining green spruce and Douglas-fir where bark beetles are a risk.
- iv) Higher wildlife tree or coarse woody debris decay class (e.g. wildlife tree decay classes 1 or 2), or higher timber grades (e.g. timber grade 3) may be retained on site at the discretion of the licensee.

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5.2) In cutblocks greater than 20 hectares that are located on slopes less than 35%, create 2 to 5 stubs per hectare, or retain 2 - 5 standing trees per hectare.

Intent:

- i) Applies to "conventional ground skidding" - i.e., slopes less than 35%.
- ii) Where snags are present, then evaluate on an individual block basis the number of stubs that will be left. Where possible, maximize the number of suitable snags that are stubbed.
- iii) Used because as blocks get larger, the opportunities for snags decrease.
- iv) Not intended to be additive to WTPs, but the intent is that the stubs or standing trees will be well distributed over the block.
- v) Fir and spruce should not be used for stubs due to the forest health risk.

5.3) Where practical, retain a portion of the residual component (below harvest minimum diameter) of the stand.

Intent:

- i) Applies to "conventional ground" - i.e., slopes less than 35%.
- ii) Potential recruitment source for CWD.
- iii) Examples would be within riparian management areas or spruce and balsam residuals.
- iv) Retention of residuals may not be appropriate where dwarf mistletoe is present, where the area is scheduled for broadcast burning, or other similar situations.
- v) Unless specified otherwise (e.g., as an objective or strategy for an RMZ), it is assumed that where residuals are being retained it will be done in conjunction with planning for wildlife tree patches (WTPs).
- vi) Where there is a residual component effort should be made to retain residuals that will compliment CWD objectives over time.
- vii) Not intended to impact reforestation requirements.

5.4) Do not compromise CWD objectives, as outlined in an operational plan, with activities that rely on the same source of fiber (e.g. commercial firewood, bark mulch and other salvage operations).

5.5) New opportunities for utilization of fiber should be developed with consideration of the ecological value of CWD.

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5.6) As much as practical, avoid hauling CWD to landings

Intent:

- i) To make reasonable efforts to determine whether stems are to contribute to the CWD retention prior to skidding or yarding.
- ii) It is understood that most determination of firmwood reject and poorer quality grade 4 is done at the landing. There is no intent to put material back into the bush; rather, look for practical ways to minimize material going to the landing.

*"Enhanced" levels of CWD are as described in objectives 5 and 6, and their pursuant strategies.*

6) Provide "enhanced" levels of CWD in landscape units with a high BEO assignment, and moderately high and high grizzly bear habitat (as per the "Areas Where 'Enhanced' Levels of CWD Apply" map).

Intent:

- i) The term "enhanced" is used to describe specific CWD retention in other parts of this document.
- ii) To occur in addition to strategies 5.1, 5.3, 5.4 and 5.5.
- iii) For moderate grizzly bear habitat achieving "enhanced" levels of CWD is encouraged, but voluntary until information is collected on the level of CWD under normal practices.

6.1) Where practical, retain at least 10 "green" trees, 10 "stubs", or 10 "tree pieces" per hectare, or any combination thereof.

Intent:

- i) Intended to replace strategy 5.2 (not be incremental to) for areas described in objective 6.
- ii) This is to provide a mid-term source of CWD.
- iii) This is not intended to be additive to WTP requirements. The intent is that the stubs or standing trees will be well distributed over the block.
- iv) The proponent has the discretion for the appropriate stems to retain
- v) Tree pieces are to remain scattered throughout the cutblock.
- vi) "Stubs" are to be created in a safe manner, and should be at least 3 – 5 metres in height.
- vii) "Tree pieces" are to be at least 3 – 5 metres in length and greater than 40 cm in diameter, where available; otherwise, use the next closest size.
- viii) Stubs and tree pieces may be recruited from dead wood.
- ix) Avoid green fir and spruce tree pieces and stubs.
- x) The "green" trees are to be selected based on a combination of windfirmness and large size.



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**Table 1: BEO Assignment for Each Landscape Unit**

LU Name	Final	Forest	THLB + Rip.	% of THLB
Anarchist	High	16,553	9,435	0.8%
Ashnola	High	65,081	23,107	1.9%
Seymour	High	67,669	48,618	3.9%
Upper Shuswap	High	62,921	38,771	3.1%
			119,932	9.7%
Anstey	Int	34,785	20,812	1.7%
Eagle River	Int	80,308	54,304	4.4%
Harris	Int	51,158	45,777	3.7%
Keremeos	Int	38,467	23,628	1.9%
Kingfisher	Int	72,439	56,232	4.5%
Mission	Int	86,966	63,358	5.1%
Ok West Side	Int	21,696	18,220	1.5%
Pennask	Int	45,282	39,780	3.2%
Penticton	Int	57,594	40,419	3.3%
Pukeashun	Int	49,497	38,945	3.1%
Salmon Arm	Int	77,501	64,744	5.2%
Trepanier	Int	50,336	35,515	2.9%
Trout	Int	86,346	64,474	5.2%
			566,207	45.6%
Anarchist-TFL	Low	44,353	37,237	3.0%
Anstey-TFL	Low	7,772	7,383	0.6%
Cherryville	Low	53,637	44,455	3.6%
Crowfoot	Low	26,780	20,228	1.6%
Eagle Riv-TFL	Low	33	32	0.0%
Kettle	Low	81,193	70,617	5.7%
Kettle-TFL	Low	3	-	0.0%
Mable	Low	66,086	58,612	4.7%
Ok West-TFL	Low	30,090	26,501	2.1%
Pennask-TFL	Low	3,180	2,953	0.2%
Penticton-TFL	Low	186	106	0.0%
Sal Arm-TFL	Low	25	21	0.0%
Trepanier-TFL	Low	41,176	35,451	2.9%
Trinity	Low	56,304	45,000	3.6%
U/Salmon-TFL	Low	62,744	56,743	4.6%
Upper Kettle	Low	70,189	64,114	5.2%
Upper Salmon	Low	42,165	33,766	2.7%
Vernon	Low	41,217	33,242	2.7%
White	Low	24,045	19,743	1.6%
			556,206	44.8%
total		1,615,777	1,242,344	

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**Table 2: Sub Zone Variant Old Growth Targets by Landscape Unit**

District	LU Name	BEC as One	Old THLB	Recruit THLB	Old NTHLB	Recruit NTHLB	THLB Increment from LRMP Table
Penticton	Anarchist	BG xh1	-	-	-	-	
Penticton	Anarchist	ESSF dc1	-	-	-	0	
Penticton	Anarchist	ESSF xc	40	7	10	0	
Penticton	Anarchist	I DF dk1	-	240	-	132	
Penticton	Anarchist	I DF dm1	9	117	-	277	
Penticton	Anarchist	I DF xh1	25	643	48	593	
Penticton	Anarchist	MS dm1	-	-	2	20	
Penticton	Anarchist	MS xk	120	15	10	10	
Penticton	Anarchist	PP xh1	-	-	8	821	100
Penticton	Anarchist-TFL	BG xh1	-	-	-	-	
Penticton	Anarchist-TFL	ESSF dc1	114	-	220	32	
Penticton	Anarchist-TFL	I DF dm1	-	-	18	447	
Penticton	Anarchist-TFL	I DF xh1	72	56	16	142	
Penticton	Anarchist-TFL	MS dm1	71	-	264	461	
Penticton	Anarchist-TFL	PP xh1	-	-	-	92	
Penticton	Ashnola	BG xh1	-	-	-	-	
Penticton	Ashnola	ESSF dc2	-	-	60	-	
Penticton	Ashnola	ESSF xc	-	-	6,162	-	
Penticton	Ashnola	I DF dk1	-	-	371	1,837	
Penticton	Ashnola	I DF dk2	7	11	3	95	
Penticton	Ashnola	I DF xh1	0	-	15	607	
Penticton	Ashnola	MS dm2	-	-	766	-	
Penticton	Ashnola	MS xk	-	-	3,405	-	
Penticton	Ashnola	PP xh1	-	-	-	3	
Penticton	Keremeos	BG xh1	-	-	-	-	
Penticton	Keremeos	ESSF xc	2	-	1,018	229	166.7
Penticton	Keremeos	I DF dk1	-	-	4	1,020	
Penticton	Keremeos	I DF dk2	-	-	-	283	
Penticton	Keremeos	I DF xh1	21	630	4	390	
Penticton	Keremeos	MS dm2	-	-	278	-	166.7
Penticton	Keremeos	MS xk	9	-	736	450	166.7
Penticton	Keremeos	PP xh1	-	-	-	83	90
Penticton	Kettle	ESSF dc1	-	-	989	-	
Penticton	Kettle	ESSF xc	-	-	508	-	
Penticton	Kettle	I CH mk1	35	-	155	-	
Penticton	Kettle	I DF dm1	-	-	56	438	
Penticton	Kettle	MS dm1	319	-	604	646	200
Penticton	Kettle-TFL	ESSF dc1	-	-	-	0	

# Okanagan - Shuswap LRMP Approved Plan

District	LU Name	BEC as One	Old THLB	Recruit THLB	Old NTHLB	Recruit NTHLB	THLB Increment from LRMP Table
Penticton	Mission	BG xh1	-	-	-	-	
Penticton	Mission	ESSF dc1	966	-	1,556	375	
Penticton	Mission	ESSF xc	-	-	1,342	-	
Penticton	Mission	I CH mk1	439	-	492	1,510	250
Penticton	Mission	I DF dm1	-	-	-	347	
Penticton	Mission	I DF mw1	-	-	-	1,488	
Penticton	Mission	I DF xh1	-	-	-	426	150
Penticton	Mission	MS dm1	2,322	-	175	490	
Penticton	Mission	PP xh1	-	-	-	67	
Penticton	Pennask	ESSF dc2	336	-	24	-	
Penticton	Pennask	ESSF xc	1,013	-	254	411	
Penticton	Pennask	I DF dk1	-	12	-	0	
Penticton	Pennask	MS dm2	810	-	42	276	
Penticton	Pennask	MS xk	6	-	331	2,821	500
Penticton	Pennask-TFL	ESSF dc2	15	-	88	-	
Penticton	Pennask-TFL	ESSF xc	-	-	0	3	
Penticton	Pennask-TFL	MS dm2	-	-	43	-	
Penticton	Penticton	BG xh1	-	-	-	-	
Penticton	Penticton	ESSF dc1	720	-	133	1,057	
Penticton	Penticton	I DF dm1	-	-	2	1,722	
Penticton	Penticton	I DF xh1	-	-	-	792	800
Penticton	Penticton	MS dm1	1,109	-	291	1,555	
Penticton	Penticton	PP xh1	-	-	-	443	200
Penticton	Penticton-TFL	ESSF dc1	-	-	-	3	
Penticton	Penticton-TFL	I DF dm1	-	-	-	0	
Penticton	Penticton-TFL	I DF xh1	-	-	-	0	
Penticton	Penticton-TFL	MS dm1	-	-	-	6	
Penticton	Penticton-TFL	PP xh1	-	-	-	0	
Penticton	Trepanier	ESSF dc2	49	-	5	-	
Penticton	Trepanier	ESSF xc	33	-	10	59	
Penticton	Trepanier	I DF dk1	-	66	-	0	
Penticton	Trepanier	I DF dk2	-	702	-	1,870	
Penticton	Trepanier	I DF mw1	-	21	-	7	
Penticton	Trepanier	I DF xh1	19	534	-	324	
Penticton	Trepanier	MS dm2	1,606	-	884	242	
Penticton	Trepanier	MS xk	38	-	3	1	
Penticton	Trepanier	PP xh1	7	131	0	141	575

## Okanagan - Shuswap LRMP Approved Plan

District	LU Name	BEC as One	Old THLB	Recruit THLB	Old NTHLB	Recruit NTHLB	THLB Increment from LRMP Table
Penticton	Trepanier-TFL	ESSF dc2	-	-	364	-	
Penticton	Trepanier-TFL	ESSF xc	-	-	110	-	
Penticton	Trepanier-TFL	I DF dk2	-	183	-	67	
Penticton	Trepanier-TFL	I DF mw1	-	-	-	128	
Penticton	Trepanier-TFL	I DF xh1	-	78	-	15	
Penticton	Trepanier-TFL	MS dm2	254	-	92	548	
Penticton	Trepanier-TFL	PP xh1	-	42	-	0	
Penticton	Trout	BG xh1	-	-	-	-	
Penticton	Trout	ESSF xc	113	-	1,325	223	
Penticton	Trout	I DF dk1	1	15	0	491	
Penticton	Trout	I DF dk2	122	975	62	1,810	
Penticton	Trout	I DF xh1	97	871	59	571	
Penticton	Trout	MS dm2	401	-	810	2,959	400
Penticton	Trout	MS xk	248	-	2	9	
Penticton	Trout	PP xh1	-	-	91	394	588
Salmon Arm	Anstey	ESSF wc2	-	-	485	1,466	
Salmon Arm	Anstey	I CH mw2	-	7	-	77	
Salmon Arm	Anstey	I CH mw3	107	-	1,894	57	
Salmon Arm	Anstey	I CH vk1	187	-	48	34	
Salmon Arm	Anstey	I CH wk1	584	-	88	215	
Salmon Arm	Anstey-TFL	ESSF wc2	-	74	4	14	
Salmon Arm	Anstey-TFL	I CH mw2	4	46	-	3	
Salmon Arm	Anstey-TFL	I CH mw3	105	-	-	-	
Salmon Arm	Anstey-TFL	I CH wk1	-	-	88	11	
Salmon Arm	Crowfoot	ESSF wc2	71	-	24	449	
Salmon Arm	Crowfoot	I CH mw2	-	-	-	-	
Salmon Arm	Crowfoot	I CH mw3	-	-	543	-	
Salmon Arm	Crowfoot	I CH wk1	38	61	5	156	150
Salmon Arm	Crowfoot	I DF mw2	-	-	-	25	
Salmon Arm	Eagle River	ESSF vc	-	-	2,775	491	
Salmon Arm	Eagle River	ESSF wc2	1,436	-	140	896	
Salmon Arm	Eagle River	ESSF wc4	85	-	18	181	
Salmon Arm	Eagle River	I CH mw2	-	30	59	10	
Salmon Arm	Eagle River	I CH mw3	83	-	2,004	-	
Salmon Arm	Eagle River	I CH vk1	47	-	816	192	
Salmon Arm	Eagle River	I CH wk1	1,129	-	1,384	669	
Salmon Arm	Eagle River-TFL	ESSF wc2	-	-	-	1	
Salmon Arm	Eagle River-TFL	I CH mw3	-	-	-	0	
Salmon Arm	Eagle River-TFL	I CH wk1	-	-	-	1	

# Okanagan - Shuswap LRMP Approved Plan

District	LU Name	BEC as One	Old THLB	Recruit THLB	Old NTHLB	Recruit NTHLB	THLB Increment from LRMP Table
Salmon Arm	Kingfisher	ESSF vc	-	-	0	150	100
Salmon Arm	Kingfisher	ESSF wc2	1,671	-	73	2,630	
Salmon Arm	Kingfisher	ESSF wc4	30	-	45	144	100
Salmon Arm	Kingfisher	I CH mk1	161	-	13	100	
Salmon Arm	Kingfisher	I CH mw2	204	-	1,201	1,215	
Salmon Arm	Kingfisher	I CH mw3	-	-	47	-	
Salmon Arm	Kingfisher	I CH vk1	22	-	90	49	50
Salmon Arm	Kingfisher	I CH wk1	830	-	479	163	
Salmon Arm	Kingfisher	I DF mw1	-	-	21	432	
Salmon Arm	Kingfisher	I DF xh1	-	-	-	3	
Salmon Arm	Pukeashun	ESSF wc2	916	574	1,211	2,243	
Salmon Arm	Pukeashun	I CH mk2	27	-	100	-	
Salmon Arm	Pukeashun	I CH mw3	10	-	314	586	
Salmon Arm	Pukeashun	I CH wk1	710	395	135	451	
Salmon Arm	Pukeashun	I DF mw2	-	119	-	266	
Salmon Arm	Pukeashun	I DF xh2	-	-	-	12	
Salmon Arm	Salmon Arm-TFL	ESSF dc2	-	-	0	1	
Salmon Arm	Salmon Arm-TFL	I DF mw2	-	-	0	-	
Salmon Arm	Salmon Arm-TFL	MS dm2	-	-	0	0	
Salmon Arm	Salmon Arm	ESSF dc2	774	-	525	30	
Salmon Arm	Salmon Arm	I CH mk2	669	-	294	-	
Salmon Arm	Salmon Arm	I CH mw2	452	900	62	180	
Salmon Arm	Salmon Arm	I CH mw3	75	-	-	77	200
Salmon Arm	Salmon Arm	I DF dk2	-	363	-	267	
Salmon Arm	Salmon Arm	I DF mw1	28	312	-	112	
Salmon Arm	Salmon Arm	I DF mw2	72	185	-	2,372	
Salmon Arm	Salmon Arm	I DF xh1	-	9	-	24	
Salmon Arm	Salmon Arm	I DF xh2	-	26	-	145	
Salmon Arm	Salmon Arm	MS dm2	906	-	205	602	
Salmon Arm	Salmon Arm	PP xh2	-	-	-	0	
Salmon Arm	Seymour	ESSF vc	-	-	2,962	1,173	
Salmon Arm	Seymour	ESSF wc2	280	1,123	48	1,496	
Salmon Arm	Seymour	I CH mw3	1,544	-	1,280	921	
Salmon Arm	Seymour	I CH vk1	-	-	1,382	-	
Salmon Arm	Seymour	I CH wk1	2,294	-	694	293	
Salmon Arm	White	ESSF wc2	10	93	-	-	
Salmon Arm	White	I CH mw2	60	91	-	0	
Salmon Arm	White	I CH mw3	338	-	136	0	
Salmon Arm	White	I CH wk1	29	-	0	-	
Salmon Arm	White	I DF mw2	-	-	-	284	

## Okanagan - Shuswap LRMP Approved Plan

District	LU Name	BEC as One	Old THLB	Recruit THLB	Old NTHLB	Recruit NTHLB	THLB Increment from LRMP Table
Vernon	Cherryville	ESSF dc1	-	-	138	-	
Vernon	Cherryville	ESSF wc4	-	-	244	459	
Vernon	Cherryville	ESSF xc	-	-	91	-	
Vernon	Cherryville	I CH mk1	148	-	89	405	
Vernon	Cherryville	I CH mw2	-	-	258	216	100
Vernon	Cherryville	I DF mw1	-	-	0	350	
Vernon	Harris	ESSF dc1	45	-	126	-	
Vernon	Harris	ESSF xc	-	-	1,696	-	
Vernon	Harris	I CH mk1	842	42	59	404	
Vernon	Harris	I DF mw1	66	794	-	795	
Vernon	Harris	I DF xh1	21	226	0	0	
Vernon	Harris	MS dm1	1,528	290	79	2	
Vernon	Mable	ESSF dc2	45	-	127	-	100
Vernon	Mable	ESSF wc2	-	-	86	1,225	400
Vernon	Mable	I CH mw2	439	-	244	292	
Vernon	Mable	I CH wk1	-	-	264	55	100
Vernon	Mable	I DF mw1	-	-	-	80	
Vernon	Ok West Side	ESSF dc2	103	166	-	-	
Vernon	Ok West Side	ESSF xc	-	48	-	-	
Vernon	Ok West Side	I CH mk1	273	-	0	0	
Vernon	Ok West Side	I CH mk2	242	-	57	-	
Vernon	Ok West Side	I DF dk1	-	81	-	100	
Vernon	Ok West Side	I DF mw1	26	693	-	464	
Vernon	Ok West Side	I DF xh1	-	202	-	27	300
Vernon	Ok West Side	MS dm2	178	75	29	146	
Vernon	Ok West Side	MS xk	-	-	-	6	
Vernon	Ok West-TFL	ESSF dc2	137	-	236	-	
Vernon	Ok West-TFL	ESSF xc	-	-	27	-	
Vernon	Ok West-TFL	I CH mk2	215	-	39	-	
Vernon	Ok West-TFL	I DF mw1	-	-	0	346	
Vernon	Ok West-TFL	I DF xh1	53	5	-	-	
Vernon	Ok West-TFL	MS dm2	86	-	57	174	
Vernon	Trinity	ESSF dc2	-	-	217	-	
Vernon	Trinity	I CH mk1	-	-	71	-	
Vernon	Trinity	I CH mw2	708	-	357	275	
Vernon	Trinity	I DF mw1	-	-	-	215	
Vernon	Trinity	I DF xh1	-	22	-	-	

## Okanagan - Shuswap LRMP Approved Plan

District	LU Name	BEC as One	Old THLB	Recruit THLB	Old NTHLB	Recruit NTHLB	THLB Increment from LRMP Table
Vernon	U/Salmon-TFL	ESSF dc2	-	-	286	-	
Vernon	U/Salmon-TFL	ESSF xc	166	-	68	26	
Vernon	U/Salmon-TFL	I DF dk1	65	301	-	169	
Vernon	U/Salmon-TFL	I DF dk2	71	291	-	148	
Vernon	U/Salmon-TFL	I DF mw2	14	99	-	3	
Vernon	U/Salmon-TFL	I DF xh1	-	-	-	1	
Vernon	U/Salmon-TFL	I DF xh2	80	59	-	15	
Vernon	U/Salmon-TFL	MS dm2	546	-	95	0	
Vernon	U/Salmon-TFL	MS xk	13	-	40	270	
Vernon	Upper Kettle	ESSF dc1	-	-	823	-	
Vernon	Upper Kettle	ESSF wc4	1,151	-	60	351	
Vernon	Upper Kettle	I CH mk1	850	-	157	126	
Vernon	Upper Kettle	I CH mw2	-	-	78	30	
Vernon	Upper Salmon	ESSF dc2	100	-	58	0	
Vernon	Upper Salmon	ESSF xc	115	-	95	-	
Vernon	Upper Salmon	I CH mk1	3	11	0	0	
Vernon	Upper Salmon	I CH mk2	13	-	0	-	
Vernon	Upper Salmon	I DF dk1	-	-	-	241	
Vernon	Upper Salmon	I DF dk2	-	-	-	292	
Vernon	Upper Salmon	I DF mw1	-	103	-	39	
Vernon	Upper Salmon	I DF mw2	-	-	-	61	
Vernon	Upper Salmon	I DF xh1	-	-	-	13	
Vernon	Upper Salmon	I DF xh2	-	-	-	234	450
Vernon	Upper Salmon	MS dm2	-	-	84	151	100
Vernon	Upper Salmon	MS xk	-	-	11	269	200
Vernon	Upper Shuswap	ESSF wc2	995	839	113	776	
Vernon	Upper Shuswap	ESSF wc4	-	-	1,023	3,380	300
Vernon	Upper Shuswap	I CH mw2	1,281	-	349	495	
Vernon	Upper Shuswap	I CH vk1	-	-	951	-	
Vernon	Upper Shuswap	I CH wk1	1,944	-	809	309	

# Okanagan - Shuswap LRMP Approved Plan

District	LU Name	BEC as One	Old THLB	Recruit THLB	Old NTHLB	Recruit NTHLB	THLB Increment from LRMP Table
Vernon	Vernon	ESSF dc2	8	-	-	16	
Vernon	Vernon	ESSF xc	38	-	-	17	
Vernon	Vernon	I CH mk1	103	-	411	53	100
Vernon	Vernon	I CH mw2	-	13	-	1	
Vernon	Vernon	I DF mw1	-	-	-	529	
Vernon	Vernon	I DF xh1	-	-	-	148	50
Vernon	Vernon	MS dm1	338	-	93	94	
Vernon	Vernon	PP xh1	-	-	-	1	

	40,606	14,118	56,210	68,420	7,153
		54,724		124,629	7,153

	Total THLB	61,877
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**Table 3: Summary of OGMA Placement**

Old THLB	40,606
non Old THLB	14,118
THLB increment from LRMP table	7,153
<b>Total THLB</b>	<b>61,877</b>
Old NTHLB	56,210
non old NTHLB	<u>68,420</u>
<b>Total NTHLB</b>	<b>124,630</b>
TOTAL OGMA	<b>186,507</b>
Enhanced Riparian	<u>10,000</u>
<b>TOTAL OGMA PLACEMENT AND ENHANCED RIPARIAN</b>	<b>196,507</b>



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**Table 4: Potential Old Seral Equivalency Targets**

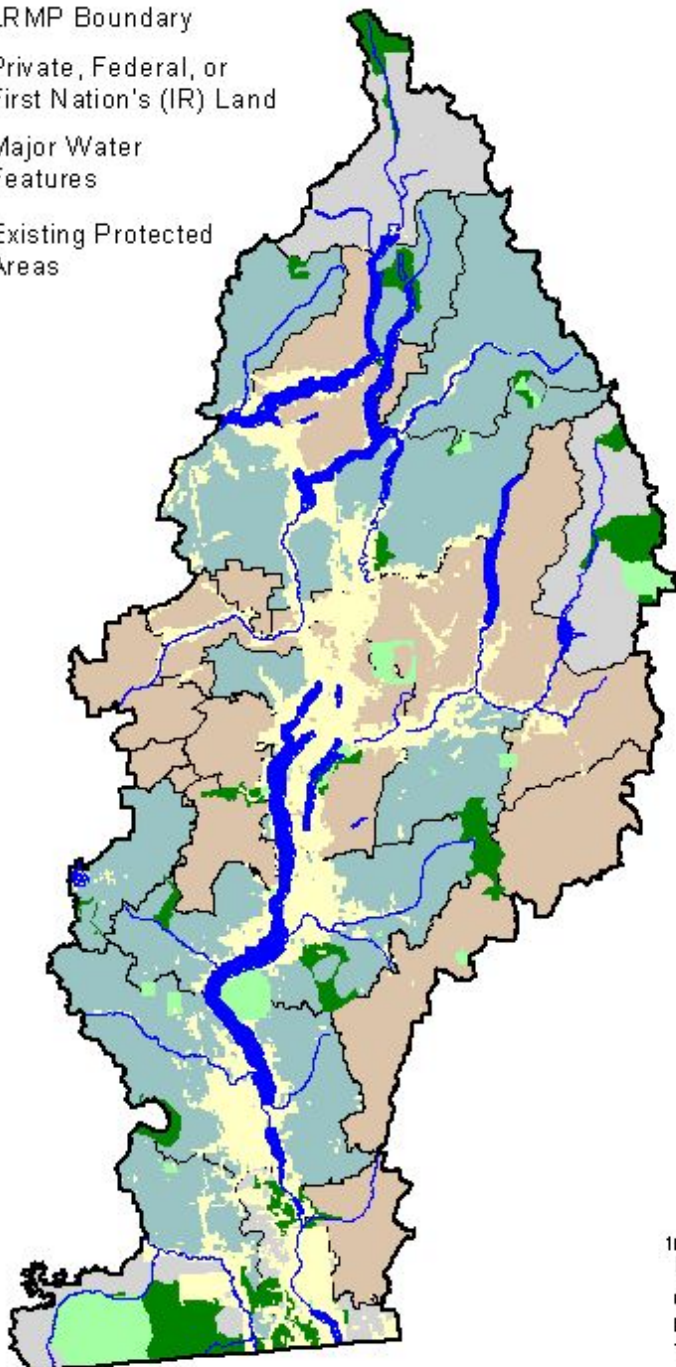
Landscape Unit	BEC Unit	Potential Old Seral Equivalency Shortfall (ha)
Anarchist TFL	ESSFdc2	100
Anarchist TFL	MSdm1	200
Anstey	ESSFdc2	100
Ashnola	MSdm2	50
Eagle River	ESSFwc4	200
Eagle River	ICHwk1	200
Harris	IDFmw1	100
Keremeos	MSxk	200
Kingfisher	ESSFwc2	500
Mable	ESSFwc2	200
Mission	ICHmk1	200
Mission	IDFdm1	50
OK West TFL	MSdm2	100
Pennask	MSxk	1000
Penticton	ESSFdc1	500
Penticton	MSdm1	500
Penticton	IDFdm1	200
Pukeashun	ICHmw3	300
Salmon Arm	MSdm2	300
Salmon Arm	IDFdk2	200
Salmon Arm	IDFmw1	100
Trepanier TFL	MSdm2	200
Trout	ESSFxc	100
Trout	MSdm2	1000
U/Salmon TFL	MSxk	100
Upper Salmon	IDFdk1	100
Upper Shuswap	ESSFwc4	300

# Okanagan - Shuswap LRMP Approved Plan

## Recommended Landscape Units and BEO Assignment

### Base Information

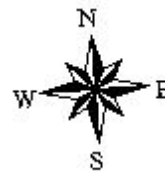
- ∕ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



### Landscape Units

- High BEO
- Intermediate BEO
- Low BEO

- Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

Created by the LMRP  
DATA MANAGEMENT  
TEAM - March, 2001  
File name: beo\_2.jpg

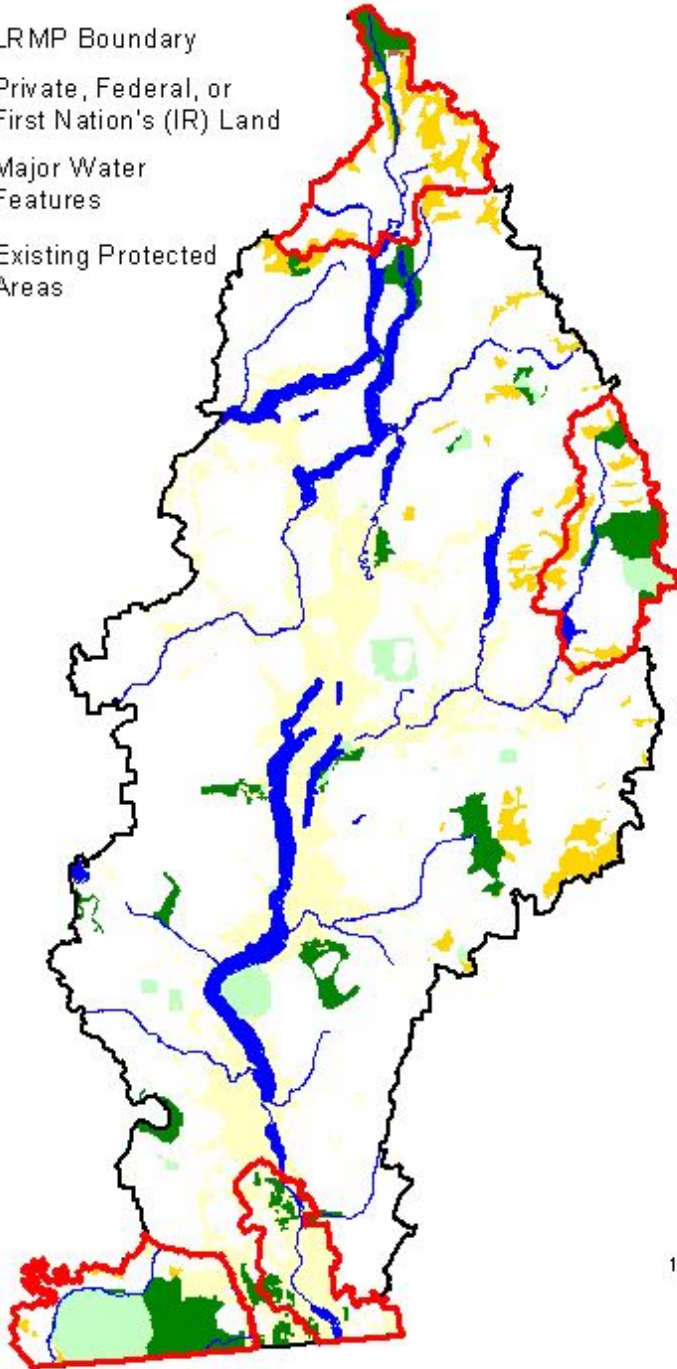


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## Areas Where "Enhanced" Levels of CWD Apply

### Base Information

- ∕ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



### Landscape Units

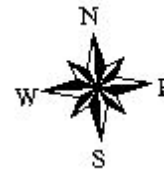
High BEO

### Grizzly Suitability

High

High - Moderate

Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

Created by the LMRP  
DATA MANAGEMENT  
TEAM - March, 2001

File name: enhanced\_cwd\_2.jpg



## General Resource Management

In this section:

- Provisions for the development of energy resources.

## Energy

### Introduction

The exploration, development and use of energy resources comprise an integral part of economic activities and provide significant investment revenue in BC.

The plan area is a net consumer of energy resources delivered from other parts of the province.

Energy resources include both renewable (hydroelectricity, wind, solar, geothermal and biomass) and non-renewable resources (petroleum, natural gas, coal, peat, uranium), together with the infrastructure (pipelines or transmission lines) to deliver the energy resource to end-users.

### *Resource Potential*

Renewable resource potential includes hydro, solar, biomass, co-generation and wind. The potential for new, large, hydro electrical generation is low. The potential for electrical generation from small hydro, solar, biomass, and wind is moderate. There may also be opportunities for more traditional thermal resource development.

The potential for geothermal energy ranges from high to medium, with the highest potential in an area extending from Osoyoos to just south of Vernon. There is one hot spring (Cedar Hot Spring) located between Vernon and Lumby.

The oil and gas potential in the plan area is very low to zero. The potential for coal is rated low as well.

# Okanagan - Shuswap LRMP Approved Plan

The plan area was the focus of uranium exploration in the 1970s and a number of potentially economic deposits were discovered. At this time there are no plans to develop these resources.

## *Infrastructure*

There are a number of natural gas transmission lines in the plan area. The Environmental Assessment Office recently approved a \$330 million project by BC Gas to expand transmission lines between Yahk and Oliver.

Major electricity transmission lines (about 480 km) cross the plan area. There are also two small generating facilities of less than 10 megawatts: a thermal generating station in Kelowna and a small hydro facility east of Vernon.

## *Current Management*

The Electricity Development Branch of the Ministry of Employment and Investment oversees policy development in the electric sector. The BC Utilities Commission regulates all activities of electric and gas utilities including the review and approval of utility projects under the limits set out in the Environmental Assessment Act. Applications for both utility and non-utility electricity generation projects greater than 50 MW and transmission lines greater than 500 kV and 40 km in length are reviewed by the EAO, with joint decision making by the Minister of Employment and Investment. Non-utility projects less than 50m MW are reviewed and permitted under either the Water Act (hydroelectric) or the Waste Management Act (thermal). The EDB actively participates in all reviews and provides advice and guidance on justification and investment issues.

The Petroleum Lands Branch of the Ministry of Energy and Mines issues tenures for oil and gas/geothermal rights. Currently there are no active tenures in the plan area. The Oil and Gas Commission regulates all oil and gas activities. Applications for oil and gas pipelines and related facilities are reviewed by either the Oil and Gas Commission or the Environmental Assessment Office, depending on the size of the project.

## **Issues**

The key issue for energy resources is providing reasonable access outside of protected areas for exploration of hidden, subsurface energy resources (e.g., petroleum, geothermal) and the development of hydroelectric and thermal projects to meet the growing needs of the Province.

Access to pipelines and electricity transmission facilities, for maintenance and improvements, is also important.

# Okanagan - Shuswap LRMP Approved Plan

## Goal

Ensure that the plan area's energy resources are developed and used in a safe, efficient and environmentally sound manner for sustained economic and social benefit of the province, its regions and communities.

## Objectives and Strategies

1) Provide opportunities for access to Crown land for the development of energy resources that respect multiple resource uses, values, and interests.

1.1) Opportunities for energy resource exploration and development will be made available on all lands outside of protected areas, subject to standard regulatory approval processes and conditions.

1.2) Access to Crown land for oil and natural gas exploration and development will be undertaken in conformance with the Oil and Gas Handbook.

Intent:

i) Access is to be consistent with the management direction identified in the Access Management section (Part 6).

2) Allow for the development of regional energy resources to provide local employment and investment.

2.1) The Ministry of Energy and Mines will support geological survey and research, by industry, on subsurface energy resources.

2.2) Allow for future energy resource expansion.

Intent:

i) This is intended to facilitate ongoing new development in the plan area.

2.3) Allow for the development of new or expanded pipeline and electric transmission rights of way.

Intent:

i) Applies to both new routes and infrastructure, and the expansion of existing routes and infrastructure.

ii) New infrastructure will be subject to standard regulatory review processes.

iii) Review processes provide opportunities for public input and consider the environmental impacts of proposed developments.

iv) This strategy does not apply to protected areas.

v) Also see strategy 1.6 in the Crown Land section - re: "twinning" or multiple use of access, utility, and other corridors.



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3) Maintain existing energy infrastructure, including natural gas pipelines and electric transmission lines.

3.1) Allow for access to existing pipeline and electric transmission line rights of way for regular maintenance and upgrades.

Intent:

i) Applies to all resource management zones, including protected areas.

## General Resource Management

In this section:

- How to manage fish and fish habitat to meet conservation and biodiversity goals.
- Provisions for protecting spawning and rearing habitats.
- How to improve riparian protection.
- How to address watershed cumulative impacts.
- How to restore watersheds.

## Fish and Aquatic Habitat

### Introduction

*For more information on fish refer to Section 10 of the Okanagan Shuswap LRMP Socio-Economic and Environmental Profile report*

The Okanagan-Shuswap LRMP area includes portions of the Columbia (Okanagan and Similkameen drainage) and the Fraser (Shuswap River drainage) systems. The plan area supports 43 fish species - a higher proportion than any other area in BC. There are 14 introduced species. Four anadromous salmon species are present; all the remaining species are freshwater. Falls and dams on the Similkameen, Okanagan and Shuswap rivers provide barriers to upstream migration of several species.

It is estimated that there were 550,000 angler days in 1995 in the LRMP area. This activity resulted in an associated expenditure by fresh water anglers of an estimated \$60,000,000. Economic benefits are also associated with migratory fish stocks that originate in the LRMP plan area, which contribute to commercial and First Nation fisheries in the Fraser and Columbia systems.

### Salmon

Salmon are a valuable natural resource within the LRMP area, contributing to aboriginal, commercial and sport fisheries. The Shuswap Basin contributes significantly to the overall production of salmon in the Fraser River Basin and to the genetic diversity of the Fraser salmon populations. The Shuswap Lake system supports sockeye lake spawners and also provides vital rearing area for hundreds of millions of coho, chinook and sockeye fry, which makes it one of the most important salmon producing areas in British Columbia. Salmon are also produced in the Okanagan River; the Okanagan River sockeye being one of only two viable sockeye stocks remaining in the entire Columbia River system.

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Salmon depend on the streams and lakes for migration, spawning and rearing and are distributed in all the major watersheds of the Shuswap Basin. The Adams River sockeye run is the second largest in BC. The lower Shuswap River has become a major sockeye producer in the last 15 years. Other important runs include the Seymour River, Scotch Creek and Shuswap Lake spawners. The Shuswap River, lower Adams, Eagle and Salmon rivers are important chinook producing systems.

Coho are the most widely distributed (over 30 streams) in the Shuswap system moving further upstream into the smaller tributaries. Coho stocks in the plan area contribute to the Thompson coho stock group which historically represents about one third of the total Fraser River coho population. In the last ten years, coho in the plan area have declined dramatically and are an urgent conservation concern. While ocean conditions and over-harvesting are major factors, the decrease in the productivity of the habitat has undoubtedly contributed to the decline.

## **Resident Fish**

The plan area supports 15 resident sport fish species, including kokanee, rainbow trout, bull trout, brook trout, lake char, burbot, cutthroat trout, largemouth bass, smallmouth bass and whitefish. Rainbow trout from 400 small lakes make up about 66% of the sport fish population and 80% of the catch. Stocking programs include the release of over one million rainbow trout annually, and are vital to support the trout fishery.

## **Current Management**

The Department of Fisheries and Oceans (DFO) has the responsibility to protect fish and fish habitat, under the authority of the Fisheries Act. In fulfilling this responsibility, the Department is guided by their "Policy for the Management of Fish Habitat" which is based on the principle of "No Net Loss", and has a goal of an overall net gain in fish habitat over time. Where development activities have the potential to create a hazardous alteration, degradation or destruction of fish habitat, the Department requires that these impacts be mitigated. Where mitigation is not possible, compensation measures are required in order to acquire authorization under Section 35(2) of the Fisheries Act and thereby avoid prosecution. (Works "in and about a stream" are administered under the Water Act.) The FPC, through regulations and guidebooks, provides a base line of protection for fish and fish habitat, including provisions for identification and classification of fish bearing streams and appropriate forest and range management practices adjacent to streams. The Riparian Management Area Guidebook provides "best management practices" for range management, as well as forest development activities for riparian management zones for both fish bearing and non-fish bearing streams. Mineral exploration activities in riparian zones are regulated according to the Mineral Exploration Code. Placer mining activities have separate regulations.

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## Issues

### *Decline of wild fish stocks*

Anadromous and resident species that have been monitored have shown significant declines over the last 20 years. Coho salmon, for example, have declined dramatically in the last ten years and the survival of many populations is threatened. Human population growth and increasing urbanization, land and resource development and water use have impacted fish and fish habitat and exert increasing pressures. The preservation and rebuilding of salmon and wild fish stocks depends on habitat protection and restoration.

### *Cumulative watershed impacts*

Cumulative impacts from development (agriculture, forest development, mining, etc.) when added to natural processes, increase the risks to streams, watersheds, and fish values. Impacts include changes to the hydrologic regime, loss of riparian vegetation, destabilization of the channel, erosion and sedimentation affecting downstream fish habitat.

The Interior Watershed Assessment Procedure (IWAP) provides a means to assess the cumulative impacts of disturbance in the watershed above the point of interest. IWAPs are not mandatory for all fish-bearing watersheds at risk from further development. Where IWAPs have been completed, recommendations to prevent further impacts need to be implemented. The identification of impacts through the IWAP process should ignore land status. Where impacts from past practices continue to affect fish habitat or water quantity and quality, these impacts need to be addressed.

### *Loss of riparian vegetation*

Certain S4 fish bearing streams are highly productive, particularly where spawning occurs near headwater lakes, or where high density spawning occurs in specific streams. The maintenance of adequate riparian management zones along these streams may be compromised due to windthrow hazard. Riparian areas along non-fish bearing streams may also influence hydrological and channel stability and temperatures of fish-bearing streams. There is a need to clearly identify riparian management along these streams.

The loss of vegetation along banks of streams that flow through private land is also a concern. There is a need to develop voluntary stewardship agreements to protect riparian zones.

### *Temperature risks*

The loss of riparian vegetation, hot climate and low instream flows in the plan area results in higher stream temperatures. Many streams experience water temperatures that put salmonids at risk. While there are provisions for managing temperature sensitive streams in FPC, no temperature sensitive streams have yet been designated in the plan area and managed accordingly.

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## *Low instream flows*

High water demand has a major impact on instream flows affecting spawning and rearing fish. Reduction in flows in some years significantly reduces the survival of juvenile rearing populations and impedes spawning migrations. A combination of low summer flows, high water temperatures, fines in the gravel and shortage of pools has seriously diminished the quality and quantity of rearing habitat in many watersheds. Coho salmon that overwinter in streams and depend on cover, pools, side channels and wetland habitat are particularly vulnerable to these impacts. Legislation does not adequately protect instream flows for fish and past water allocations have overcommitted many streams for consumptive uses.

## *Lake foreshore development*

Development pressures along lakeshores including expanding urbanization and increasing recreational development and access. This growth has led to modifications of the lakeshore including filling, dredging, removal of natural substrate (gravel and cobble) in foreshore habitats, loss of riparian areas, altered run-off and water quality deterioration impacting spawning and rearing areas along the foreshore critical for salmon and char.

Urban development in upland tributaries around the Shuswap and Okanagan Lakes has increased the amount of impervious surface area. The result is altered stream hydrology with increased peak flows and degraded water quality downstream. Water quality is also affected from seepage of septic tanks, agricultural wastes, and log booming activities. At present, development along the foreshore is piecemeal and is assessed on a project by project basis. There is a need for foreshore planning to determine where and how development should occur to maintain the productivity of the lake ecosystem, and to prevent the cumulative impacts of foreshore and upland developments on fish and fish habitat.

## **Goals**

The main goals are to conserve the natural diversity of fish and fish habitat, with priority given to wild fish stocks. Some of the keys to achieve this objective include:

- the conservation and rebuilding of small and threatened stocks, and wild salmon and freshwater fish populations;
- conserving and rehabilitating habitat;
- improving the natural capacity of spawning and rearing habitats;
- enhancing the quantity and physical and biological diversity of fish habitats;
- ensuring that hatchery stock are not seen as a replacement to the protection of wild fish stocks and their habitat;
- protecting the integrity of environmentally sensitive and critical fish habitats; and,

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- maintaining and restoring the structural and functional integrity of streams, stream channels, lakes, riparian areas, and other aquatic ecosystems.

Another important goal is to sustain the cultural and socio-economic benefits of the aboriginal, sport and commercial fisheries.

## Objectives and Strategies

1) Where habitat has not been degraded, maintain wild salmon and freshwater fish populations that are at, or near, the carrying capacity of the system.

1.1) Conduct resource uses and activities in a way that maintains the capacity of the system.

Intent:

- i) To permit resource use and development activities in such a way as to support the capacity of the system.
- ii) To identify those systems (where wild populations occur) that have not been degraded.

2) Restore depressed salmon and freshwater fish populations to the capability of the system.

2.1) Identify depressed stocks, and the root causes of population declines.

Intent:

- i) Depressed stocks will be identified on an ongoing basis.

2.2) Develop and implement site specific measures to reverse such declines.

3) Enhance salmon and freshwater fish populations where appropriate

Intent:

i) Salmon enhancement techniques may be considered where they contribute to the protection, rehabilitation, and re-establishment of naturally spawning populations, while having no significant adverse impact on long term productivity.

3.1) Identify opportunities to enhance salmon and freshwater fish populations.

3.2) Develop and implement site specific measures to enhance salmon and freshwater fish populations.

Intent:

- i) To identify specific measures to enhance fish populations through the Watershed Restoration Program, the Fish Renewal BC program, and other similar programs.

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## *Habitat Enhancement*

4) Restore salmon and freshwater fish habitat where it is not functioning at, or near, natural capacity.

Intent:

- i) Generally speaking, the goal is to increase all habitats.
- ii) In situations where there are two fish species with different habitat requirements in the same system, the fish agencies will rationalize if this needs to be done at the expense of one species over the other (e.g., salmon vs. rainbow trout).
- iii) An increase in the productive capacity of habitats for selected fisheries brought about by determined government and public efforts to conserve, restore and develop habitats.

4.1) I identify fish habitats that would benefit from enhancement works.

Intent

- i) To identify specific measures to enhance fish populations through the Watershed Restoration Program, the Fish Renewal BC program, and other similar programs.

4.2) Develop and implement site-specific habitat enhancement projects to restore riparian areas and instream fish habitats in watersheds impacted by past activities.

Intent:

- i) Enhancement projects could be undertaken through numerous avenues, including stewardship programs (e.g., "adopt a stream"), major rehabilitation projects (e.g., Watershed Restoration Program), compensation programs, etc.

4.3) Through stewardship programs and agreements, the Watershed Restoration Program, Fisheries Renewal Fund or other funding sources, rehabilitate and stabilize streambanks that have been impacted by urban development, and resource development activities such as agriculture, timber harvesting, mining, etc. (implementation)

4.4) Where mitigation strategies significantly impact timber values, range, agriculture and other values they need to be brought to the attention of the LRMP Implementation and Monitoring Committee. (implementation)

4.5) Evaluate the effectiveness of fish habitat restoration and rehabilitative measures. (implementation)

## *Preventing Habitat Losses*

5) Reduce the impacts of development activities on fish habitat.

Intent:

- i) These strategies are to apply to all development activities.

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5.1) All levels of government are to encourage the use of appropriate fish habitat guidelines and best management practices during planning and development.

Intent:

- i) Encourage other planning processes, as well as agencies, other levels of government, private landowners, and developers to follow these guidelines.
- ii) Examples include setbacks for watercourses, waste management, storm water management, livestock management, etc.
- iii) Examples of the guideline documents to be considered include the Department of Fisheries and Oceans (DFO)/Ministry of Environment, Lands and Parks (MELP) Land Development Guidelines, Stream Stewardship Guides for Agriculture and Urban Development, etc.
- iv) Instream work windows allow for activities to occur within the wetted perimeter of a water body during periods of least risk to fish. These windows should be used during development activities either within fish bearing waters, or where it is likely that those activities will have impacts on downstream fish bearing waters. There is significant variability in work windows, primarily due to fish species presence, and local MELP or DFO offices can provide site-specific information upon request.

5.2) Development activities are not to disrupt movement opportunities (i.e., stream crossings that do not obstruct fish passage), or spawning areas.

Intent:

- i) This is current management under the FPC and Mineral Exploration Code.
- ii) To encourage similar practices for all resource development activities.

5.3) Inventory and identify environmentally sensitive and critical fish habitats. Such habitats include side channels, off channel habitats, wetlands, small rearing tributaries that are critical habitats (e.g., coho habitats), and are very vulnerable to impact.

Intent:

- i) This inventory is to be coordinated jointly by the Ministry of Forests (MoF), MELP, and DFO through the use of funding programs such as FRBC.
- ii) This is not intended to relieve proponents of their statutory obligations.



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5.4) Manage development activities to protect sensitive and critical fish habitats such as side channels, off channel habitats, wetlands, small rearing tributaries that are critical habitats (e.g., coho habitats), and are very vulnerable to impact.

Intent:

i) One method of achieving this objective is to apply the practices identified in the "Riparian Management Area Guidebook" (December, 1995, page 35) or suitable alternatives.

ii) This is intended to apply to all development activities, not just those identified in the FPC.

5.5) Where disturbance occurs during development that is likely to cause erosion, and/or sediment delivery to streams, undertake sediment control concurrent with development activities or as soon as practicable.

Intent:

i) One way of achieving this strategy is to use practices identified in the appropriate Forest Practices Code (FPC) regulations (e.g., Operational Planning Regulation, Forest Road Regulation, Timber Harvesting Practices Regulation).

ii) This is to apply to non-forest and range development activities as well.

5.6) Monitor and assess the effectiveness of Forest Practices Code harvest prescriptions in protecting fish habitat. (implementation)

5.7) Undertake audits and effectiveness monitoring of Forest Practices Code regulations and guidelines to evaluate the effectiveness of these measures to protect fish habitat. (implementation)

## *Stream Channel Stability*

6) Restore channel stability in streams where assessments (e.g., IWAP) indicate a concern, or where there are known problems.

Intent:

i) To restore channel stability.

ii) Applies to both Crown and private land.

iii) It is intended that this would apply to private land through voluntary stewardship agreements, in a cooperative manner with private landowners, etc.

iv) Rehabilitation of stream channels should be considered in a watershed context.

v) Accelerate "natural recovery" (see glossary for definition).

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6.1) Identify stream channels with stability concerns, and the cause of channel disturbances.

Intent:

i) To be coordinated by MELP/MoF subject to availability of FRBC or other funding.

6.2) Avoid unmitigated development activities that could result in further instability concerns.

Intent:

i) Development activities can occur provided instability concerns are mitigated.

6.3) Develop and implement site-specific channel stability restoration measures to accelerate natural recovery processes.

Intent:

i) Restoration measures include hill slope stabilization, replanting riparian areas, livestock fencing, replacement of large woody debris (LWD), rehabilitation of off channel habitat, and bank stabilization. Design projects for ecological restoration - i.e., returning the channel as much as possible to pre-disturbance conditions and functions.

ii) Determine the cause of channel disturbances, and ensure that it has been rehabilitated (hill slope impacts) before habitat restoration work is implemented.

iii) Restoration should aim to return "aggrading" and "degrading" conditions to the stable condition.

iv) To develop and implement restoration measures to enhance fish populations through the Watershed Restoration Program, the Fish Renewal BC program, and other similar programs.

v) Planning and funding for restoration projects should take both construction and ongoing maintenance needs/costs into consideration when evaluating projects.

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## Temperature

7) Maintain stream temperature conditions considered necessary to sustain and protect fish and fish habitat.

### Intent

- i) To use the best current knowledge. (See Table 1.)
- ii) The pursuant strategies may be best managed at a watershed, or a sub-drainage level.
- iii) Applies to both Crown and private land.
- iv) It is intended that this would apply to private land through voluntary stewardship agreements, in a co-operative manner with private landowners, etc.
- v) Direct solar radiation on streams and ambient temperatures are the primary factor influencing temperature changes in the stream and buffer strips can be effective in preventing stream temperature increases.
- vi) As a rule of thumb, streams flowing through the IDF, ICH, PP and the BG biogeoclimatic zones are susceptible to rapid temperature changes as the result of vegetation removal. However, streams originating in the MS or ESSF biogeoclimatic zones are also influenced by shading and may require site specific retention.
- vii) Avoid practices that create cumulative temperature increases that eventually produce high downstream temperatures.
- viii) This objective applies to streams with temperatures approaching or exceeding the maximum preferred temperatures for migration, spawning, incubating or rearing. Strategies need to be more rigorously applied as the temperature approaches the maximum preferred temperature. Addressing potential temperature increases early on when cheaper opportunities exist is preferred. This would also assist in avoiding cumulative temperature impacts much further downstream.
- ix) The intent of the strategies pursuant to this objective is not for them to have incremental protection to the direction provided in the Riparian and Wetlands section. These are only intended to guide the location of where the riparian protection is applied.
- x) For Crown land timber harvesting activities, this objective will be addressed through the placement of "enhanced riparian reserves" (see the Riparian and Wetlands section, strategy 1.1), or application of Section 22(1) of the Timber Harvesting Practices Regulations.

7.1) Plan development activities along streams such that stream water temperatures should not increase as a result of operations to the point that they would be detrimental to fish and fish habitat.

### Intent

- i) Apply the riparian buffers to maximize natural shade on all fish streams and those tributary streams that may increase fish stream temperatures. (This is not intended to override other riparian protection objectives.)
- ii) Encourage proponents and other parties to collect valid information on stream temperatures for consideration in the planning process.

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iii) The results of ongoing research initiatives should be incorporated into development planning.

iv) It is recognized that private land activities can significantly impact stream temperatures, and that natural conditions (i.e., in grasslands) may result in high temperatures. There is no intent to reverse such impacts through other resource management but there is an expectation that conditions will not be exacerbated.

v) Potential temperature impacts to fish streams as well as S4 non-fish, S5 and S6 streams, which are directly tributary to fish streams, should be addressed in pre-development planning.

7.2) Protect identified cold water sources that influence stream temperatures.

Intent:

i) Cold water sources are sources of water that have a measurable influence on the receiving water in the fish stream. They may be tributary stream or an area of ground water discharge.

ii) These will be identified by "fish" agencies, as well as resource development proponents.

iii) Proponents would only be expected to identify these during normal fish/water inventory/assessment projects.

iv) Proponents to develop site specific management prescriptions (utilizing riparian protection provisions) to buffer against detrimental changes in the temperature regime of the cold water. (This is not considered incremental to the riparian provisions.)

7.3) Avoid activities that could result in increases to stream temperature.

Intent:

i) Applies to activities not covered by the Forest Practices Code.

## ***Riparian Management***

*Also see the "Riparian and Wetlands Management" section for management direction with respect to riparian areas.*

8) Restore the structural and functional integrity of stream riparian areas on private lands.

Intent:

i) It is intended that this would apply to private land through voluntary stewardship agreements, in a cooperative manner with private landowners, etc. This objective is intended to provide direction to the provincial government to use these tools to deal with private land related issues.

ii) To restore the integrity of riparian areas through the Watershed Restoration Program, the Fish Renewal BC program, and other similar programs.

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8.1) All levels of government that work with private landowners should encourage the use of stream riparian buffers where riparian integrity is compromised.

9) Rehabilitate and stabilize streambanks that have been impacted by urban development, and resource development activities such as agriculture, timber harvesting, mining, etc.

Intent:

i) To rehabilitate and stabilize stream banks through the Watershed Restoration Program, the Fish Renewal BC program, and other similar programs.

ii) It is intended that this would apply to private land through voluntary stewardship agreements, in a cooperative manner with private landowners, etc.

9.1) All levels of government, local licensed resource users, and/or the public groups are encouraged to develop and implement rehabilitation plans where needed.

Intent:

i) Some of the other tools that could be used to accomplish this include re-vegetating disturbed sites, livestock fencing, etc.

ii) The use of bioengineering techniques should be encouraged to stabilize streambanks rather than rip rap.

10) Achieve and maintain properly functioning conditions of streams including the timing and magnitude of flows.

Intent:

i) Maintain natural drainage patterns to assist in attenuating peak flows to prevent destabilization of stream channels, the associated deterioration of instream habitat, and prevent downstream flooding.

ii) Maintain the hydrograph to within the range of the evolved channel capacities downstream.

iii) Maintain the low flows to within the range of the current licensed demand so that the situation gets no worse than that which exists at present. It is a conservative approach that provides options for future demands and uses.

iv) Ensure that construction activity, primarily roads and trails, does not disrupt natural drainage patterns leading to erosion, mass wasting, and debris torrents.

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10.1) Address cumulative impacts of multiple land and water uses on both Crown and private land through watershed planning and stewardship.

Intent:

- i) It is intended that this would apply to private land through voluntary stewardship agreements, in a cooperative manner with private land owners, etc.
- ii) There could be coordinated initiatives within a watershed to accomplish this.

10.2) Manage forest harvesting so that spatial distribution of cutblocks (i.e., aspect and elevation) and the harvesting techniques supports the properly functioning condition, including the timing and magnitude of flows.

Intent:

- i) To use the Interior Watershed Assessment Procedure (IWAP) process where possible and equivalent clearcut areas (ECAs) to meet this strategy.
- ii) In watersheds without IWAPs, use current management practices under the Forest Practices Code to achieve this strategy.

10.3) MoF and MELP will prepare and update annually a list of watersheds where IWAPs are mandatory under 14.1 of the Operational Planning Regulation (OPR), and a discretionary priority list by forest district based on watershed sensitivity that are candidates for IWAPs.

Intent:

- i) "Discretionary" means to do these as funding and resources become available (e.g., FRBC).
- ii) The IWAP discretionary priority list will be developed using information such as: the Watershed Assessment Model Total Ranking, known watersheds with issues, watershed ECA of 20%, flood plain development, future forest harvesting, road density, proposed road length, etc.
- iii) MoF and MELP to jointly agree to the list. It is anticipated that hydrologists from both ministries may be involved in developing or reviewing the list including DFO and other agencies as required.
- iv) Forest District Manager and Designated Environmental Official to consider this list when identifying watersheds to be added to the mandatory list for IWAPs.
- v) Updated lists will be made available to the Implementation and Monitoring Committee as part of the annual report that is provided to this group.
- vi) Use a cumulative watershed impact assessment to guide future resource development in watersheds and/or sub-drainage.
- vii) Intent is to promote hydrologic stability and recovery.
- viii) Examples of activities pursuant to this strategy could include harvest

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and road building restrictions, road deactivation, stabilization of upslope areas, and revegetation of riparian zones.

ix) The intent is that IWAP recommendations will provide direction for remedial and/or restoration activities under the WRP (Watershed Restoration Program).

x) It is intended that high value fish streams and high use domestic watersheds are to be given priority for assessment. This will be balanced with risk factors to determine an overall priority for assessment.

xi) Develop an implementation plan based on risk to determine a schedule for undertaking IWAPs. (Risk factors to be considered include watershed sensitivity, proposed development, and past development).

xii) The intent is that the "discretionary" IWAPs will be completed over the next ten years.

xiii) A set of criteria needs to be developed to aid in establishing priorities for undertaking IWAPs. (implementation)

10.4) Mitigate or compensate for the impacts from new development activities that may alter the hydrologic regime to the detriment of fish.

Intent:

i) This strategy applies to non-forestry development activities. (This is current Fisheries Act management.)

## *Angling Opportunities*

11) Provide a diversity of angling opportunities.

11.1) Through consultation with stakeholders, manage fishing opportunities for various user needs (e.g., "wilderness" or "walk-in", "trophy", "high success", "kids' fisheries" or "catch and release".)

11.2) Allow for consumptive use of fish, unless conservation concerns are evident.

11.3) Identify fish stocks of conservation concern.

11.4) Manage the lakeshore management zone of Class B lakes consistent with the three District Manager's letter of August 28, 1997 until such time as revised management direction is provided by the Implementation and Monitoring Committee.

Intent:

i) No clearcutting within the Lakeshore Management Zone (LMZ) of class "B" lakes that were formerly classified as "A" class lakes under the Okanagan Timber Harvesting Guidelines unless no other silviculture system is suitable.

ii) Partial cutting that retains at least 50 % of the original stand basal area is appropriate for harvesting in the LMZ of these lakes. Where the soils or stand ecology are not suited to conventional single tree selection, there are numerous alternatives such as group selection,

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irregular shelterwood, and group shelterwood with reserves. These systems must be considered before clearcutting, and a strong rationale would be required for any clearcutting proposals.

iii) The Lake Management Committee needs to provide new recommendations for the management of LMZs that reflect the revised Visual Quality Guidelines (i.e., resolve the inconsistencies between the lake visual quality guidelines and the Lake Management Guidebook).

iv) The recommendations of the Lake Management Committee are to be provided to the Implementation and Monitoring Committee for their consideration and approval. The agreed upon package would then replace the direction provided by this strategy.

v) This issue is to be resolved by December 31, 2000.

12) Maintain "walk-in" access status on all lakes consistent with the recommendations of the Okanagan Lakes Classification Project, September 12, 1997. (See Table 2, at the end of this section, for the list of "walk-in" lakes.)

Intent:

i) Not intended to apply to or restrict walking trail development.

ii) To permit resource use and development activities in such a way as to support the "walk-in" experience.

12.1) Prior to development occurring within two (2) km of a "walk-in" lake, develop an "access management strategy" that incorporates a 500 metre to 1500 metre wide "walk-in" buffer around the lake.

Intent:

i) To be developed by the appropriate government agencies with stakeholder involvement.

ii) Strategy development should not delay resource use and development activities.

iii) The width of the "walk-in" buffer should be dependent on site conditions such as terrain, existing values, appropriate locations for roads that access other areas, maintenance of existing access, ease of road deactivation, and best location for access controls.

iv) Licensees should provide a priority list (5-10 years) to MELP for access management strategies.

12.2) Manage road and trail development within the "walk-in" buffer to maintain the "walk-in" condition.

Intent:

i) Industrial development should not result in permanent motorized access.

ii) Where industrial development provides temporary motorized access, the "walk-in" condition should be promptly restored after activity ceases.



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## *Non-consumptive Uses*

13) Enhance the non-consumptive values of fishery resources (e.g. viewing opportunities).

13.1) Allow for the development of fish education and appreciation opportunities provided they do not impact fish and their habitat.

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## Table 1: Technical Information Further to Objective 7

- a) Maximum preferred temperatures for salmon (and kokanee)\* are: migration <14 C; spawning <12 C; incubation <11 C; and, rearing <13 C. Maximum preferred temperatures for rainbow trout are: migration <20 C; spawning <16 C; incubation <11 C; and, rearing <20 C
- b) Temperature limits of some stocks may vary but the limits above are generally accepted as a reasonable guide.
- c) Temperatures above 21 degrees C are fatal.
- d) Buffer widths and retention levels will vary due to a variety of conditions, including existing temperatures, size of stream, etc.
- e) The most likely life stage to be impacted by temperatures depends on the species present in the stream:
- Chum, pink, sockeye and kokanee- migrants, spawners and early portion of incubations.
  - Chinook and coho - potentially all phases except majority of incubation.
  - Rainbow trout - incubation and rearing.
- f) The stream temperatures identified are the mean daily temperatures.
- g) Where there is more than one species of fish within a stream, management should be directed to the species with the most conservative limits. For example, if there are bull trout and kokanee in the same system temperatures suitable to bull trout should be maintained. Where Landscape Unit planning is occurring, these plans will specify the target fish species.
- h) Laboratory data is lacking for bull trout; however, the following identifies key components of research that is happening in the US and Canada.
- A maximum weekly average temperature (MWAT) below 10 degrees C should be a target for bull trout streams. MWAT is defined as the warmest seven-day average of daily water temperatures recorded during a given year or study period. FRBC funding should be considered to determine MWAT on bull trout systems.
  - Rainbow trout, in a bull trout watershed appear to dominate in streams with temperatures above MWAT of 11 or 12 degrees. Bull trout actively seek out colder water as temperatures increase and avoid temperatures exceeding 17C.

\*species specific data can be found in "[A review of Habitat Capacity for Salmon Spawning and Rearing](#)", a BC Resource Inventory Committee document prepared by David A. Levy and Tim L. Slaney (July 93) and "[Summary of Water Quality for Salmonid Hatcheries](#)" by Sigma Environmental Consultants LTD, 1983 Revised Ed, prepared for the Department of Fisheries Oceans, Vancouver.

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**Table 2: List of Walk-in Lakes in the Plan Area**

**Note:** This list is provided for information purposes only, and has not been endorsed by the LRMP Table. The intent is that any concerns with this list will be addressed as part of the lake classification discussions, which are being dealt with as a “follow up” item by the “Lake Classification Review Committee”. Once this group has reviewed this list it will be referred through the LRMP Implementation and Monitoring Committee prior to being formally included in the plan.

Arc ID	Name	Forest District	Class	Category of Walk In*
3404	Border	Penticton	A	Strategy 12.1 applies
3476	Corral	Penticton	A	PA
2839	Crawford	Penticton	A	PA
4415	Geen Lakes	Penticton	A	Strategy 12.1 applies (done)
3471	Harry	Penticton	A	PA
3466	Joe	Penticton	A	PA
2519	Lacoma	Penticton	A	PA
4897	Little Joe	Penticton	A	Strategy 12.1 applies
2175	Loch Drinkie	Penticton	A	Strategy 12.1 applies
4384	Loch Katrine	Penticton	A	PA
2429	Loch Lost	Penticton	A	Strategy 12.1 applies
2404	Loch Oichie	Penticton	A	PA
2422	Loch St. Margaret	Penticton	A	PA
4348	Mission	Penticton	A	PA
5027	Newby (N)	Penticton	A	PA
3480	Newby (S)	Penticton	A	PA
2761	Ratnip	Penticton	A	Strategy 12.1 applies
4375	Rock	Penticton	A	Manage through FDP
4899	Susie	Penticton	A	Manage through FDP
3411	Trapper	Penticton	A	Strategy 12.1 applies
2397		Penticton	A	PA
2812	Chapman	Penticton	B	Strategy 12.1 applies
2991	Culper	Penticton	B	Strategy 12.1 applies
2890	Deep	Penticton	B	Strategy 12.1 applies
2993	Derenzy	Penticton	B	Strategy 12.1 applies
2563	Derickson	Penticton	B	Strategy 12.1 applies
2832	Duncan	Penticton	B	Manage through FDP
5033	Ferguson	Penticton	B	Manage through FDP
2256	Fish Hawk Lakes	Penticton	B	PA
2825	Goathide	Penticton	B	Strategy 12.1 applies

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Arc ID	Name	Forest District	Class	Category of Walk In*
2438	Hereron	Penticton	B	Manage through FDP
2496	Hidden	Penticton	B	Strategy 12.1 applies
4655	Howard	Penticton	B	Manage through FDP
2257	Lees	Penticton	B	Strategy 12.1 applies
4648	Lower Barge	Penticton	B	Manage through FDP
4733	McLean Clan	Penticton	B	Strategy 12.1 applies
2461	Meadow	Penticton	B	Manage through FDP
2733	Mile High	Penticton	B	Manage through FDP
2736	Mile High	Penticton	B	Manage through FDP
2743	Mile High	Penticton	B	Manage through FDP
4639	Nutall	Penticton	B	Manage through FDP
2364	Old Dave	Penticton	B	Manage through FDP
3272	Red Bridge	Penticton	B	Manage through FDP
4417	Rouse	Penticton	B	Strategy 12.1 applies
4387	South	Penticton	B	Manage through FDP
4524	Sunset	Penticton	B	Manage through FDP
2187	Treadgold	Penticton	B	Manage through FDP
2670	Two John	Penticton	B	Strategy 12.1 applies
2669	Two John	Penticton	B	Strategy 12.1 applies
4314		Penticton	B	Manage through FDP
4369		Penticton	B	Manage through FDP
2548		Penticton	B	Strategy 12.1 applies
2374		Penticton	B	Strategy 12.1 applies
2978		Penticton	B	Strategy 12.1 applies
4390		Penticton	B	Strategy 12.1 applies
4479		Penticton	B	Strategy 12.1 applies
4741	Clarke 3	Penticton	C	Strategy 12.1 applies
2822	Dale	Penticton	C	Manage through FDP
2522	Gellatly	Penticton	C	Manage through FDP
4644	Stump	Penticton	C	Manage through FDP
2507	West	Penticton	C	Manage through FDP
2635	Wilson	Penticton	C	Strategy 12.1 applies
838	Grizzly	Salmon Arm	A	PA
3672	Hunakwa	Salmon Arm	A	PA
873	Twin	Salmon Arm	A	Alpine
829	Wright	Salmon Arm	A	PA
1104	Blue	Salmon Arm	B	Alpine

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Arc ID	Name	Forest District	Class	Category of Walk In*
1270	Bryden	Salmon Arm	B	Manage through FDP
1057	Cariboo	Salmon Arm	B	PA
3432	Carram	Salmon Arm	B	Manage through FDP
1101	Cummings	Salmon Arm	B	Strategy 12.1 applies
870	Grizzly	Salmon Arm	B	Alpine
3680	Hidden	Salmon Arm	B	Strategy 12.1 applies
1245	Kanaka	Salmon Arm	B	Manage through FDP
1207	Liver	Salmon Arm	B	Manage through FDP
1122	Morton	Salmon Arm	B	Alpine
5024	Mosquito	Salmon Arm	B	Manage through FDP
1273	Pement	Salmon Arm	B	Manage through FDP
1417	Reeves	Salmon Arm	B	PA
875	Twin	Salmon Arm	B	Alpine
5025		Salmon Arm	B	Manage through FDP
371		Salmon Arm	B	Manage through FDP
553		Salmon Arm	B	Manage through FDP
5026		Salmon Arm	B	Manage through FDP
5022		Salmon Arm	B	Manage through FDP
465		Salmon Arm	B	PA
437		Salmon Arm	B	PA
447		Salmon Arm	B	PA
467		Salmon Arm	B	PA
442		Salmon Arm	B	PA
564		Salmon Arm	B	Strategy 12.1 applies
3629		Salmon Arm	B	Strategy 12.1 applies
3420		Salmon Arm	B	Strategy 12.1 applies
348		Salmon Arm	B	Strategy 12.1 applies
3671	Black	Salmon Arm	C	Manage through FDP
3675	Cranberry	Salmon Arm	C	PA
868	Piper	Salmon Arm	C	Alpine
759		Salmon Arm	C	Alpine
3697		Salmon Arm	C	Alpine
5003		Salmon Arm	C	Alpine
807		Salmon Arm	C	Alpine
5001		Salmon Arm	C	Alpine
5002		Salmon Arm	C	Alpine
3631		Salmon Arm	C	Alpine

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Arc ID	Name	Forest District	Class	Category of Walk In*
3669		Salmon Arm	C	Alpine
3453		Salmon Arm	C	Alpine
815		Salmon Arm	C	Alpine
823		Salmon Arm	C	Alpine
3686		Salmon Arm	C	Alpine
960		Salmon Arm	C	Alpine
333		Salmon Arm	C	Alpine
151		Salmon Arm	C	Alpine
387		Salmon Arm	C	Alpine
112		Salmon Arm	C	Alpine
1032		Salmon Arm	C	Alpine
1027		Salmon Arm	C	Alpine
1048		Salmon Arm	C	Alpine
398		Salmon Arm	C	Alpine
376		Salmon Arm	C	Alpine
375		Salmon Arm	C	Alpine
353		Salmon Arm	C	Alpine
3489		Salmon Arm	C	Alpine
392		Salmon Arm	C	Manage through FDP
3690		Salmon Arm	C	Strategy 12.1 applies
5004		Salmon Arm	C	Strategy 12.1 applies
3431		Salmon Arm	C	Strategy 12.1 applies
3703		Salmon Arm	C	Strategy 12.1 applies
3435	Pyrite	Salmon Arm	D	Alpine
5000		Salmon Arm	D	Alpine
117		Salmon Arm	D	Alpine
142		Salmon Arm	D	Alpine
170		Salmon Arm	D	Alpine
54		Salmon Arm	D	Alpine
40		Salmon Arm	D	Alpine
5023		Salmon Arm	D	Alpine
5020		Salmon Arm	D	Alpine
22		Salmon Arm	D	PA
7		Salmon Arm	D	PA
21		Salmon Arm	D	PA
25		Salmon Arm	D	PA
29		Salmon Arm	D	PA

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Arc ID	Name	Forest District	Class	Category of Walk In*
37		Salmon Arm	D	PA
867		Salmon Arm	E	Alpine
287		Salmon Arm	E	Alpine
5031	Bill Fraser	Vernon	A	PA
	Blackwell	Vernon	A	Strategy 12.1 applies
2056	Bonneau	Vernon	A	Strategy 12.1 applies
2055	Denison	Vernon	A	Strategy 12.1 applies
2551	Dixie	Vernon	A	Strategy 12.1 applies (done)
1487	Finlayson #1	Vernon	A	Strategy 12.1 applies
1488	Finlayson #2	Vernon	A	Strategy 12.1 applies
4292	Flyfish #1	Vernon	A	Manage through FDP
1331	Gates	Vernon	A	Strategy 12.1 applies
4267	Home	Vernon	A	Manage through FDP
4018	Kate	Vernon	A	Strategy 12.1 applies (done)
1879	Monashee	Vernon	A	Strategy 12.1 applies
4482	Parmateer	Vernon	A	Strategy 12.1 applies (done)
	Pond	Vernon	A	Strategy 12.1 applies
4304	Russell	Vernon	A	Manage through FDP
5032	Silverstar	Vernon	A	Strategy 12.1 applies
1873	Twin	Vernon	A	Strategy 12.1 applies
1178	Two Moon	Vernon	A	Strategy 12.1 applies
1486	Whip #1	Vernon	A	Strategy 12.1 applies
1489	Whip #2	Vernon	A	Strategy 12.1 applies
4279	Alex	Vernon	B	Manage through FDP
3830	Arnica	Vernon	B	Strategy 12.1 applies
1874	Beaven	Vernon	B	Strategy 12.1 applies
3888	Cirque	Vernon	B	Strategy 12.1 applies
2227	Coalgoat	Vernon	B	Manage through FDP
2092	Crescent	Vernon	B	Manage through FDP
2239	Harris	Vernon	B	Strategy 12.1 applies
2093	Hidden	Vernon	B	Manage through FDP
2123	High	Vernon	B	Manage through FDP
5034	Joss	Vernon	B	Strategy 12.1 applies
4205	Kaiserbill	Vernon	B	Manage through FDP
4386	Loch Larsen	Vernon	B	PA
3878	Mimulus	Vernon	B	Strategy 12.1 applies
2090	Min	Vernon	B	Manage through FDP

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Arc ID	Name	Forest District	Class	Category of Walk In*
	Mirror	Vernon	B	Strategy 12.1 applies
2238	Nahm	Vernon	B	Strategy 12.1 applies
1617	Pete	Vernon	B	Strategy 12.1 applies
4010	Porcupine	Vernon	B	Manage through FDP
3821	Proctor	Vernon	B	Strategy 12.1 applies
4316	Rod	Vernon	B	Strategy 12.1 applies
2108	Rollie	Vernon	B	Manage through FDP
4301	Ruth	Vernon	B	Strategy 12.1 applies
2016	Seaton	Vernon	B	Manage through FDP
4128	Smoke	Vernon	B	Manage through FDP
4280	Specs	Vernon	B	Strategy 12.1 applies
4290	Specs Lakes	Vernon	B	Manage through FDP
2248	Thelma	Vernon	B	PA
	Wilma	Vernon	B	Manage through FDP
2277	Wollaston	Vernon	B	Manage through FDP
2252		Vernon	B	Manage through FDP
1811		Vernon	B	Manage through FDP
3796		Vernon	B	PA
1281		Vernon	B	Strategy 12.1 applies
1280		Vernon	B	Strategy 12.1 applies
1287		Vernon	B	Strategy 12.1 applies
1162		Vernon	B	Strategy 12.1 applies
1725		Vernon	B	Strategy 12.1 applies
2391		Vernon	B	Strategy 12.1 applies
1715		Vernon	B	Strategy 12.1 applies
4042		Vernon	B	Strategy 12.1 applies
2081	Kuly	Vernon	C	Manage through FDP
4358	Margie	Vernon	C	Manage through FDP
5035	Park Lakes (complex)	Vernon	C	Manage through FDP
5036	Rankin	Vernon	C	Manage through FDP
	Polly	Vernon	D	Strategy 12.1 applies
	Sunrise	Vernon	D	Strategy 12.1 applies



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\* Here are descriptions of the four categories:

**PA** - these lakes are within new protected areas. They still need to be managed for walk in under Parks' jurisdiction, so we did not want to remove them from the list. FDPs would not impact these lakes, but other resource activities such as development or recreation/fish resorts, or mining should be guided by this.

**Alpine** - these lakes are high elevation, isolated, little or no timber values associated with them so FDPs would also not impact them.

**Manage through FDP** - these lakes have walk in access to less than 500m, so the Section 13.1 provision does not apply since there is no opportunity to develop a "500m to 1500m walk in buffer" as stated in the LRMP. These lakes still have value as short walk-ins, and so we decided that this could be managed through the FDP for these shorter walk-in distances.

**Strategy 12.1 applies** - as stated. The development of access management strategies for these lakes needs to occur, as recommended by the LRMP.

## General Resource Management

In this section:

- Overall direction for management of forest health.

## Forest Health

### Introduction

For the Okanagan - Shuswap LRMP, healthy forests are defined as having “a condition that does not pose unacceptable risks to resources or values; characterized by biodiversity, the forest contains sustained habitat for indigenous life forms and meets present and future resource and value objectives”. “Forest health factors” are a group of biotic and abiotic factors in the forest, which impact the health of forests (e.g., fire, root rot, bark beetle, mammal, weevil, defoliators, wind, sun, drought, and bacteria).

*For direction on forest health management in protected areas, please refer to the Protected Areas section (Part 5).*

This section provides a general assignment of forest health management objectives and strategies. The objectives and strategies are grouped into two general areas: areas with specific identified resources; and, areas with no specific identified resources. Excluding protected areas, these may be found either inside or out of resource management zones. Examples of areas that may have specific identified resources include the “Mountain Caribou Habitat Resource Management Zone”, a riparian area outside of any resource management zone, a deer winter range area, a recreation site, a visually sensitive area, a wildlife habitat area, etc.

The general approach suggested is that a favourable forest health condition is identified for a certain area, or type of area, and management strategies focus on the support of that condition.

### Current Management

Currently, there are forest health objectives and strategies mentioned in the following parts of the LRMP recommendations package: Timber and Silviculture, Wildlife - General Resource Management, the resource management zones for mule deer, sheep, mountain goat, recreation, and visuals, and the Access Management section. This “general” forest health objective and strategy framework supports the more detailed management strategies found in these other sections of the plan.

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## Goal

Maintain healthy forests to meet a variety of needs.

## Objectives and Strategies

1) For areas with specific identified resources, manage forest health factors to an acceptable risk level, where they pose a significant risk to resources and/or values.

### Intent:

- i) Applies to wildlife related resource management zones (RMZ), riparian management areas (RMAs), old growth management areas (OGMAs), wildlife habitat areas (WHAs), wildlife tree patches (WTPs) and ecologically orientated sensitive areas (SAs).
- ii) More detail may be provided in specific resource management zone sections.

1.1) Refer to any forest health objectives identified in the LRMP for the area of concern.

### Intent:

- i) Specific objectives for different areas will provide management direction. Objectives for surrounding land that may be impacted should also be addressed.

1.2) Where there is a low risk from forest health factors any salvage of timber should not significantly impact the specific identified resource in the area.

### Intent:

- i) Low risk means there is no potential for a significant impact on resources and/or values either within or adjacent to the area.
- ii) A "significant impact" would be contrary to the specified objectives and strategies for a resource value
- iii) Such salvage within wildlife tree patches and old growth management areas would not be consistent with the objectives for those areas.
- iv) Does not preclude harvesting in riparian management zones.

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1.3) Where there is a significant risk from forest health factors employ proactive and expedient reactive forest health factor management.

Intent:

- i) Any forest health management proposals within OGMAs, WTPs, ecologically orientated SAs and high value habitats are to be acceptable to the DEO, or resolved through the government dispute resolution process. High values habitats are all known licks, lambing and kidding areas, sheep rutting areas, wallows, caribou reserves, caribou research areas, and elk winter range congregation areas. This excludes areas covered by the policy for minor salvage (<2,000 m<sup>3</sup>) in sensitive ecosystems.
- ii) Significant risk means there is the potential for a significant impact on resources and/or values within (all forest health factors) or adjacent (e.g., pre-epidemic or epidemic levels) to the area. This is not meant to be incremental to FPC assessment requirements.
- iii) Take action quickly, where practical, upon detection, before the situation can greatly expand.
- iv) Reduce impacts to the specific identified resources while remaining effective at treatment of the forest health factor.
- v) Any management activities will address the following factors: effective treatment of forest health issue, being economically reasonable, and reduced impacts to the specified identified resource. This does not preclude selective harvesting.
- vi) At the landscape level, the "prevention strategy" is generally the favoured approach to the long term, proactive management of bark beetles. This involves the preferential harvest of high hazard stands. However, the prevention strategy rate of harvest must be consistent with the known short and long term objectives for the applicable RMZs or watersheds.
- vii) Within the Mountain Caribou Habitat, Marten Habitat, Mule Deer Winter Range, Elk Habitat, and Bighorn Sheep Habitat RMZs the desired stand attributes are closely linked with high hazard conditions. When dealing with the spruce beetle or the Douglas-fir beetle within these RMZs, the prevention strategy should be modified to base harvest priorities on risk rather than hazard.
- viii) Prevention strategies should not be used in WTPs, OGMAS, ecologically orientated sensitive areas, high value habitats, and important habitats. "Important habitats" are defined as: 1) grizzly bear cover within 100 metres of one side of an avalanche tract; 2) deer and sheep snow interception cover within 200 metres of open range (OR) or grasslands; 3) deer and goat snow interception cover with the most favourable combination of attributes (e.g., canopy, aspect, elevation, terrain and slope); and 4) moose and goat thermal cover with the greatest capacity for maintaining low temperatures.
- ix) The suppression strategy is the appropriate reactive response to bark

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beetle infestations. Each infested polygon must be addressed; however, a variety of treatments may be used.

x) In lightly infested areas, where access, time frames or economics preclude harvesting, use MSMA, fall and burn, lethal trap tree, bait to hold, and/or monitoring techniques as appropriate to reduce bark beetle populations.

xi) If bark beetle infestation rates exceed capacity to address all infested stands, a treatment priority, based on infestation levels and risks to resource values should be implemented. Licensed users and agencies (MoF, MELP) would implement this.

xii) Ensure the appropriate post harvest bark beetle containment techniques are used. (Some examples include debris burning, trap trees, blowdown removal, and consideration for appropriate hauling times.)

1.4) Where actions necessary to adequately address the forest health factor result in significant impact to the specific identified resources, implement options that maintain or expedite recovery of the desired forest condition. Options include the identification of replacement areas with the same attributes (replacement areas identified jointly by MoF, MELP, and licensees), or a decision may be made to keep area and maintain attributes to the extent possible.

Intent:

i) Intended to provide clarification on the suppression strategy.

ii) For some areas the option of relocating the area may be viable (e.g., wildlife tree patches, OGMAS, deer interception cover).

iii) For some areas, silviculture techniques should focus on meeting the objectives for the area. (e.g. light selection harvesting in snow interception cover areas or riparian management areas).

iv) Once it becomes apparent that sanitation harvesting rates will compromise attribute or seral stage objectives, attribute maintaining harvest methods (i.e., selective) are to be used wherever possible. Clearcutting will be acceptable if it is determined that it is the only effective treatment, and/or desired stand level attributes cannot be maintained even with the use of selection logging techniques.

v) Replacement areas are to be identified jointly by the forest licensee, MoF and MELP.

1.5) Utilize silviculture practices that are consistent with the objectives for the area, and which promote forest health.

1.6) Promote a range of ecologically appropriate species mixes.

Intent:

i) The range of species mixes can be one, two or multiple species.

ii) Within the low snow pack zone the conversion of predominantly Douglas-fir stands to mixed stands of Douglas-fir and ponderosa pine can be used to reduce the hazard ratings for both the western spruce

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budworm and the Douglas-fir tussock moth. Ponderosa pine may be the leading species within the PP variants, and within xeric IDFxh sites. Douglas-fir however, should remain the leading species within most of IDF variants of the low snowpack zone.

iii) The selective removal of the large (older) overstorey trees, as suggested in the FPC Defoliator Management Guidebook, will not usually be consistent with the Mule Deer Winter Range RMZ objectives.

1.7) As much as practical, ensure that stand-tending activities do not increase the forest health factor hazard for the stand.

Intent:

i) For example, juvenile spacing stands in high-risk root rot areas.

1.8) Promote long term access management planning.

Intent:

i) Encourage tenure holders to plan access well in advance to facilitate the ability to monitor and take action to manage forest health factors.

*General resource management direction and other polygon specific RMZs*

2) In the General Management Zone (i.e., areas other than those with specific identified resources as referenced in objective 1), manage forest health factors to an acceptable risk level.

2.1) Utilize silviculture practices that are consistent with the objectives for the area, and which promote forest health.

2.2) Consider other resource values when salvaging timber.

Intent:

i) To the extent practical, reduce incremental impacts on other resource values

ii) MELP should be involved in forest planning processes where evaluations of whether to salvage or not takes place. If timber salvage activities do take place, impacts on resource values are then considered.

2.3) Encourage the development and use of predictive modelling within the Ministry of Forests and Ministry of Environment, Lands and Parks for appropriate forest health factors. (implementation)

Intent:

i) The product of this work will greatly assist in guiding monitoring, detection and proactive treatment activities.



## General Resource Management

In this section:

- Issues and concerns of this user group.

## Guide-Outfitting (Licensed)

### Introduction

*For more information on this activity see Section 5-4 in the Okanagan-Shuswap LRMP Area Socio-economic and Environmental Profile report.*

Guide-outfitters are licensed to guide hunters within a guiding territory. In most cases, the guide-outfitter has made a substantial capital investment in developing a base camp, satellite camps, trails, etc. There are eight active guide-outfitters and a total of 137,000 ha of guide territory within the plan area. For the plan area, there were over 750 hunter days guided during this time period. The key species hunted include deer, black bear, mountain goat, bighorn sheep, and cougar.

Many guide-outfitters have expanded their operations to include non-hunting activities, such as trail riding, fishing, and wildlife viewing. These activities usually occur in the summer when the hunting season is not open.

### Issues

Key issues of concern to this industry are preservation of wildlife habitat to support a diversity of wildlife, especially game species. It is important that management ensures that there are sustainable wildlife populations to provide opportunities for all user groups - e.g., wildlife viewing, hunting, photography, etc.

The experience is part of the product that the guide-outfitting industry sells. This package includes a backcountry wilderness experience, wildlife viewing, trail riding, and hunting. Therefore, it is important that management for other resource values does not adversely affect their ability to offer this type of experience to their clients.

The guide-outfitting industry has concerns regarding the uncertainty that protected areas create. Designating protected areas may adversely affect the industry's activities in these areas. Some of these concerns include: prohibitions or increased restrictions on hunting, constraints on opportunities to expand operations (e.g., facilities), additional license and/or user fees, possible dislocations of wildlife from increased public recreation use, etc.



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It is recognized that many of these concerns are outside the scope of “on the ground” objectives and strategies. Therefore, in addition to the objectives and strategies that follow, please also refer to the Protected Areas (Part 5), and Advice to the Provincial Government (Part 8) sections for other proposals to address the industry’s concerns.

## Goals

To keep guide territories sustainable and viable so the industry can continue to offer a quality experience to its clients, and contribute to the enhancement of wildlife and their habitat.

## Objectives and Strategies

1) Where practical, minimize the impacts of industrial activities on the integrity of facilities, access trails, and key wildlife features and habitats.

1.1) Licensed guide-outfitters will assist in providing this type of information to forest licensees for forest development planning purposes.

Intent:

i) Guide-outfitters will work cooperatively with other tenure holders to minimize impacts.

1.2) Licensed guide-outfitters will assist in providing this type of information to the Ministry of Energy and Mines for Mines Act permitting purposes.

1.3) The Ministry of Energy and Mines will provide for information purposes applications for Mines Act permits that involve significant disturbance of the surface to the appropriate licensed guide-outfitter.

Intent:

i) This is to cover the entire guide-outfitter’s territory.

ii) It is up to individual guide-outfitters to notify the Ministry of Energy and Mines that they wish to be put on the mailing list to receive referrals.

iii) Examples of significant disturbance include bulk sampling, loop roads, excavated trails and temporary access roads, but exclude exploration trails.

1.4) Provide opportunities for participation by licensed guide-outfitters in public reviews of major mine developments (either in the Mine Development Review Committee process, or the Environmental Assessment Office process).

## General Resource Management

In this section:

- Provisions for management of archaeological, traditional use, historic, and paleontological resources on Crown land.

## Heritage Resources

### Introduction

#### Cultural Heritage Resources

*For purposes of the Okanagan - Shuswap Land and Resource Management Plan, heritage resources are taken to include cultural heritage and paleontological resources.*

Cultural heritage resources are those which have been identified by the local, regional, provincial, federal and world communities or First Nations as important to the interpretation of the human past. These resources are usually seen as a continuum of sites dating from the distant to recent past. However, for planning and management purposes, these sites have been divided into three categories: archaeological, traditional use and historic.

Archaeological sites contain physical evidence of past human activity that can be best-investigated using archaeological techniques. Provisions of the Heritage Conservation Act automatically protect certain types of archaeological sites. These sites may not be altered without a permit. Some categories of automatically protected sites are: aboriginal rock art of historic/archaeological significance, burial place of historic or archaeological significance, any site containing physical evidence of pre-1846 human habitation or use.

Traditional use sites are identified by the local First Nation communities as having been utilized in the maintenance of their traditional lifestyles. These sites may or may not have physical evidence of use. Judicial interpretation of the Canadian Constitution and other legislation provide for the maintenance and continuation of aboriginal rights and traditional use. Provincial policy recognizes the duty imposed by legislative and judicial authorities to manage for contemporary use of natural resources by aboriginal peoples. Traditional use sites are determined through consultation with First Nation communities.

Historic sites are often part of the built environment and are important to the local, regional and provincial community because they enable interpretation of the past, or have continuing economic or social utility. While the province manages specific heritage properties (such as Barkerville), no single agency is responsible for the management of historic resources.

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However, several provincial statutes (Park Act, Forest Practices Code of BC Act, etc.) include enabling provisions for the management and conservation of heritage sites. "Designation" of historic sites under Section 9 of the Heritage Conservation Act provides the same level of protection as noted above for archaeological sites. That is, no alteration is authorized without a permit.

Archaeological resources provide a spectrum of features that are tied to the natural attributes of the land and prehistoric land use patterns. Scientific investigation of these features was restricted to study of habitation sites in valley bottoms and a few upland, sub-alpine sites. As forest development proceeds, a greater number of archaeological features are being located and recorded. In many ways the archaeology of the area is just now beginning to emerge.

## Issues

Some of the issues associated with managing cultural heritage resources include:

- The lack of information on traditional use by First Nations.
- Additional work is required to identify candidates for designation for those sites that are not automatically protected by provisions of the Heritage Conservation Act (highlighting sites with regional or provincial importance).
- Additional inventory work on archaeological sites such as trail networks, particularly in high altitude and mid-slope.
- The need to recognize and protect cultural symbols (rocks, landforms, lakes, etc.) that are important to aboriginal peoples.
- Balancing the desire of First Nations for confidentiality concerning the precise location of some culturally important symbols and other archaeological artifacts, with the need to make these sites known so they are not adversely impacted by human activities.

# Okanagan - Shuswap LRMP Approved Plan

## **Paleontological Resources** <sup>1</sup>

The Okanagan - Shuswap LRMP area comprises many different geologic units, but fossils are distributed sparsely in most of these units.<sup>2</sup> Microfossil assemblages are most common in the rocks, macrofossils less so. Known fossil localities in the Okanagan-Shuswap LRMP area include fossil types and assemblages known elsewhere in the plan area, in British Columbia, or in Canada, and are therefore not considered as especially unique or significant.

## **Issues**

Concerns that resource development, unethical collection and use, and lack of communication between government agencies and the organized paleontological community may threaten the scientific values of paleontological resources.

## **Goals**

### A. Cultural Heritage Resources

A holistic approach to management of cultural heritage resources resulting in the identification and protection of complexes of interdependent archaeological sites, recognition of traditional use sites of local First Nations, and interpretation of historic and historical sites, where appropriate. As well, a good understanding of the overall distribution pattern of archaeological and other heritage resources within the plan area.

### B. Paleontological Resources

Continuing access to fossil sites throughout the LRMP area for professional and amateur collection and research under the standards of the BC Paleontological Alliance Code of Ethics and any other site-specific management guidelines. Continuing low general public profile for unmanaged sites.

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<sup>1</sup> The British Columbia Paleontological Alliance prepared a report in 1998 on the nature and significance of the paleontological resources of the Okanagan-Shuswap area as information and advice for the LRMP process. This report has been published by the Geological Survey of Canada as Open File 3570, 1998: "Paleontological Resources of the Okanagan-Shuswap Land and Resource Management Plan (LRMP) Area, British Columbia". The following information has been excerpted from the summary page of the report.

<sup>2</sup> Paleontology is the scientific study of "fossils". Fossils are the remains of plants and animals that lived in the distant past and which have been subsequently petrified and preserved. Fossils are found most frequently in sedimentary rocks, such as sandstone, shale and limestone, although they may also be preserved in metamorphic rocks (i.e. those altered by the long-term effects of heat and pressure). Microfossils are too small to be seen readily with the naked eye, while macrofossils can be seen readily and examined without a microscope.

# Okanagan - Shuswap LRMP Approved Plan

## Objectives and Strategies

### *Cultural Heritage Resources*

1) Improve the quantity and quality of information about cultural heritage values within the plan area.

1.1) Refine the current Archaeological Overview Assessment (AOA) mapping through integration of Archaeological Impact Assessment (AIA) and Traditional Use Study (TUS) results, TRIM II map base, and updated forest cover mapping.

Intent:

i) Government to undertake this work as required and as resources permit as part of their due diligence with respect to First Nations' interests.

1.2) Continue undertaking Traditional Use Studies to cover the plan area. (implementation)

Intent:

i) Government to undertake this work as required and as resources permit as part of their due diligence with respect to First Nations' interests.

ii) Recognizes that others are already doing, and may choose to do, Traditional Use Studies jointly with First Nations.

2) Reduce potential adverse impacts to archaeological, traditional use, and historical sites and values.

Intent:

i) Consider site avoidance as a management recommendation whenever practical.

ii) Management is to be consistent with current policy. It is understood that this policy is changing to reflect emerging case law.

2.1) Through consultation, address traditional land use information where available in project development proposals.

2.2) Conduct Archaeological Impact Assessments for significant land altering developments in areas of significant archaeological potential. These assessments are to discuss the sites in context with other sites, and to make recommendations accordingly.

Intent:

i) Forest industry proponents can undertake this work as per the Forest Practices Code.

ii) Other groups and proponents can undertake this work as per other legislation and/or policy.

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2.3) Manage impacts to archaeological and historical sites through application of the Forest Practices Code, the Heritage Conservation Act, the British Columbia Archaeological Impact Assessment Guidelines, and the Protocol Agreement for the Management of Cultural Heritage Resources between the Ministry of Forests (MoF) and the Ministry of Small Business, Tourism and Culture (MSBTC).

2.4) Wherever practical, maintain the long-term viability of specifically identified locations of traditionally used plant communities.

2.5) Resource agencies should be made aware of traditional use areas and archaeological and historical sites for them to be considered in resource development planning.

Intent:

- i) The onus to make this information available rests with those holding or aware of this type of information.
- ii) Site locations and possibly traditional use information should not be on documents circulated to the public.

3) Improve interpretation and public appreciation of cultural heritage sites.

3.1) Provincial agencies, the public, museums and other community heritage organizations, stakeholders, resource users, First Nations, local governments, should work cooperatively to develop interpretative facilities where appropriate. (implementation)

Intent:

- i) Examples of what's intended by this strategy could include information signs along highway corridors, information kiosks and/or restored sites in provincial parks or Indian Reserves, museum displays in local aboriginal and non-aboriginal communities, brochures, etc.

4) Ensure that the interests of both the province and First Nations are addressed in managing location information for some culturally important symbols and archaeological artifacts.

4.1) Apply existing provincial Freedom of Information Act and Archaeology Branch Operational Procedures on managing information about sensitive resources.

4.2) Establish formal agreements between the responsible provincial agencies and First Nations to address the interests of both parties in managing information for sensitive cultural heritage resources which are not covered by existing provincial policies or legislation.

# Okanagan - Shuswap LRMP Approved Plan

5) Improve management of cultural heritage sites.

5.1) Develop long term management plans for these sites as appropriate, and include all affected parties in their development.

## *Paleontological Resources*

6) Conserve fossil resources in the plan area.

Intent:

i) This is to be achieved through ethical collection practices, site information management and public education.

6.1) Government agencies and the organized paleontological community will support and promote the fossil collecting standards of the BC Paleontological Alliance (BCPA) Code of Ethics.

Intent:

i) Government resource agencies should use information handouts and signage where appropriate to communicate collecting ethics.

ii) The BCPA will maintain ethical code standards within its membership and promote them in contacts with the general public.

6.2) Government agencies and the organized paleontological community will manage fossil site information to ensure that no fossil beds are advertised in a manner, which would promote over-collection or site destruction.

6.3) Government agencies and the organized paleontological community should consider taking advantage of opportunities to educate the general public about the scientific significance of paleontology by interpreting the occurrence of fossils and the relationship to plate tectonic processes at appropriate sites.

7) Increase knowledge of paleontological resources in the plan area.

Intent:

i) Continued ethical paleontological collection and research throughout the plan area (including protected areas) is considered essential to improve knowledge of fossil resources.

ii) Research and removal of paleontological resources from parks is to be in accordance with the Park Act.

7.1) Allow continuing professional and amateur fossil collection and research throughout the plan area, under the standards of the BC Paleontological Alliance Code of Ethics.

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7.2) BC Paleontological Alliance (BCPA) members should exchange information with appropriate government agencies (e.g., Royal BC Museum, MoF, Ministry of Energy and Mines, Geological Survey of Canada, MSBTC, BC Parks, and the Ministry of Transportation and Highways) to ensure appropriate evaluation, recognition and management of fossil sites.

7.3) The Royal BC Museum, BC Parks and the BCPA should jointly develop guidelines for non-destructive scientific research and studies, including non-commercial fossil collection, within any approved protected areas.

Intent:

i) Fossil collectors should be subject to the same access restrictions as all other users of such areas.





## General Resource Management

In this section:

- Provisions for maintaining soil-plant systems.
- Provisions for ground disturbance related to uranium.
- Provisions for soil disturbance management.

## Land and Soils

### Introduction

The main interests addressed in the content of this section are preservation of soil resources, management of plant-soil systems, and the potential for contamination of water resources by naturally occurring uranium deposits.

Forest development operations impact soil health. The Forest Practices Code addresses the issue of the potential for soil disturbance and degradation. In addition to this, this LRMP provides some direction regarding the practice of de-stumping which is currently a strictly controlled method of treating root rot in harvested areas.

While there have been many years of work on understanding the role of ectomycorrhizal fungi in forest ecosystems, much of it's role is unknown. It is clear from past research in this area that mycorrhizal fungi play a key role in the health of the forest ecosystem, including tree growth. There may be opportunities to maintain the role of ectomycorrhizal fungi in the forest ecosystem through addressing it's role in forest development planning.

For trees to maximize their exploitation of the heterogeneous soil resources on a site and resist pathogens, it is important that the diversity of ectomycorrhizal fungi be maintained throughout stand rotations in forests. This can be achieved by maintaining diversity in plant species present before timber harvesting, and ensuring that their spatial distribution is adequate for inoculation of new regeneration. These plant species (shrubs and trees) act as refuge sites for the diversity of ectomycorrhizal fungi.

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Naturally occurring deposits of uranium have been located in the plan area by the provincial government. Overlapping development activities such as road construction have the potential to increase the rate at which these deposits result in uranium being dissolved in ground and surface water.

## Issues

Soil productivity is vital to all forest resource interests. Soil disturbance guidelines have been established to address negative impacts from harvesting and silviculture activities.

The plan area has several documented uranium occurrences with locally elevated background levels of uranium. Uranium dissolves and is transported in groundwater. It is normally released to surface water in seepages and springs. Under certain conditions, ground disturbance can increase the rate and amount released.

Current mineral exploration regulations ensure that disturbance of the ground and groundwater by exploration activities does not result in the release of uranium. This is achieved by prediction, testing and mitigation measures defined in the Mineral Exploration Code (MX Code). However, these are only required of mineral exploration activities. Other ground disturbances which may also result in the release of uranium, such as road building, construction or land development, are exempt.

## Goals

The goals with respect to land and soil resources area as follows:

- Healthy plant-soil systems.
- Forest health, productivity and full functioning ecosystems.
- Minimal dissolution of naturally occurring uranium.

## Objectives and Strategies

1) Maintain soil structure, nutrient conditions and biology that promote forest re-establishment and diversity of plant-soil systems.

Intent:

i) The focus of this objective is on ectomycorrhizal fungi, and this does not assume that this organism is either the most important soil organism, or that it is an indicator of all other soil organism health.

ii) Addressing the role of ectomycorrhizal fungi in the soil-plant system should positively impact the state of this ecosystem.

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1.1) I identify maximum soil disturbance levels for each ecosystem in forest operational plans.

Intent:

- i) To be achieved through silviculture prescription and site disturbance guidelines.
- ii) To be managed on a cutblock level.
- iii) Soil disturbance to be managed to the minimum practical level stated in the silviculture prescription.
- iv) Operations to be considered include forest harvesting and site preparation.

1.2) Encourage the retention of ectomycorrhizal fungi refuge plant species during harvesting and silviculture.

Intent:

- i) Refer to Table 1 for current lists of ectomycorrhizal fungi refuge species by biogeoclimatic zone.
- ii) Retention should be focused within cutblocks.
- iii) Applicable silviculture activities include site preparation, planting, brushing and spacing.
- iv) Not assumed to address all below ground systems.
- v) Retention of old trees within cutblocks will maintain ectomycorrhizal fungi diversity within one tree length
- vi) Methods to retain refuge species include:
  - silviculture systems which retain refuge species;
  - in-block location of wildlife trees and wildlife tree patches;
  - in-block riparian reserves, old growth management areas and other reserves; and,
  - appropriate treatment prescriptions and site disturbance guidelines.
- vii) At the landscape level, it is also important to maintain representative old growth forest patches capable of maintaining existing ectomycorrhizal fungi communities.
- viii) At the landscape level, a variety of forest cover patch sizes will assist ectomycorrhizal fungi systems.
- ix) Do not annihilate refuge plant species on cutblocks through forest practices.

1.3) Where ecologically suitable, establish multiple species mixtures through artificial and/or natural regeneration.

Intent:

- i) Natural regeneration may be the preferred method, and also supplement plantations in adding species diversity.

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1.4) Where planting is prescribed, encourage prompt reforestation.

Intent:

- i) Will assist in maintaining ectomycorrhizal fungi inoculum levels. Inoculum dies quickly without the re-establishment of healthy hosts.
- ii) Is not intended to discourage natural regeneration.

1.5) When prescribing site preparation, consider the positive effect of undisturbed litter, fungal and humic soil layers on the health of ectomycorrhizal fungi

Intent:

- i) Retention of ectomycorrhizal fungi should be considered in the context of all site factors that affect plant growth.
- ii) Reduction of disturbance to litter, fungal and humic soil layers probably has a positive impact on ectomycorrhizal fungi.

1.6) Encourage forest floor planting instead of mineral soil planting where ecologically suited.

1.7) Avoid shifts in mycorrhizal groups (e.g. ecto vs. endo) through forest and range development.

Intent:

- i) Is not intended to reduce forest and range activities, but rather to be considered in the planning of these activities,
- ii) The main area of concern is grass seeding in cutblocks (specifically timing and density).
- iii) Where grass seeding of harvested areas is considered necessary for range use, use appropriate levels of seed to avoid impacting tree survival and/or causing a significant shift to mycorrhizal groups.
- iv) Is not intended to reduce available animal unit months (AUMs).

1.8) Mitigate root disease through tree species mixture management in combination with, or instead of stumping.

Intent:

- i) Is not intended to reduce effectiveness or indicate preference of forest health treatments.
- ii) Early reforestation on stumped sites is important due to the potential impact of the treatment on inoculum.
- iii) Root disease treatments must be consistent with the long-term forest cover objectives for the specified area (e.g., deer winter range).
- iv) Where stumping is used, limit soil disturbance to the extent practicable.
- v) Trees species mixture should include deciduous (e.g., birch) where ecologically appropriate. This intent is not to reduce conifer-stocking standards, or to require the planting of deciduous.

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2) No net increases in the amount and rate of release of uranium/thorium to surface waters due to industrial activities.

Intent:

i) Compliance with the Mineral Exploration Code (1998) is considered to meet the intent of this objective for mining related activities.

2.1) Uranium/Thorium bearing gravel containing over "x" ppm or "y" Geiger reading of radiation is not to be used for road building or landing development in areas defined on the "Uranium/Thorium Sites as per the Mineral Exploration Code map".

Intent:

i) Uranium/thorium bearing gravel means "x" ppm or "y" Geiger reading is to be recommended by WCB, BC Health and Atomic Energy Canada.  
ii) Not to introduce incremental levels of heavy metals and radiation into ground water.

2.2) Select operational activities/silvicultural activities on a site-specific level that will not increase the amount and rate of release or uranium/thorium in areas defined on the "Uranium/Thorium Sites as per the Mineral Exploration Code map".

2.3) Locate capped uranium/thorium drill sites as defined on the "Uranium/Thorium Sites as per the Mineral Exploration Code map".

Intent:

i) The location of capped drill sites is to be provided by the Ministry of Energy and Mines, identified during fieldwork or from other sources.  
ii) Not to disturb capped uranium/thorium drill sites.

2.4) Proponents are to refer forest development plan (FDP) activities within that areas shown on the "Uranium/Thorium Sites as per the Mineral Exploration Code map" to the Ministry of Energy and Mines and the statutory decision maker for comment.

2.5) Develop terms of reference for a risk assessment of the areas shown on the "Uranium/Thorium Sites as per the "Health, Safety and Reclamation Code for Mines in BC (1997) map" through the Implementation and Monitoring Committee.

Intent:

i) The priorities for undertaking risk assessments will be determined by the location of "Information" cutblocks in draft forest development plans - i.e., areas that are covered by proposed harvesting will be assessed before those areas that are not.

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2.6) Should any of the areas identified on the "Health, Safety and Reclamation Code for Mines in BC (1997) map" be found to be high risk to health/safety/groundwater, the sites will be placed on the "Uranium/Thorium Sites as per the Mineral Exploration Code map" and proper precautions taken.

3) Reduce uranium releases to background levels at existing ground disturbances (e.g., roads, land developments, buildings, culverts, borrow pits, etc.) in areas that have historically been identified as "Uranium/Thorium Sites" in the "Health, Safety and Reclamation Code for Mines in BC (1997)".

3.1) The provincial government is to encourage Crown land tenure holders, regulatory agencies, and local governments to assess the risk of uranium release at disturbed areas, in all areas designated as "Uranium/Thorium Sites", as shown in the "Health, Safety and Reclamation Code for Mines in BC (1997) map".

3.2) The provincial government is to field check high-risk areas to document uranium releases, and to control or mitigate them if they are the result of human caused ground disturbance.

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**Table 1: Vegetation Colonized by Ectomycorrhizal Fungi Listed by BEC Zone**

Species in parentheses may be minimally colonized.

Species marked with (\*) have been examined in the laboratory at Okanagan University College (OUC).

Species not marked with (\*) are commonly colonized by ectomycorrhizal fungi but have not been examined in the OUC laboratory.

This list is not exhaustive but represents the current state of knowledge.

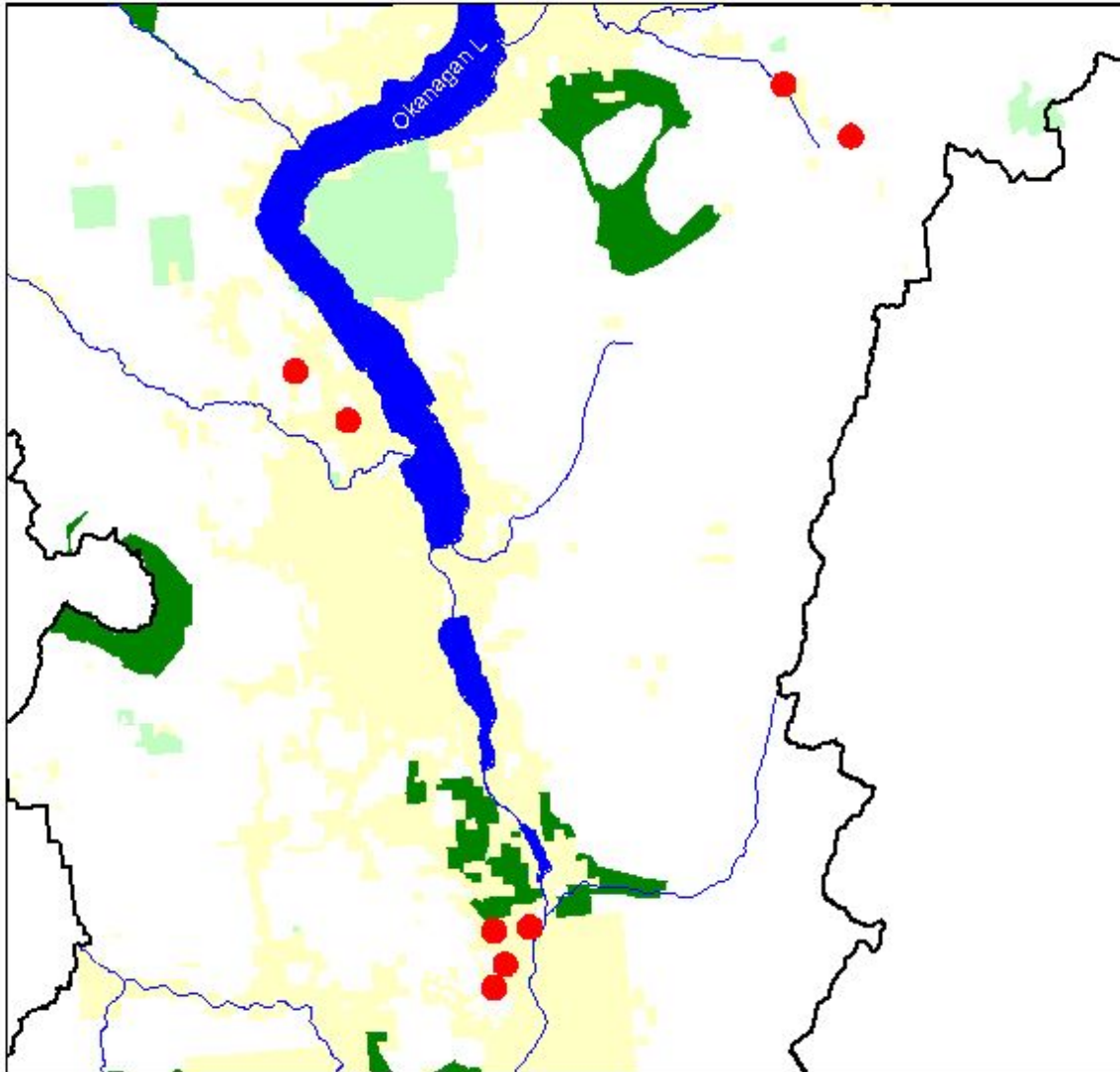
ESSF	MS	ICH	IDF	PP
* <i>Pinus contorta</i>	* <i>Pinus contorta</i>	* <i>Pinus contorta</i>	* <i>Pinus contorta</i>	
		* <i>Pinus ponderosa</i>	* <i>Pinus ponderosa</i>	* <i>Pinus ponderosa</i>
* <i>Abies lasiocarpa</i>	* <i>Abies lasiocarpa</i>	* <i>Abies lasiocarpa</i>		
* <i>Picea engelmanni</i>	* <i>Picea engelmanni</i>	* <i>Picea engelmanni</i>		
	<i>x glauca</i>	<i>x glauca</i>		
<i>Abies amabilis</i>				
	* <i>Pseudotsuga menziessi</i>	* <i>Pseudotsuga menziessi</i>	* <i>Pseudotsuga menziessi</i>	* <i>Pseudotsuga menziessi</i>
		<i>Pinus monticola</i>		
<i>Picea mariana</i>		<i>Picea mariana</i>		
<i>Larix</i> spp.	<i>Larix</i> spp.	<i>Larix</i> spp.	<i>Larix</i> spp.	
	* <i>Populus tremuloides</i>	* <i>Populus tremuloides</i>	* <i>Populus tremuloides</i>	* <i>Populus tremuloides</i>
		* <i>Betula papyrifera</i>	* <i>Betula papyrifera</i>	* <i>Betula papyrifera</i>
* <i>Salix</i> spp.	* <i>Salix</i> spp.	* <i>Salix</i> spp.	* <i>Salix</i> spp.	
	* <i>Alnus crispa</i> ssp. <i>sinuata</i>	* <i>Alnus</i> spp.	* <i>Alnus viridis</i>	
			* <i>Sheperdia canadensis</i>	* <i>Sheperdia canadensis</i>
			* <i>Amelanchier alnifolia</i>	* <i>Amelanchier alnifolia</i>
*( <i>Vaccinium</i> spp.)	*( <i>Vaccinium</i> spp.)	*( <i>Vaccinium</i> spp.)	*( <i>Vaccinium</i> spp.)	
			*( <i>Spirea betulifolia</i> )	
( <i>Rhododendron albiflorum</i> )				
	*( <i>Paxistima myrsinites</i> )	*( <i>Paxistima myrsinites</i> )	*( <i>Paxistima myrsinites</i> )	
			* <i>Arctostaphylos uva-ursi</i>	





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## Uranium/Thorium Sites as per the Mineral Exploration Code

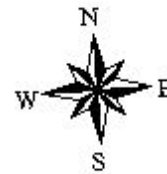


### Base Information

- ∩ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas

### LRMP Information

- Uranium/Thorium Sites
- Proposed Protected Area Package



5 0 5 10 Kilometers

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TEAM - March 2001  
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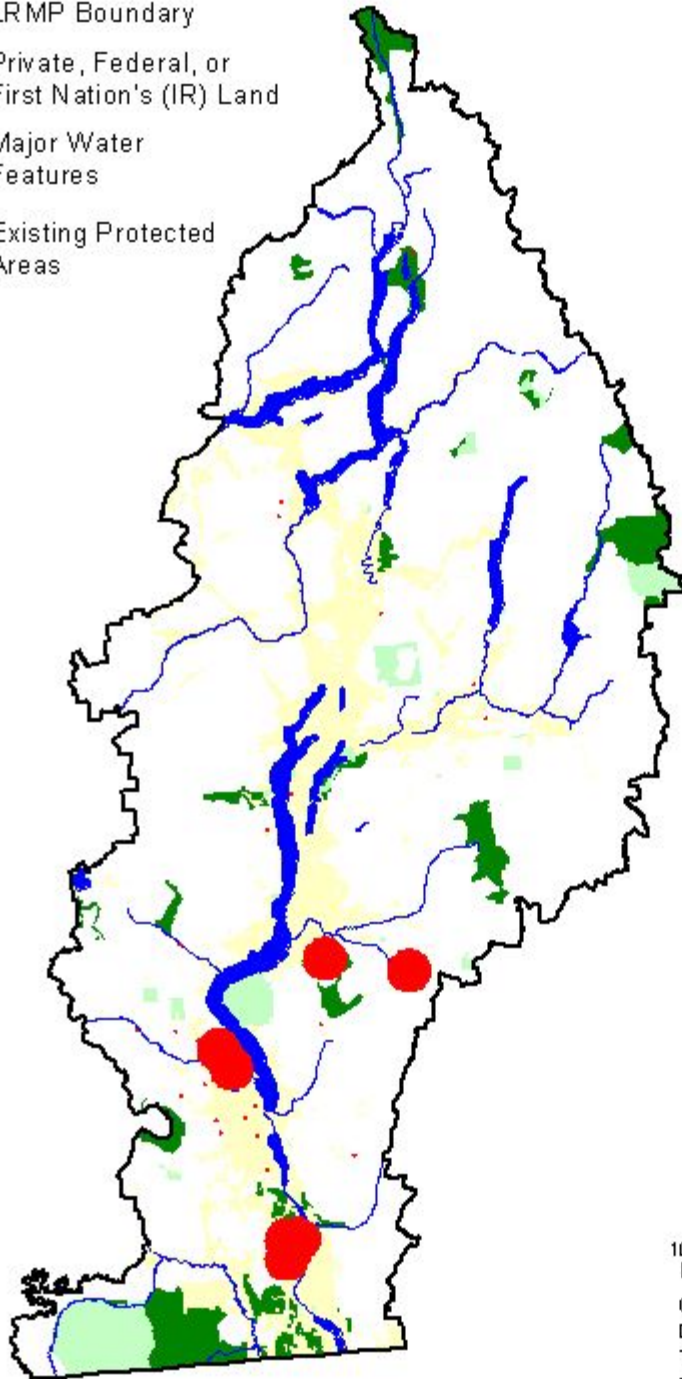


# Okanagan - Shuswap LRMP Approved Plan

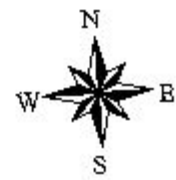
## Uranium/Thorium Sites as per the Health, Safety and Reclamation Code for Mines in BC (1997)

### Base Information

- ∩ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



- Uranium/Thorium Sites
- Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

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## General Resource Management

In this section:

- Provisions for maintaining or enhancing mineral exploration and mining in the plan area.
- Provisions for enhancing public recreational use of geological resources.

## Mining

### Introduction

*For more information on the economic contribution of mining refer to Section 5 of the Okanagan - Shuswap LRMP Area Socio-economic and Environmental Profile report*

The Okanagan - Shuswap plan area includes parts of seven mining divisions (Kamloops, Revelstoke, Nicola, Similkameen, Vernon, Osoyoos, and Greenwood) all of which have a long history of mining. Current levels of mineral exploration and development activity are, however, low relative to historic levels in the plan area and in other regions of BC.

The Thompson - Okanagan region (the region in which the LRMP is located) accounts for around 17 - 18% of provincial mining employment and revenues. Projections based only on current industry activity will not accurately indicate the potential contribution of mining to the area's economy since they would neglect the possibility of significant new discoveries and the economic upsurge they would bring.

### Metallic and Industrial Minerals

Known mineral occurrences include precious metals (gold, silver, platinum), base metals (lead, zinc, copper, molybdenum, uranium), industrial minerals (clay, dimension stone, gypsum, graphite, garnet, limestone, sand and gravel, zeolite), gemstones (opal, agate, peridot), and coal. At present there are no major projects at the development stage. The recent trend has been to small tonnage, high-grade, precious and base metal deposits and a variety of industrial mineral projects serving a diversity of markets. This trend, however, does not preclude the possibility that other large-tonnage, low-grade deposits might be discovered and developed.

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## Placer

The plan area has a history of placer gold mining dating from the 1850s. Historically the main areas of activity have been Mission Creek near Kelowna, Cherry Creek near Cherryville, and Rock Creek near Bridesville. Under current regulations, commercial placer mining is restricted to parts of eight areas (Ashby Creek; Cherry Creek; Hlina Creek; Kwikwit Creek; Moffat Creek; Rock Creek; Scotch Creek). Although gold is the main commodity recovered by placer mining, other dense minerals (e.g., iron-titanium oxides, platinum, garnet, and some gemstones) are also recoverable by this technique.

## Aggregate

Sand, gravel, and crushed rock ("aggregates") are key materials in the construction and maintenance of buildings and roads. Sand and gravel are probably the largest-volume commodities mined in the plan area; however, production, revenue, and employment records are not readily available. One estimate suggests that the Kelowna area alone uses at least 1.6 million tons of aggregate per year. Currently all commercial production is on private land, but as reserves are depleted, expansion onto Crown land is inevitable.

## Current Management

The Ministry of Energy and Mines principally regulates mineral exploration and mine development ("mining"). The principle legislation that governs mining is the Mineral Tenure Act, the Mines Act, the Mining Rights Amendment Act, the Mining Right of Way Act, the Mineral Exploration Code, and the Health, Safety and Reclamation Code for Mines in BC. Many other laws and regulations also apply, some of which are administered by the Ministry of Environment, Lands and Parks (MELP), Ministry of Forests (MoF), or the federal Department of Fisheries and Oceans (DFO).

Mineral tenure is acquired by staking. Most of the LRMP area is open to claim staking for hardrock (or lode) minerals, whilst a much smaller area is open to placer staking. Once staking is completed, title is recorded at a local mining division office or a regional Gold Commissioner's office. There are approximately 1,900 valid tenures in the plan area, a number that regularly changes due to the dynamic nature of mineral and placer exploration.

Tenure holders must do work (or pay cash in lieu) in order to maintain their claims in good standing. Before a tenure holder may undertake activities that will mechanically disturb the ground surface, a Mines Act permit is required. All work proposals are subject to review by regulatory agencies. Depending on the scale of the proposal, this may entail referral to government resource agencies, review by the regional Mine Development Review Committee, or a full-scale environmental impact assessment coordinated by the Environmental Assessment Office. A reclamation bond is usually required, to ensure that government has sufficient funds to reclaim disturbances in case the operator defaults.

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Current management of access for mineral exploration and development has three main objectives:

- 1) guaranteed access to Crown (and private) land by free miners for exploration and development;
- 2) prediction and mitigation of impacts by project proponents; and,
- 3) balanced consideration of the benefits and costs of access in the light of environmental, social and economic values.

The Mineral Tenure Act, the Mining Right of Way Act, and the Mining Rights Amendment Act define legal rights of access. The Mineral Tenure Act establishes a right of entry, occupation and use of Crown (and private) land, subject to conditions. The means of access are not specified. Mechanized access (including road construction) to a mineral tenure is regulated by the Mining Right of Way Act, the Mining Rights Amendment Act, and the Forest Practices Code of British Columbia Act. This differs from mechanized access on a mineral tenure, which is regulated by the Mines Act and the Mineral Exploration Code.

The Mining Rights Amendment Act establishes a link between higher level plans and special use permits issued under the Forest Practices Code. The Act states that a special use permit for the construction of an access to a mineral claim must be issued by the Ministry of Forests, subject to conditions the ministry sets, and any applicable higher level plan. The Act also states that the statutory decision-maker with respect to granting or refusing permission to construct the access is the Chief Inspector of Mines.

Current management strives to ensure that exploration and development activities are conducted in a way that predicts and mitigates impacts on known sensitive values. Impact prediction and mitigation are implemented through legislation, regulation, planning, specific permit conditions, inspections, consultation, and communication.

**Issues facing this sector** Geological resource development presents unique challenges. The resources themselves are mostly hidden, unquantifiable (except at enormous cost), and fixed in place. If they are to be developed at all, they must be mined where they are found. Finding new mines requires time, patience, knowledge, and money. International markets drive the search for commodities. Large areas of land and many mineral occurrences need to be evaluated through repeated and expensive exploration campaigns, over a span of years or decades, before a commercially viable mineral deposit is delineated.

In order to sustain the exploration and development process, the mineral sector needs security of tenure, security of access for exploration and development, and certainty with respect to other resource values and land uses that must be addressed in permit approval processes.



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Another concern is that overlapping, or competing, land-use designations, objectives, and strategies for non-mining values can result in the inadvertent, "fragmentation" of mineral lands and the perception of land-use uncertainty. This can cause decreased opportunities for sustained, long-term, mineral exploration and development programs, and loss of investment in mineral exploration and development.

An additional issue facing the aggregate sub-sector is the imminent requirement for Crown land for new resources, as reserves on private land are depleted, or are made inaccessible by urban expansion.

An additional issue facing the placer sub-sector is the need for more operating areas than are currently allowed, in order to remain viable as an industry.

## Goals

*In this plan, "mining" includes exploration for, and development of, hardrock, placer, aggregate, coal, petroleum, and geothermal resources*

The desired outcome of this plan is a prosperous mining industry with access to Crown land for exploration and development. The following are goals pursuant to this outcome:

- Foster and support an economically healthy, sustainable, and environmentally responsible mineral industry in the plan area;
- Implement recent government and industry initiatives to increase jobs and investment in mining<sup>1</sup>.
- Recognize that mineral exploration and mine development ("mining") are allowable land uses, permitted in all parts of the plan area where tenure may be acquired. This includes the general management zone and polygon-specific resource management zones defined in this plan.
- Manage mining in a way that considers the strategic environmental, social, and economic values identified and defined in this plan.
- Integrate these strategic values into standard project review and approval processes in a way that maximizes economic benefits and investor confidence while minimizing adverse environmental and social impacts.

The development of mining-based tourism opportunities (historical and contemporary) should also be encouraged.

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<sup>1</sup> These initiatives include the Premier's *Mining Initiative*, announced in April 1998, and the *Mining Jobs 2000 Strategy*, announced in 1997 by the Mining Association of BC and the BC Yukon Chamber of Mines.

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## Objectives and Strategies

1) Allow exploration, development, production, and processing of geological resources throughout the planning area, except in protected areas.

Intent:

i) To maintain the right to enter<sup>2</sup>, occupy and use all areas where tenure may be acquired.<sup>3</sup>

ii) To use existing applicable legislation, environmental assessment procedures, interagency referrals and project review processes to manage for non-mining values.

iii) In polygon specific RMZs the intent is to accommodate the value(s) that led to RMZ designation, in a way that balances safety, economic, environmental, social, and technical concerns.

1.1) Maintain opportunities for the future development of known mineral occurrences and deposits as shown on the "Mineral Occurrences" map.

Intent:

i) To avoid having surface uses unnecessarily preclude exploration and/or development.

ii) Recognizes that the proper place for making decisions that balance economic, environmental and social values for mine developments are existing, standard project review and decision making processes.

iii) Recognizes that standard review processes provide opportunities for public input.

1.2) Ensure that lands closed to mineral and placer staking through no-staking reserves (NSRs) are periodically reviewed to determine whether the reasons for the NSR are still valid, and rescind or amend NSRs as required.

Intent:

i) To remove unnecessary or obsolete NSRs and increase the amount of land available for mineral exploration and development.

ii) The reasons for each no-staking reserve should be documented.

iii) If there is no longer a valid reason for the reserve, the boundary of the reserve should be amended, or the reserve rescinded altogether.

iv) Recognizes that a referral to the proponent of the NSR is standard procedure before the NSR is changed.

v) Recognizes that the Ministry of Energy and Mines, in consultation with the placer industry, will continue its current process for receiving and reviewing applications for designating placer lands (i.e., new placer claim or lease areas).

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<sup>2</sup> This conditional right is defined in the Mineral Tenure Act.

<sup>3</sup> Mineral tenure may be acquired on all Crown (and private) land, except: land occupied by a building; the curtilage of a dwelling house; orchard land; land under cultivation; protected heritage property; parks (and recreation areas) defined by the *Park Act*; Federal lands (e.g., Indian Reserves; military bases); and mineral reserves (also known as "no-staking reserves").

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1.3) Ensure that permits for incidental tree cutting required for exploration activities are issued within time limits established by legislation, regulation, or interagency memoranda of understanding. (implementation)

1.4) Ensure that all other permits (e.g., Fisheries Act, Fish Protection Act, Wildlife Act, Water Act) required for exploration and development activities are issued within time limits established by legislation, regulation or interagency memoranda of understanding. (implementation)

1.5) Ensure that project review and approval processes for mining incorporate the strategic resource values and uses identified in this plan.

Intent:

i) To use the information (e.g., maps and text) contained in the LRMP document to facilitate the permitting of exploration and development activities.

ii) To minimize adverse impacts on mineral exploration and development by the values identified in this plan.

iii) To minimize adverse impacts by mineral exploration and development on the values identified in this plan.

2) Ensure appropriate levels of access for exploration, development, production and processing of geological resources throughout the planning area. (Also see Part 6, Access Management, for additional direction on managing access.)

Intent:

i) Recognizes that government policy allows access for exploration to 100% of the plan area, wherever tenure may be acquired.

ii) Relates to physical access (e.g., roads, trails, helicopter landings; "exploration access" as defined in the Mineral Exploration Code.).

iii) Does not apply to protected areas.

iv) Recognizes that deactivation and rehabilitation measures may be appropriate.

v) "Appropriate access" is defined in this strategy as "access by means that are necessary or sufficient to accomplish the intended work". In some cases, this may entail no-impact or low-impact methods (foot, ATV, helicopter). In other cases, it may entail construction of industrial roads. Access involving mechanical disturbance receives regulatory review before approval.

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2.1) I include the mineral industry (e.g., mining associations, free miners and tenure holders) in strategic and operational access management planning (e.g., Watershed Restoration Program projects, road deactivation, coordinated access planning, forest service network planning.)

Intent:

- i) This applies to all aspects of access.
- ii) The intent is to encourage "due diligence" by proponents of access management planning processes to include mining industry representatives and mineral tenure holders in plans that may change the quality or quantity of roaded and unroaded access.
- iii) Recognizes that, given notification, the Ministry of Energy and Mines (MEM) will provide mineral tenure, resource, and resource management information to assist access planning, or alternatively, advise access planners of internet sources for this information. (Note: at time of writing, some of this information is available from <http://www.em.gov.bc.ca>)
- iv) Recognizes that the current system of notification for forest development planning (advertisements, etc.) is adequate for proposed operational deactivation/rehabilitation and construction of new roads.
- v) Recognizes that the current procedure for Watershed Restoration Planning (which includes notification of mineral tenure holders via the Ministry of Energy and Mines, and an FRBC-funded contractor) is adequate for these projects.
- vi) This strategy is intended to be enabling, and the participation of mining interests is at their discretion.

2.2) Ensure that access management plans and regulatory and physical controls on access reasonably accommodate present and future mineral exploration and development activities.

Intent:

- i) "Reasonably accommodate" entails the following considerations and qualifications:
  - Recognizes the extreme variability of mechanized or motorized access requirements for mining, from seasonal, transient, or intermittent access for early stages of exploration to year-round, permanent access for mine developments.
  - Recognizes that some areas are more sensitive to mechanical disturbance - i.e., they are less resilient to change or more difficult to reclaim. Examples include wetlands, grasslands, dry forests, sub-alpine and alpine areas, unstable soils, and steep slopes. Regulatory agencies give careful consideration to these site-specific conditions before authorizing surface disturbance.
  - Recognizes the current practice of the mining industry, and supported by the Ministry of Energy and Mines, is to prefer low-impact methods of access (e.g., ATV, helicopter) in sensitive areas, rather than

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construct new roads.

- Recognizes that, in some cases, exploration access may involve methods that apparently contravene broadly defined access restrictions (e.g., motorized access in non-motorized zones).
- Also recognizes that in some areas or for time periods, specified or defined in this plan, mechanized access may not be allowed. In general, restrictions on motorized or mechanized access are expected to be sufficiently flexible, on a site-specific basis, to accommodate exploration activities.
- Recognizes that the construction of new access to, or on, mineral tenures is a complex issue that requires the balanced consideration of safety, cost, environmental, social and technical concerns. The concerns may range from minor to severe, depending on where exploration activities take place. Each application for ground access is considered on its own merits.
- Recognizes that physical barriers (e.g., gates) and regulatory controls (e.g., vehicle closures under the Wildlife Act or FPC) are increasingly used to manage access. The intent is, for these controlled-access areas, to encourage resource managers and gate custodians to provide free miners with permits and keys, in a timely manner and upon request, for all stages of exploration and development (pre-tenure prospecting through property development).
- Recognizes that measures to mitigate adverse effects on environmental values (fish, water, wildlife, and ecosystems) may be locally required. These will be implemented through normal project review and permitting processes. Adverse effects on social and commercial values (tourism, recreation, visual quality, cultural heritage) will be addressed through planning and communication, as well as project review processes. Review processes provide opportunities for public input.

*See the Recreation General Resource Management and Recreation Polygon Specific (RMZ) sections for objectives relating to industrial activities (e.g., mineral exploration and development) in recreation Resource Management Zones (RMZs).*

2.3) Conduct exploration and mining access development and restoration practices in a way that maintains long-term biological values in resource management zones (RMZs) with objectives for fish, water and wildlife (including "Ecosystem Management - Natural Disturbance Type 4").

Intent:

- i) To foster sound integrated resource management practices for mineral exploration and development access in fish, water, and wildlife oriented resource management zones, defined in this plan.
- ii) To integrate LRMP objectives and strategies into mineral exploration and development access decision making in order to fulfil the goals of guaranteed access, mitigated impacts, and balanced consideration of benefits and costs.

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2.4) When an environmentally sensitive area has been identified through a Mines Act permit (“Notice of Work and Reclamation”) application referral, an access management strategy will be developed to address environmental values.

Intent:

- i) The purpose of the access management strategy is to avoid impacts to the environmentally sensitive area while enabling mineral exploration access.
- ii) Examples of environmentally sensitive areas include wildlife habitat features (as defined in this plan in the Wildlife GMZ section, strategy 1.10) and wetlands.
- iii) Examples of access management strategies include:
  - an on-site inspection of the proposed access route prior to construction;
  - inspection of the proposed access route by a MELP official;
  - routing the road access around the sensitive area; or,
  - control of non-mining use of the access road.
- iv) The planning tools identified below should be considered in developing an access management strategy:
  - map, or otherwise inventory, ecosystem attributes defined in this plan that are to be incorporated into site-specific or project-specific access planning (examples of ecosystem attributes include den sites, nests, and plant communities);
  - identify appropriate measures to mitigate impacts to these attributes;
  - construct, deactivate and rehabilitate accesses for short and long term mitigation of impacts;
  - prepare access management plans for larger areas (e.g., zones, watersheds, landscape units or Forest Districts, as may be appropriate) to manage long term access for extractive and other resource uses;
  - use enhanced referrals (within the context of standard project review and permit approval processes) to communicate with tenure holders, public interest groups, stakeholders, and organized (or registered) user groups.

3) Maintain the integrity of mineral lands.

Intent:

- i) “Mineral lands” means “lands in which minerals or placer minerals or the right to explore for, develop and produce minerals or placer minerals is vested in or reserved to the provincial government” (Mineral Tenure Act).
- ii) This plan is not intended to reduce the overall integrity of mineral lands (where “integrity” means “ability to be explored and developed for mining”), beyond that determined by government through existing legislation, regulations, and codes that regulate mining activities.
- iii) The preceding statement (ii) is not intended to undermine access provisions

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of the LRMP.

iv) Recognizes that mining and non-mining resource values and uses are integrated in standard project review and approval processes. These processes aim to give balanced consideration to economic, environmental and social values. Approved developments attempt to minimize adverse impacts through accommodation, mitigation, or compensation.

v) Recognizes that geological resources are but one component of a complex and dynamic economic, environmental, and social system requiring sound integrated resource management.

3.1) Respect the rights of free miners and mineral tenure holders.

Intent:

i) Refers to conditional rights of access, use and occupation on Crown (and private) land defined, for example, in the Mineral Tenure Act, Mining Right of Way Act, and Mining Rights Amendment Act.

3.2) Ensure that land use plans and land use designations (other than provincial parks, ecological reserves, and tenured regional parks on Crown land) recognize that mineral resource development is allowed.

Intent:

i) To acknowledge the legitimacy of mineral resource development at all levels of planning.

ii) Land use designations that result from lower level planning processes should explicitly acknowledge that mining is an allowed activity in all areas where tenures can be acquired.

iii) Omission of clear statements to this effect have resulted in lost investment and decreased opportunities for mineral exploration.

3.3) Ensure that permitting processes for new, non-mining tenures on Crown land consider impacts on geological resources and tenures.

Intent:

i) To avoid unnecessarily precluding mineral resource development opportunities by issuing tenures incompatible with mining.

ii) Recognizes that most Land Act tenures issued are non-exclusive.

iii) Recognizes that most Land Act tenure application/approval processes include referrals to Ministry of Energy and Mines.

3.4) The Ministry of Energy and Mines will communicate with investors, the mining industry, local governments, First Nations, regulatory agencies, public interest groups, and others to explain the purpose and intent of this LRMP (including its goals, objectives and zones), with respect to mineral exploration, mine development, and the management of other (non-mining) resource values.

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3.5) The mining industry may communicate with investors and others (as above) about the compatibility of mining and land use in the plan area.

Intent:

i) The purpose of these communication strategies (3.4 and 3.5) is to ensure widespread recognition that the plan area is open for mineral exploration and development, subject to laws and regulations of general application, and guided by the intent of this LRMP.

3.6) Ensure that the Forest Land Reserve (FLR) designation does not affect the permitting of mineral exploration and development.

Intent:

i) To ensure that Mines Act permits for work within the FLR are processed within time limits established by Mines Act regulations.

3.7) Enhance knowledge of geological resources to support present and future opportunities for exploration and development, better informed resource management decision making, and public education.

(implementation)

Intent:

i) Examples of what is intended by this strategy include: conducting scientific research, geological mapping, ground and airborne geophysical and geochemical studies, property examinations, technical papers, and supporting industry or university sponsored research.

4) Avoid compromising existing mining infrastructure by subsequent non-mining development and land use.

Intent:

i) Applies only to infrastructure that is on tenure or is covered by a valid Mines Act permit.

ii) The intent is that these works remain undisturbed by non-mining use until legal liability for them has been discharged or agreement has been obtained from the tenure holder.

iii) Mine infrastructure (e.g., roads, trails, ponds, flumes, dams, etc.), including reclamation works, are the responsibility of, and an investment by, tenure holders or mine operators.

iv) Does not preclude road construction or timber harvesting.

v) In the case of urgent developments where the tenure holder cannot readily be contacted, seek authorization from MEM.

4.1) Before issuing new tenures for surface use that may involve surface disturbance, the issuing authority is encouraged to contact the Ministry of Energy and Mines or the mineral tenure holder, to determine whether mining infrastructure is involved, and to take appropriate steps to avoid altering the infrastructure.



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5) Ensure that construction aggregate resources continue to be available for development in areas within economically feasible operating distances from markets.

Intent:

- i) Under current market conditions, economically feasible operating distances means within 40 kilometres.
- ii) See the "Aggregate Resource Potential" map for a preliminary analysis of aggregate resource potential for part of the plan area.
- iii) This is not intended to override other objectives and strategies in the plan.

5.1) Encourage the Ministries of Energy and Mines, Environment, Lands and Parks, Transportation and Highways, and Municipal Affairs to work collectively with local governments, BC Assets and Land Corporation, and the aggregate industry to identify, evaluate, and map sources of potential construction aggregates.

Intent:

- i) To promote sound, long-term planning of areas with potential for aggregate resources - e.g., as shown on the "Aggregate Resource Potential" map.
- ii) To improve upon the recently completed Okanagan Aggregate Potential Study.

5.2) Use the best available aggregate resource information in considering tenure applications.

Intent:

- i) Best available information may include, for example, the Okanagan Aggregate Potential Study, the Central Okanagan Aggregate Supply and Demand Study, or other resource inventory data that may become available.

5.3) In areas of high gravel potential (e.g., primary aggregate resource potential areas as shown on the "Aggregate Resource Potential" map, the Central Okanagan Aggregate Supply and Demand Study, or other studies), consider impacts on resource extraction when considering surface uses that would preclude development of aggregates.

Intent:

- i) To minimize, to the extent practical, loss or sterilization of aggregate resources due to urbanization, parks, or constraining land designations (e.g., agricultural land reserve, forest land reserve, etc.).

5.4) Expand mapping of aggregate resource potential (in particular, construction aggregates) to include the entire LRMP area. (implementation)

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5.5) Amend aggregate tenuring and mine permitting processes to incorporate the following issues and concerns:

- land and resource values
- compatible and incompatible land uses
- adjacent land uses
- impacts to roads
- impacts to neighbouring communities.

Intent:

- i) This strategy is intended to address the concern that current tenuring and permitting processes may not address all values for new aggregate developments on Crown land.
- ii) Recognizes that, in July 2000, the Province initiated a six-month review of the administrative framework for sand, gravel and rock quarries.
- iii) Recognizes that the Implementation and Monitoring Committee may wish to study the results of this provincial review and may need to incorporate its recommendations into this LRMP.
- iv) Recognizes that aggregate developments on private land are beyond the scope of this LRMP. Local governments are encouraged to develop soil deposit and removal bylaws under relevant sections of the Local Government Statutes Amendment Act (formerly section 723 of the Municipal Act) to address their concerns about aggregate resource developments on private land.
- v) Information in aggregate resource potential studies.

6) For areas that are not staked, rehabilitate, and make safe all old mine workings that are deemed to be a public hazard.

Intent:

- i) To make these areas safe in a way that does not prevent future use for mineral exploration (e.g., "plug" old adits instead of blowing them up to close the hole).

6.1) The Ministry of Energy and Mines will consult with the mining industry and public interest groups to identify old mine workings (specifically, open holes, adits, shafts, and buildings) that need rehabilitation, and take appropriate steps to ensure public safety.

Intent:

- i) Individuals, public interest groups and the mining industry are encouraged to report public safety hazards to Ministry of Energy and Mines regional office in Kamloops.
- ii) Recognizes that old mine workings on valid mineral tenures are the responsibility of the current tenure holder.
- iii) Recognizes that old mine workings may be valuable assets for future exploration and development.

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7) Provide opportunities for public, recreational (i.e., untenured) use of geological resources.

7.1) The Ministry of Energy and Mines may consult with rock hounding, placer mining, paleontological groups, and the mining industry to identify potential areas to manage for these activities.

Intent:

i) With respect to rock hounding, the following intent statements have been identified:

- Some of the rock hounding sites in the plan area include: Squilax, Squilax Mountain, Monte Lake, Douglas Lake Road, Wood's Lake, Pinaus Lake, White Lake Fossils, Bouleau Lake, and Charcoal Creek.) This is not intended to be an exhaustive list, and other sites may be added as appropriate.
- Enthusiasts should manage sites for the conservation of the resource, and the continued long-term enjoyment.
- Collection should use non-mechanized, low impact methods only.
- There should be no large scale or commercial removal of material.
- Appropriate land management tools will be used to ensure these areas remain open to the public for rock hounding – e.g., Land Act reserves, no staking reserves.

7.2) In consultation with the mining industry, rock hounding, placer mining, and paleontological groups, the Ministry of Energy and Mines may create and advertise rock hounding, gold panning, and fossil collecting reserves.

7.3) The Ministry of Energy and Mines, Tourism BC, the mining industry, the tourism industry, and local museums may provide geological and mining literature in information centres.

7.4) The mining industry may promote and provide mine tours for the public.

7.5) Encourage the Ministry of Energy and Mines, Tourism BC, the mining industry, and the tourism industry to work with the Ministry of Transportation and Highways to explore opportunities to provide roadside signs highlighting the geological and mining history of significant areas, mine tours, etc.

Intent:

i) Examples of what is intended by this strategy include the "Gold Rush Trail" route signs along the Fraser Canyon, and signs of historical points of interest such as "Fairview" near Oliver.

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8) Manage mineral and placer exploration and mining activities in riparian management areas (as defined in this plan), and resource management zones that have objectives for fish and aquatic habitats, community watersheds and domestic water supply, in a way that mitigates adverse impacts to water quality and aquatic ecosystems.

Intent:

i) The intent is to use the objectives and strategies for riparian management to minimize, where practical, the impacts of mineral activities on fish, water, and riparian values.

ii) Recognizes that mining activities are allowed in these areas and zones, subject to conditions.

iii) Recognizes that current legislation and regulations (e.g. the Mines Act, Mineral Exploration Code, and placer regulations) have provisions for the protection of water quality and fish and aquatic habitat. Examples include: setbacks for drilling and exploration access, control of sedimentation and erosion, acid rock prediction and mitigation

iv) Recognizes that some mineral exploration and mine developments may require changes to drainage and flow regimes that exceed the objectives of this plan. These changes will be reviewed and approved through standard project review and environmental assessment processes.

8.1) Ensure that mining activities that occur in riparian management areas minimize, where practical, disturbance to vegetation, and reduce the potential for erosion and sediment delivery

8.2) Ministry of Energy and Mines, in consultation with regulatory agencies, will consider potential impacts to water quality and fish habitat when reviewing applications for new designated placer areas.

Intent:

i) Applications for new placer claim and lease areas are reviewed by the interagency South Central Mine Development Review Committee. The interests of fish, water, and licensed water users are represented on this committee by regulatory agencies (DFO, MELP, and Environment Canada). The District Inspector of Mines may call for public and First Nations' input on a Mines Act permit application for a specific placer claim or lease, if public interest or issues warrant.

ii) LRMP Implementation and Monitoring Committee should be notified of applications for additional placer claims, and lease areas. Such notification is for information purposes.

iii) Also see item 6 in the Mining portion of the "Advice to the Provincial Government" section.

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8.3) Utilize the objectives for these zones in planning and implementing the reclamation or rehabilitation of disturbed areas after mining activities cease.

Intent:

i) Recognizes that the Health, Safety and Reclamation Code for Mines in BC requires that the land surface be reclaimed to an acceptable standard that considers potential land use, and the land and watercourses be left in a stable condition, with due regard for water quality.

8.4) Ensure that project review and approval processes for mining incorporate the strategic resource values and uses identified in this plan.

Intent:

i) To use the information (e.g., maps and text) contained in the LRMP document to facilitate the permitting of exploration and development activities.

ii) To minimize adverse impacts on mineral exploration and development by the values identified in this plan.

iii) To minimize adverse impacts by mineral exploration and development on the values identified in this plan.

9) Manage mineral and placer exploration and mining activities in resource management zones, which have objectives for wildlife (e.g., Bighorn Sheep Habitat, Elk Habitat, Grizzly Bear Habitat, Marten Habitat, Moose Winter Habitat, Mountain Caribou Habitat, Mountain Goat Habitat, Mule Deer Winter Range, Ecosystem Management – NDT4) and wildlife connectivity (e.g., Chapperon Creek), in a way that mitigates adverse environmental impacts to the named wildlife and their habitat.

Intent:

i) The intent is to use the wildlife sections in this plan, with their objectives and strategies for wildlife, to mitigate the impacts of mineral activities on wildlife values.

ii) Recognizes that exploration and mining activities are allowed in all wildlife resource management zones.

iii) Recognizes that current legislation and regulations have provisions for the protection of wildlife and wildlife habitat.

iv) Recognizes that some mine developments may require changes to wildlife or habitat that exceed the objectives of this plan. These changes will be reviewed and approved through standard project review or environmental assessment processes.

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9.1) To the extent practicable, avoid intensive mechanized exploration in areas or times that are essential to the reproductive cycle of wildlife (e.g., mating, birthing, and nursing).

Intent:

i) To ensure that exploration considers and mitigates impacts to wildlife reproduction.

ii) Areas and times are generally predictable and based upon established biological criteria. Essential areas are small (i.e., hectares, not square kilometres) relative to the whole resource management zone. Time periods are short relative to the usual exploration season (i.e., March to December at lower elevations, and June to September at higher elevations). Time periods may vary depending on the type of exploration activity and its potential to displace or harass wildlife during the reproductive cycle. Low impact activities (e.g., those involving hand-held equipment) are less of a concern than high impact activities (e.g., those involving extensive blasting or heavy machinery), and may be carried on in sensitive periods.

9.2) Where necessary, use physical controls on temporary exploration accesses or mine roads in wildlife resource management zones to prevent additional impacts on wildlife by non-mining use.

9.3) Consider the objectives for the appropriate wildlife zone in planning and implementing the reclamation or rehabilitation of disturbed areas after mining activities cease.

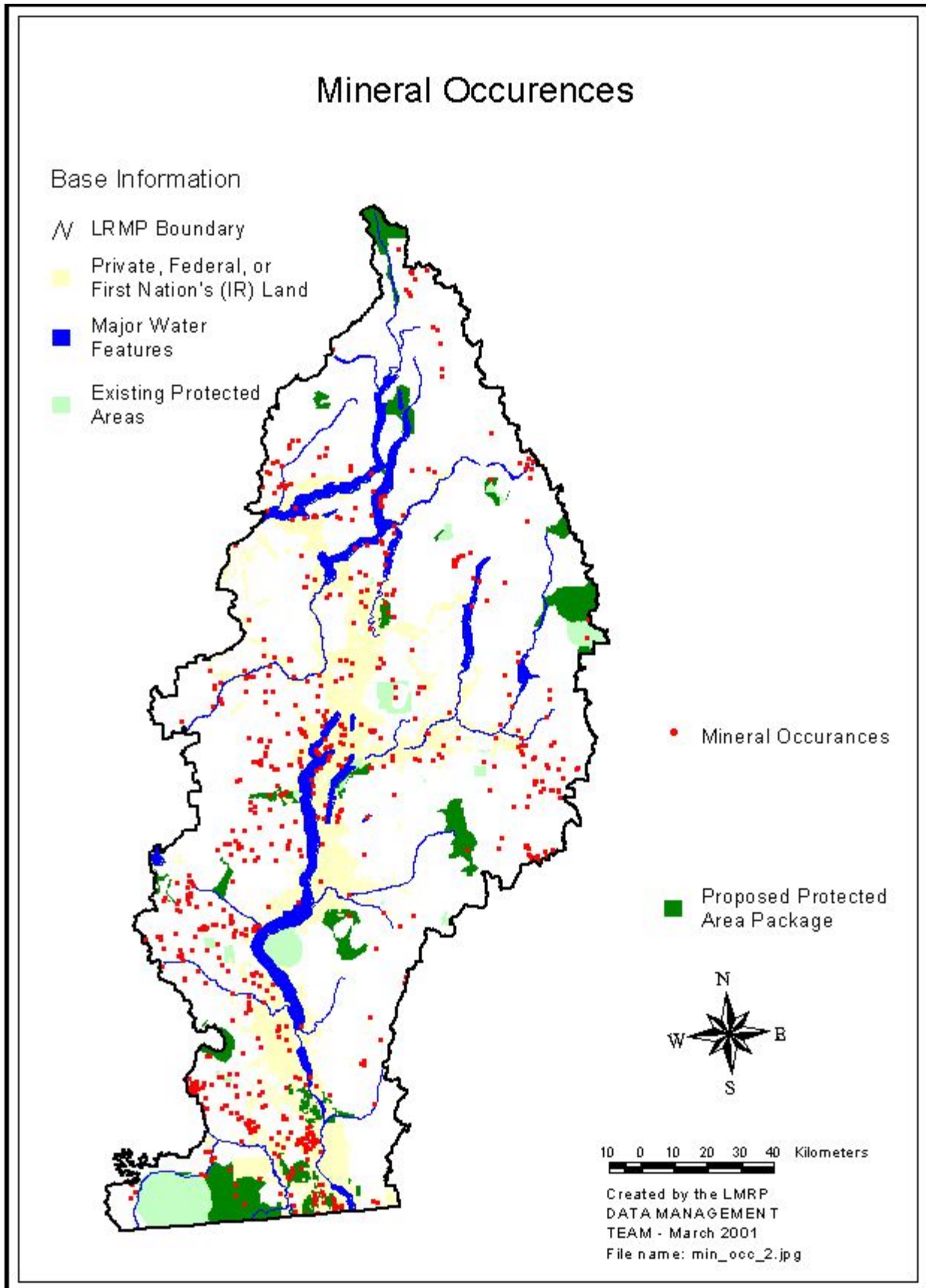
9.4) Ministry of Environment will provide wildlife inventory and habitat information (as it becomes available) in order to assist the planning and implementation of mineral exploration activities in wildlife resource management zones.

Intent:

i) At its discretion, MELP may provide relevant information through referrals or project review processes, or directly to project proponents.



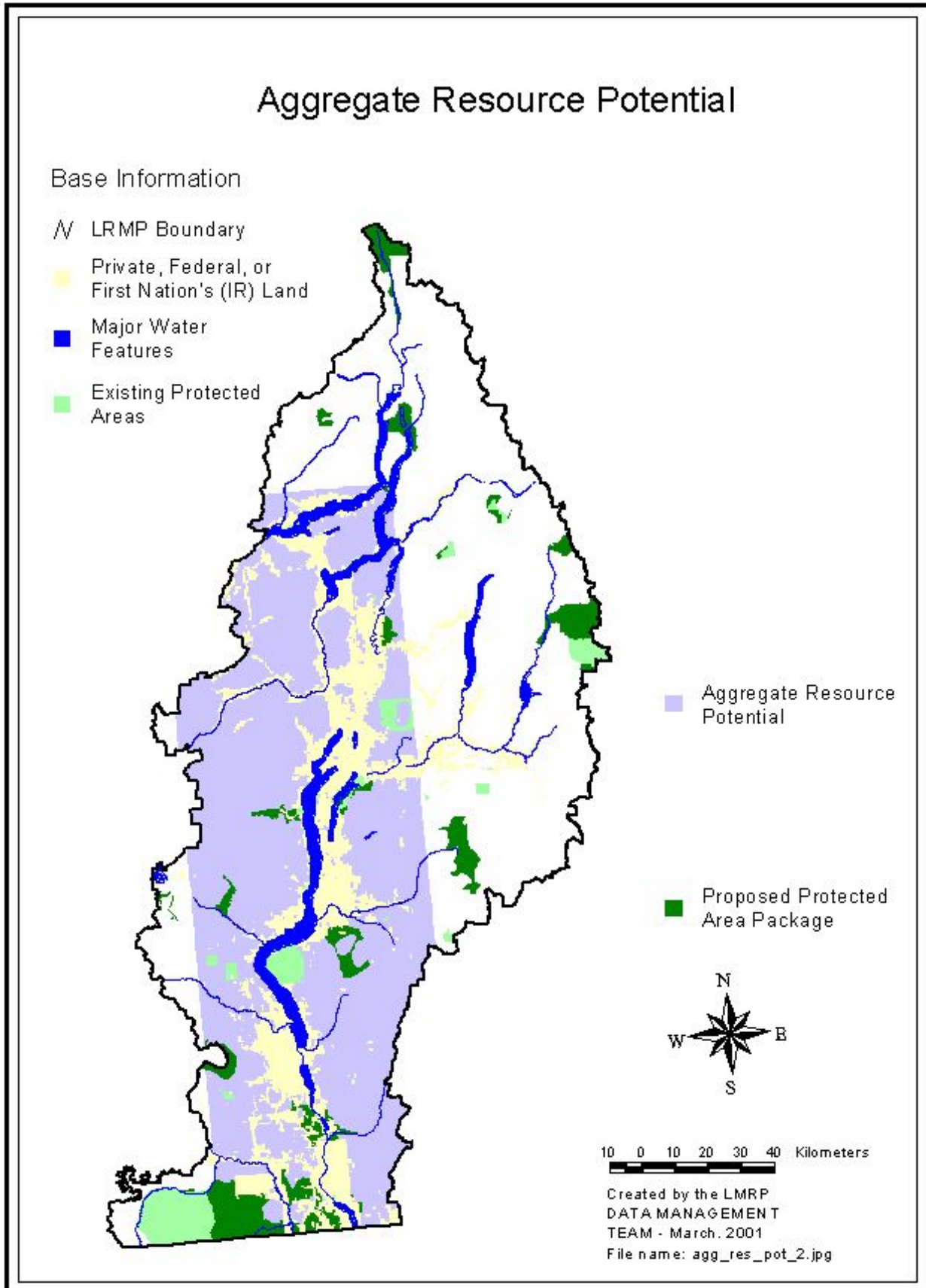
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## General Resource Management

In this section:

- How to maintain long term productivity of crown range and sustainability of cattle grazing.
- How to minimize livestock/wildlife conflicts.
- Provisions for minimizing seedling damage in reforested cutblocks.
- Provide direction on noxious weed control.

## Range

### Introduction

*For more information on the economic contribution of Agriculture to the area refer to Section 3 of the Okanagan - Shuswap LRMP Socio-Economic and Environmental Profile report*

Rangeland can be broadly defined as any land that provides food and habitat for animals, both wildlife and domestic livestock. Rangeland in the LRMP area includes natural grasslands, forests, alpine communities, parklands and cutblocks. Rangelands supply an abundance and variety of products, including livestock grazing, wildlife habitat, wood products, and outdoor recreation.

Tenured range areas for livestock production occur throughout the plan area with the main cattle ranching activity occurring in the south and up the center of the plan area. While the majority of operations occur on private land, the cattle ranching sector depends on Crown land for grazing purposes with around 75% of the cow herd using Crown land for forage. Use of this forage is essential to the viability of the majority of ranches. Because Crown grazing is an integral part of many ranch operations, the value of the tenure is capitalized into the value of the ranch, and changes to the value of the tenure will affect the capital value of the ranch.

### Grazing Tenures

*An animal unit month is loosely defined as the amount of forage required to feed one cow with or without a calf for one month*

The Ministry of Forests (MoF) issues grazing permits and licenses with associated animal unit months (AUMs), and the BC Assets and Land Corporation (BCAL) issues grazing leases. The number of AUMs has remained relatively stable over recent years, and the demand for range areas exceeds the supply. The timing of tenure use varies, with the most common being from early May until October. Livestock generally follow an altitudinal pasture rotation, and the availability of early spring and late fall forage is most limiting.

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There are two categories of range. These are: 1) permanent range types, which are areas that produce substantial forage throughout most or all successional stages, and 2) transitory range types, which are areas that eventually succeed to closed canopy forest providing forage only during a brief period following stand-initiating fires or timber harvesting.

## Issues

Costs of range management as a result of the requirements for more intensive management under the Forest Practices Code and other resource management requirements affect this sector.

Among other things, future growth of the ranching sector is constrained by the full allocation of forage on Crown range.

Another issue facing this sector is the reduction of range from a number of different sources. Forest in-growth and encroachment due largely to fire suppression have resulted in a loss of naturally occurring grasslands and open forests (permanent range). Additionally, fire suppression activities have impacted natural plant communities and biodiversity values of permanent range types

Noxious weed invasion can negatively affect rangelands. Noxious weeds' ability to out compete native vegetation continually threatens the biodiversity and therefore long term viability of susceptible sites throughout the plan area.

Interactions between cattle and wildlife, and management of cattle on forest plantations are additional issues.

The use of imported seed rather than native seed is also an issue. The specific concerns include the danger of introducing species that could eradicate or compete with indigenous species, the fact there is no widely available commercial native seed, and the high cost of native seed that is available.

## Goals

The goal of range management in the plan area is to maintain and or enhance the long term productivity and sustainability of the range resource for all users, including ranchers, wildlife, and recreationalists. Sound range management planning and practices can provide for the maintenance of natural ecosystem functions, support for viable plant and wildlife populations and allow a healthy vibrant ranching industry. Maintaining a sustainable and affordable Crown forage supply is important for the ranching sector.

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## Objectives and Strategies

1) Manage livestock in reforested areas, particularly in cutblocks, to limit seedling damage.

Intent:

i) Follow the "Kamloops Regional Cutblock Grazing Guidelines", and strategies outlined in range use plans (RUPs).

ii) Examples of possible tools that could be used to accomplish this include obstacle planting, adjusting cattle use according to the age of the plantation, using temporary fencing when other management tools will not work, etc.

1.1) Apply existing knowledge and future research in order to encourage maximum forage opportunities and livestock use within cutblocks, while satisfying appropriate tree stocking levels and tree growth.

Intent:

i) It is intended that this research would be promoted by all those agencies, companies and individuals who have an interest in how rangelands are managed - e.g., Ministry of Forests, Ministry of Agriculture, Food and Fisheries, BC Environment, forest licensees, wildlife organizations, the ranching industry, etc.

ii) Research should be undertaken to examine site disturbance and its relationship to grass seed release.

2) Provide opportunities for sustainable livestock grazing.

2.1) Where practical, enhance forage production by seeding with appropriate forage mixes on transitory range with suitable seedbeds (i.e., a seedbed with enough soil disturbance that seeds can reach the soil and germinate). (implementation)

Intent:

i) Examples of transitory range include cutblocks, landings, and roads.

ii) There may be exceptions where this strategy will not be followed. These will be decided on a site-specific basis (e.g., requirements for certain seeding mixes that are used along road rights of way in grizzly bear habitat, etc.).

iii) Forage seeding to be coordinated with silviculture prescriptions, and initiated through forest development plans (FDPs).

iv) Utilize native seed species mixes wherever practical.

v) Consider the use of prescribed burning to enhance forage production.

2.2) Following the principles of sound range management, authorize and manage for sustainable levels of livestock grazing on Crown land.

2.3) Where practical, schedule timber harvesting to ensure a continuous long-term supply of transitory range is maintained for range tenure holders.

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2.4) Ensure livestock management requirements associated with timber extraction and silviculture activities are considered when laying out cutblocks.

Intent:

- i) For the rancher to receive development plan referral notices and be able to comment on things such as fencing, removal of natural barriers, obstacle planting, cutblock location etc. - i.e., for the rancher and timber licensee to work together proactively to avoid any problems."
- ii) This will not require additional riparian retention and/or reserves.

2.5) Ensure denuded areas, such as roads, landings, borrow pits, etc., are seeded consistent with the Forest Practices Code and the direction provided in this LRMP.

*See objectives 5 and 6 in the Ecosystem Management - Forests section for information on the management of CWD.*

3) Maintain grazing opportunities in cutblocks in the interior Douglas-fir (IDF), engelmann spruce - sub-alpine fir (ESSF) and interior cedar - hemlock (ICH) biogeoclimatic zones.

3.1) On identified cutblocks, ensure that coarse woody debris (CWD) retention does not compromise existing grazing opportunities. The intent is for livestock access to some cutblocks, while maintaining some levels of CWD.

Intent:

- i) Ranchers will identify cutblocks of concern at the forest development plan (FDP) planning stage, or other suitable planning processes such as coordinated resource management plans (CRMPs), range plantation protection plans, etc.
- ii) Management direction for CWD debris can be found in the Ecosystem Management - Forests section.

3.2) Ensure that the needs of the range tenure holders are considered prior to road deactivation.

4) Enhance biodiversity values on Crown range.

Intent:

- i) Use the FPC Biodiversity Guidebook to guide the development of range use plans (RUPs).

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*Permanent range is those site series that provide forage for cattle and ungulates throughout all of their seral stages. They occur predominately in the NDT4a and b. See the definition for "grasslands" in the glossary for a list of site series.*

4.1) On at least 85% of permanent range, achieve late seral and/or Potential Natural Community (PNC)/climax plant communities.

Intent:

- i) Currently there are areas in the NDT4b and NDT4c where forest management activities will preclude meeting this strategy.
- ii) The 85% is to exclude areas (e.g., sheep lambing habitat) that are managed for other seral stages.
- iii) It is expected that the Regional NDT4 Committee will provide further direction on this. Any recommendations from this Committee will be vetted through the LRMP Implementation and Monitoring Committee prior to them being implemented in the plan area.

4.2) Identify and/or establish new range reference areas as a basis for determining potential natural community (PNC). (implementation)

Intent:

- i) MoF establishes these in consultation with the ranching industry.

4.3) Maintain existing range reference areas. (implementation)

4.4) Ensure that range use plans contain desired plant community objectives and strategies for achieving those objectives.

Intent:

- i) Objectives for desired plant communities may be found in other sections of this document (e.g., Ecosystem Management - NDT4 RMZ, Mountain Goat Habitat RMZ, Mule Deer Winter Range RMZ), or in direction found in either the FPC "Identified Wildlife Management Strategy", or the LRMP "Interim Measures" document.

*Also see the wildlife-related sections for additional objectives and strategies to address wildlife/livestock conflicts.*

5) Minimize livestock/wildlife conflicts.

Intent:

- i) Use the "Interim Measures For Specified Rare Wildlife Species and Plant Communities" and/or Identified Wildlife Guidebook to guide development of range use plans (RUPs).

5.1) Concentrate range-monitoring activities in riparian areas, spring and winter ranges for deer and bighorn sheep, alpine ecosystems, grasslands, and red and blue listed species habitats/communities. (implementation)

5.2) Consider the impacts livestock AUM increases and forage enhancement projects will have on wildlife. (implementation)

5.3) Consider the impacts wildlife transplants and increased numbers will have on forage availability and AUMs.



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6) Prevent and control weeds on Crown land.

Intent:

i) Utilize integrated pest management (e.g., seeding with appropriate forage mixes) methods in pursuing this objective with a focus on biological controls, and the development of new biological controls.

6.1) Develop and implement management plans for both noxious weeds and weed species of concern. (implementation)

Intent:

i) The Ministry of Forests will develop these plans.

6.2) Minimize soil disturbance and avoid the removal of excessive amounts of vegetation (other than timber harvesting, grazing, mineral exploration, and tenured tourism/commercial recreation activities) to reduce the potential for invasion and spread of weed species.

Intent:

i) The intent is to reduce invasion and spread of opportunities for weed species.

ii) An example of what is being referred to is the proliferation of access tracks.

iii) Prevent excessive wildcrafting (large-scale removal of plant products - e.g., moss, mushrooms, devil's club roots, etc.) in riparian zones.

7) Manage livestock so that riparian areas are in properly functioning condition.

Intent:

i) Use the Riparian Management Area Guidebook to guide development of RUPs and range use in riparian areas.

ii) To address concerns regarding water quality and fish conflicts.

7.1) Ensure that range use plans address the sensitivity of riparian areas and minimize livestock impacts on these areas.

7.2) Utilize grazing regimes that minimize impacts to riparian areas.

8) Restore riparian areas that are not properly functioning as a result of improper grazing.

Intent:

i) To be done by range licensees and the Ministry of Forests.

8.1) Utilize the "Provincial Range and Riparian Remedial Measures Procedures" as a guide when restoring non-functioning riparian areas.

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8.2) Use tools for range and riparian re-mediation such as:

- a) Livestock grazing - grazing period, stocking rate, season of use, salting, fencing, etc.
- b) Applied disturbance - prescribed burning, biological control of weeds, etc.
- c) Rehabilitation treatment - seeding uplands, riparian plantings, mulching, etc.
- d) Structural treatment - bank stabilization, channel modification, etc.

9) Minimize the potential for conflicts between Crown range tenure holders and private landowners.

9.1) Where deemed necessary, ensure that proponents are responsible for building and maintaining fences along highways and roads, new subdivisions, Crown land alienation proposals, etc.

Intent:

- i) Fencing, including ongoing maintenance, is to be a condition of any new subdivision approvals that adjoin Crown or privately owned range, and the fence is to be located on the property that is being subdivided.
- ii) Sections 8(1) and 8(2) of the Highways Act, and the Protocol Agreement between MoTH and MoF cover the Ministry of Transportation and Highways' responsibilities.
- iii) Recognizes that not all Crown land dispositions and authorizations will require a fence. In some cases fences may adversely impact other values, such as wildlife movement or public recreation.



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## General Resource Management

In this section:

- Management to enhance recreational opportunities on Crown land, especially near communities.
- Sharing the land base with commercial recreation.
- Fostering cooperation amongst recreationalists.
- Minimizing impacts on the environment.

## Recreation

### Introduction

The plan area offers some of the most diverse recreational opportunities and experiences in the province.

Outdoor activities such as hiking, biking, hunting, trail riding, wildlife viewing, fishing, canoeing, cross-country skiing, motorcycling and snowmobiling are popular in the area. The opportunity to take part in these activities is a factor in many area residents' decisions to move to or remain in the area and is a main tourist draw.

### Issues

The two major recreation-related issues are tensions between different recreation users, and concerns over the loss of recreational values or opportunities due to industrial, commercial and urban development.

### Goals

The goals for the recreation sector are as follows:

- Maintain and/or enhance a diverse range of opportunities for outdoor recreation.
- Maintain the features that provide for the diverse range of quality recreational experiences.
- Recreation activities should be pursued in a safe manner.

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## Objectives and Strategies

1) Maintain and enhance opportunities for outdoor recreation, including those near communities.

1.1) Retain and/or acquire suitable access to Crown land through private lands.

Intent:

i) The BC Assets and Land Corporation is to continue maintaining access when selling Crown lands.

ii) Subdivision approval agencies (e.g., Ministry of Transportation and Highways, some cities and municipalities) are to provide for access when approving subdivisions.

iii) The province and/or local government are to continue to acquire access across private land on a priority basis, subject to funding, and recognizing the need to assess other values and needs when assessing priorities.

1.2) Identify Crown lands close to urban areas that have recreation values.

Intent:

i) To better enable the recreational use of Crown lands that are adjacent to communities.

ii) To be undertaken by provincial and local governments, local groups, etc.

iii) Subject to resources and funding.

1.3) Prior to changes/amendments of map reserves that have been established under the Land Act for recreational purposes the agencies and groups with an interest in the site should be consulted.

Intent:

i) Map reserves should be managed as per the underlying resource management zone (RMZ).

1.4) Maintain appropriate access to recreational opportunities, including plowed winter access and parking as required for safety and to avoid conflicts. (Access is defined as it relates to the existence/quality of roads, trails, access to water, etc.)

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2) Prevent or resolve conflicts between recreationalists and other Crown land users.

Intent:

i) The appropriate relevant authority is to take measures to prevent or resolve conflicts in accordance with their mandate.

2.1) Encourage public awareness and education on appropriate use of recreation areas.

Intent:

i) To be more proactive by improving communication and education.

ii) Examples of possible tools to accomplish this include signing, brochures, etc.

2.2) With the exception of small specific sites, tourism and other commercial recreation tenures will not exclude public recreation.

Intent:

i) Recreation tenures should not provide a right of exclusive use, except where there are public safety, wildlife, or other agency or public concerns.

2.3) Prior to receiving authority for a new tenure or use agreement from the statutory decision-maker (SDM), new recreation or tourism uses must show how they can co-exist with existing or established recreation or tourism uses.

Intent:

i) The onus is on the new user to demonstrate how they can co-exist with the existing use.

ii) If agreement is not reached then the established conflict resolution process is to be followed

iii) This includes amendments to existing use agreements.

2.4) Proponents to provide alternate trails for public recreation if existing trails become unusable or dangerous as a result of industrial activities.

Intent:

i) Alternate trails can include existing trails.

ii) Existing trails will be interpreted as those inventoried, known, or identified through the forest development plan (FDP) process.

iii) The proponent is to provide continuing public access to areas unless the closure is temporary (due to industrial activity).

iv) Trails will be flagged on each side of any disturbance prior to commencement of the disturbance.

v) Temporary closures will be followed by necessary trail re-establishment. (Temporary in this instance means less than one year.)

vi) This strategy should also apply to salvage logging operations.

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- vii) Alternate access trails should not include replacing trails with roads unless it is consistent with the recreational values.
- viii) Not intended to prevent industrial development over the top of trails as long as the trail is left in a safe useable state or replaced.
- ix) This does not apply to trails located on roads. (Where a trail is located on a road, resolution should be sought through strategies 2.8 and 2.9.)

2.5) Forest licensees will provide reasonable public notification prior to snowplowing or activating winter operations that are on, or adjacent to, known snowmobile travel corridors.

Intent:

- i) "Reasonable public notification" prior to commencing a winter maintenance program can be described as a letter or phone call to the snowmobile club president 10 - 20 days prior to operations.

2.6) Snowmobile user groups will routinely provide forest licensees with updated, mapped locations of known snowmobile travel corridors.

Intent:

- i) "Snowmobile travel corridors" can be described as unplowed roads used extensively, or routinely, as a snowmobile route between local winter destinations.
- ii) It is recognized that in areas of, or access to, snowmobile use, there are snowmobile travel corridors that follow unplowed logging roads and these corridors are used extensively by snowmobiles.
- iii) While industrial use of these roads will take priority, it is important to ensure reasonable communication takes place prior to winter industrial operations to prevent conflicts and to minimize the risk to public safety.
- iv) Routinely will be taken to mean when ever there is a change that is significant to the proponent (in this case, the snowmobile user group).

2.7) Develop mechanisms for consensus-based consultation and conflict resolution.

Intent:

- i) Where commercial or industrial uses create conflicts with public recreation there should be a consultation process that resolves recreational use concerns.
- ii) Where consensus cannot be achieved then the default will be a decision by the statutory decision-maker.

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2.8) Forest licensees must notify known recreational users in writing to provide an opportunity for input to forest development plans that may impact recreational use.

Intent:

- i) A list of user groups and known recreational users will be developed and maintained by the District Manager. The development of this list will begin at the LRMP open houses.
- ii) To directly contact all known affected recreationalists using the list maintained by the District Manager.

2.9) Recreational interests must be consulted and considered in the development of any access management plans.

Intent:

- i) The list referred to in strategy 2.8 should be applied here.

2.10) Encourage recreational users to familiarize themselves with mineral development activities via the web site at <http://www.em.gov.bc.ca>.

Intent:

- i) To help recreational users know what areas are under active exploration, or are likely to be the focus of future exploration.
- ii) Useful sites include:
  - "The Map Place", an interactive, map-based inquiry tool ([www.em.gov.bc.ca/Mining/Geosurv/MapPlace/Default.htm](http://www.em.gov.bc.ca/Mining/Geosurv/MapPlace/Default.htm));
  - mineral inventory (MINFILE) database ([www.em.gov.bc.ca/Mining/Geosurv/Minfile/default.htm](http://www.em.gov.bc.ca/Mining/Geosurv/Minfile/default.htm));
  - mineral titles database ([www.em.gov.bc.ca/Mining/Titles/TitlesSearch/default.htm](http://www.em.gov.bc.ca/Mining/Titles/TitlesSearch/default.htm)); and
  - assessment report (ARIS) database ([www.em.gov.bc.ca/Mining/Geosurv/Aris/default.htm](http://www.em.gov.bc.ca/Mining/Geosurv/Aris/default.htm)).

2.11) Discourage winter recreational activities that could have a negative impact on the wildlife occupying an ungulate winter range.

Intent:

- i) Work with appropriate clubs and associations to identify non-conflict and conflict areas for various winter recreational activities, and develop agreements to prevent habitat alienation through harassment.

3) Prevent or resolve conflicts between recreation users.

Intent:

- i) Recreation users are encouraged to respect recreational use by other groups, and to communicate with them to avoid conflicts.
- ii) Where conflicts emerge, user groups are encouraged to work out solutions on their own using interest based negotiation. Where these conflicts cannot be resolved, the Ministry of Forests and/or other appropriate agencies should be consulted for assistance.



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3.1) Develop and/or improve mechanisms for notification, consultation and conflict resolution.

3.2) Encourage public awareness and education on appropriate use of recreation areas.

Intent:

- i) To be more proactive by improving communication and education.
- ii) Examples of possible tools to accomplish this include signing, brochures, etc.

3.3) Where recreational use conflicts exist that have continued into this plan period are not addressed, then priority should be given to resolving these conflicts in accordance with the procedure outlined herein.

Ongoing conflicts (such as Apex) should be moved through the procedure outlined in the plan as quickly as possible. (implementation)

4) Prevent or resolve conflicts between recreationalists and private landowners.

*Operational Planning, public consultation, obtaining funding and implementing the requisite works require a lead agency. This role is in keeping with the Ministry of Forest's mandate.*

4.1) Provide parking opportunities to minimize impacts on neighbouring private lands.

Intent:

- i) To make sure there is adequate parking whenever any new recreational opportunities are developed adjacent to private lands.
- ii) To construct parking facilities (subject to funding availability) where conflict with adjacent landowners exists.
- iii) To provide opportunities for access structures such as parking lots by incorporating rights of way to Crown land in all subdivision applications.

4.2) Where the location of a trail causes conflicts with private landowners look to re-route or relocate the trail to address the problem.

Intent:

- i) An example of a trail with potential problems would be the Okanagan High Rim Trail.

5) Recreational use should be compatible with the values of sensitive ecological areas.

Intent:

- i) Take more specific direction from sections where objectives on recreational use in ecologically sensitive areas is provided (e.g., grizzly bear habitat, mule deer winter range, moose winter range, big horn sheep habitat, red and blue listed species habitat, caribou habitat, grasslands, and mountain goat winter range). It is acknowledged that other site-specific locations do/may exist.

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5.1) As necessary, develop guidelines to mitigate impacts of recreational use on sensitive areas.

Intent:

- i) Mitigate impacts without necessarily precluding recreational use (e.g., mark trails, seasonal use).
- ii) In extreme circumstances it may be necessary to exclude all recreational uses.
- iii) Sensitive areas are defined in polygon specific resource management zones - e.g., Mountain Caribou Habitat RMZ

5.2) Promote public education and awareness on how to minimize impacts from recreational use of the land base.

Intent:

- i) To reduce impacts of recreation uses. Examples of the ecological values of concern include wildlife, water quality, wetlands, etc.

5.3) Eliminate "mud bogging" on Crown lands except on areas that are designated by the MoF in consultation with MELP.

Intent:

- i) It is recognised that "mud bogging" destroys environmental values but some previously disturbed areas may exist to meet this demand.

6) Provide a diversity of angling opportunities.

6.1) Through consultation with stakeholders, manage fishing opportunities for various user needs (e.g., "wilderness" or "walk-in", "trophy", "high success", "kids fisheries" or "catch and release").

6.2) Allow for consumptive use of fish, unless conservation concerns are evident.



## General Resource Management

In this section:

- Management strategies for riparian areas to protect water quality and aquatic ecosystems.
- Guidelines for the preparation of riparian management plans (RMPs).

## Riparian and Wetlands

### Introduction

See the Introduction to the Fish General Resource Management and Water General Resource Management sections (Part 3) for information on current management, issues, and goals as it relates to riparian and wetland areas.

### Objectives and Strategies

*Also see objective 8 and its pursuant strategies in the Mining section for further direction governing mineral exploration and development activities.*

1) Provide adequate riparian habitat to sustain healthy aquatic ecosystems, fish and wildlife populations.

Intent:

i) To maintain riparian integrity and function.

ii) The definitions for streams are the Forest Practices Code definitions as they may be amended from time to time. Exceptions will be where Water Act definition of stream is specifically required and specified for a strategy.

iii) Basal area retention will be measured using standard cruising specifications.

iv) This management regime should not change without consultation with the Implementation and Monitoring Committee.

v) Focus on sensitive sites and those areas closer to the reserve.

vi) Variations in reserve zones may occur under the authority of the District Manager (DM) and Designated Environmental Official (DEO).

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1.1) Establish 10,000 hectares of “enhanced riparian reserves” within the timber harvesting land base (THLB).

Intent:

- i) This is incremental to what is currently required by the Forest Practices Code (FPC).
- ii) Placement of this reserve will be determined through riparian management plans (RMPs), forest development plans (FDPs), or silviculture prescriptions (SPs).
- iii) This reserve is to be placed to achieve the greatest benefit for riparian values.
- iv) The 10,000 ha can only be drawn down through the establishment of reserves.
- v) Partial cutting or any basal area retention areas do not contribute to the 10,000 hectare “enhanced riparian reserve” drawdown.
- vi) To be considered a “reserve” for the purpose of budget drawdown, the reserve must be in patches that are 0.1 ha or larger.
- vii) Reserves, for the purposes of budget drawdown, may extend beyond the riparian management area (RMA).
- viii) For clarity, there are only 10,000 hectares for enhanced riparian reserves.
- ix) For clarity, enhanced riparian reserves may contribute to meeting other resource values such as wildlife tree patches (WTPs), etc.

1.2) The 10,000 hectares of “enhanced riparian reserves” will be allocated within the plan area within five years.

Intent:

- i) Allocate to licensees and the Ministry of Forests (MoF) Small Business Forest Enterprise Program (SBFEP) on the basis of allowable annual cut (AAC) distribution.
- ii) The intent is to effectively allocate the “enhanced riparian reserves” and to balance the 10,000 ha to achieve the greatest benefit for riparian values.
- iii) The understanding is that the allocation will be placed on the landbase within the five year time period.

1.3) Harvesting within the LRMP imposed riparian reserves is regulated in the same manner as that described for FPC riparian reserve zones in Section 4(1) of the Silviculture Practices Regulation, and Section 10(3) of the Timber Harvesting Practices Regulation.

Intent:

- i) It is recognized that “enhanced riparian reserves” may be moved in the future (with the agreement of the statutory decision-maker and DEO) to achieve the greatest benefit for riparian values. If the enhanced reserve status for a given polygon is relinquished, the regulation will no longer apply to the polygon.

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1.4) For S1 streams with a stream width greater than 20 metres and less than 100 metres, establish a riparian reserve zone (RRZ) 50 metres wide, and a riparian management zone (RMZ) 20 metres wide on each side, with an average 50% basal area retention. (The total width of the riparian management area is 70 metres).

Intent:

- i) Place the 50% basal area retention in the riparian management zone where it gives the most benefit to protecting the riparian reserve zone and assists in achieving the objective.
- ii) Basal area retention to be averaged over the length of the S1 stream on the Crown land base.
- iii) Averaging is not intended to be retroactive and only applies to new harvesting subsequent to agreement of the LRMP.
- iv) Stream width is measured according to standard practices.

1.5) For S2 streams (i.e., stream width greater than 5 metres and less than 20 metres), establish a riparian reserve zone (RRZ) 30 metres wide, and a riparian management zone (RMZ) 20 metres wide on each side, with an average 50% basal area retention. (The total width of the riparian management area is 50 metres).

Intent:

- i) Place the 50% basal area retention in the riparian management zone where it gives the most benefit to protecting the riparian reserve zone and assists in achieving the objective.
- ii) Basal area retention to be averaged over the length of the S2 stream on the Crown land base.
- iii) Averaging is not intended to be retroactive and only applies to new harvesting subsequent to agreement of the LRMP.

1.6) For S3 streams (i.e., stream width from 1.5 to 5 metres), establish a riparian reserve zone (RRZ) 20 metres wide, and a riparian management zone (RMZ) 20 metres wide on each side, with an average 50% basal area retention target. (The total width of the riparian management area is 40 metres).

Intent:

- i) Place the 50% basal area retention in the riparian management zone where it gives the most benefit to protecting the riparian reserve zone and assists in achieving the objective.
- ii) Basal area retention to be averaged over the length of the S3 stream on the Crown land base.
- iii) Averaging is not intended to be retroactive and only applies to new harvesting subsequent to agreement of the LRMP.

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1.7) For S4 streams with no fish present (i.e., community watershed) and S6 streams:

a) Establish a machine free buffer of 5 metres adjacent to the stream (subject to Section 24.1 and 24.2 of the 1999 Timber Harvesting Practices Regulations).

b) Retain understorey within 10 metres of the stream.

Intent:

i) Retaining understorey means maintaining as much vegetation as practical that is smaller than the main canopy of a forested stand comprised of dominant, co-dominant, and intermediate trees.

ii) Understorey includes suppressed trees, advanced regeneration, shrubs and herbs.

iii) Utilization standards should not be a barrier to achieving this strategy (e.g., licensees should not be penalized for achieving this strategy).

iv) Not intended to constrain reforestation.

c) Where practicable, locate wildlife tree patches adjacent to these streams.

d) Within each sub-basin (as determined in the Interior Watershed Assessment Procedure), no more than 25% of the stream length total of that category of these streams on the Crown land portion is to be in a non-greened-up state.

Intent:

i) If the riparian management area (RMA) meets the greened-up definition of the Forest Practices Code (3 metres), then it does not contribute to the 25%.

ii) To calculate the percentage, use the percentage of the sub-basin in a non-greened-up state as a surrogate measure and assume even distribution of S4 streams or extrapolate the amount of the S4 from the existing cut.

iii) Analysis to use the best information available (i.e., TRIM maps or better).

iv) Options when 25% is reached may include delaying cutting, planting oversized seedlings, or providing buffers in new blocks.

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1.8) For a S4 fish stream with a moderate to high windthrow rating follow the best management practices in the Riparian Management Area Guidebook, and retain approximately 30% basal area within the riparian management zone by cutblock.

Intent:

- i) Retention does not need to be uniform within the riparian management area, and could be clustered.
- ii) Retention includes deciduous species.
- iii) Retention is to be placed to maximize benefits to the stream - e.g., larger stream widths, windfirm trees, etc.
- iv) Retention is placed to maintain the attributes identified in the riparian management plan (RMP) objectives unless it is required pursuant to Section 22.2 of the Timber Harvesting Practices Regulations.

1.9) For S4 fish streams establish a 10-metre reserve in low windthrow areas.

Intent:

- i) This reserve is intended to draw down on the “enhanced riparian reserve” budget referred to in strategies 1.1 and 1.2.
- ii) Placement of this reserve will be determined through riparian management plans (RMPs), forest development plans (FDPs), or silviculture prescriptions (SPs).
- iii) This reserve is to be placed to achieve the greatest benefit for riparian values, which may include varying widths if the equivalent area remains.

1.10) For a S5 stream establish a 10-metre reserve and retain approximately 25% of the basal area within the adjacent 20-metre riparian management zone (RMZ) by cutblock.

Intent:

- i) Establishment of the S5 reserve area will draw down on the “enhanced riparian reserve” budget.
- ii) Basal area retention should be applied to encourage windfirmness of the reserve zone.
- iii) Retain understorey:
  - Retaining understorey means maintaining as much vegetation as practical that is smaller than the main canopy of a forested stand comprised of dominant, co-dominant, and intermediate trees.
  - Understorey includes suppressed trees, advanced regeneration, shrubs and herbs.
  - Utilization standards should not be a barrier to achieving this strategy (e.g. licensees should not be penalized for achieving this strategy).
  - Not intended to constrain reforestation.
- iv) Where practicable locate wildlife tree patches (WTPs) adjacent to



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these streams.

v) Basal area retention is to be averaged over the length of the S5 stream on Crown land.

vi) Averaging is not intended to be retroactive and only applies to new harvesting subsequent to agreement of the LRMP.

1.11) For a larger S6 stream establish either a 10-metre reserve or retain approximately the equivalent in basal area within the riparian management zone (RMZ) by cutblock.

Intent:

i) On cable ground where there are two or more larger S6 streams within a block that are less than 500 metres apart, then one of them will be treated as a smaller S6 as per strategy 1.7.

ii) Larger S6s are defined as those S6s that have a water surface width of at least 1.5 metres throughout the year.

iii) If reserves are established, or approximately the equivalent basal area is retained, then these both will draw down the "enhanced riparian reserve" budget.

iv) To provide more protection for larger S6 streams with continuous flows of water.

1.12) Variation from the strategies for S1 to S6 streams can be done pursuant to a riparian management plan (RMP), or a prescription as recommended by a qualified professional.

Intent:

i) A "qualified professional" is defined in the Forest Practices Code, and for the purposes of this strategy they must have professional expertise in riparian values and stream hydrology (e.g., professional hydrologists or biologists).

ii) Government is to review these plans or prescriptions in a timely manner.

iii) Prescriptions or riparian management plans that vary from the non-FPC portions of the strategies for S1 to S6 streams must be prepared by a qualified professional.

iv) DEO approval is required for variations from the FPC and "enhanced riparian reserves".

v) For clarity, variation may include increases or decreases in the width of a reserve.

1.13) To maintain the integrity of riparian areas during forestry operations skidder crossings should not occur at a greater density than one per 150 metres of stream.

Intent:

i) Locate falling boundaries to reduce the need for cross-stream yarding.

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1.14) Use the Windthrow Assessment Handbook when assessing windthrow risk for development of riparian management zone prescriptions.

1.15) Expedite replanting of trees in blocks bordering the riparian management zone.

1.16) Manage livestock away from riparian areas.

Intent:

i) To manage livestock access both on Crown land as well as to Crown foreshore accessed through private land.

ii) To not restrict all livestock from riparian areas.

iii) Tools to accomplish this include, but are not limited to, placement of salt blocks, off stream stock watering works, temporary or permanent fences in critical areas, riders, moving livestock to other grazing areas when upland grazing adjacent to riparian areas is depleted, following scheduled grazing rotations designed to minimize cattle use of riparian areas, etc., in order to prevent cattle from congregating in riparian areas and causing detrimental impacts.

iv) An additional tool is input into cutblock design. (This is not intended to increase costs or restrict access to timber and is to be negotiated on a site-specific basis between forest licensee and range licensee.)

v) The intent is not to fence all riparian areas.

vi) Management is not to be less than what is required in the Forest Practices Code.

1.17) Encourage the construction of stock watering works that are designed and located in a manner that protects/maintains riparian areas.

Intent:

i) This is not intended to force ranchers to construct stock watering works.

ii) In most instances, to provide watering facilities away from surface water sources and riparian areas to enable livestock to drink without having to enter the riparian area.

iii) Water licenses will be required for the construction of all works, including engineered access points to streams. (The licensing process provides for downstream users to be notified.)

iv) Works shall be designed to prevent non-beneficial use of water, to prevent overflow, and to prevent a return flow to the stream unless the return flow will not introduce harmful contaminants.

v) Use of dugouts, stock activated pumps, and other innovative designs should be explored.

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1.18) Minimize the number and impact of stream crossings as much as is practicable.

Intent:

- i) To develop access to maintain stream and riparian processes over time.
- ii) The intent is to use current management practices under the FPC.

1.19) Consider forest health issues when determining which trees to retain in the riparian management zone.

1.20) Retain pre-harvest coarse woody debris within riparian management areas and within floodplains.

Intent:

- i) This is not to compromise fire and pest management, crop re-establishment, or salvage operations.
- ii) To support channel stability, flow attenuation, provide long term recruitment of large organic debris of stream, reduce the potential for sedimentation, and wildlife habitat.

1.21) Avoid activities that degrade riparian areas (i.e., cause bank destabilization, siltation, vegetation removal).

Intent:

- i) This does not apply to timber harvesting and grazing activities approved under other strategies.
- ii) The intent is to capture those activities that are not guided by other strategies in the plan.
- iii) This is not intended to encourage destruction of riparian areas.
- iv) Does not preclude the removal of vegetation allowed for under legislation, approved projects or LRMP strategies. This is intended to guide non-forestry activities, as well as to reduce impacts to riparian vegetation in general.

## *Wetlands*

2) I identify and protect wetlands (as per FPC definition) in Provincial Forests.

Intent:

- i) To assist in water quantity and water quality management, to provide buffering against flooding, stabilize shorelines, and to stabilize stream flows by releasing stored water slowly.

2.1) For W3 wetlands, manage for approximately 50% of the perimeter to be in a 30-metre management zone where there will be approximately 50% retention.

Intent:

- i) The prescribing forester is to locate the management zone with consideration for water quality, wildlife values, reducing windthrow, and forest health.
- ii) If windthrow salvage occurs in the area, salvage only brood trees

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- iii) The prescribing forester has the flexibility in how to allocate 50% retention over the 30-metre management zone. (e.g. 100% retention over 15 metres, 75% retention over 22.5 metres, 50% over 30 metres)
- iv) For the other 50% of the perimeter, maintain a 5 metre no machine buffer with retention of deciduous and suppressed conifers.
- v) Riparian management areas are an excellent location for wildlife tree patches.

2.2) Utilize best management practices (BMPs) for the management zone adjacent to wetlands and lakes, etc., as noted in Tables 1 and 2 in the Riparian Management Area Guidebook, subject to the site specific windthrow hazard rating.

Intent:

- i) In situations where there is a significant deviation from the strategy, the prescribing forester must provide a rationale.
- ii) If variations from BMPs happen frequently, this should be flagged for the Implementation and Monitoring Committee's attention.

3) Retain, or where possible, restore or enhance Crown wetlands not located within the provincial forest.

Intent:

- i) For this objective, "wetlands" refers to land having a prolonged high water table, or covered with shallow water, or inundated frequently enough to develop and support plants specially adapted to growth in wet conditions. This vegetation is distinct enough to be in strong contrast to vegetation on adjacent upland areas.
- ii) To cover off Crown land or aquatic Crown land parcels (wetlands) surrounded by private land.
- iii) This applies to small isolated Crown wetlands surrounded or in close proximity to private land that could be impacted through infrastructure construction, roadways, private subdivision development, etc.
- iv) To address activities in and around riparian areas governed by the Land Title Act, Municipal Act, Highways Act.
- v) To be implemented under the authority of the Land Act and the Water Act by BCAL and MELP, Water Management Branch.

3.1) Identify and maintain a publicly accessible inventory of wetlands.

3.2) Manage development to limit negative impacts to wetlands.

3.3) Utilize the restoration and enhancement of alternate sites as part of mitigation/compensation resulting from development.

Intent:

- i) Not intended to expedite the destruction of natural wetlands.

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3.4) Provide stewardship information to adjacent landowners, conservation groups, the public, and local governments and sub-dividing authorities.

3.5) Encourage partnership and stewardship agreements (e.g., conservation covenants) between all levels of government, private landowners, and other stakeholders (e.g., local naturalist clubs, community associations) to protect wetlands.

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## Riparian Management Plan

Where a riparian management plan (RMP) is prepared for a watershed these plans will be prepared by a qualified registered professional as per the Forest Practices Code, including other professionals/experts to address fish, wildlife, and water attributes.

Intent:

- i) After completion, the riparian management plan will be submitted for review by the statutory decision makers (SDMs), including the Designated Environmental Official (DEO) where they are not an SDM.
- ii) The plan must be available for review by the public prior to being submitted for review.
- iii) Use the Interior Watershed Assessment Procedure (IWAP) definition for watersheds.

The riparian management plan is intended to provide guidance to the preparation of silviculture prescriptions (SPs) and forest development plans (FDPs). This plan must demonstrate how the following objectives are being achieved. This is not to be considered as an exclusive list of objectives - i.e., other objectives or attributes could be added on a site-specific basis if the qualified professional preparing the plan feels it is required.

a) Maintain healthy aquatic ecosystems.

b) Maintain natural water temperature regimes where fish may be affected.

Intent:

- i) This is not intended to require routine temperature measurements.
- ii) A range of strategies may be employed to achieve this objective including retaining trees to provide shade.

c) Maintain an adequate long and short-term supply of large woody debris (LWD) in the stream channel.

Intent:

- i) Short term: the 50 years immediately following forest harvesting.
- ii) Long term: the period between 50 and 150 years after forest harvesting. During this period a "new forest" will replace the harvested forest.
- iii) Adequate is to be determined by the qualified registered professional preparing the RMP.

d) Maintain stream bank and channel stability.

e) Minimize, where practicable, increases in sediment delivery into streams and wetlands resulting from development activities.

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f) Minimize, where practicable, increases in the supply of fine organic debris (FOD) into streams and wetlands resulting from development activities.

g) Address wildlife needs.

h) Address areas of high fish value.

Guidelines for preparation of RMPs are as follows:

a) The public will be provided with opportunities to review and comment on riparian management plans before they are submitted for review.

Intent:

i) Where the RMP is being prepared for a community watershed or a watershed where an IWAP is being prepared the watershed committees will be involved in the review of the plans.

ii) Opportunities for public review outside of community watersheds and other IWAP watersheds will ensure reasonable public notification of plan preparation and opportunities for review and comment. (e.g., advertised with 30 days response time, notification of stakeholders that have identified themselves to the licensee, available for review through the FDP review process).

b) The riparian management plan will identify polygons within the riparian management area with basal area retention levels.

Intent:

i) The achievement of minimum retention levels for stream types should be calculated by stream classification.

c) The riparian management plan may include the placement of wildlife tree patches, old growth management areas and portions of the "enhanced riparian reserves".

The effectiveness of the riparian protection provisions within riparian management plans and the objectives and strategies within this section will be evaluated and reviewed by the Implementation and Monitoring Committee after five years.

Intent

i) This review may result in the development of targets to guide the preparation of riparian management plans.

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**Table 1 - Best Management Practices for the Management Zone Adjacent to Wetlands and Lakes in the CDF, PP, BG, CWHxm, CWHdm, CWHds, IDFxh, IDFxw, and IDFxm Biogeoclimatic Units.**

- Manage windthrow risk to the reserve zone consistent with the section “Windthrow hazard management”.
- Retain at least 70% of the co-dominant conifers, having the characteristics described in “Options to reduce windthrow risk in the management zone”, and all deciduous trees concentrated near the reserve zone or near the wetland or lake edge, where no reserve zone is required, and/or in patches to buffer important wildlife features. Distribution of the specified retention levels may vary within the management zone to reflect site characteristics, stand conditions, windthrow hazard management, and wildlife habitat features. For example, sections of the management zone may have low retention if adjacent sections have full or high retention.
- Retain wildlife trees within the reserve zone of these wetlands by establishing safe work zones within the management zone. To the extent reasonable, retain wildlife trees either in patches or as single trees that are found in the management zone to help meet landscape level wildlife tree objectives (see “Wildlife trees in the reserve zone” and “Wildlife trees in the management zone”).
- Retain most non-merchantable conifer trees, understory deciduous trees, shrubs, and herbaceous vegetation within 10 metres of the reserve zone or within 20 metres of the wetland or lake edge where there is no reserve zone.
- Buffer important wildlife features such as major game trails, licks, denning sites, and moist understory habitats with vegetation, to maintain cover or visual screening.



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**Table 2 – Best Management Practices for the Management Zone Adjacent to Wetlands and Lakes in the ESSF, MS, ICH, MH, CWHvm, CWHmm, CWHms, CWHws, IDFdm, IDFdk1, IDFdk2 Biogeoclimatic Units.**

- Manage windthrow risk to the reserve zone consistent with the section on Windthrow management strategies.
- Retain at least 40% of the co-dominant conifers having the characteristics described in “Options to reduce windthrow risk in the management zone” and all deciduous trees concentrated near the reserve zone or near the wetland or lake edge where no reserve zone is required and/or in patches to buffer important wildlife features. Distribution of the specified retention levels may vary within the management zone to reflect site characteristics, stand conditions, windthrow hazard management, and wildlife habitat features. For example, sections of the management zone may have low retention if adjacent sections have full or high retention.
- Retain wildlife trees within the reserve zone of these wetlands by establishing safe work zones within the management zone. To the extent reasonable, retain wildlife trees either in patches or as single trees, within 10 metres of the wetland or lake edge where a reserve zone is not present, to help meet landscape level wildlife tree objectives (see “Wildlife trees in the reserve zone” and “Wildlife trees in the management zone”).
- Retain most non-merchantable conifer trees, understorey deciduous trees, shrubs, and herbaceous vegetation within 10 metres of the reserve zone or within 20 metres of the wetland or lake edge where there is no reserve zone.
- Buffer important wildlife features such as major game trails, licks, denning sites, and moist understorey habitats with vegetation, to maintain cover or visual screening.
- 50% or more of the wetland perimeter is to remain in a greened-up state.

## General Resource Management

In this section:

- Provisions for maintaining or enhancing the timber supply
- How to optimize opportunities for new initiatives to utilize fiber that is not currently being used

## Timber and Silviculture

### Introduction

*For more information on the economic contributions of the forestry sector refer to Section 4 of the Okanagan - Shuswap LRMP Socio-Economic and Environmental Profile report*

“Timber” refers to “timber harvesting” which is the practice of logging, or removal of trees from a site as raw material for forest products.

“Silviculture” refers to the practice of controlling the establishment and growth of trees (e.g., harvesting, planting, thinning etc.). The practice of silviculture includes timber harvesting.

These activities are planned for on a specific land base and with specific production targets. Government and industry organizations involved in these practices are often referred to as the “forest sector”.

The Okanagan - Shuswap forest sector plays an important role in the regional and provincial economies. The plan area accounts for over 4% of the provincial allowable annual cut (AAC), including the Timber Supply Area and Tree Farm License AACs.

The LRMP area encompasses the Penticton, Vernon and Salmon Arm Forest Districts, collectively managed within the Okanagan Timber Supply Area (TSA). Crown forest resources are managed as the Okanagan TSA, three tree farm licenses (TFLs), three Timber Licenses (TLs) and 62 Woodlot Licenses (WLs). The total land base of plan area is about 2.5 million hectares. Within the TSA, only about 65% of the 2.2 million-hectare land base is considered productive Crown forest. Forty-five percent of the land base is deemed to be currently suitable for harvesting operations (operable). The difference between the productive forest land and the timber harvesting land base is largely attributable to unmerchantable forest types and inoperable areas. The dominant tree species are lodgepole pine (31% of the productive forest land base); spruce-balsam (28%), wet-belt Douglas-fir (20%), dry-belt Douglas-fir (12%) and cedar-hemlock (9%).

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Timber harvesting in the plan area takes place on both Crown and private lands. Timber harvested on Crown lands account for the largest share, with the bulk of the Crown land harvesting occurring in the TSA.

On TSA lands, the Ministry of Forests (MoF) has primary forest management responsibilities. Companies may take timber from these lands pursuant to volume based licenses issued by the Ministry.

Tree Farm Licenses (TFL) give the license holder access to timber within the geographical area (including some private land) identified in the license. The license holder takes on greater forest planning and management responsibilities relative to a forest license (on TSA lands). There are three TFLs within the plan area.

The recent Timber Supply Review (TSR) maintained the AAC at 2,615,000 m<sup>3</sup>. This AAC is set for 5 years, beginning January 1, 1996.

## Forest Industry

The sector is composed of various industries, such as woodlands, forestry services, milling, and further manufacturing.

There are eight major sawmills (three of which also have plywood operations), about 100 small milling and breakdown operations, and five to ten pole/post-mills. The eight major sawmills (in six corporate groupings) account for over 95% of plan area's lumber production. Products are destined primarily for the North American market (80-90% of sales), as well as Japan and Europe.

Outside of the Lower Mainland, the Okanagan area has BC's largest number of wood manufacturers that further process sawn lumber into value added products (e.g., millwork, engineered building components, garden products, furniture etc.). Some are quite large, and the product profile is highly varied. It is estimated that there are some 85 independent value added manufacturers. Wood supply is a critical consideration for most or all of these operations. A number have entered into lumber trading arrangements with the sawmilling majors. Also, it is noted that the major licensees also are involved in value added production.

## Current Management

The Forest Act, the Forest Practices Code of BC Act and the Ministry of Forests Act regulate forest management. These pieces of legislation in combination with numerous guidebooks that provide additional policy direction dictate current forest management practices.

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## Issues

The largest issues facing the forestry sector related to the LRMP are security of timber supply and increased costs associated with managing for other resource values (e.g., forage for livestock, wildlife, etc.). Reductions to the timber harvesting land base result in the greatest impact on timber available for harvest. In addition constraints to harvesting such as reserve zones, buffer strips and green-up requirements impact timber supply. Increased costs are a major concern for the forest industry, which impacts its ability to compete in a global market.

## Goals

The overall goal is to maintain or enhance the sustainable supply of economically viable timber and minimize costs while maintaining environmental standards, and addressing other resource values.

## Objectives and Strategies

1) Maintain or enhance current allowable annual cuts (AAC) as determined by the Chief Forester for Tree Farm Licenses (TFLs) and the Timber Supply Area (TSA).

### Intent:

- i) This objective is not to fetter the Chief Forester's AAC determination.
- ii) It is recognized that the Chief Forester will consider all the objectives in the LRMP when making an AAC determination, in addition to the statutory requirements.
- iii) The outcomes of the studies on caribou, mule deer, etc., are not to be compromised by this objective.
- iv) This is not to be interpreted as the environmental sector support for an increase, maintenance, or decrease in the AAC.

### 1.1) Harvest by priority as follows:

#### Intent:

- i) There may be objectives and strategies for specific values (as identified in this document) that alter the harvest priority in specific areas, and this strategy needs to be integrated with those on a site-specific basis. For example, certain levels of pest infestation, windthrow, etc., may be determined to be within acceptable limits in riparian reserves, wildlife tree patches (WTPs), old growth management areas (OGMAs), or identified wildlife habitats.
- ii) Consider a harvest profile along with harvest priorities. The Chief Forester may provide specific direction.
- iii) Consider the profile requirements of the manufacturing facilities.

a) stands infected with forest pests having existing or high potential for spread and damage;

b) timber that has blown down, and timber that has been damaged or killed by fire, forest pests, or other similar factors before the wood significantly deteriorates.;

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c) stands at high risk of being damaged by forest pests;

d) oldest, declining timber (stands that have reached culmination age) on most productive timber sites, exclusive of OGMAs or other stands identified as important for wildlife habitat;

e) other timber.

Intent:

i) Other timber should be focused on the harvest profile, and stands older than culmination age.

1.2) Encourage rapid forest regeneration of previously forested sites within the timber harvesting land base with diverse ecologically appropriate and commercially viable species.

Intent:

i) Regeneration delay to be met as per "Guidelines for Tree Species Selection and Stocking Standards", and as approved in the appropriate silviculture prescription (SP).

1.3) Regenerate all suitable backlog not sufficiently restocked (NSR) areas.

Intent:

i) High productivity sites will have priority.

1.4) Encourage commercial thinning.

1.5) Enhance timber production through silviculture and management practices to increase stand yields and value.

Intent:

i) Examples of some of the management practices that could be considered include juvenile spacing to optimal densities, fertilization, pruning, etc.

ii) Where appropriate, focus research on the monitoring of these practices to determine the extent of increase in stand yields and value and implications to other resource values.

iii) When applying management practices to increase stand yields develop a monitoring and assessment plan to track progress and incorporate the principles of adaptive management.

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1.6) Encourage the rehabilitation of sites where fibre productivity could be enhanced.

Intent:

- i) Treat those stands with unacceptable productivity - i.e., over-stocked IDF, old balsam residual, and repressed pine.
- ii) Consider objectives for managing other resource values (e.g., old seral, connectivity, trapping, NDT4 stand structure objectives, etc.) prior to rehabilitation.
- iii) Includes roads and landings, where practical.

1.7) Encourage timber harvesting where it would benefit wildlife.

1.8) For the purpose of Section 68(5) and 68(8) of the Operational Planning Regulations (OPR), the height of green-up is 2 metres. For the purposes of Section 68(8)(b), the agreement of the DEO is required for wildlife and hydrological values such as riparian habitat. All other provisions of the FPC apply.

Intent:

- i) Ocular estimates instead of formal surveys may be used.
- ii) Where there is a disagreement about the ocular estimate of green-up, licensees are to follow the survey standards spelled out in the FPC.
- iii) This is not to address hydrological green-up.
- iv) This is not to contradict strategy 1.7 in the Riparian and Wetlands section.
- v) The DEO may initiate proposals to increase green-up under 68(8)(b) - e.g., ungulate security cover.

1.9) I identify new opportunities to utilize fibre that is currently not being utilized, subject to the AAC determination/apportionment/award procedures, CWD debris, and there being no significant impact on existing licensee allocations, operations and costs. I identify sites and undertake appropriate analysis of potential opportunities.  
(implementation)

2) When constructing new forest development roads, minimize, where practical, site disturbance that causes permanent withdrawals from the timber harvesting land base.

Intent:

- i) The intent is to keep as much of the productive land base growing trees as possible.

2.1) Encourage "Total Chance Planning" for forest road development.

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3) Maintain a diversity of tree spacing in managed forests.

3.1) Silviculture surveys are to incorporate sufficient flexibility to allow for variable tree distribution to the extent that timber yield is not significantly impacted.

4) Where practical, important range use related information must be incorporated into forestry operational plans.

4.1) Where practical, schedule timber harvesting to ensure a continuous long-term supply of transitory range is maintained for range tenure holders.

4.2) Ensure livestock management requirements associated with timber extraction and silviculture activities are considered when laying out cutblocks.

Intent:

i) For the rancher to receive forest development plan referral notices and be able to comment on things such as fencing, removal of natural barriers, obstacle planting, cutblock location etc. - i.e., for the rancher and timber licensee to work together proactively to avoid problems.

ii) This will not require additional riparian reserve retention and/or reserves.

## General Resource Management

In this section:

- How to provide opportunities for existing and future tourism industry development.
- Provisions for minimizing conflicts between user groups.
- How to maintain a diversity of tourism settings.

## Tourism

### Introduction

Tourism is a significant land use and economic generator in the plan area. According to the British Columbia Visitor Study there were nearly 10 million visitors to the Thompson - Okanagan Region (which includes the plan area) between April 1995 and March 1996. These visitors arrived from British Columbia, Canada, the United States and the rest of the world, and added over \$1.2 billion to the local economy.

*For more information on the economic contributions of tourism refer to Section 6 of the Okanagan - Shuswap LRMP Socio-Economic and Environmental Profile report*

Within the plan area almost 500 businesses are estimated to be directly dependent on tourism with many more deriving a portion of their income from tourists. These businesses offer a wide range of services and activities over the whole plan area through all four seasons. Tourism services and activities include: accommodations, houseboating, fishing, hunting, hiking, downhill skiing, winery tours, seasonal cottages, biking, guest ranches, cross-country skiing, water sports, snowmobiling, camping, wildlife viewing, motorbike and ATV riding, and horseback riding.

The demand for businesses offering tourism services and activities continues to grow. In fact tourism is one of the fastest growing economic sectors in British Columbia. With this growth comes the increased need for the diverse range of settings, in which tourism activities occur. Management of Crown land and water to maintain this range of tourism settings is a critical factor to the continued success of the tourism industry in the plan area.

### Issues

The major land and resource issue facing tourism in the plan area is the availability of a diversity of land and water settings in which existing and future tourism activities can occur. Settings important to tourism include backcountry areas where visitors can experience the natural landscape and wildlife of the plan area, lakes for boating and fishing, agricultural areas including vineyards, orchards and ranches, and communities.



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Scenery is a critical component of all tourism settings. Maintenance of scenic quality from travel corridors, communities, tourism facilities and use areas is very important to the continued success of the industry in the plan area.

In order to maintain a diversity of settings it is important to manage levels and types of use. As the demand for tourism and recreation activities continues to grow it is important to ensure that the level of use for a given setting is sustainable and to ensure that the types of uses are compatible.

## Goals

The goal of the tourism sector is a healthy and sustainable tourism industry in the plan area. This can be achieved by:

- Maintaining a diversity of tourism settings from frontcountry to backcountry;
- Maintaining or enhancing fish and wildlife populations including those that operators rely on for viewing and hunting/fishing; and,
- Provide opportunities for existing and future tourism development.

Visual quality is an important component of all tourism settings. The objectives and strategies guiding forest activities in visually sensitive areas, including tourism settings are found in the Visual Management RMZ section (Part 4).

Agri-tourism, which includes guest ranches, orchards and vineyards, is a very important component of the tourism sector in the plan area. Agricultural landscapes also provide a scenic backdrop for many frontcountry visitors. The Agriculture section (Part 3) contains objectives and strategies important to the agriculture industry.

Healthy fish and wildlife populations are also important to the tourism industry. They support guide outfitting, fishing lodge and wildlife viewing businesses and enhance the experience of many visitors. Objectives and strategies supporting fish and wildlife are found elsewhere in this document. They support guide outfitting, hunting, fishing, wildlife viewing, and related activities.

The majority of visitors to the plan area arrive by road and travel within the plan area by road. An efficient and effective transportation/highway network is therefore very important to the tourism industry. The Transportation section contains objectives and strategies regarding the transportation system in the plan area.

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## Objectives and Strategies

1) Provide opportunities for existing and future tourism industry development.

1.1) Manage Crown land foreshore to ensure opportunities exist for tourism and public recreation interests.

Intent:

i) Any development must be consistent with existing regulations, policy and LRMP direction regarding the protection of foreshore values (e.g. public access, fish habitat, etc.).

2) Reduce conflicts between commercial recreation operations and other resource users.

2.1) Ensure that commercial recreation businesses operating on Crown land have commercial recreation tenure.

Intent:

i) To assist in reducing conflicts between commercial operations and non-commercial recreation interests.

ii) Ensures environmental, aesthetic, and carrying capacity impacts are taken into consideration.

iii) By holding tenure on Crown land, commercial recreation operations ensure that their interests are considered in subsequent land use decisions.

2.2) Ensure proposals for new commercial recreation operations are evaluated in a timely manner, and in accordance with the LRMP.

2.3) BCAL and the Ministry of Small Business Tourism and Culture (MSBTC) should work with communities, the tourism industry, and recreation user groups to identify opportunities for commercial backcountry recreation (CBR) tenures.

2.4) Ensure commercial recreation operations tenured under the Land Act are part of the forest development plan (FDP) referral process, and included in the notice for referral.

Intent

i) The intent is that tourism operators tenured under the Land Act should be notified by letter of planned forest harvesting in the FDP in their area. Tourism operators do not need to be sent a copy of the FDP.

ii) The list is to be developed by having MSBTC provide the Ministry of Forests with a list of tourism operators, which will be passed onto the appropriate forest licensee.



## General Resource Management

In this section:

- How to maintain options for transportation corridors.
- Provisions for protecting and maintaining the role, function, and adequacy of primary and secondary highways.
- How to promote land use and transportation policies that reduce impacts of pollution (air, water, and land).

## Transportation

### Introduction

The established transportation infrastructure within the LRMP area has played a key role in moving goods and people to and from the area. For the tourism based and goods producing sectors, efficient rail and highway links to Canadian and US markets are mandatory to maintain competitiveness and economic viability. These links, as well as area airports, are of an imperative nature to the tourism sector. In addition, inter-provincial and international energy lines (covered in the Energy section), communication and transportation corridors cross the plan area serving other population centers.

This infrastructure predominately occupies rights of way through Crown and private land. The need to expand infrastructure in the future will be in response to a growing regional population, the economy, as well as population's needs outside the plan area. Existing corridors, their future expansion, and the development of new infrastructure corridors will be affected by a land use plan; especially where the protection of resource values precludes or restricts development.

### Provincial Highways

Primary highways in the plan area include Highways 1, 3, 97 (US border to Swan Lake Junction), 97A (Swan Lake Junction to Grindrod Junction), 97B, 97C. Secondary highways include Highways 3A, 6, 97 (Swan Lake Junction to Highway 1 at Monte Creek), and 97A (Grindrod Junction to Highway 1 at Sicamous).

The plan area's ongoing need for an adequate road transportation system is being addressed through the Okanagan Valley Transportation Plan (OVTP) and the Trans Canada Highway Corridor Management Plan. The purpose of these

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plans is to develop long range investment strategies linked to existing and forecast deficiencies.

Specifically, the OVTP will identify and assess options for future transportation corridors in the Okanagan Valley based upon land use requirements. The first phase of the OVTP, which was an assessment of the long-term transportation infrastructure, is complete. The strategy developed through the OVTP will provide guidance at the local level to monitor changes in land use as it impacts associated corridor segments and will also provide a mechanism to accommodate, or prevent, land use changes.

An investment strategy for the Trans Canada Highway is being developed based upon the needs and priorities identified in the corridor management plan.

## Issues

A land use plan can affect the future the need for and timing of transportation infrastructure requirements. If the zoning and guidelines in the plan are not compatible with existing or potential transportation corridors, the ability to develop the transportation system may be precluded or become cost prohibitive. Similarly, flexibility is required around existing and potential transportation corridors in order to allow impacts on other values to be minimized. As well, the land use plan can create additional demands for this infrastructure to access resource development area or new parks.

## Goals

The primary goals are to:

- Protect and maintain the role, function, and adequacy of primary and secondary highways.

Intent:

i) To coordinate land use planning on adjacent lands to ensure the role and function of highways are not compromised.

ii) To maintain tolerable performance levels.

iii) To ensure the highway transportation system is adequate to provide people and goods movements in support of the local, provincial, and national economies.

- Promote land use and transportation policies that reduce pollution and related impacts.
- Maintain opportunities for transportation corridor options that would meet long-term needs.
- Minimize, where practical, the impacts of corridor development on other resources and values (e.g., visuals, environmental, etc.).

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## Objectives and Strategies

1) Maintain existing transportation routes and utility corridors, and options for future corridors.

1.1) Respect requirements for minor right of way adjustments to accommodate transportation and utility improvements along existing routes.

Intent:

i) To recognize the need for flexibility for possible minor re-alignments, where existing routes are established, and are likely to require future improvements as a result of growth.

ii) This is not to override referral and approval processes at the project stage, but to recognize that the establishment of boundaries for protected areas, resource management zones (RMZs), etc. need to be flexible where they abut existing land uses.

1.2) Allow flexibility in land use management for integration and development of potential new corridors.

Intent:

i) As existing transportation routes reach capacity, safety or reliability limits, improvements may be required. In some cases new alternative corridors may warrant consideration. Many of these potential corridors have been identified at a conceptual level. In most cases they would be considered as long term options for implementation if warranted and justified through planning processes.

ii) This is not to override referral and approval processes at the planning and project stages.

1.3) Retain locations as identified on the "Potential and Future Highway Corridor" map for future transportation and utility corridors.

Intent:

i) This is not to override referral and approval processes at the planning and project stages.

ii) Not to promote the development of new corridors, but rather to maintain future options.

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1.4) Corridor development is to allow for sufficient mitigation/compensation so as to reduce impacts to other resource values.





Intent:

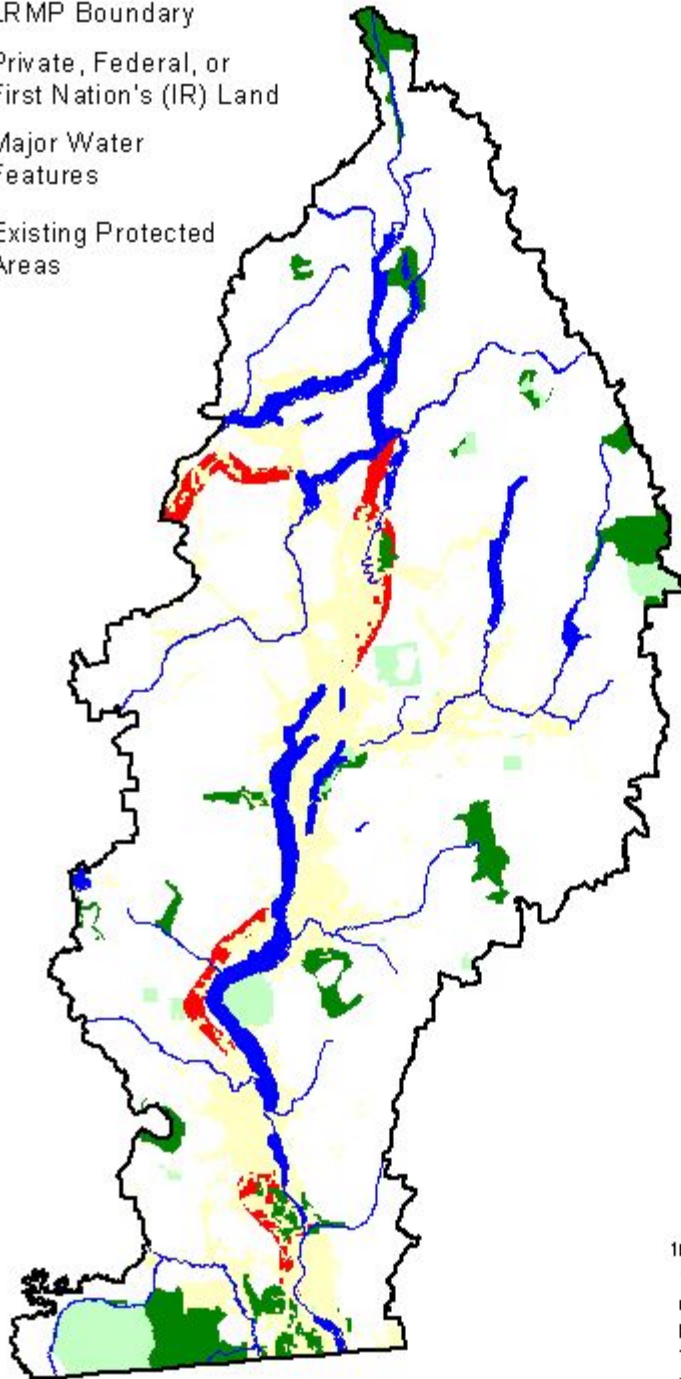
- i) Reduce the impacts of corridor development on other resources and values.
- ii) Where practicable, avoid areas of high environmental values.
- iii) Mitigate the impacts of development where possible.
- iv) Compensate for environmental losses where mitigation will not be effective.
- v) Includes construction and maintenance of fencing of highways, as per the Ministry of Transportation and Highways' responsibilities identified by Sections 8(1) and 8(2) of the Highways Act.


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## Potential Future Highway Corridor

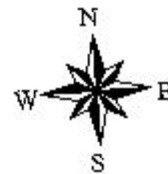
### Base Information

-  LRMP Boundary
-  Private, Federal, or First Nation's (IR) Land
-  Major Water Features
-  Existing Protected Areas



 Potential Future Highway Corridor

 Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

Created by the LMRP  
DATA MANAGEMENT  
TEAM - March 2001

File name: pot\_fut\_hwy\_cor\_2.jpg





## General Resource Management

In this section:

- The unique challenges in the trapping industry.
- How to better integrate forest development with trapping.

## Trapping

### Introduction

Trapping is dependent on Crown land and resources as these resources affect both the availability of animals harvested and the setting in which the activity occurs.

There are approximately 80 traplines in the LRMP plan area. These numbers do not include activity by First Nations peoples, who do not require licenses for trapping. Hence, the above statistics likely understate total trapping activity in the area.

### Issues

Trapping is a tenured and regulated industry with unique challenges in terms of integrated resource management. They include:

- **Communication** - Establishing formal communications with trappers can at times be very difficult due to the independent nature of their business and lifestyle. Many do not live in areas that enable subscriptions to newspapers or have the ability to review forest development plans (FDPs) within set timelines.
- **Industrial Impacts** - Forest development planning provides for public review of planned harvest. However, the timing of actual operations is not always stated. Unexpected road construction or logging operations can unintentionally destroy an individual's registered trap line creating a personal and sometimes, financial hardship. Occasionally, "sets" or traps are inadvertently damaged with compensation becoming an issue.

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- Access - Trapping is a tenured industry with unique challenges in terms of integrated resource management, as such has significant needs regarding access to Crown land to pursue its legitimate business. The trapping industry requires access to trap line areas at all times. The requirement for any additional permits, fees, licenses or insurance that may be required to operate within any designated areas (e.g., RMZs, parks or protected areas) would be an additional hardship to the industry.

It is recognized that most of these concerns are outside the scope of "on the ground" objectives and strategies. Therefore, in addition to the objectives and strategies that follow, please also refer "Policy Advice to the Provincial Government" section (Part 8) to see proposals to address these concerns.

## Objectives and Strategies

1) Manage the impacts of industrial activities on the integrity of trap lines and access trails used to maintain trap lines.

Intent:

i) The intent is for forest licensees and others to work with trappers to avoid trapline trail maintenance and use conflicts.

1.1) Registered trappers will provide trap line and trail locations to forest licensees for forest development planning purposes. This information will only be made available to authorized bodies operating on Crown land.

1.2) Where forest harvesting is planned on identified trap line trails, the licensee will re-establish reasonable snowmobile or ATV access at original locations, and mark trail exit and entry points to new cut blocks.

1.3) Where road development is planned on identified trap line trails, the licensee will either re-establish or relocate reasonable snowmobile or ATV access in a suitable and functional location.

1.4) When identified by the trapper, the licensee will take reasonable measures to provide safe and functional trail entry and exit points from snow plowed roads.

Intent:

i) To permit safe crossing of plowed roads for trap line access by snowmobiles.

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1.5) Improve communications and referrals within an integrated resource management context between the trapping industry and other resource users by: (implementation)

- The Ministry of Forests and Ministry of Environment, Lands and Parks are to initiate discussions with representatives of the trapping industry and the forest industry in the Okanagan TSA to initiate immediate and long-term measures to improve communication and referrals with trappers.
- Forest licensees and the Small Business Enterprise Forest Program (SBFEP) are to:
  - a) Hold annual communication processes, whereby forest development plans and detailed operating schedules are reviewed (the latter best planned during break-up).
  - b) Where the trapper has indicated the location of trap trails, he or she will be notified of any road construction or harvesting that would impact the trail.
- Trappers communicating potential issues to forest licensees and the Small Business Forest Enterprise Program upon review of the forest development plan.
- Forest licensees and the Ministry of Forests providing information regarding stand tending treatments impacting small mammal habitat (spacing, pruning, burning, etc.) to trappers with enough time for trapper concerns to be incorporated into stand management prescriptions.

Intent:

i) To ensure that communication occurs in a manner that prevents conflicts and recognizes the unique nature of the industry.

1.6) The Ministry of Environment, Lands, and Parks (MELP) will assist local trappers to communicate with each other.

Intent:

i) The BC Trappers Association will identify a contact person for each of the MELP regions (i.e., Regions 3 and 8), and make that information known to MELP.

ii) Upon notification of a change in trapline tenure ownership, MELP will include a form letter to be included with the tenure documentation that indicates the intention of the regional association and the BCTA contact.

iii) The BCTA will provide the form letter, including BCTA contact names, to MELP.

iv) To promote communication among trappers, and with other users of Crown land.

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2) Trapping on existing trap lines is an acceptable activity within the plan area.

2.1) Trap trails within Recreation RMZs will be posted during active trapping periods (mid-November to mid-December or mid-January).

2.2) Legally set traps will be resected due to safety and commercial concerns.

2.3) Recreation user groups and registered trappers will be consulted regarding any activities that affect each other's interests.

Intent:

i) Recreation user groups and registered trappers shall inform the MoF (Recreation Officer) of their use of any area, in order to facilitate communication between them.

2.4) Where concerns arise over trapping activities carried out in resource management zones (e.g., access), these should be addressed through appropriate mechanisms (e.g., discussions with the appropriate government agency, local planning forums, etc.).

## General Resource Management

In this section:

- How to manage surface water quantity and timing of flow to meet both instream and consumptive requirements.
- Provisions to protect and or enhance ground water quality and quantity.
- How to promote water conservation measures.
- Ways to manage the water resource to minimize the risk to life and property from floods, erosion, mass wasting and debris torrents.
- How to maintain and or restore the functional and structural integrity of streams, stream channels, lakes, riparian areas and aquatic ecosystems.
- How to manage the allocation and regulation of the consumptive and instream use of the water resource, both surface and ground water.
- Provisions to improve data collection, storage, and retrieval systems for stream flows, ground water levels, and water use for both surface and ground water.

## Water

### Introduction

The Okanagan - Shuswap LRMP recognizes water as a primary and fundamental resource. It is also a finite resource.

Water has been raised to a high level of importance by the Okanagan - Shuswap LRMP. Water is an essential resource that is available as surface or groundwater. Water is a crucial component of the plan area's ecosystems, as the lakes and rivers and riparian areas associated with these water bodies provide habitat and food for fish and many wildlife species.

The link between water quality and quantity and human activity is as inescapable as the link between water and all other aspects of nature. Human settlements demand a good supply of clean water for consumption, and the expanding population in the plan area has increased demands on this resource. As water is a finite resource, protecting the water resource and maintaining good water quality have the potential to impact regional growth and development.

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The plan area contains two major watersheds - the South Thompson system which flows into the Fraser River, and the Okanagan system which flows into the Columbia River. It also contains a portion of the Similkameen watershed. In both the South Thompson and Okanagan systems, the water resources flow from the headwaters of the river systems down through the valleys and end up in the major lakes of the Shuswap and Okanagan areas. As the water flows through both Crown and private land, the quantity and quality of water may be affected by the activities taking place on these lands at that location and further downstream, as activities in the uplands can impact water quality in the lowlands.

Differing conditions and use, and different issues for quantity and quality characterize these systems. Due to its semi-arid climate, the Okanagan Basin is virtually dependent on the runoff from winter snowpack at higher elevations. The Shuswap area is less dependent on runoff from snowmelt due, in part, to higher and more seasonally distributed precipitation.

**Water Quantity and Use** Water is available through either surface water or ground water, both of which are a Crown resource. In the plan area, the majority of the water used for drinking (domestic) in Salmon Arm, Vernon, Penticton and other communities is derived from surface water. However, the use of ground water is an important source for drinking (domestic), irrigation and other purposes in the Oliver, Osoyoos, Rutland and Coldstream areas. The Water Act regulates the use of surface water and activities within the streams; however, groundwater is not currently regulated at this time in the plan area.

**Supply and Allocation** The use of surface water is allocated and regulated by the Water Management Branch of the Ministry of Environment, Lands and Parks (MELP) through a water licensing system. At present, there are approximately 6,900 water licenses in the plan area, including 360 dam sites. Many of these dams are either constructed on Crown land or flood Crown land. They have altered the natural flow of water, and as noted in the Fish and Aquatic Habitat General Resource Management section may impact the fish habitat and populations within the plan area. Poorly designed and maintained dams also pose a potential risk to public safety; hence, they must be designed, maintained, and operated to protect public safety.

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## **Groundwater**

Groundwater is often chosen as a water supply where surface water is not readily available (insufficient quantity or water quality problems) or where the intended use, such as aquaculture, water bottling, etc., requires very constant and high water quality. A key element to protecting groundwater is managing development and resource use on the land within both the aquifers and their recharge areas. However, the information required to adequately manage aquifers is not comprehensive. Aquifer classification mapping is ongoing, with a focus on the Kelowna area.

## **Water Quality**

The fish, wildlife, human and industry users of the water resources not only rely on the presence of water, but require good quality water. A major concern related to water quality is sedimentation. Increased sedimentation within a water body can impact aquatic life, as it essentially smothers the streambed organisms that the fish depend on for food and it smothers the spawning habitat. Sedimentation can also infill streams, and water storage reservoirs and can adversely impact water quality and use. Nutrient loading is also a major concern.

## **Current Management**

Water licenses are issued under the authority of the Water Act. Limitations of the Water Act include no provision for ground water management, no requirements for instream flows, no consideration of water quality and little recognition of the need for water conservation and water management planning. Within the last year the Water Management office in Kamloops (which is responsible for the plan area) has added a planning section in order to be proactive in water management issues.

Groundwater remains unregulated. Work is continuing on legislative proposals to enable groundwater management in critical areas of the province where there are quality and quantity concerns.

The Forest Practice Code of BC Act also regulates management of riparian areas and community watersheds (which are dealt with as a polygon-specific resource management zone, or RMZ, in this plan). Other Acts affecting water management include the Fish Protection Act and the Federal Fisheries Act. Section 9 regulations of the Water Act set detailed standards for working in and about a stream.



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## Issues

A major issue in the plan area is the protection of the quantity and quality of the water resource in the watersheds of the plan area in the face of increasing population and development pressures, in conjunction with natural weather related phenomena. Some of the water-related issues result from natural causes. However, most are human-caused problems that have proven to have a serious and dramatic negative effect on the water resources and aquatic ecosystems of this region. There have been cumulative watershed impacts from forestry, agriculture, urban development and other land management practices.

Timber harvesting and road building in watersheds may have increased peak flows resulting in erosion, channel destabilization and sedimentation of streams. Loss of riparian vegetation has also resulted in erosion, loss of stream bank stability and sedimentation of streams. Urban development, which increases the amount of impervious surfaces in a watershed, can alter the hydrology resulting in higher peak flows that destabilize streams and impair water quality downstream.

The demand for water for consumptive uses has resulted in low instream flows in many streams that affect fish and other aquatic organisms. Unregulated groundwater use can exacerbate low surface flow conditions. Flow regulation below dams has altered the natural hydrograph impacting fish habitat downstream and disturbing important channel forming functions.

Run-off from a variety of sources can contribute sediments, excess nutrients and other contaminants affecting water quality. Uncontrolled stormwater discharges from settlement areas also degrades water quality, as can improperly functioning septic systems. Outbreaks of water-borne diseases have affected urban populations. From the little analysis that has been done, there are findings of unacceptable levels of pollution in lakes and streams. If not properly managed, livestock can add sediment, harmful bacteria, and parasites to drinking water sources. The volume of manure, the concentration of bacteria or parasites in the manure, and barriers to prevent the flow of this material into the stream are critical factors. Wildlife can also impact water quality.

In April 1999, the Auditor General released a report that is critical of how BC's drinking water resource is protected and managed. Protection is weakened by the lack of an integrated management approach, as currently seven provincial government ministries and two agencies share responsibility. More effective integrated resource management and planning is needed to achieve an appropriate balance of resource use and drinking water source protection to prevent or delay costly treatment needs in the future. The report also determined that current ground water management is inadequate.

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The Okanagan - Shuswap LRMP recognizes that there is an interaction between groundwater and surface water sources. As such, it is committed to supporting a comprehensive and integrated approach to managing water - both surface and groundwater - in its planning region.

Water doesn't respect boundaries. This LRMP recognizes that whatever measures are adopted to improve water quality and quantity on Crown lands must also be mirrored on settlement lands. As such, it makes recommendations aimed at encouraging policy and practice changes on non-Crown lands that reflect the spirit of this LRMP. One community group, the Salmon River Watershed Roundtable, is pressing for resource strategies to be implemented and monitored on a watershed basis.

## Goals

The following goals pertain to managing the water resource:

- Ensure that all work in and about streams, lakes, and riparian areas is undertaken in accordance with the Forest Practices Code of British Columbia Act, Water Act and regulations, the Fish Protection Act and regulations, the Federal Fisheries Act, the Mineral Exploration Code, and all other acts and regulations pertaining to the resource for which the work was undertaken.
- Manage surface water quantity and timing of flow and ground water sources to meet both instream and consumptive requirements.
- A hydrological regime that maintains stream and riparian processes.
- Protect and/or enhance both surface and ground water quality and quantity.
- Promote water conservation measures.
- Do not increase the risk to life and property from floods, erosion, mass wasting and debris torrents and protect ecosystem values.
- Maintain and or restore the functional and structural integrity of streams, stream channels, lakes, riparian areas and aquatic ecosystems.
- Manage the water resource on a watershed basis.
- Proactively manage the allocation of the water resource.
- Ensure that the surface and ground water resources will continue to provide a healthy, safe, and affordable supply of drinking water in the future.

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## Objectives and Strategies

*Also see objective 1 in the Agriculture section.*

1) Manage consumptive and instream uses of the surface and groundwater resource on a sustainable basis.

Intent:

i) Consider all uses (e.g., agriculture), including instream “values”, during water allocation decisions.

1.1) I identify all watersheds that support water licenses, and prioritize those ones that require or would benefit from water management plans to make the most effective use of the resource considering all values.

1.2) For the watersheds identified in strategy 1.1, the Ministry of Environment, Lands and Parks (MELP) is to undertake and implement water management plans on a priority basis.

Intent:

i) Management includes allocation or licensing decisions. They are to assist with being proactive with water license decisions instead of reactive to individual applications.

ii) Management plans could include plans to address conflicts among instream and consumptive uses, other resource plans, etc.

iii) To divide the LRMP plan area into planning units by watersheds or groups of watersheds.

iv) Concerns also include fish habitat, and restoration and rehabilitation opportunities.

v) An example of a water management plan is the Nile Creek to Trent River Plan dated January 1995, which was prepared by the Water Management Branch, Vancouver Island Region.

1.3) Restrict the issuance of larger and/or new water licenses in prioritized watersheds until water allocation management plans are complete.

Intent:

i) The intent is not to impede mine (i.e., “Notice of Work and Reclamation”) approvals.

ii) The intent is to become proactive, avoid over allocation in the future, and to reflect the priority that the LRMP Table places on water management planning in this region.

iii) “Restrict” may not mean “issue no licenses”.

iv) “Larger” would mean large, relative to the watershed.

v) “Prioritized watershed” does not mean only those watersheds which are already over allocated.

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1.4) Identify and prioritize locations for strategic flow monitoring stations, and ground water observation wells, to collect water quantity and water quality data.

Intent:

- i) To identify gaps in strategic monitoring stations.
- ii) To develop a baseline hydrometric network to collect data to support strategic and operational water management planning.
- iii) To explore opportunities to fill gaps in the network.

1.5) In cooperation with others, measure surface water quantity from flow measuring stations, and ground water quantity from observation wells. (implementation)

1.6) In cooperation with others, sample surface and ground water quality monitoring sites or wells, and use this data to determine appropriate management. (implementation)

1.7) Encourage and/or require all water users to keep records of water use and water quantity held in storage reservoirs, and submit these records, as requested, to the appropriate authority.

Intent:

- i) Where there is an identified water shortage or for the purposes of water management planning, records should be required (as per Section 22.01 of the Water Act).
- ii) To addresses licensed vs. actual use and impacts that the difference may create.
- iii) Estimates could be used in place of actual measurements (e.g., hour meter on a pump, with the use level determined by multiplying the number of hours the pump was running by the volume of water that it could pump).

1.8) The Ministry of Environment, Lands and Parks is to identify groundwater sources that provide an important contribution to instream flows.

Intent:

- i) Include as a component of water management planning.
- ii) These are to be identified through planning and other processes.

1.9) Where required, the Ministry of Environment, Lands and Parks should develop recommendations to protect groundwater.

Intent:

- i) Include as a component of water management planning.

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1.10) As much as is practical, avoid interruption or interception of groundwater sources that make an important contribution to instream flows.

1.11) The Ministry of Environment, Lands and Parks will encourage individuals to work collectively through organized user groups (e.g. "Water User Communities", "Improvement Districts", or other appropriate local government or water utility community water organizations) to manage their water supply (i.e., water use, maintenance and construction of works, etc.). (implementation)

Intent:

i) To address efficiency and accountability.

ii) This is not to imply that these water users are the sole group that can participate in the management of the water resource - i.e. non-consumptive interests will also have a role.

iii) This is to apply to both surface and groundwater users.

1.12) Inform and educate the public of the need for participation in water conservation measures. (implementation)

1.13) Develop public awareness of the need for stewardship of the water resource. (implementation)

1.14) Periodically review the Okanagan River system operating objectives for consistency with LRMP objectives. The current agreement in place (signed in 1982), which involved the federal Department of Fisheries and Oceans (DFO) among others, states the operating objectives and targets (lake levels and discharges through the system).

1.15) Continue to operate and maintain the Okanagan River system for flood control and other objectives (e.g., water supply, fish habitat, and recreation). (The system is currently operated with three levels of priorities: 1) the primary objective is flood control; 2) the secondary objectives are water supply and fisheries values; and, 3) a third level of objectives is accommodating recreation and other miscellaneous values. For reasons of public safety, MELP feels it is necessary to have the primary operation objective remain to be for flood control.)

2) Ensure instream flows for fish, fish habitat, and aquatic ecosystems are considered when making water allocation decisions.

Intent:

i) Water is critical for fish. Recognize that fish require more than minimum flows. Flushing flows, summer rearing flows, spawning, migration and winter flows are all critical for sustaining fish populations - i.e., a natural flow regime, or in regulated watersheds, a naturalized flow regime that mimics a natural

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hydrograph. Actions need to address not only future water management but also present conflicts.

ii) This is to be balanced with the requirements for water from the stream that are critical for agricultural needs.

2.1) Manage water for instream uses, including fisheries, to provide adequate flows during all seasons.

Intent:

i) The amount of water required may vary depending upon the point in the life cycle of the fish.

ii) Instream uses means aquatic vegetation and other aquatic life.

2.2) The Ministry of Environment, Lands and Parks will encourage water licensees to create flow management plans for water storage reservoirs, which recognize instream and consumptive use requirements.

Intent:

i) Plans should include changes in quantity, and timing of instream flow/releases downstream of storage structures. These should be encouraged in areas where water management plans are not in place.

ii) To mimic a natural hydrograph.

iii) Water release schedules for fish and fish habitat should be a component of the plan.

iv) A requirement for flow management plans should be included as a condition for any new licenses.

2.3) Conserve instream flows by canceling unused licensed quantities.

Intent:

i) This is provided in current legislation.

ii) Licensees are required to be notified of the intent to cancel prior to the cancellation of the license. This notification gives the licensee the opportunity to show cause why the licence should not be cancelled. They can then provide information regarding their past, present and future use of the rights authorized in the licence prior to the statutory decision makers (SDM) adjudication of the cancellation.

iii) Unused quantities are to be managed as per objective 1.

2.4) The Ministry of Environment, Lands and Parks, in cooperation with other water users, may initiate monitoring programs in streams where water use impacts fish and fish habitat to identify overuse, unauthorized use, and non-beneficial use of water. (implementation)

Intent:

i) Ultimately, "excess" water is to be returned to instream uses.

ii) If after "excess" water is added back to the system, additional water licenses may be considered as long as instream requirements are met.

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2.5) Encourage voluntary reductions in allocated quantities.  
(implementation)

Intent:

i) Any returned water is to be used for conservation uses, particularly if instream needs have not been met.

2.6) Promote conservation strategies, which reduce the amount of water required for irrigation, commercial and domestic use. (implementation)

2.7) Where required, include clauses in new water licenses to make consumptive use under the license, subject to instream flow requirements during specified low flow periods.

Intent:

i) To provide base flows for aquatic life.

2.8) Review storage opportunities where appropriate to supplement lows flows or replace instream consumptive demand.

2.9) For fish bearing water sources, screens shall be constructed and maintained as specified by Department of Fisheries and Oceans screening directives. This should be written in a condition of license.

2.10) Encourage diversions for consumptive use from mainstem lakes and rivers rather than upland tributaries.

3) Maintain the integrity of the hydrometric inventory system (e.g., buffering snow courses and stream gauging stations).

Intent:

i) To maintain an undisturbed area around the measuring station. This is particularly important for snow measuring stations.

ii) For stream gauges it is important to have an undisturbed stream channel at the gauging station and upstream of the site.

iii) To prevent harvesting, road construction or other resource activities in these areas, except where needed to address forest health concerns.

iv) To maintain flow measuring stations in/adjacent to individual streams, and prevent damage to site and equipment from other resource activities.

v) The size of the reserve or buffer is site specific.

vi) When establishing new snow courses the Ministry of Environment, Lands and Parks and others will consider locating them in protected areas and/or the non-contributing forest land base.

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3.1) Establish suitable “buffers” around snow courses, snow pillows, and stream gauging stations to prevent impacts from other activities.

Intent:

- i) The Ministry of Environment, Lands and Parks or other responsible agencies are to be consulted regarding any proposed minor alterations to the “buffers” to address forest health issues.
- ii) To protect the integrity of the data being collected while reducing the impact to other forest related activities.
- iii) There may be rare circumstances where a treatment within a buffer may be desirable to address a forest health issue that threatens the utility of the snow course, snow pillow, or gauging station, or the integrity of the buffer (e.g., heavy blowdown, spruce and fir blowdown, and bark beetle infestations)
- iv) To be worked out cooperatively between the resource agencies and the licensees.

3.2) In cooperation with others, continue to collect data, review, update, and maintain the snow survey network to measure snow packs in key watersheds. (implementation)

4) Achieve and maintain properly functioning conditions of streams including the timing and magnitude of flows.

Intent:

- i) Maintain natural drainage patterns to assist in attenuating peak flows to prevent destabilization of stream channels, the associated deterioration of instream habitat, and prevent downstream flooding.
- ii) Maintain the hydrograph to within the range of the evolved channel capacities downstream.
- iii) Maintain the low flows to within the range of the current licensed demand so that the situation gets no worse than which exists at present. It is a conservative approach that provides options for future demands and uses.
- iv) Ensure that construction activities, primarily roads and trails, do not disrupt natural drainage patterns leading to erosion, mass wasting, and debris torrents.

4.1) Manage forest harvesting so that spatial distribution of cutblocks (i.e., aspect and elevation) and the harvesting techniques supports the properly functioning condition, including the timing and magnitude of flows.

Intent:

- i) To use the Interior Watershed Assessment Procedure (IWAP) process where possible and equivalent clearcut areas (ECAs) to meet this strategy.
- ii) In watersheds without IWAPs, use current management practices under the Forest Practices Code to achieve this strategy.



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4.2) Maintain natural drainage patterns in both the planning and operational phases of developments.

Intent:

- i) To attempt to mimic the natural drainage patterns that existed prior to the development for site alterations affecting local drainage (e.g., in road construction).
- ii) To avoid the incremental and cumulative impacts in watersheds of minor diversions of water to small streams which would destabilize their channels, or alternatively, away from small streams which would deprive them of flows by diverting intercepted flows elsewhere.
- iii) To prevent slope saturation and accelerated erosion, or alternatively, to maintain relatively normal ground water recharge.
- iv) Culvert placement to be guided by FPC regulations and guidelines for road building and deactivation practices.

4.3) Develop and implement site specific restoration measures to accelerate natural recovery processes.

Intent:

- i) Restoration measures include hill slope stabilization replanting riparian areas, livestock fencing, replacement of large woody debris (LWD), rehabilitation of off channel habitat, and bank stabilization. Design projects for ecological restoration - i.e., returning the channel as much as possible to pre-disturbance conditions and functions.
- ii) Determine the cause of channel disturbances, and ensure that it has been rehabilitated (hill slope impacts) before habitat restoration work is implemented.
- iii) Restoration should aim to return "aggrading" and "degrading" conditions to the stable condition.
- iv) To develop and implement restoration measures to enhance fish populations through the Watershed Restoration Program, the Fish Renewal BC program, and other similar programs.
- v) Planning and funding for restoration projects should take both construction and ongoing maintenance needs/costs into consideration when evaluating projects.

4.4) Where quantity and timing of flow issues are identified in the IWAP, the statutory decision-makers should consider the need for long-term plans (e.g., Total Resource or Total Chance Plans.)

Intent:

- i) The ECA and cutblock location is not to unacceptably affect peak flow timing.
- ii) Payable by a combination of FRBC funding and forest licensee.

4.5) Promote stream stewardship with private landowners along banks and shores.

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## Water Quality

5) Manage for good water quality as indicated by levels of turbidity, temperature, sediments, and contaminants.

Intent:

i) Contaminants refer to oil, pesticides, fertilizers, etc. and not to vegetation.

5.1) Encourage agencies and local governments involved in the disposal of stormwater and wastewater management to develop and utilize best management practices.

5.2) Control non-point sources of water pollution (e.g., from storm water and agricultural run-off, road building, livestock congregation, etc.) and sedimentation through best land management practices.

Intent:

i) To provide water quality protection through improved land management practices.

ii) It is achieved by following current regulations, and referring to appropriate guidelines for suggestions on how to achieve this strategy (see Table 1).

5.3) The Ministry of Forests (MoF) and the Ministry of Environment, Lands and Parks (MELP) will prepare and update annually, a list of watersheds where IWAPs are mandatory under 14.1 of the Operational Planning Regulation (OPR), and a discretionary priority list by forest district based on watershed sensitivity that are candidates for IWAPs.

Intent:

i) "Discretionary" means to do these as funding and resources become available (e.g. FRBC).

ii) The IWAP discretionary priority list will be developed using information such as: the Watershed Assessment Model Total Ranking, known watersheds with issues, watershed ECA of 20%, flood plain development, future forest harvesting, road density, proposed road length, etc.

iii) MoF and MELP to jointly agree to the list. It is anticipated that hydrologists from both ministries may be involved in developing or reviewing the list including DFO and other agencies as required.

iv) The District Manager and Designated Environmental Official are to consider this list when identifying watersheds to be added to the mandatory list for IWAPs.

v) Updated lists will be made available to the Implementation and Monitoring Committee as part of the annual report that is provided to this group.

vi) Use a cumulative watershed impact assessment to guide future resource development in watersheds and/or sub-drainage.

vii) Intent is to promote hydrologic stability and recovery.

viii) Examples of activities pursuant to this strategy could include harvest

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and road building restrictions, road deactivation, stabilization of upslope areas, and revegetation of riparian zones.

ix) The intent is that IWAP recommendations will provide direction for remedial and/or restoration activities under the Watershed Restoration Program (WRP).

x) It is intended that high value fish streams and high use domestic watersheds are to be given priority for assessment. This will be balanced with risk factors to determine an overall priority for assessment.

xi) Develop an implementation plan based on risk to determine a schedule for undertaking IWAPs. (Risk factors to be considered include watershed sensitivity, proposed development and past development.)

xii) The intent is that the "discretionary" IWAPs will be completed over the next ten years.

xiii) A set of criteria needs to be developed to aid in establishing priorities for undertaking IWAPs. (implementation)

5.4) Any resource use development activities in Class 1 and 2 "High Use Domestic Watersheds" may require professional on-site assessment prior to road building, or any other resource development activity which could significantly impact drainage patterns, to ensure sub-surface and surface drainage patterns are maintained.

Intent:

i) It is assumed that compliance with the existing Forest Practices Code Forest Road Regulations will satisfy this strategy.

ii) "Significantly impact" should be determined on the basis of whether or not it may impact water quality and quantity.

5.5) Upon completion of an assessment, implement procedures to rehabilitate negatively impacted watersheds on a priority basis.

Intent:

i) To direct FRBC and other funding sources priorities.

ii) The licensee will be responsible for their legal obligations

iii) This does not exclude implementing procedures on private land with the agreement and cooperation of landowners.

iv) Examples of activities pursuant to this strategy could include harvest and road building restrictions, road deactivation, stabilization of upslope areas, and re-vegetation of riparian zones.

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5.6) Ensure IWAPs include recommendations that address attributes in Table 2.

Intent:

- i) To be applied to IWAPs on all fish streams, in particular those indicated on the “Water – Special Fisheries” and “DFO Watersheds of Concern” maps and those streams with water licenses for domestic consumption.
- ii) The Fisheries Act would still prevail, and this is not intended to counsel an offense under the Fisheries Act.
- iii) Identified measures to achieve the attributes will be implemented within a reasonable time period. Reasonable time means either addressed in the forest development plan or when a substantial commitment is made and implementation occurs before impacts manifest themselves (e.g., machines are on site for both the development and restorative works)
- iv) There will be some situations where attributes have been impacted, but it would be appropriate to leave the stream to recover on its own without human intervention - e.g., riparian re-growth. Approval of operational plans could still occur as long as the attribute was not further impacted.
- v) Where attributes are impacted by a natural event that was not induced by human activity there is no expectation that the forest licensee must address the problem before approval will be given to the development. Forest developments must not exacerbate the problems associated with natural events.
- vi) Fish streams on the “Water – Special Fisheries” and “DFO Watersheds of Concern” maps, should be managed for low levels of suspended solids
- vii) IWAP recommendations should be supported by a rationale (i.e., a hydrologist’s professional opinion) that explains how attributes are achieved, or if they are not achieved, why that is the case.
- viii) In order to meet the attributes does not imply that they necessarily have to be measured.
- ix) Attributes concerning water quality for human consumption will be provided to the IWAP proponent by the water purveyor or consumer if available.
- x) The intent is not for the IWAP proponent to monitor their water quality for human consumption attributes on an ongoing basis.

5.7) Monitor the results of rehabilitation procedures.

Intent:

- i) Monitoring is to be the responsibility of MoF and/or MELP.

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5.8) Watershed Advisory Committees for the IWAP process are to allow for additional members where they can contribute either local knowledge or technical information for the IWAP - e.g., trappers, range users, riparian landowners, local elected officials (or designated representatives), licensed water users.

Intent:

- i) The Watershed Advisory Committee has four main tasks:
  - To identify issues and provide background information to the hydrologist conducting the watershed assessment.
  - To review the hydrologist's report to check that the information provided and issues raised by the committee during technical meetings have been addressed.
  - To provide recommendations to the prescribing forester based on the hydrologist's report and on any other additional information. All recommendations must be by consensus, and exceptions and reasons for disagreement noted. Recommendations to protect watershed values are to be addressed in the forest development plan, unless a rationale is provided. All of this information will be provided to the District Manager. (This is consistent with current practice.)
  - Provide recommendations to the District Manager and prescribing forester on further impact assessments that may be required (e.g., detailed channel assessments).
- ii) Additional members to the Watershed Advisory Committee are added at the discretion of the chair.

5.9) Encourage all water licenses to construct works to provide screening, settling tanks or filters, and storage appropriate for the licensed quantity and the source of supply.

Intent:

- i) To put some onus on the water licensees to have works that will adequately deal with natural conditions (e.g., sedimentation) to deliver a clean supply of water.
- ii) It does not mean that other resource users are now free from their obligations.
- iii) The provision of storage tanks will allow for a uniform rate of diversion from the source to benefit downstream flows.

5.10) Road deactivation or other measures should be prescribed to reduce impacts to water quality. (See the road deactivation portions of the Access Management section.)

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5.11) Where disturbance occurs during development that is likely to cause erosion, and/or sediment delivery to streams, undertake sediment control concurrent with development activities or as soon as practicable.

Intent:

- i) One way of achieving this strategy is to use practices identified in the appropriate Forest Practices Code regulations (e.g., Operational Planning Regulation, Forest Road Regulation, Timber Harvesting Practices Regulation).
- ii) This is to apply to non-forest and range development activities as well.

5.12) Where stream channel stabilization problems are identified (through an Interior Watershed Assessment procedure or other assessment procedure), monitor stream channel changes.

Intent:

- i) Use the channel assessment procedure guidebook as a means of assessing channels
- ii) Responsibilities should be allocated according to specific situations (e.g., IWAP recommendations, causes, compliance and enforcement issues, etc.)

5.13) All mechanical equipment working in streams, lakes and wetlands must be clean and well maintained and encourage the use of biodegradable hydraulic fluids.

Intent:

- i) Service and maintain all machinery that is required to work in or near the high-water mark to prevent leaks of fuel, lubricants and hydraulic fluids.

5.14) The Ministry of Environment, Lands and Parks will encourage construction of joint intakes and water supply systems (works) where feasible.

5.15) When locating joint intakes or new intakes, ensure consultation with range tenure holders.

5.16) To implement management practices which ensure minimal risk of livestock contributing harmful levels of parasites or harmful levels of bacteria to streams.

Intent:

- i) Address this concern through range use plans. Focus on good livestock husbandry on the home ranch.
- ii) Continue with education of ranchers, providing herds with supplemental minerals to avoid deficiencies often associated with scour outbreaks.
- iii) Do not allow young calves with scours onto rangelands. The concern is that young scouring calves may shed high levels of giardia and/or

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cryptosporidium leading to contamination of surface water and resulting cryptosporidiosis and giardiasis. Ranchers are encouraged to ensure calving occurs on clean ground and to continue moving newborn calves to clean feeding areas to avoid risk of infection.

iv) When a problem is identified it is expected that action will be taken.

5.17) Ensure that sewage treatment plants, recreational users, etc are not contributing harmful levels of parasites or harmful bacteria to the streams at any time.

5.18) Initiate the collection of baseline data, with a priority in undeveloped watersheds/sub-drainage determined to be third order basins or greater.

Intent:

i) At a minimum, this baseline data should include flow, turbidity, fecal coliform, temperature, suspended sediments and pH.

ii) Flow data may include freshet flows, peak flows, late summer flows, and low winter flows.

iii) This data will be useful in determining water quality objectives and will assist the proponents in planning the development in the sub-basin and other watersheds.

iv) Seek outside funding where applicable and encourage a cooperative funding strategy with industry proponents and other stakeholders.

v) FRBC funding for this should be considered a relatively high priority

vi) Preference should be given to intensive short-term sampling over the hydrograph sufficient to characterize representative water quality data.

vii) Water quality data should also focus on periods that follow intense rainfall events.

5.19) Avoid degrading water quality and quantity where proposed developments have the potential to impact domestic water supplies outside of community watersheds.

Intent:

i) Refer to Section 15 of the FPC Community Watershed Guidebook, for potential strategies to protect water quality.

ii) Particular attention should be paid to water licenses that are spring fed.

iii) This strategy recognizes the importance of watersheds that provide water for domestic consumption.

iv) For forest development it is assumed that by following the Forest Practices Code and LRMP that this strategy will be met.

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5.20) Establish ongoing communication between proponents and water licensees, beginning in the preliminary stages of planning. Where there are more than six users, seek a representative to serve as a contact person for ongoing communication.

Intent:

- i) Licensed water users of springs should provide location of springs to proponents.
- ii) To provide any information that would help the proponent to protect the water supply.

5.21) Identify spring fed sources for licensed users and consider them as "known features" under the Forest Practices Code

Intent:

- i) Water licensees should provide the Designated Environment Official and Forest District Manager information on the location of springs so they can be identified as "known features".

5.22) All resource development plans (e.g., silvicultural prescriptions) will document and map the location of licensed water intakes and works within the area proposed for development. (e.g., cutblocks, road right of way).

Intent:

- i) Community watershed intakes would be on forest development plans.
- ii) MELP is to provide this information.

5.23) Investigate all complaints dealing with water quantity in a timely manner. (implementation)

5.24) Water quality concerns should be documented in a standardized format and investigated by the appropriate authority. (implementation)

Intent:

- i) MELP/Ministry of Health responsible.

5.25) Promote broad and detailed communication among resource agencies and resource users regarding developments, which affect their interests. (implementation)

- Notify tenure holders, riparian owners and decision-makers of proposed developments that may affect their interests.
- Hold public information meetings (two-way communication).

Intent :

- i) Does not mean a public review/planning process.
- Encourage watershed round tables.



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- Encourage ongoing communication throughout the various phases of the development, including post-completion.

Intent:

- i) Strengthen the public/community role in local resource management decisions.
- ii) Encourage approving agencies to work cooperatively.

6) Minimize risk to life and property from floods, erosion, mass wasting, and debris torrents.

6.1) Identify and prioritize mapping for the 200-year flood level on floodplains.

6.2) The Ministry of Environment, Lands and Parks, in cooperation with others, will identify and map alluvial fans.

Intent:

i) "Others" may be considered to be other levels of governments such as the federal or local governments, or other provincial agencies such as the BC Assets and Land Corporation (BCAL) or the Ministry of Energy and Mines (MEM); developers of land, or property owners. It is not an exclusive or inclusive list as, from time to time, there may be a need to partner with different groups for their mutual benefit in meeting this objective or various regulations.

6.3) When alienating Crown land prone to flooding, minimize risk to life and property by applying appropriate restrictions on development/use.

Intent:

i) Apply the Ministry of Environment, Lands and Parks floodplain development control policy.

6.4) Utilize both structural and non-structural measures to prevent damage resulting from the occurrences of these flooding events, and mitigate the impacts on other resources fish and downstream values.

Intent:

i) Examples of structural measures are riprap and groins.  
ii) Utilize non-structural and low impact methods (fish friendly) of flood control that minimize impacts on natural habitats.

6.5) Encourage and/or require all owners (licensees) of water storage structures to develop emergency preparedness plans and deposit the plans with appropriate government agencies.

Intent:

i) Ensure that all water storage structures remain safe through inspections, emergency preparedness plans, etc.  
ii) To utilize the Ministry of Environment, Lands and Parks dam safety sections, hazard-rating system to identify the hazard level and to

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indicate the level of action required for the protection of these structures. Where there is a high hazard, these emergency preparedness plans should be required.

iii) To utilize the dam safety regulations for this purpose when they are implemented.

6.6) Identify and establish floodways and greenways in settlement areas to reduce the risk and impact of flooding and erosion. Implement in cooperation with other planning processes, wherever possible. (implementation)

6.7) In the course of their licensed use(s), water storage reservoirs must be operated and maintained with a primary consideration for safety from structural failure.

6.8) Review the flood forecasting system and snow survey network to provide advanced flood warnings for important smaller watersheds, as well as major river systems. (implementation)

7) Maintain the quality and quantity of ground water.

7.1) Complete the aquifer classification mapping program for the plan area, and maintain and update this list as required. Advise local governments of the availability of this information for planning purposes. Produce guidelines for use of aquifer classification mapping and local planning. (implementation)

7.2) Protect the quantity and quality of water in vulnerable aquifer areas shown on the "Aquifer Vulnerability" and "Aquifer Demand" maps from incompatible development, and use/activities.

Intent:

i) To sensitively manage land and resources on the recharge area.

ii) To work with local governments to manage land use and resource extraction.

iii) Includes the recharge area.

iv) To protect the quantity and quality of this vulnerable and valuable resource by providing for infiltration over a dispersed area; limiting increases in impermeable areas; and, preventing groundwater pollution by directing groundwater polluting activities away from recharge areas of community wells. Forest practices would not normally affect ground water. However, fuel storage sites, maintenance yards, and parking lots may have affects.

v) Incompatible development is defined as any type of development that would likely result in negative impacts to a specified resource value.

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7.3) Promote land use compatible with the objective in both provincial and local government activities.

Intent:

- i) To work with local governments to manage land use and resource extraction compatible with the objective.
- ii) To incorporate this objective into lower level land use plans.
- iii) To protect the quantity and quality of this valuable and vulnerable resource by providing for infiltration over a dispersed area and preventing groundwater pollution by directing potentially polluting activities away from recharge areas.
- iv) To be carried out by MELP, Water Management Branch.

7.4) Aquifer protection plans should be developed for all aquifers that are highly vulnerable, especially for those aquifers that are also moderately to heavily used or have documented health related water quality concerns. Well protection plans should be developed for community wells especially in highly vulnerable aquifers.

Intent:

- i) This will include identifying recharge areas and land use activities that may be incompatible with maintaining the quality and quantity of the aquifer. Forest practices would not normally affect ground water. However, fuel storage sites, maintenance yards, and parking lots may.
- ii) MELP (including the Groundwater Section) would encourage development of such plans, and provide technical assistance where required.
- iii) I nclude known and specific problems: the aquifers at Kalamalka Lake, in the area southeast of Armstrong, at Tug-ul-nuit Lake - Osoyoos Lake, and at Tug-ul-nuit Lake to Vaseux Lake. (Aquifers in the Kelowna area are currently being mapped and classified.)

7.5) Sustained capacity should be estimated for all aquifers that are heavily used as indicated on the "Aquifer Demand" map.

7.6) Potential and documented areas of surface water-groundwater conflicts should be identified and strategies developed in those areas to resolve such conflicts. (implementation)

Intent:

- i) This might be done by comparing the "Aquifer Level Of Use" map with the "Water Allocation" map.
- ii) Guidance is provided in the "Evaluating Long-term Well Capacity for Public Convenience and Necessity - A Guidance Document".

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7.7) Observation wells should be established and maintained in critical aquifers in the LRMP area to monitor baseline groundwater conditions, starting with all "IA" aquifers.

Intent:

- i) Ensure monitoring of the most important aquifers in the LRMP area to detect any degradation that may be occurring.
- ii) Observation wells can be established in partnership between the provincial government and regional districts, municipalities, and communities.

7.8) The Ministry of Environment, Lands and Parks, in cooperation with others, should implement ground water monitoring programs for both quality and quantity for those water supply systems that have a dependency on ground water, or where there are conflicts between surface and ground water users. Where there are existing or potential problems, develop and implement recommendations without delay.

7.9) Promote public education about the importance of the groundwater resource and need to protect it by establishing roadside displays, sending brochures to residents, promoting shows on groundwater in the local cable channel (e.g., air the recently completed "[www.groundwater.protection](http://www.groundwater.protection)" video).

Intent:

- i) Raise awareness about the local groundwater resource.

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**Table 1: Examples of Selected References and Guidelines for the Protection of Fish, Fish Habitat, Riparian Habitat and Water Quality**

Agriculture and Agri-Food Canada and BC Ministry of Agriculture, Fisheries and Food. No date. *Farms and Streams: The Farmers Guide to Stream Stewardship*.

Chilibeck, B., G. Chislett, and G. Norris. 1992 *Land Development Guidelines for the Protection of Aquatic Habitat*. Fisheries and Oceans Canada, Vancouver, BC and Ministry of Environment, Lands and Parks, Victoria, BC

Dane, B.G. 1978 *Culvert Guidelines: Recommendations for the Design and Installation of Culverts in British Columbia to Avoid Conflicts with Anadromous Fish*. Fisheries and Marine Service Technical Report No. 811. Fisheries and Oceans Canada, Vancouver, BC

Fisheries and Oceans Canada and BC Ministry of Environment, Lands and Parks. 1994. *Stream Stewardship: A Guide for Planners and Developers*.

Fisheries and Oceans Canada and BC Ministry of Environment, Lands and Parks. 1995. *Marina Development Guidelines for the Protection of Fish and Fish Habitat*.

Fisheries and Oceans Canada and BC Ministry of Environment, Lands and Parks. 1996. *Community Greenways: Linking Communities to Country, and People to Nature*.

Fisheries and Oceans Canada. 1997. *Watershed Stewardship: A Guide for Agriculture*.

Fraser River Action Plan (Fisheries and Oceans Canada) and BC Ministry of Environment, Lands and Parks. 1996 *Access Near Aquatic Areas: A Guide to Sensitive Planning, Design and Management*.

Samis, S.C., M.D. Nassichuk and B.J. Reid. 1991. *Guidelines for the Protection of Fish Habitat During Bridge Maintenance Operations in British Columbia*. Canadian Technical Report of Fisheries and Aquatic Sciences No. 1692. Fisheries and Oceans Canada, Vancouver, BC

Ministry of Employment and Investment. 1997. *Health, Safety and Reclamation Code for Mines in British Columbia*.

Ministry of Energy and Mines. 1998. *Mineral Exploration Code*.

Ministry of Energy and Mines. 1998. *Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in BC*

Ministry of Energy and Mines and Ministry of Environment, Lands and Parks. 1998. *Policy for Metal Leaching and Acid Rock Drainage at Minesites in BC*

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Ministry of Transportation and Highways. 1995. *Reclamation and Environmental Protection Handbook for Sand, Gravel and Quarry Operations in BC*

Montana Bureau of Mines and Geology. 1993. *Montana Placer Mining Best Management Practices*, Special Publication 106.

There are also a variety of Forest Practices Code guidebooks that relate to water that are not listed here (e.g., Riparian Management Area Guidebook, Interior Watershed Assessment Procedure Guidebook, etc.).

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**Table 2: Attributes to be Addressed by IWAPs**

## 1) Sediment

The degree of risk to a fishery caused by suspended sediment may be divided into four arbitrarily defined categories based on a range of concentrations, where ambient SS exposure is ongoing or repeated each successive hydrological cycle. Where exposure is occasional or not continuous it is necessary to assume that at least one life history phase is harmed, and that harmful exposures recur annually:

- a) Waters with <25 mg/SS/L should support excellent fisheries; however, the best trout streams are characterized by clear water with <5 mg SS/L for most of the hydrological cycle.
- b) It should usually be possible to maintain good or moderate fisheries in waters that normally contain 25 to 80 mg/L suspended solids;
- c) Waters that normally contain 80 to 400 mg/L suspended solids are unlikely to support good freshwater fisheries, although fisheries may sometimes be found at the lower concentrations in this range;
- d) At best, only poor fisheries are likely to be found in waters that normally contain more than 400 mg/L suspended solids.

## 2) Peak Flows

- Maintain the hydrograph peak flow and return periods within the range of the evolved natural channel capacity downstream.
- Maintain timing of the rising and falling limbs of the hydrograph and the base flow component of the hydrograph within the normal range.

## 3) Riparian

- Vegetation functions to dissipate energy associated with freshet flows, filters sediment from the uplands, captures bedload (CWD), provides floodwater retention. Provides root masses that stabilize the stream banks against cutting action, provide shade, provide nutrients in way of leaf litter fall, assists in the formation of pools and undercut banks.

## 4) Channel Assessments

- In all channel types supporting fish maintain a stable stream channel. See Fish Habitat Restoration Procedures Circular 9 table 2.5 for those attributes defining a stable channel.

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5) Other attributes concerning water quality for human consumption

## Attributes by Channel Type:

Channel Type	Stable
Step-Pool Morphology	<ul style="list-style-type: none"> <li>• Intact stone lines                             <ul style="list-style-type: none"> <li>- clast steps</li> <li>- intervening pools</li> </ul> </li> </ul>
Bed sediment	<ul style="list-style-type: none"> <li>• Largely moss covered</li> </ul>
Bank sediment	<ul style="list-style-type: none"> <li>• Boulder bedrock, turf or roots</li> </ul>
LWD	<ul style="list-style-type: none"> <li>• Present, minimal function</li> </ul>
Cascade-Pool Morphology	<ul style="list-style-type: none"> <li>• Series of repeating stone lines forming overall steep zone connecting lower gradient pools that are <math>\geq 1W_b</math> in length</li> </ul>
Bed sediment	<ul style="list-style-type: none"> <li>• Moss covered stone steps</li> </ul>
Bank sediment	<ul style="list-style-type: none"> <li>• Boulder and cobble</li> </ul>
LWD	<ul style="list-style-type: none"> <li>• LWD present and functioning to limited extent (forms steps, traps/scours sediment and protects banks)</li> </ul>
Riffle-Pool Morphology	<ul style="list-style-type: none"> <li>• Repeating riffle-bar-pool sequences</li> <li>• Diverse pool size, shape and depth</li> <li>• Channel consists of <math>\frac{1}{2}</math> - <math>\frac{3}{4}</math> pool environment</li> </ul>
Riffle-Pool Morphology	<ul style="list-style-type: none"> <li>• One or two main channels</li> <li>• Diverse riffle shapes</li> <li>• Mainly diagonal and point bars</li> </ul>
Bed sediment	<ul style="list-style-type: none"> <li>• Cobble and gravels</li> </ul>
Bank sediment	<ul style="list-style-type: none"> <li>• Mainly cobbles, gravel and sand</li> </ul>
LWD	<ul style="list-style-type: none"> <li>• Large proportion of undercut/overhanging banks</li> <li>• Oriented across, and spans, the channel</li> </ul>



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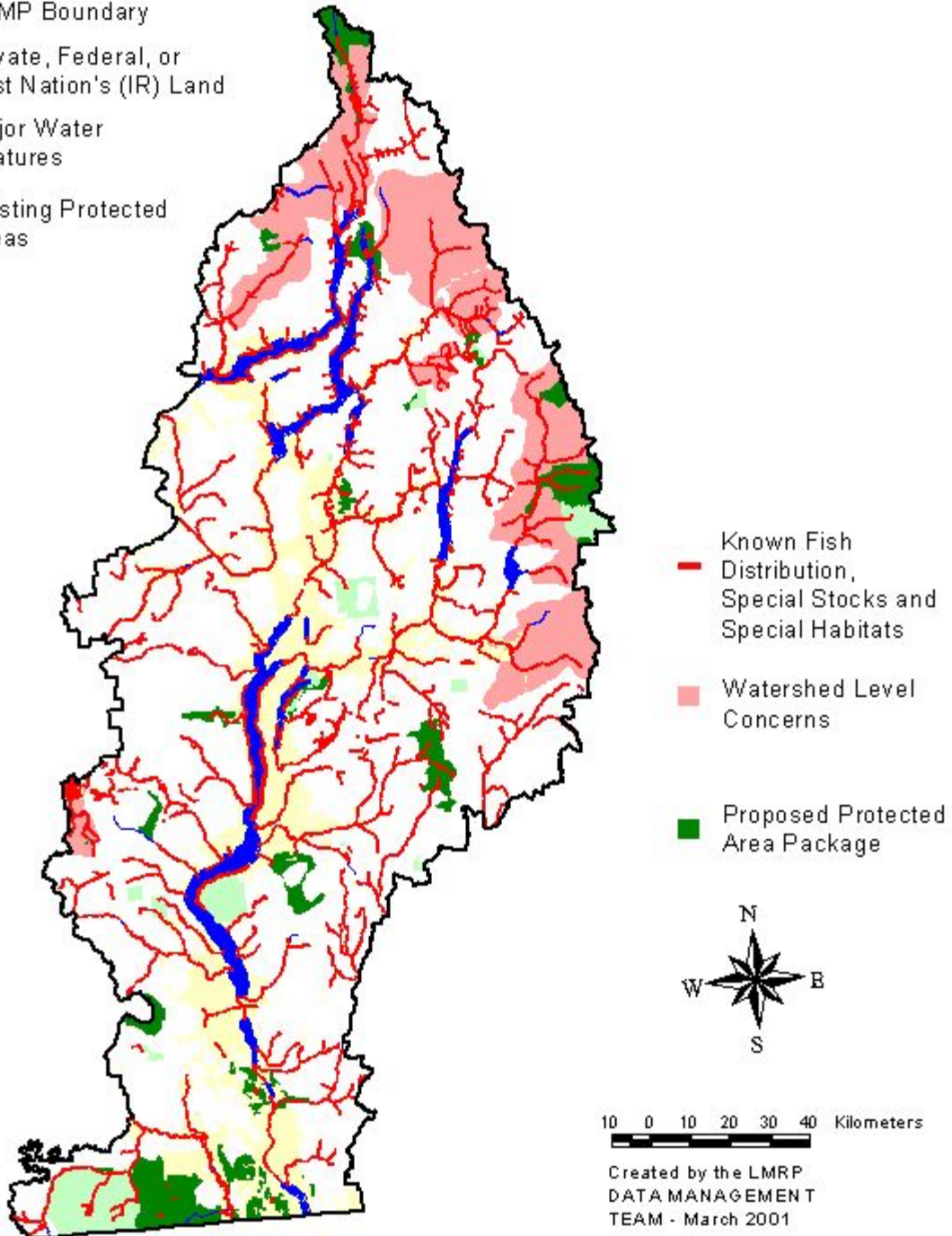
attributes concerning water quality for human consumption:	
choliform	<ul style="list-style-type: none"> <li>• no detectable increases in fecal choliform</li> </ul>
temperature	<ul style="list-style-type: none"> <li>• within the range and duration of the natural variability of the undisturbed watershed</li> </ul>
nitrate - N	<ul style="list-style-type: none"> <li>• less than 10 mg/L at intake</li> </ul>
pesticides	<ul style="list-style-type: none"> <li>• not detectable at intake</li> </ul>
algae	<ul style="list-style-type: none"> <li>• less than 50 mg/m<sup>2</sup></li> </ul>

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## Water - Special Fisheries

### Base Information

- ∞ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



- Known Fish Distribution, Special Stocks and Special Habitats
- Watershed Level Concerns
- Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

Created by the LMRP  
DATA MANAGEMENT  
TEAM - March 2001





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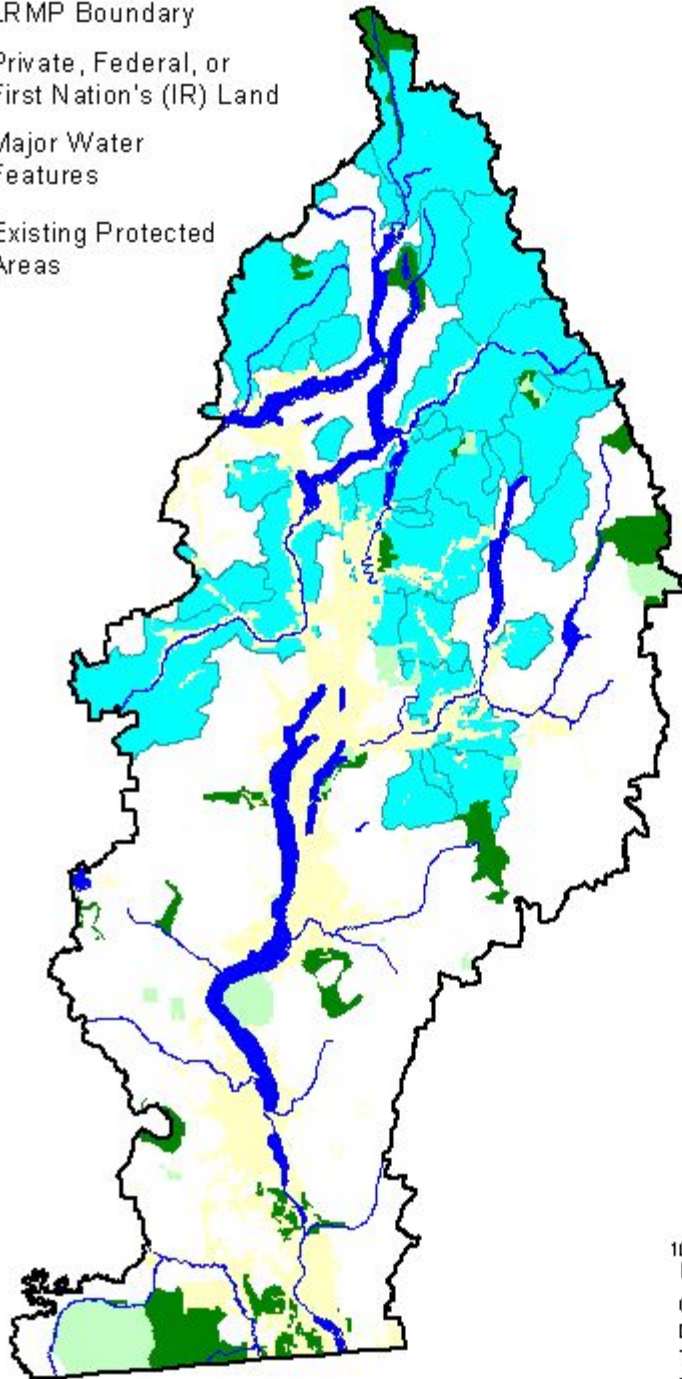




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## DFO Watersheds of Concern

### Base Information

-  LRMP Boundary
-  Private, Federal, or First Nation's (IR) Land
-  Major Water Features
-  Existing Protected Areas



-  Watersheds of Concern
-  Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

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DATA MANAGEMENT  
TEAM - March 2001

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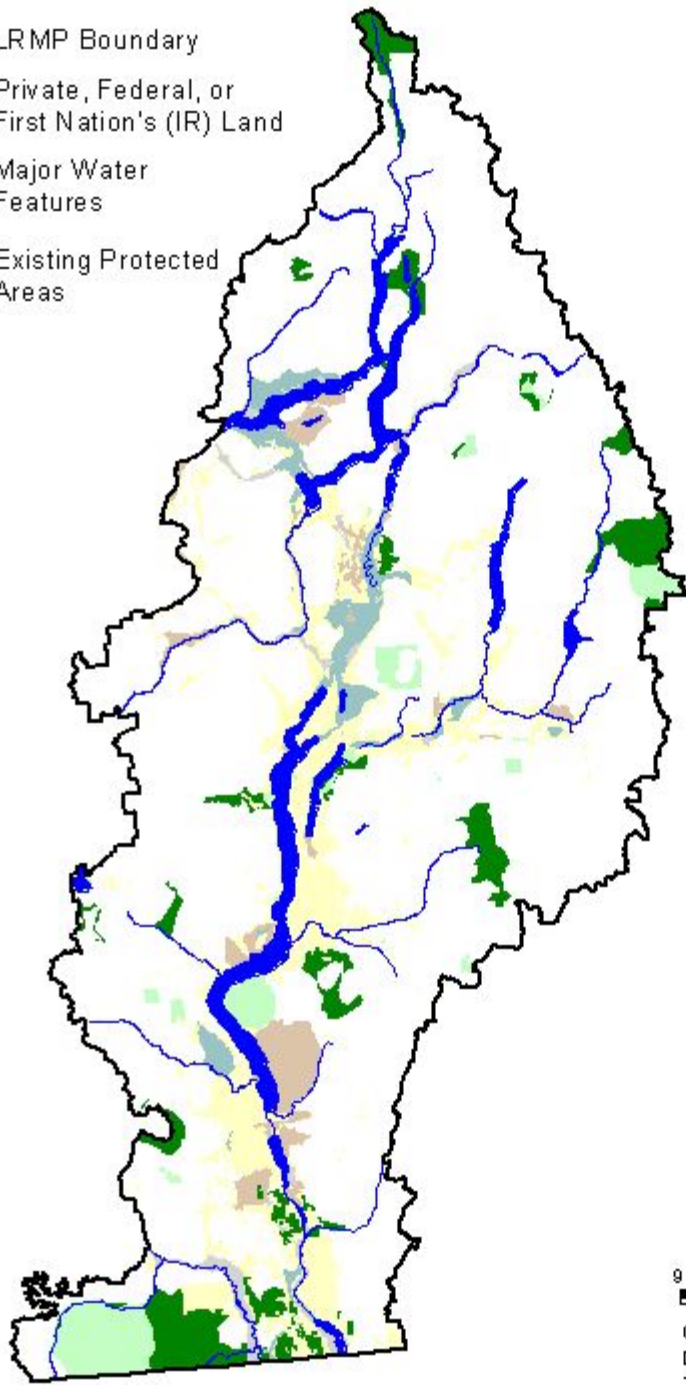


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## Aquifer Vulnerability

### Base Information

- ∕ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



- High
- Low
- Moderate
- Proposed Protected Area Package



9 0 9 18 27 36 Kilometers

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DATA MANAGEMENT  
TEAM - March 2001  
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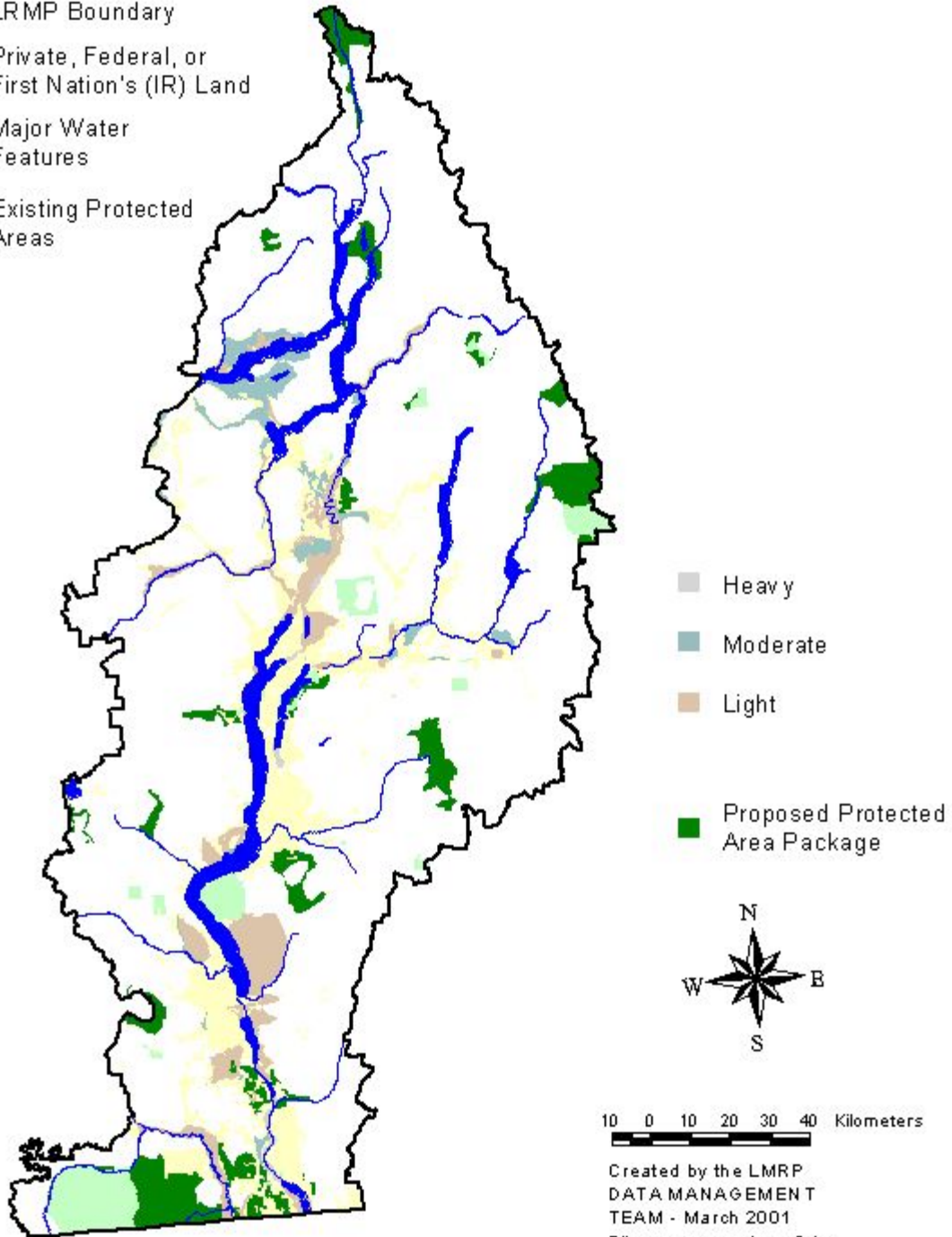


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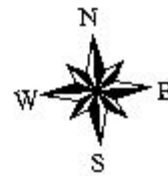
## Aquifer Demand

### Base Information

- ∕ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



- Heavy
- Moderate
- Light
- Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

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DATA MANAGEMENT  
TEAM - March 2001  
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## General Resource Management

In this section:

- General management provisions for maintaining adequate habitat for all rare (Red and Blue listed) species across the entire plan area.
- General management provisions for managing for marten and fisher habitat.

## Wildlife

### Introduction

The Okanagan - Shuswap LRMP area has a great diversity of wildlife, including numerous common species, as well as several species that are considered rare at the provincial level. Provincially, wildlife management occurs via two methods: habitat protection and population management. Providing suitable habitat for wildlife is considered to be the cornerstone of effective wildlife management. Whereas, populations are managed through the Wildlife Act, and associated regulations, and allow for wildlife harvest within a primary conservation principle (i.e., the conservation needs of that species are given priority prior to allowing, or determining, a level of wildlife harvest).

Hunting has been used for decades as a management tool, and is a consumptive activity that has brought in considerable revenue to the province and the LRMP area, as well as supplied a recreation activity for many. The plan area accounted for 6% (over 111,000) of total provincial resident hunter days in 1995, which translates into expenditures of approximately \$4.5 million on hunting and related activities.

The management of habitat for wildlife is continually changing, as more information regarding habitat needs is determined. Given the vast number, and array, of wildlife (there are approximately 300 species of birds known to occur within the plan area) it is difficult to address one species in isolation of another. To address the needs of wildlife habitat, wildlife habitat management has recently focused on an ecosystem approach that covers the needs of many species. However, certain species are not addressed and specific management actions are required to deal specifically with them. This is known as the "coarse filter/fine filter" approach and was adopted through the Forest Practices Code (FPC).

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The FPC outlines a framework whereby most species habitat needs are addressed through landscape level strategies. Examples of these are for connectivity and seral stage distribution (the variety of age classes of forested stands). This is the coarse filter. The next “filter” includes riparian protection measures and provisions for wildlife tree patches (WTPs). This filter provides for species that have somewhat more specialized habitat requirements. The fine filter is provided when the habitat requirements of some species are so specialized that neither of the two previous filters provides the required attributes. In these instances, species specific management strategies are required. The FPC addressed this through the “Identified Wildlife Management Strategy”.

The objectives and strategies that follow provide general management direction for marten, fisher and numerous rare (red- and blue-listed) species. In addition, there are other sections (see Part 4) that address area-specific wildlife habitat requirements for several key species of management concern (e.g., mule deer, moose, bighorn sheep, etc.). There are also numerous other objectives and strategies elsewhere in the LRMP document that were included for the benefit of wildlife, even though they are found in other sections (e.g., Range, Ecosystem Management - NDT4, Water, etc.).

## *Rare Species*

The plan area provides habitat for numerous rare (red- and blue-listed) species, and plant communities. Many of these are associated with the lower elevations of the main valleys. Direct loss of habitat or habitat alteration has been a contributing factor to the rarity of some of these species. However, many of these species are naturally rare (i.e., they have sparse distributions and/or numbers; or they are near the limits of their geographic distribution).

## *Low elevation is defined as the BGxh1, PPxh1 and IDFxh1 biogeoclimatic subzones*

The plan area is inhabited by 23 of 64 (36%) of British Columbia's red-listed vertebrates, with 19 of 64 (30%) found in the South Okanagan and the lower Similkameen valleys (one of Canada's four most endangered ecosystems). The area also contains 50 of the 87 (57%) provincial blue-listed vertebrates (MELP, 1995). In addition, the area supports 74 red-listed vascular plant species, 17 red-listed plant communities, 74 blue-listed vascular plant species, and 19 blue-listed plant communities (MELP, 1995). Four species (short-horned lizard, white-tailed jackrabbit, burrowing owl and sage grouse) have become extirpated within the last several decades.

Most of the habitat for rare species in the plan area is on private land, placing greater emphasis on the remaining Crown land. Additional objectives and strategies for managing the habitat of many of these species in the lower elevations are found in Ecosystem Management – NDT4 Resource Management Zone (RMZ) section.

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*Marten and Fisher*

Marten will use a variety of habitats if food and cover are available. Mature and older conifer forests provide important habitat requirements. Large trees and coarse woody debris (CWD) are important for denning sites and access to prey below snow during winter. Riparian habitat and overhead cover appears to be an important factor in selecting habitat.

Fisher (a blue-listed species) are usually found in mixed forests with a diversity of tree species and ages. Den availability appears to be the most important factor in habitat selection. However, other factors such as overhead cover and food availability are also important. Maternity dens are generally in large deciduous trees. Fishers also use temporary shelters such as hollow logs and tree cavities, which are usually located near a food source. During periods of deep soft snow, fishers select lower and mid-elevation coniferous forests where travel is easier because of reduced snow accumulations.

## **Issues**

*Rare Species*

Due to the diversity of rare species in the plan area, almost any resource use or development activity on Crown land has the potential to impact either the habitat or one, or more, of the rare species. The FPC provides some necessary management direction for rare species through the "Identified Wildlife Management Strategy". This strategy, however, is limited in that it only addresses forestry and range practices. It does not address all rare species in the plan area, and it only addresses site level features (e.g. den or nest sites), and not all of the requirements important for life processes. The accompanying document, "Interim Measures for Specified Rare Wildlife Species and Plant Communities within the Okanagan - Shuswap LRMP" (see Appendix IV), addresses some of the gaps with existing management.

*Marten and Fisher*

Both fisher and marten thrive in forested ecosystems dominated by mature and older seral stages. Fisher does, however, have a stronger association with wetter ecosystems. The habitat of both species can be impacted by forestry activities. Retention of forest attributes during forest operations can reduce many impacts. Intact riparian systems, retention of CWD and other structural attributes, and identification of FPC old growth management areas (OGMAs) will provide important habitat attributes.

Riparian retention is fundamental to these species, as it provides access to the prey base, movement opportunities and suitable denning and resting sites. The location of wildlife tree patches (WTPs) and old growth management areas along riparian systems can supplement forest cover in those areas to the benefit of marten and fisher, and should consider connectivity and forest interior conditions, which are also beneficial.

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Generally speaking, aquatic mammals do not receive recognition in planning. Beavers create habitat for many land based species, as well as muskrat, mink, and otters. Moose take advantage of the aquatic plant growth. Planning processes, including this one, should recognize the problems and positive effects various aquatic mammal species bring to the management of water and wildlife. All too often aquatic mammals also receive short shift in the management decisions concerning water.

## Goals

The primary goal for wildlife management focuses on maintaining the diversity and abundance of native species and their habitats throughout the plan area, while providing for their sustainable use and increasing the compatibility among uses. Specifically the goal is to maintain adequate habitat for all naturally occurring and regionally important species through appropriate management of cover requirements, access, forage productivity, movement opportunities, and protection of special features. The intent is to use the tools available through the Forest Practices Code (FPC) and the LRMP resource management zone (RMZ) objectives and strategies to meet this goal. For naturally occurring species not covered of by the LRMP or FPC, the Ministry of Environment, Lands and Parks' (MELP) intent is to develop (where required) objectives and strategies to manage for these species, which would then be reviewed by the Implementation and Monitoring Committee.

The management of rare species and ecosystems is to be guided by the best existing information available. Appropriate measures should be implemented in a timely manner.

Another important goal is to manage wildlife populations to meet hunting, trapping, study, appreciation, and viewing demands.

When managing for wildlife habitat attributes, where options exist (i.e., provided the desired attributes are the same) capture the desired target areas from the constrained and non-contributing land base, and/or old seral biodiversity and wildlife tree patch requirements. Constrained and non-contributing are defined as areas which do not contribute to the allowable annual cut (AAC), such as inoperable areas, riparian reserves, terrain sensitive areas, lakeshore management areas, areas managed for visuals, and wildlife habitat areas (WHAs). This is not intended to influence the overall area required for habitat or influence site specific needs (i.e., nesting site with confirmed known occurrence).

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## Objectives and Strategies

*Red and Blue Species*

*For direction in the IDF, PP and BGxh subzones, please refer to the Ecosystem Management - NDT4 RMZ (Part 4).*

1) Provide sufficient quantity and quality of habitat to secure long-term viability and distribution of rare elements and high value habitats.

1.1) Assess important habitats/ecosystems for non-forest and range development proposals within the potential distribution of rare elements on a site-specific basis.

Intent:

i) The intent is to allow for sufficient assessment time for The Ministry of Environment, Lands and Parks (MELP) to provide mitigative strategies so as to reduce potential impacts of development activities on rare elements. (This excludes forest and range developments, which are covered under current management through the FPC.). Other development activities could include ski hill developments, Crown land sales, major mine developments, etc.

ii) This does not apply to the IDFxh, PP or BGxh subzones.

iii) The intent is for proponents to bring the location of rare elements to the attention of MELP for tracking purposes.

1.2) Where wildlife tree patch (WTP) requirements can meet the needs of both rare species and general biodiversity, then wildlife tree patches should be located on rare element habitat, wherever possible.

Intent:

i) Where rare species WTP requirements can meet the needs of both rare species and general biodiversity, then WTPs should be placed on habitats that favour rare species. Where rare species requirements are not consistent with general biodiversity WTPs, (i.e. representative of the stand, exhibiting signs of use, etc.) then WTPs are to be located to favour general biodiversity, and wildlife habitat areas (WHAs)/wildlife conservation areas (WCAs) are to be placed (as required) to meet the needs of rare species.

1.3) As much as practicable, protect rare plants, rare plant communities, rare wildlife and other rare elements, including the habitat features they depend on.

Intent:

i) Implement the "Interim Measures for Specified Rare Wildlife and Plant Communities within the Okanagan - Shuswap LRMP" (the "Interim Measures" document). For forest and range practices under the MoF mandate, the provincial "Identified Wildlife Management Strategy" (IWMS) takes precedence over the "Interim Measures" document for the specific species covered. Future releases under the FPC will be reviewed by the Implementation and Monitoring Committee to decide if the interim measures for specific species will still apply.

ii) This will include rare element connectivity and seral stage distribution requirements to the extent allowed for under the management direction

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for biodiversity. (See the Ecosystem Management – Forests section for direction on biodiversity.)

iii) Wildlife conservation areas or “general wildlife strategies” (GWS) will be identified by MELP, and subject to approval by the statutory decision-maker (SDM) or designate, will be implemented on an “as needed” basis. The intent is that the District Manager (DM) will process such proposals in a timely manner and not allow delays to affect the protection of critical habitat. Potential forest health issues are to be addressed at the time the wildlife conservation area is established.

iv) Examples of habitat features include wildlife trees (live, declining or standing dead trees), coarse woody debris, rock outcrops, talus slopes or cliffs, nesting and denning habitats, and riparian systems (detailed in the “Interim Measures” document).

1.4) Phase in appropriate management strategies for rare elements where rare element habitats are covered by grazing leases.

Intent:

i) Note that we are referring to leases rather than licenses, and the FPC does not cover these.

ii) The extent to which this strategy applies will be negotiated with the leaseholder, as part of the development of the management plan for their tenure.

iii) Grazing leases are subject to a management plan approved by MoF.

1.5) For rare elements not addressed in the “Interim Measures” document, develop management strategies to address their needs on an “as needed” basis.

Intent:

i) There are rare species/communities that are not addressed in either the FPC “Identified Wildlife Management Strategy” or the LRMP “Interim Measures” document. Several of these rare elements were not addressed as there was little indication that they would be impacted by land and resource management activities, there was insufficient information on the protection measures for these elements, or they were not identified as being in the plan area. In some instances, site specific protection measures could be easily be included into operational planning by “working around” the specific location, and in other instances, it may be more effective to develop element specific protection measures and have them “endorsed” through the LRMP Implementation and Monitoring Committee. It is expected that the former would occur where there was a need for expedited approval, and the latter would occur where significant constraints (i.e., beyond the expectation of what was agreed to during the development of the plan) were placed on development activities.

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1.6) Develop area specific, or species specific, management plans for rare elements, on an as needed basis. This is a way to address complicated areas (more than one species in an area), and/or site-specific plant locations. (implementation)

1.7) Where appropriate, restore important habitat attributes and special features. (implementation)

Intent:

- i) This is government to government direction, licensees are not responsible for restoration costs.
- ii) Any restoration that may impact a licensee will first be vetted through the LRMP Implementation and Monitoring Committee.
- iii) Restoration would be consistent with strategies identified in the FPC "Identified Wildlife Management Strategy", or the "Interim Measures" document.
- iv) Manage some high capability/suitability habitats as recovery sites for specified rare threatened/endangered elements.
- v) Develop and implement habitat recovery plans as necessary.

1.8) Minimize, as much as practicable, the impact of future access development on rare elements.

Intent:

- i) Evaluate existing access in terms of the habitat needs of rare elements and implement measures to minimize threats to those habitats as deemed necessary.

1.9) Where practical, use non-chemical methods to control noxious weeds, and weed species of concern within the habitats of rare elements and plant communities.

1.10) Recommend to the District Manager and Designated Environment Official that the following be recognized as "wildlife habitat features" under Section 1 of the FPC Operational Planning Regulations (OPR):

- a) red- and blue-listed plants and plant community locations.
- b) sedentary features of red- and blue-listed wildlife, such as dens, nests and hibernacula.
- c) historic red-Listed species occurrences, including nests and dens.
- d) Conservation Data Centre (CDC) "record trees".
- e) raptor nests that are currently used.
- f) mountain goat and bighorn sheep natal areas.
- g) bighorn sheep ram rutting areas.

Intent:

- i) Items "d" (record trees) and "g" (sheep rutting areas) would not apply to range use plans (RUPs) or grazing.
- ii) For item "g" (sheep rutting areas), MELP is to demonstrate that these



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are areas that are traditionally/habitually used for this activity.

iii) That the above be recognized as FPC "resource features" as per Section 1 of the Operational Planning Regulations.

iv) It is expected that forest licensees would identify these during operational planning where practical. They are not obligated to provide professional assessments of areas for these features.

v) Agency staff or consultants may locate these areas.

vi) Consistent with FPC timing (i.e., four months operational plan submission), these areas would be recognized as "known resource features" at the time they are made "known" (as defined in the FPC), or when they are discovered by the proponent.

vii) The protection is to be provided by the 10,000 ha "enhanced riparian reserve" budget, the 7,500 ha identified wildlife budget, and WTPs.

1.11) To provide protection for identified wildlife and rare elements within and outside of the "Interim Measures" document, the equivalent of a 7,500-hectare budget of timber harvesting land base (THLB) will be applied as required.

Intent:

i) The budget is to be managed separately for each AAC determination unit - i.e., the Timber Supply Area and the three Tree Farm Licenses.

ii) The 7,500 ha budget can be applied through either reserves or partial cutting areas.

2) Encourage re-establishment of recently extirpated species.

Intent:

i) Follow the wildlife transplant policy.

2.1) Where practicable, attempt translocation of recently extirpated species.

3) Augment those species that are threatened with extirpation.

3.1) Where practicable, augment existing populations to minimize potential extirpations.

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*Fisher*

4) Provide adequate forest cover and forage for fisher throughout all forested ecosystems as shown on the "Fisher Habitat" map.

4.1) Reduce brushing and pruning in riparian management areas (RMAs).

Intent:

i) To provide screening cover.

ii) To occur in riparian management areas only.

iii) This is not intended to prevent meeting reforestation or free growing obligations (i.e., concentrate brushing activities around trees vs. broadcast applications).

4.2) Plan for fisher habitat at the stand and landscape level as per the biodiversity budget for old seral.

5) Within areas to be managed for fisher (*Martes pennanti*), as shown on the "Fisher Habitat" map, maintain stand structure, and mature and old forest connectivity, particularly along riparian systems as per the biodiversity budget for old seral.

5.1) Where practicable, maintain "enhanced" levels of coarse woody debris (CWD) in riparian management areas for S5 and S6 streams greater than 1.5 metres in width.

Intent:

i) For more information on "enhanced" and "basic" levels of CWD, please see objectives 5 and 6 in the Ecosystem Management – Forest section (Part 3).

ii) Balsam, hemlock and cedar should be used. Avoid the use of green fir or spruce, as these can be a problem from a forest health perspective. The use of pine is suggested instead.

iii) Pieces should be greater than 40 cm in diameter.

5.2) In the context of other priorities, locate old growth management areas (OGMAs) adjacent to class S1, S2, and S3 streams.

Intent:

i) Subject to budget availability for old forest (OGMAs).

ii) To occur during Landscape Unit planning.

5.3) Where available, maintain in wildlife tree patches (WTPs), or in the context of coarse woody debris (CWD), decay class 2 or greater spruce, fir and cottonwood wildlife trees.

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5.4) Where attributes are available in riparian areas, locate wildlife tree patches (WTPs) in riparian areas. Where the attributes are outside riparian areas, locate WTPs outside riparian areas up to the WTP allotment (i.e., WTP policy).

5.5) Where practicable, maintain all cottonwood trees greater than 75-cm diameter in harvested areas as wildlife trees, and a distribution of smaller cottonwood stems for future recruitment.

Intent:

- i) Provide denning and nesting habitat.
- ii) Locate close to riparian management areas (RMAs).
- iii) Only applies to areas harvested by "conventional" methods (i.e., skidder)
- iv) Where non-conventional methods are being used, these large cottonwoods should be located in WTPs.
- v) This does not override safety concerns.
- vi) Where the strategy says "where practicable", replace with "where practical" when applying this strategy to woodlots with the understanding that cottonwoods will be recruited for WTPs on a first priority basis.

5.6) Where practicable, retain mature stands with greater than 80% cottonwood.

Intent:

- i) This strategy does not apply to woodlots where stands with greater than 80% cottonwood contribute to the AAC determination.

6) Maintain fisher habitat and provide landscape connectivity (for fisher dispersion) within the biodiversity old seral and "enhanced" riparian budget.

6.1) Manage the riparian management zone for structure and suitability along S1, S2, and S3 fish bearing streams by undertaking the following management activities:

- retaining all deciduous, especially cottonwood, where practicable;
- retaining large diameter snags and managing for snag recruitment within the context of the 50% basal area retention and wildlife tree patches;
- maintaining basic levels of coarse woody debris within the context of stocking standards; and,
- allowing for herbaceous and shrub development in harvested areas.

*Marten*

7) Maintain or enhance food and forage sources, cover and connectivity for marten.

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7.1) Within two years of ratification, develop and initiate an operational inventory and monitoring program that will examine the effectiveness of managing various forest attributes on the maintenance and enhancement of pine marten populations within managed forest. There will be a ten-year review of this program to evaluate the effectiveness of supplying habitat within managed forests as compared to old growth management areas.

Intent:

- i) The BC Trappers Association, MELP, MoF and forest licensees will work cooperatively in designing and implementing this program.
- ii) The focus of the program will be to evaluate various timber harvesting, regeneration, stand tending and other forest management activities.
- iii) The results of the program will be referred to the Implementation and Monitoring Committee for review and implementation throughout important marten habitat areas.
- iv) Trappers will be expected to take a proactive role in the program.
- v) The program will be a priority for FRBC funding.

7.2) Plan for connectivity during landscape unit planning, utilizing temporal and spatial distribution of cut and leave areas, old growth management areas, wildlife tree patches, and enhanced riparian protection.

Intent:

- i) Landscape level connectivity can be maintained through the temporal and spatial distribution of cut and leave areas.
- ii) Riparian areas are considered important for connectivity at both the stand and landscape level.

7.3) Consider placing wildlife tree patches to complement the retention levels along these riparian corridors.

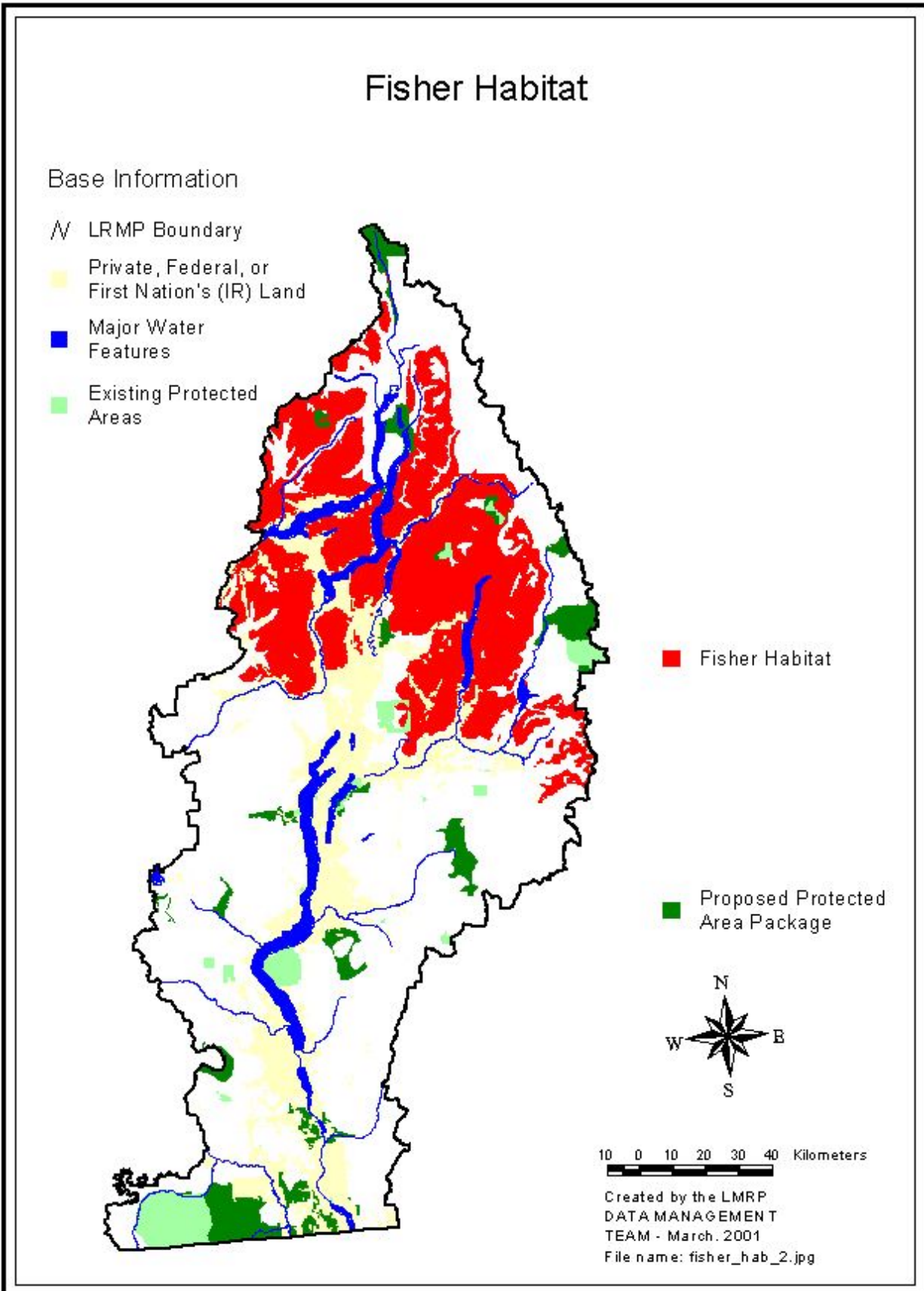
7.4) The location of wildlife tree patches should be well distributed over two broad habitat types:

- a) drier site series that are important for denning, resting and whelping; and,
- b) adjacent to riparian areas to compliment structure retained for movement opportunities.

7.5) In high capability marten habitats as per the "High Capability Marten Habitat" map retain "enhanced" levels of coarse woody debris along riparian management areas (RMA) that do not have a reserve. This is only required on one RMA per 40 hectares of harvest area.



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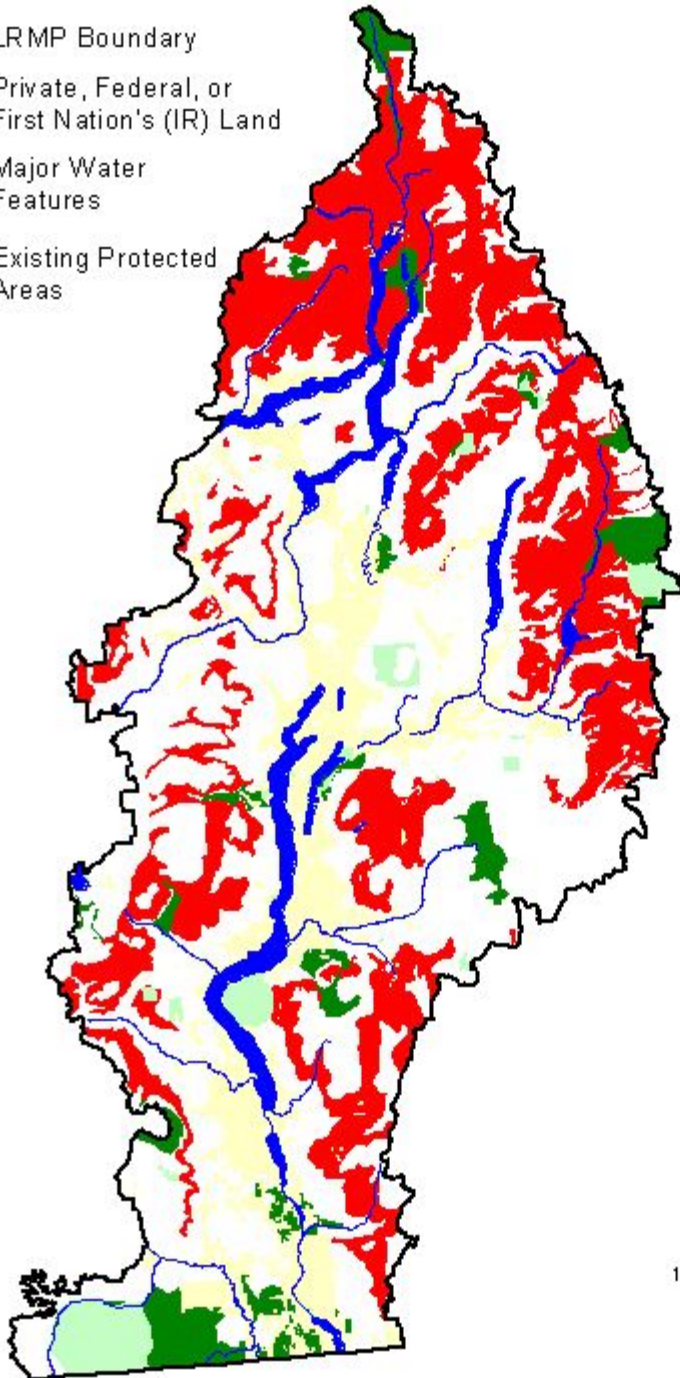



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## High Capability Marten Habitat

### Base Information

-  LRMP Boundary
-  Private, Federal, or First Nation's (IR) Land
-  Major Water Features
-  Existing Protected Areas



 High Capability Marten Habitat

 Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

Created by the LMRP  
DATA MANAGEMENT  
TEAM - March 2001  
File name: high\_cap\_mar\_hab\_2.jpg





## Part 4

In this section:

- Description of the Resource Management Zones (RMZs).
- Objectives and strategies for the following Polygon Specific Resource Management Zones:
  - Community/Crown Interface
  - Ecosystem Management-NDT4 (open forests and grasslands)
  - Fish and Aquatic Habitat - Special Areas, Broodstock Collection Sites, and Large Lake Shoreline
  - Joe Rich
  - Mission Creek
  - Recreation
    - Regionally Significant Trail Corridors
    - Intensive Recreation
  - Tourism Areas - Back Country, Tourism Use, and Dispersed Tourism Use
  - Visual Management
  - Water - Community Watersheds
  - Wildlife
    - Bighorn Sheep Habitat
    - Derenzy Bighorn Sheep
    - Elk Habitat
    - Grizzly Bear Habitat
    - Marten Habitat (Fly Hills)
    - Moose Winter Habitat
    - Mountain Caribou Habitat
    - Mountain Goat Habitat
    - Mule Deer Winter Range

## Polygon Specific Resource Management Zones

### Introduction

*What are resource management zones?*

Resource management zones, or RMZs, are divisions or zones within the plan area where specific management objectives and strategies define how the Crown resources are to be managed.

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These polygon specific resource management zones (RMZs) have objectives and strategies that are beyond those found in the general resource management section (Part 3) for certain values within the identified polygons. Polygon specific RMZs are described by using the resource value they are managing for (e.g., Water - Community Watersheds), with the polygons shown on the maps that accompany each section.

In most cases, the level of precision used to establish the boundaries of the resource management zones in this LRMP is quite low. The small scale of mapping adds to that lack of precision. The exception is where there are prominent features such as roads and water bodies. To be a practical, workable plan, it is recognized that the degree of precision used to determine the location of proposed activities or developments, with respect to a zone, may have a similar level of precision. I.e., conventional forest measurement tools such as hand held compasses, hip chains, and hand held GPS devices will be adequate. Protected areas are an exception as their boundaries are legally described and enshrined in legislation. Separate policies govern their establishment and the locating of proximal developments.

*How do objectives and strategies fit in the picture?*

The objectives and strategies within these zones apply to all agencies, resources and activities, and are the fundamental building blocks of the plan. Objectives describe a desired future condition with respect to a particular resource or resource use. Strategies describe "how" the objective will be achieved. For this LRMP they correspond directly to the objective they serve. In addition to objectives and strategies, some sections of the plan provide additional clarification for the objectives and strategies in the form of intent statements. The intent statements (located in the shaded boxes under the objectives or strategies) are designed to reduce the potential for conflicting interpretation by providing:

- clarification to enable operational implementation;
- supporting rationale and/or technical definitions that would otherwise be unwieldy in a strategy;
- external guidelines; or,
- cross references to desirable existing resource management guidelines or "best management practices".

The intent statements are not designed to replace strategies.

More detailed information on objectives and strategies can be found in Part 1.

## Polygon Specific Resource Management Zone

### In this RMZ:

- Provisions for dealing with issues at and near the interface of private and Crown land.
- How to balance ever increasing demands on finite amount of valley bottom and bench lands.
- How to proactively plan and manage for growth.

## Community/Crown Interface

### Introduction

*For more information on communities, refer to Part 2 Characteristics of the Plan Area*

*The zone provides direction that applies to the interface between Crown and private lands. For strategies relating to private land management, refer to Part 9, Advice to Local Government.*

The Community/Crown Interface resource management zone (RMZ) is proposed to address some of the issues specific to the interface between resource and settlement land interests. Given the significant population increase projected for the Okanagan and Shuswap regions over the next twenty years (expected to double), there are indications that land use conflicts at the urban-Crown land interface are likely to increase.

Recreational access, visual quality, risk management, foreshore and aquatic management, water quality, urban sprawl, and environmental protection are major issues at the crown/community land interface. There is also merit, from a land management perspective, to ensure that the Crown land surrounding communities reflects the planning objectives of the affected local government as articulated through their growth strategies, capital infrastructure plans, official community plans (OCPs) and/or rural land use bylaws (RLUBs).

### Interface Boundary

This resource management zone will extend from the private land boundary to the visual height of land and across the major lakes of the Okanagan and Shuswap as shown on the "Community/Crown Interface RMZ" map. For the most part, the boundary follows the ridge line or height of land visible from major travel corridors including Highways 97 (and 97A/B), 33, 6, 3, and the Trans Canada Highway. It incorporates official community plan and rural land use bylaw areas of local governments. It includes the regional districts of Columbia - Shuswap, North Okanagan, Central Okanagan, Okanagan - Similkameen, portions of the Kootenay - Boundary and Thompson - Nicola

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regional districts, and 17 municipal government jurisdictions within the plan area.

This zone will operate as a variation on the resource management zone. It will be more specific to community/crown interface issues, and will likely be broader in scope than the other resource management zones.

The interface zone will provide direction for a number of ministries, government agencies, boards, and commissions as well as local governments in order to address the range of issues that cross Crown and private land boundaries.

## Cross - Boundary Issues

The boundary between Crown and private land reflects an administrative and jurisdictional division of the landscape that rarely corresponds to natural boundaries. However, ecosystems, watersheds, drainage patterns, road and utility corridors, recreational trails and viewsapes transcend these administrative boundaries. As is becoming increasingly evident in environmental management, everything is connected to everything else.

While the mandate of the LRMP does not extend beyond Crown land, the decisions made with regard to land and resource use certainly do. Both the rural and urban communities, and their associated land and economic development processes, will be affected by the activities on the surrounding Crown land. The responsibility for sustainable development has to be reflected through all levels of governance.

Likewise, the management of Crown land is affected by activities on private land. The responsibility for economic, community and environmental stability has to be reflected through all levels of governance. The following goals, objectives and strategies, and the material in the "Advice to Local Government" section (Part 9) provide a framework for improved coordination and consultation between levels of government.

This zone will not be part of a Forest Practices Code higher level plan. It is intended to be an area where there is an enhanced level of consultation between local and provincial governments.

## Goals

The intent of the Community/Crown Interface zone is:

- To provide policy direction on Crown land issues that affect the adjacent settlement areas and local government jurisdictions.
- To indicate those areas where a higher level of care may be required to ensure community health, safety and stability.
- To promote coordination of environmental stewardship between Crown land and adjacent private land.

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- To provide continuity of practice where all agencies strive to balance interests and to ensure a degree of consistency in management within this very finite amount of land.
- To ensure that any settlement designations follow the established local government processes for public consultation, impact assessment, and infrastructure planning.
- To provide mechanisms to enhance cooperation and communication among the various provincial and local agencies.

## Objectives and Strategies

1) Promote consistency among strategic level planning (LRMP), provincial agency operational planning, and local government plans in order to reduce conflict.

Intent:

i) This management objective, and several of the strategies, reflects current practices between the BC Assets and Lands Corporation (BCAL) and local government. The purpose for establishing them in the LRMP is to ensure continuity of this process should the structure of this agency change in the future. The strategies are to apply to the province and any future boards, commissions and Crown corporations.

*All levels of government, including federal, provincial and local government agencies make strategic direction and investment decisions in the interface area. In the interface area, coordination and consistency is a critical factor in the success of any strategy.*

1.1) BCAL shall notify the affected (adjacent) regional district and municipality of Crown lands being considered for disposition.

1.2) Government agencies are to assist regional districts and municipalities in identifying Crown lands areas in the interface area when preparing official community plans (OCPs) or growth strategies, including information on the status and intended use of those lands (permits, licenses, etc. held).

1.3) Government agencies and development proponents are to recognise, and co-ordinate with, local government foreshore plans where lakefront developments or alterations are proposed.

1.4) Local governments should consider the LRMP management objectives, and the existing and intended Crown land uses, when preparing official community plans and zoning bylaws (to prevent future land use conflicts in the interface).

1.5) When preparing strategic plans, official community plans and/or growth strategies, local governments are encouraged to consult with the provincial and federal agencies that have interest and responsibilities in the interface area and the public. These agencies should be able to provide tenure information to allow for appropriate referrals.

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1.6) Regional districts and municipalities are to notify applicable government agencies of official community plan (OCP) designations, and/or zoning regulations that may affect Crown land in the interface.

## Strategic Planning in the RMZ

2) Provide a higher standard of communication and referrals within the interface zone to ensure an appropriate level of care that will address community health, safety and stability.

2.1) Provincial agencies and local governments shall establish an appropriate forum for ongoing communications and cooperative initiatives on a regional basis, incorporating both provincial and local government agencies.

2.2) Provincial agencies and local governments shall meet on a regular basis (through the above forums) to undertake the following:

Intent:

i) These forums may lead to the establishment of Intergovernmental Advisory Committees (IACs, as established under growth management legislation), establishment of an ongoing regional organization (such as the OSLRMP Process Advisory Committee, or an Okanagan Watershed Management Council) and/or the establishment of technical planning committees.

ii) The intent of these strategies is to focus on interagency communication and coordination.

a) Cross communication on funding initiatives and upcoming programs or projects.

b) Examine opportunities for sharing of financial and staff resources to undertake action on regionally identified priorities such as milfoil and weed control. Focus on coordination rather than duplication of efforts. Integrate the budget decision making on a regional basis to ensure that priorities are placed on action items with all partners ready to proceed in the same budget cycle.

c) Foster the exchange of technical data, maps, and reports (with appropriate protocols).

d) Coordinate the technical review of development applications, and complete the review in a timely manner.

e) Identification and mapping of high-risk areas and of future settlement areas where ongoing cooperation between agencies will be required.

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## Operational Planning in the RMZ

3) Ensure that operational plans, prescriptions and permits contain measures that will minimize as much as practicable any potential negative resource development impacts on adjacent communities (e.g., visuals, wildfires, flooding, debris flows, water quality and quantity, etc.).

### Intent:

i) For forestry operations, adherence to this LRMP will fulfill this objective.

3.1) Through the above forum(s), establish appropriate notification, streamlined referral, and/or feedback mechanisms to ensure that local government concerns are addressed.

3.2) As an interim measure, before new referral and feedback mechanisms are established, local governments should be notified in writing and provided with opportunities to comment on land and resource extraction proposals in the interface area (e.g., five year forest development plans, road construction plans, quarry proposals).

### Intent:

i) It is incumbent upon local governments to notify proponents of their interest in receiving referrals of proposed developments.

ii) For forestry operations, this will entail notification of the availability of forest development plans (FDPs) and major amendments to those plans. Emergency amendments (Section 42, FPC), minor amendments (Section 43, FPC), and minor salvage operations are exempted from the notification requirement.

3.3) Permitting agencies are to consider inclusion of mitigating conditions when approving permits if local government has concerns.

### Intent:

i) The intent of strategies 3.1 - 3.3 is to enable permitting agencies to address local government concerns relative to site specific conditions including the terrain, hydrologic conditions, and extent of risk to existing or approved future settlement areas. Measures may be taken to:

a) Minimize visual disturbance from roadways and settlement areas consistent with the visual quality objectives established by this LRMP.

b) Minimize risk of potential flooding, erosion, debris flow or landslide on downstream settlement areas.

c) Minimize detrimental impacts to domestic/community water supplies.

d) Minimize potential for land use conflicts by considering local government zoning and planned land uses.



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e) Minimize impacts on recreational, sensitive, or biological features that have been identified for protection by local government bylaws.

Note:

- For forestry operations, it is recognized that permits are not typically used to address issues such as local government concerns. Instead, these are matters that the proponent is expected to consider when preparing their plans and prescriptions, consistent with the referral provisions of the FPC.

- For items "a" to "c", no measures greater than the Forest Practices Code are anticipated for forestry activities.

- Notification or consultation with local government is not intended to replace public notification requirements.

- Notification to local government which is over and above that required by regulation is not intended to delay the approval process, and may consist solely of a letter of notification. In some cases, notification may come from the development proponent rather than the permitting agency.

## Crown Land Disposition

4) Direct the disposition of Crown land for new residential, commercial and industrial development to areas designated within official community plans (OCPs), rural land use bylaws (RLUBs), or regional growth strategies.

Intent:

i) To prevent sprawl development in the fringe areas of the interface. Settlement uses in these areas can result in servicing demands on the adjacent community and/or regional district. When this form of development has not been considered in the community plans it can divert limited resources from more appropriate growth and development areas.

4.1) Land Act dispositions (including the land and associated development rights) should be consistent with the regional district or municipal OCPs and/or RLUBs.

4.2) The ability to service the land and proposed development must be considered prior to disposition. The proponent must satisfy the development and servicing standards of the regional district, municipality, and other applicable agencies.

4.3) In areas where no local government land use plans exist, dispositions of Crown land, under the Land Act for new residential, commercial, and/or industrial development, shall include local governments in the consideration of adequate servicing to the lands, as well as the social, economic, and environmental impacts of the proposal.

Intent:

i) Some areas within the LRMP area have no local government land use plans at this time. As such, the consistency requirement in the preceding management objective is not applicable, but the need to address servicing

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requirements remains.

ii) All relevant agencies need to be involved in the assessment of water, roads, access, waste management, fire protection (both structural and wildland), school capacities, etc. Local government is an important partner in the assessment of servicing levels, in order to achieve consistency in service levels across the community.

## Infrastructure

5) Provide opportunities to site municipal/regional infrastructure (e.g., water, sewer, solid and liquid waste management facilities, construction aggregate and rock quarries, parks and recreation facilities) on Crown land to serve community and economic development needs throughout the plan area, where such infrastructure can appropriately co-exist with other resource and environmental values.

Intent:

i) As in the disposition of Crown land for settlement, the siting of infrastructure is often an important factor in controlling sprawl development in the fringe areas of the interface. Local governments and community service agencies should strive to infill existing settlement areas before expanding out onto Crown land. When infilling options are exhausted, opportunities should be provided for planned neighborhood expansion into Crown lands designated through a community plan or growth management strategy.

ii) The Ministry of Forests will provide input into water sources (fire hydrants), access routes, road layout, evacuation routes, and other "fire safe" interface issues.

5.1) Regional districts and municipalities to work with the Ministry of Environment, Lands and Parks, the BC Assets and Land Corporation, and other affected parties to determine siting options for community infrastructure on Crown land, and to fully explore all alternatives before allocating Crown land.

5.2) Where local governments are the project proponents, they shall address the environmental and community impacts of proposals considered in the following areas:

- adjacent to domestic water supply and aquifers;
- erosion-prone and landslide hazard areas; and,
- sensitive biological or physical features.

## Reserves

6) Ensure that the establishment of provincial reserves and designations for a single resource use do not arbitrarily preclude future expansion within the interface zone.

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6.1) Within the interface zone, include local governments in the consultation process before establishing or revising boundaries for wildlife management areas (WMAs), the Forest Land Reserve (FLR), the Agricultural Land Reserve (ALR), provincial parks, or other reserves.

Intent:

- i) The establishment of such reserves and designations should not be in conflict with community plan designations, or with known infrastructure improvements as set out in growth management strategies, major road network plans, capital infrastructure or other corporate plans.
- ii) With respect to revision of Agriculture Land Reserve boundaries, local governments are now consulted and nothing more than current management is anticipated.

## Forest Fire Hazards in the Wildland - Urban Interface

7) Protect populated areas from forest fire hazards in the wildland - urban interface, and protect the provincial forest from fires originating on contiguous private land.

7.1) The Ministry of Forests is to coordinate fire hazard reduction in the Interface zone through consultation with the public, licensed tenure holders, affected resource agencies, First Nations, and local government.

7.2) Where practical, coordinate and implement fire hazard reduction activities with priority areas for prescribed burning for ecosystem enhancement purposes.

Intent:

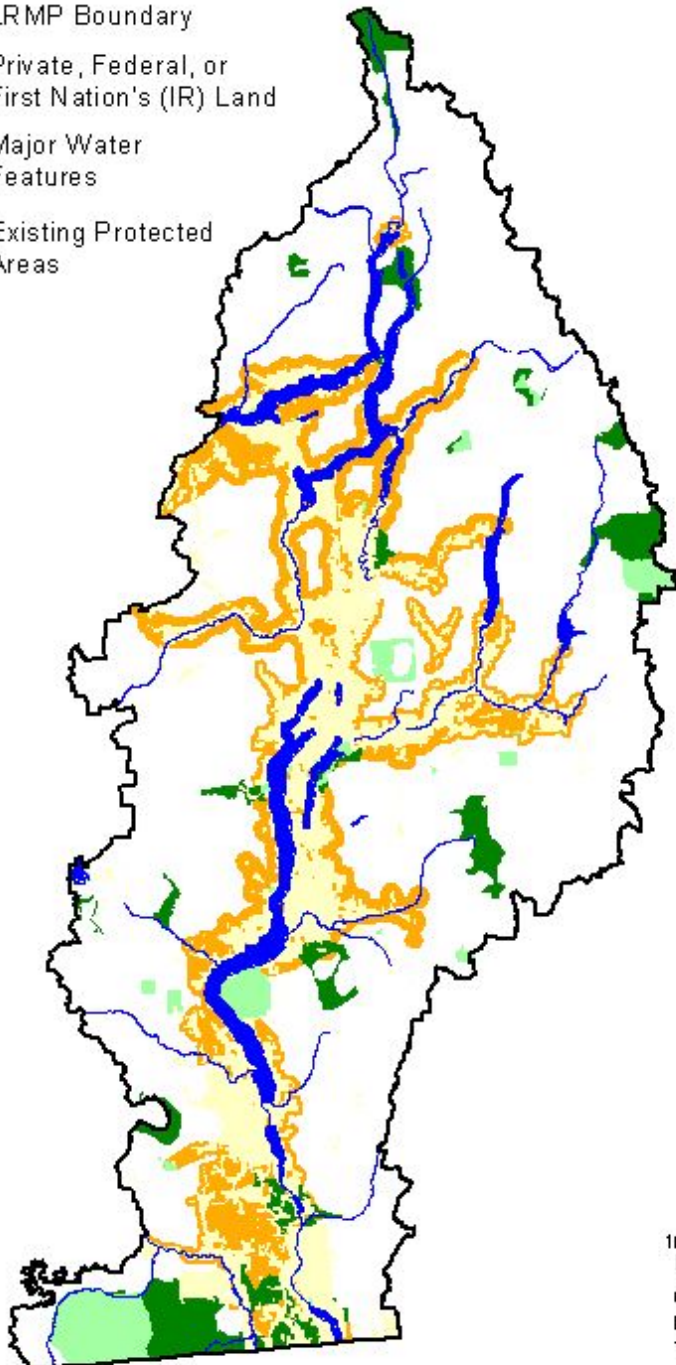
- i) The intent is that fire hazard reduction activities will be coordinated with other objectives and strategies that pertain to lands in the interface.
- ii) Prescribed burning for ecosystem enhancement purposes is described in various sections throughout the plan (e.g., the Ecosystem Management - NDT4 and Mule Deer Winter Range RMZs). It may be possible to reduce fire hazard and enhance ecosystem values through such activities. (This is to be determined at a site a specific level.)
- iii) Controlled or prescribed burning will be subject to atmospheric venting conditions, extra notification to local government, and coordination with fire response teams.

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## Community / Crown Interface RMZ

### Base Information

- ∕ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



Community / Crown Interface

Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

Created by the LMRP  
DATA MANAGEMENT  
TEAM - March, 2001  
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## Polygon Specific Resource Management Zone

### In this section:

- Provisions for reducing encroachment and ingrowth on grasslands.
- How to manage burns to best meet ecological objectives of prescribed burns.
- How to minimize impacts of access on NDT4 ecosystems and wildlife.
- How to ensure the productivity and long term sustainability of permanent range.
- Provisions for managing the existing Crown land to minimize alienation and adverse impacts on important habitats and special features.
- Provisions to incorporate ecosystem based management principles.
- Provisions to augment species that are threatened with extirpation.

## Ecosystem - Natural Disturbance Type 4 (Grasslands and Low Elevation Open Forests)

### Introduction

NDT4 is the acronym for Natural Disturbance Type 4, a term describing a group of dry biogeoclimatic subzones occurring in the interior of BC. These consist of the warmer, drier biogeoclimatic (BGC) zones, notably the bunchgrass zone (BG), ponderosa pine zone (PP), and parts of the interior Douglas fir zone (IDF). The primary natural disturbance factor associated with this NDT is fire.

The NDT4 can be further sub-grouped into three components, NDT4a, b and c. The NDT4a consists of the grassland site series. The NDT4b is characterized by frequent, low intensity fires and is described as a fire maintained system. Classical NDT4b ecosystems are typified by large diameter, widely spaced trees, a well developed grass/shrub understory, and a mosaic of thickets and openings interspersed over the landscape. The last is the NDT4c, which consists of the higher, wetter site series that are stand replaced by fire.

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In dry forests of the NDT4b, frequent low intensity fires consume fuel that has built up, and eliminate fire intolerant plants. Over time this process leads to stands of large, fire resistant trees such as Douglas fir and ponderosa pine, well spaced throughout the stand, with a healthy understory of grasses and shrubs. This combination of large trees and diverse, healthy understory attracts a variety of wildlife including mule deer, bighorn sheep, a wide variety of birds and several species of bats and rodents. As well, these conditions provide ideal conditions for livestock grazing. Most of the accessible areas of the NDT4 zone are utilized by livestock, contributing significantly to this industry.

The lower elevations of the major valleys, especially the Okanagan and Similkameen, provide habitat opportunities for a wide diversity of rare (threatened, sensitive or vulnerable) wildlife, plants and plant communities. These dry ecosystems include semi-desert habitats, grasslands, shrub-steppe communities, parkland ponderosa pine and Douglas-fir forests, and deciduous dominated riparian systems. Certain rare species and communities in this NDT are found nowhere else in Canada, and many are found nowhere else in the province. While rare species/communities are found outside of this NDT, the relative abundance located in the area, and the decreasing Crown land base, warrant additional management direction.

It should be noted that there may be revisions to this section to reflect the work of the Regional NDT4 Committee (e.g., some of the concepts contained in this introduction, and as well as some of the objectives and strategies that have been referred back to this committee for more work). The following is the list of tasks that the LRMP Table would like this committee to address (the section of the LRMP, as well as the specific objective and/or strategy that is being referred to is shown in parenthesis).

- 1) Refine the categories or subdivisions for NDT4 -- i.e., refine the current "a", "b" and "c" delineations (NDT4, S-15.3).
- 2) Define the attributes for NDT4 old growth stands (NDT4, S-15.4).
- 3) Develop a new definition for late seral and PNC/climax that works for both tree and understorey vegetation so there is a common understanding of late seral (NDT4, O-1).
- 4) Stocking standards for NDT4, including a review of the role of cluster planting. (NDT4, S-11.6, S-11.8)
- 5) Maintaining the NDT4a as grasslands (NDT4, O-10)
- 6) Stand structure and understorey attributes for NDT4b -- e.g., maximum and minimum stocking standards, species selection, stand density, regeneration delays. (NDT4, O-11)
- 7) Stocking standards within bighorn sheep habitat that promote understorey growth (forage). (Bighorn Sheep Habitat RMZ, S-2.5)

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8) Forest management prescriptions that restore, maintain, or enhance movement corridors for bighorn sheep within bighorn sheep habitat. (Bighorn Sheep Habitat RMZ, S-4.2)

It is expected that the NDT4 Committee will feed its recommendations to the LRMP Implementation and Monitoring Committee, as well as the proposed Advisory Committee that will be addressing the implementation of the "ungrazed areas". The Implementation and Monitoring Committee will make decisions regarding any changes to the LRMP objectives and strategies – i.e., no changes will be made to this section as a result of the work by the Regional NDT4 Committee unless the changes are endorsed by the LRMP Implementation and Monitoring Committee.

## Issues

In the fire maintained portions of this NDT (i.e. NDT4b) much of the landscape has shifted from open, old growth dominated stands to predominately Douglas fir overstory with dense thickets, leading to increased forest health risks, reduced biological diversity, poor forage production, and increased risk of catastrophic wildfire. As well, aggressive conifer encroachment is reducing both the area and productivity of grasslands (NDT4a), and the productivity of forage. Rare elements are primarily impacted by the alienation of Crown land in this NDT.

## Goals

One of the goals within this NDT is to manage further impacts to this sensitive area to meet specified objectives. This will take concerted efforts by all levels of government, licensed resource users, private landowners and the general public. Inclusion of ecosystem management principles into resource development plans, species or site specific management plans, and emphasis on stewardship, all contribute to an effective management framework.

Other goals are to improve wildlife habitat, enhance forage productivity for livestock and wildlife use, improve forest health and productivity, and improve biodiversity for this natural disturbance type

- Maintain natural grassland ecosystem processes.
- Minimize loss of naturally occurring grasslands.
- Provide for connectivity between grassland ecosystems.



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## Objectives and Strategies

1) On at least 85% of permanent range, achieve late seral and/or potential natural community (PNC)/climax plant communities.

Intent:

i) There will be areas where forest management activities will preclude meeting this strategy.

ii) The 85% is to exclude areas (e.g., sheep lambing habitat) that are managed for other seral stages.

iii) It is expected that the Regional NDT4 Committee will provide further direction on this. Any recommendations from this Committee will be vetted through the LRMP Implementation and Monitoring Committee prior to them being implemented in the plan area.

1.1) Provide a mosaic of seral stages across a landscape unit.

1.2) Incorporate information from historic, current, and future research on grassland ecology and inventory studies into ongoing management plans.

1.3) Manage rare grassland ecosystems to a late seral/PNC climax condition, unless otherwise specified to meet the requirements of rare elements.

Intent:

i) Government is to identify and field confirm all rare grassland ecosystems.

1.4) Ensure range use plans (RUPs) include grazing schedules and strategies designed to shift the majority of plant communities toward, or maintain them at, late seral or PNC.

1.5) Monitor permanent range vegetation communities to assess changes over time, and adjust domestic and/or wild ungulate grazing levels where necessary to achieve the desired plant communities.

Intent:

i) Adjustments to wild ungulate grazing levels could occur through the use of fencing and hunting regulations (i.e., managing population levels).

1.6) Utilize livestock and/or prescribed burning to assist in meeting seral stage targets. Primary consideration is to be given to present locations and long term requirements of rare elements.

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2) Manage disturbances (grazing, prescribed burns, etc.) to meet goals. (HLP eligible)

2.1) Through range use plans, establish desired plant communities that reflect the desired seral stage distribution, but are realistic and attainable.

Intent:

i) Unless specified otherwise, the desired plant community should reflect objective 1 or objectives for other RMZs (e.g., Bighorn Sheep Habitat, Mountain Goat Habitat, Mule Deer Winter Range, etc.).

ii) The FPC "Identified Wildlife Management Strategy" and the LRMP "Interim Measures" document may provide specific direction for desired plant communities relative to the location of rare elements.

2.2) Ensure range use plans include strategies to manage livestock grazing to mimic natural disturbance patterns.

3) Maintain or enhance habitat opportunities for rare elements dependent upon NDT4 ecosystems.

Intent:

i) This will be consistent with the rare element budget on the timber harvesting land base (i.e., 7,500 hectares).

3.1) Any resource use activities occurring on NDT4 ecosystems must take into account habitat requirements of rare elements.

3.2) Protect rare plant communities by planning management activities so that those communities persist.

Intent:

i) That these communities will persist in a viable condition.

ii) Government is to identify and field confirm all rare plant communities.

3.3) Develop and implement management prescriptions for rare plants and plant communities.

3.4) Assess habitats in the BG, PP and I DFxh zones capable of supporting rare elements prior to approving resource use and development.

Intent:

i) The Ministry of Environment, Lands and Parks will determine the need for an assessment.

ii) The assessment may require appropriate seasonal conditions (i.e., it may not be appropriate to do an assessment during certain months).

iii) Proponents may conduct the assessment with the assistance of qualified personnel

iv) Where an assessment is deemed necessary the Ministry of

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Environment, Lands and Parks will undertake the assessment and endeavour to meet the operational plan review timelines.

v) If an assessment is not completed within the operational plan review timelines it will be done as an amendment to the plan (i.e., it will not hold up approvals).

4) Manage the existing Crown land base to minimize, where practicable, alienation and adverse impacts on important habitats and special features of rare elements.

4.1) Consider the use of designations under the Land Act to manage key grassland areas.

Intent:

i) Land Act designations that could be used include "Notations of Interest", "Section 15 and Section 16 reserves", etc.

ii) The types of areas that could be considered include, but are not limited to, rare ecosystems, key spring ranges, red and blue listed species habitat, etc.

4.2) Authorizations and withdrawals of Crown land under the Land Act must adequately mitigate or compensate for the impacts on rare elements and their habitats.

Intent:

i) Authorizations and withdrawals of Crown land must be preceded by an investigation of alternative, less disruptive, options. In their absence or unsuitability, a process of mitigation should be applied or implemented.

4.3) Vegetation and wildlife inventories may be required for any land alienation, which has the potential to adversely impact the structural or functional integrity of the site.

Intent:

i) The proponent would undertake these studies.

5) Restore and/or rehabilitate NDT4 ecosystems.

Intent:

i) This is intended to compensate for losses from alienation.

ii) Where possible, enhancement activities should be considered.

5.1) Develop and implement management plans for both noxious weeds and weed species of concern. The intent is to minimize the spread and proliferation of weed species.

Intent:

i) Where practical, use non-chemical methods to control noxious weeds and weeds species of concern. (implementation)

5.2) Utilize native seed species mixes wherever practical.

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5.3) A committee will be structured to promote and review enhancement projects. Approved projects will have priority for funding from the Grazing Enhancement Fund (GEF).

Intent:

- i) The committee can be either the "Ungrazed Areas" Advisory Panel, or the Implementation and Monitoring Committee.
- ii) If the committee reviewing projects is not the "Ungrazed Areas" Advisory Panel, the committee that is reviewing the projects should include ranching interests.

6) Reduce disturbance and degradation to NDT4a and b resulting from access.

Intent:

- i) This objective recognizes that there are areas within grassland ecosystems that have been identified as summer motorized intensive use areas (RMZs) – i.e., this objective would not affect activities within these RMZs provided they are consistent with the "Summer Motorized Recreational Use - Land Stewardship Principles" (see Appendix V).
- ii) This objective is in place to determine/resolve potential issues relative to these sensitive ecosystems.
- iii) Licensed resource users may be excluded from these provisions; however, regulatory agencies should include provisions in operational planning so as to minimize the impacts of those activities.
- iv) It is recognized that mineral exploration involving mechanical disturbance will continue to be managed according to the Mineral Exploration Code. Low impact methods of motorized or mechanical access and exploration, and prompt re-vegetation of disturbances, are commonly encouraged practices.
- v) Does not include existing trails – e.g., game trails, cattle trails, motorcycle trails, etc., but recognizes that these may be identified as ecological problem areas.

6.1) Where access-related concerns are identified on grasslands, develop and implement access strategies to address those concerns.

Intent:

- i) Reduce access to grasslands in general.
- ii) Concerns at the local level are to be worked out, wherever possible, at the local level using the framework outlined in objective 7 in the Access Management section (Part 6).

6.2) Do not encourage mechanized or motorized use on grasslands.

Intent:

- i) This is not intended to be a blanket exclusion to these types of uses on grasslands. When government agencies are approached regarding expansion of areas for intensive summer motorized use, grassland ecosystems should not be considered unless concerns over environmental and other impacts are adequately addressed.

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6.3) Avoid indiscriminate off road and off trail use in grasslands.

Intent:

- i) To be accomplished through "self regulation", and a public education campaign.
- ii) This strategy may be superceded by strategy 7.1 if legitimate concerns arise.

6.4) Winter motorized recreation should only occur on sufficiently deep snowpacks so that disturbance to soils and/or vegetation does not occur.

6.5) Where practical, deactivate and rehabilitate non-status roads and trails that are no longer required.

Intent:

- i) Recognises that there are numerous non-status roads and trails that will require "outside" funding sources.
- ii) Where user groups are known they will be notified; otherwise, standard notification notices (e.g., newspaper notifications) will be used
- iii) Allow for road use through areas to accommodate legitimate use in specified areas, including areas of use such as roads into pit area parking, emergency accesses, etc.
- iv) This would be undertaken on a "where practicable" basis when outside funding can be obtained.

7) Promote public education about range and grassland management.

Intent:

- i) It is intended that this would be promoted by all those agencies and individuals who have an interest in how grasslands are managed - e.g., Ministry of Forests, Ministry of Agriculture, Food and Fisheries, BC Environment, conservation and recreation organizations, the ranching industry, etc.

7.1) Improve communication to develop common ground and buy-in amongst stakeholders and agencies.

7.2) Continue efforts to build partnerships with government agencies, licensed tenure holders, and private land owners, with a goal of encouraging stewardship of private lands and managing for ecosystem integrity of Crown lands. (implementation)

8) Encourage activities on grassland ecosystems be carried out in a responsible manner.

8.1) Use the public, user groups, etc. to assist in observing, recording, and reporting infractions of the FPC guidelines and regulations.

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## Sustainability

9) Manage for productivity and long-term sustainability of permanent range.

9.1) Promote productivity and sustainability of permanent range through appropriate strategies and schedules in range use plans, and through ungulate management strategies (e.g., hunting regulations).

10) Maintain the NDT4a (as defined by the Regional NDT4 Committee) as grasslands.

Intent:

i) All recommendations from the Regional NDT4 Committee will be vetted through the LRMP Implementation and Monitoring Committee before they are applied to the plan area.

10.1) Where practical, return fire to the NDT4a at historical fire cycle intervals by developing and implementing a burn plan that includes restoration and maintenance burning. (implementation)

Intent:

i) Not to be used as a reason not to burn, but for example it may not be practical to burn next to a housing development.

10.2) Manage grazing to allow fine fuel build up prior to burning, and to allow for adequate re-growth of grasses and forbs after burning.

10.3) Develop and implement a plan to modify suppression on naturally occurring wildfires that meet impact prescriptions.

Intent:

i) Choose appropriate areas with consideration for other resource values (e.g., timber, range, and wildlife), and ensure property (e.g., houses) is not put at risk.

10.4) Initiate a feasibility study to determine area specific appropriateness of using prescribed fire as a management tool to maintain ecosystem integrity - e.g. to enhance Ceanothus (yellow stemmed buck brush) for deer forage. (implementation)

10.5) Delineate and map the grasslands.

Intent:

i) To determine historic levels of grassland/parkland forest.  
ii) To use the definition of NDT4a developed by the Regional NDT4 Committee and a mapping method recommended by that committee.

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10.6) Mechanically remove encroaching conifers where it is impractical to burn and/or prior to burning on grasslands. (implementation)

11) Manage the NDT4b for the stand structure and understory attributes described by the Regional NDT4 Committee.

Intent:

- i) These attributes will include such things as maximum and minimum stocking standards, species selection, stand density, and regeneration delays.
- ii) All recommendations from the Regional NDT4 Committee will be vetted through the LRMP Implementation and Monitoring Committee before they are applied to the plan area.

11.1) Provide a range of opening (cutblock) sizes.

11.2) Only manage for coarse woody debris where it would normally occur (in wet sites and very dry, fire-proof sites - no ground fuel).

11.3) Do not plant conifers in natural grassland openings.

11.4) The location of wildlife tree patches should focus on areas with tall, large diameter snags. There should be more emphasis on snag retention in the dry (02,03,04) site series.

Intent:

- i) All standing dead stems that are to be retained and pose a safety hazard are to include a no work zone
- ii) Additional information on green tree retention can be found in the "Mule Deer Winter Range RMZ" and "Ecosystem Management - Forests" sections.

11.5) Encourage a variety of mechanical silviculture treatments where it is impractical to burn, or prior to burning in forested sites.

11.6) Practice cluster planting to meet stocking standards and allow plant succession to progress naturally in non-planted openings (voids).

Intent:

- i) Subject to recommendations from the Regional NDT4 Committee.
- ii) This is not to be implemented until the recommendations come from the Regional NDT4 Committee.

11.7) Promote logging to open stands.

Intent:

- i) This is to be done in a manner that does not increase risk to other values - e.g., spread of weeds.

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11.8) The Regional NDT4 Committee is to develop stocking standards for the NDT4 RMZ.

Intent:

- i) If the Regional NDT4 Committee is unable to deliver these stocking standards within a year of plan approval, MELP, MoF and the forest industry are to develop "interim" stocking standards as appropriate. If the Regional NDT4 Committee is close to delivering stocking standards (i.e., within a couple of months), then it's possible that MELP, MoF and the forest industry may collectively choose to wait for these rather than to develop interim standards.
- ii) To develop and implement biogeoclimatic (BGC) subzone/variant tree stocking rates that approximate "natural" stocking densities.
- iii) The stocking standards may be different for those portions of the NDT4 RMZ that overlap with the Mule Deer Winter Range and Bighorn Sheep Habitat RMZs.

11.9) Develop a fire management plan for the NDT4a and b.

Intent:

- i) These plans could address the use of prescribed fire, and the appropriate conditions under which wildfire suppression activities may be modified to allow these fires to burn.

11.10) Manage grazing to allow fine fuel build up prior to burning, and to allow for adequate re-growth of grasses and forbs after burning.

11.11) Develop and implement a plan to modify suppression on naturally occurring wildfires that meet impact prescriptions.

Intent:

- i) Choose appropriate areas with consideration for other resource values (e.g., timber, range, and wildlife), and ensure property (e.g., houses) is not put at risk.

11.12) Initiate a feasibility study to determine area specific appropriateness of using prescribed fire as a management tool to maintain ecosystem integrity - e.g. to enhance Ceanothus (yellow stemmed buck brush) for deer forage. (implementation)



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12) Restore and enhance ecosystem connectivity in NDT4 a and b.

Intent:

- i) Connectivity includes elevation, as well as north-south and east-west.
- ii) Does not apply to activities regulated by the FPC.

12.1) Avoid resource use and/or development activities that would have major implications to maintaining connectivity within this RMZ.

Intent:

- i) Resource use and development activities include all activities within this zone that would significantly alter the ecosystem or decrease the land base.
- ii) Mitigative or compensatory strategies may allow for such development/use to occur.
- iii) Most of the mitigative strategies are located in other sections of the document specific to overlapping values (e.g., "Crown Land", "Bighorn Sheep Habitat RMZ", "Mule Deer Winter Range RMZ", Ecosystem Management - NDT4", "Access", etc.)

13) Encourage re-establishment of recently extirpated species.

Intent:

- i) Follow the wildlife transplant policy.

13.1) Where practicable, attempt translocation of recently extirpated species.

14) Augment those species that are threatened with extirpation.

14.1) Where practicable, augment existing populations to minimize potential extirpations.

15) Improve knowledge of NDT4 ecosystems (e.g., function, areal extent, mapping, stand structure, old growth attributes, etc.).

15.1) Encourage research and inventories of NDT4 ecosystems.

Intent:

- i) It is intended that these would be encouraged by all those agencies and individuals who have an interest in how NDT4 ecosystems are managed - e.g., Ministry of Forests, Ministry of Agriculture, Food and Fisheries, Ministry of Environment, Lands and Parks, conservation and recreation organizations, the ranching industry, etc.

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15.2) Maintain and expand the network of range reference areas to assess PNC.

15.3) Describe and map, where possible, those ecosystems (using BEC to the site series level) that comprise NDT4. (implementation)

Intent:

- i) As necessary, include subzones/site series not currently categorized as NDT4, and remove those subzones/site series that are inappropriate.
- ii) To be done by the Regional NDT4 Committee.
- iii) To be reviewed by the LRMP Implementation and Monitoring Committee.

15.4) Determine/define the structural attributes of "old growth" in NDT4. (implementation)

Intent:

- i) To be done by the Regional NDT4 Committee.
- ii) To be reviewed by the LRMP Implementation and Monitoring Committee.

15.5) Encourage research into ecosystem and rare element dynamics, with specific emphasis on appropriate management recommendations. (implementation)

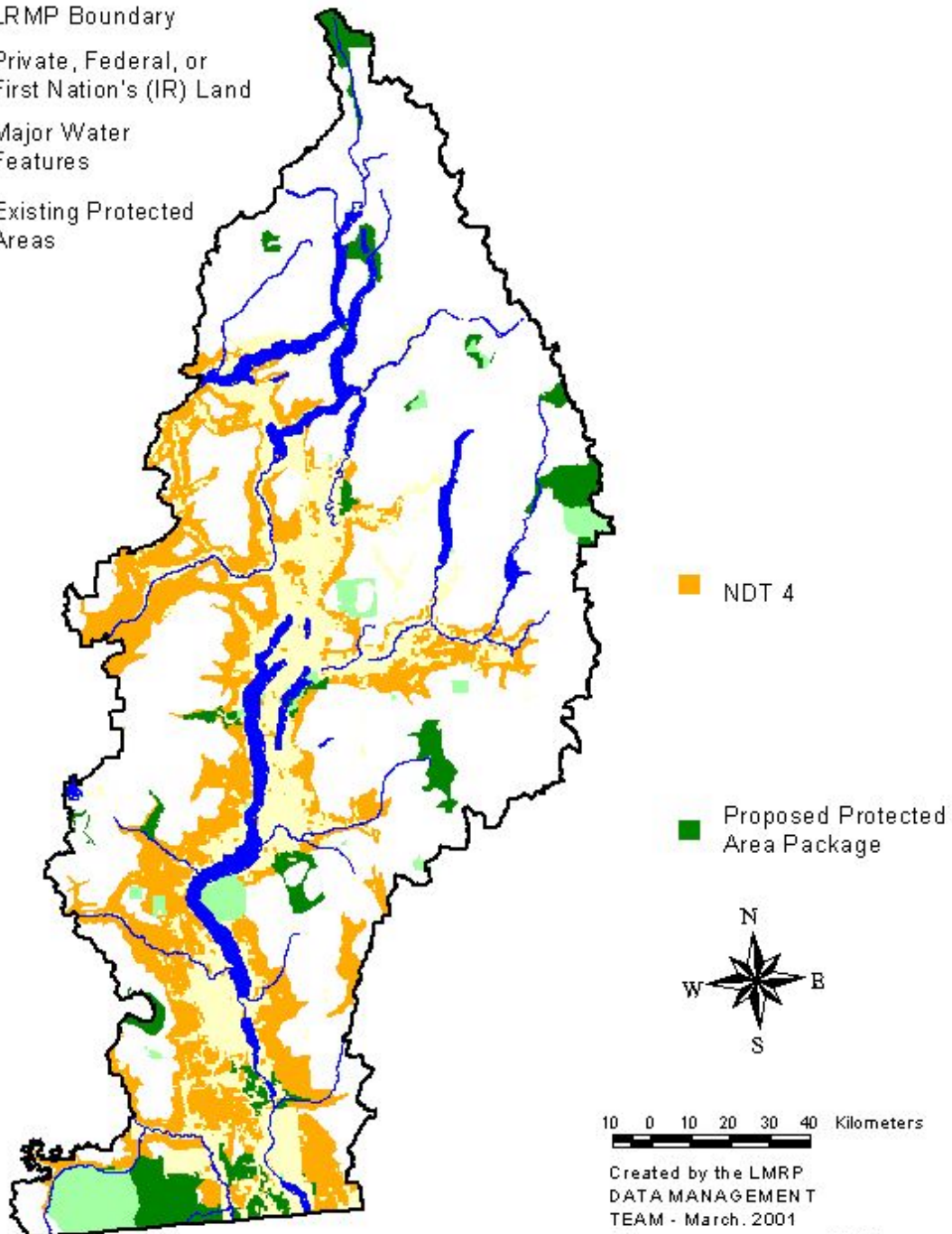


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## Ecosystem Management - NDT4 RMZ

### Base Information

- ∕ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



10 0 10 20 30 40 Kilometers

Created by the LMRP  
DATA MANAGEMENT  
TEAM - March, 2001  
File name: eco\_man\_ndt4\_2.jpg



## Polygon Specific Resource Management Zone

## Fish and Aquatic Habitat

In these RMZs:

- Provisions for managing bull trout systems, geographically isolated populations, high value spawning areas, cutthroat trout systems, and salmon areas.
- Provisions for managing broodstock collection sites.
- Provisions for managing large lake shorelines with important salmonid habitat.

## Special Areas, Broodstock Collection Sites, and Large Lake Shoreline

### Introduction

Special areas include: (i) bull trout systems; (ii) geographically isolated populations; (iii) high values spawning areas; (iv) cutthroat trout systems; and, (v) salmon watersheds. These areas or systems are considered to be of regional, and in some cases, provincial importance. Other important areas for fish include broodstock collection sites, and large lake shorelines with salmonid habitat.

### Special Areas

#### *Bull Trout Systems*

There are several known drainages in the Shuswap system that support bull trout. This species is blue-listed and is sensitive to habitat degradation, and increased fishing pressures linked to access, particularly to staging, spawning and over-wintering congregation sites. Increase protection for these areas is the primary goal.

### Broodstock Systems

The LRMP area contains three provincially significant hatchery broodstock collection sites: Pennask Creek and lake; the Dee Lake chain; and, the southeast side of Oyama Lake. The wild rainbow trout in the Pennask drainage are the most valuable trout stock in the province. About 40% of all the wild rainbow trout eggs for the provincial stocking program come from Pennask Creek. The goal for these sites is to ensure that these sites continue to provide the egg collections necessary to support the provincial re-stocking program and to promote shared stewardship among resource users.

# Okanagan - Shuswap LRMP Approved Plan

## Large Lake Shoreline Management Area

The proposed large lake shoreline management area includes all water below the mean annual high water mark, as well as the riparian zone above the high water mark where the adjacent upland is Crown land. It includes the following lakes: Shuswap, Little Shuswap, Mara, Sugar, Mabel, Kalamalka, Wood, Okanagan, Skaha and Osoyoos. Issues include urban expansion, and the cumulative impacts of foreshore and upland resource development activities on Crown and private land. The primary goal in this area is to promote more proactive planning on an ecosystem basis to protect sensitive fish habitat.

## Special Areas

### Objectives and Strategies

1) Provide suitable habitat attributes for bull trout, geographically isolated populations, high value spawning areas, cutthroat trout, and salmon as shown on the "Fish RMZ" map.

Intent:

- i) The list of suitable habitat attributes is provided in Table 1.
- ii) Recognizes the importance of these habitats relative to other fisheries values in the plan area.

1.1) Inventory the known salmon, geographically isolated and cutthroat watersheds for presence of fish, and locations of critical habitats (i.e., spawning and rearing), and obstructions to movement to determine the distribution of fish and habitats within these watersheds.

Intent:

- i) The intent is to undertake inventories during operational planning, or through regional fisheries inventories.
- ii) With the exception of bull trout (i.e., strategies 1.6, 1.7, and 1.8), this strategy is not intended to be incremental to the Forest Practices Code (FPC).
- iii) Fish management agencies are to include these areas as priorities for regional fish inventories,
- iv) The intent is for forest licensees to gather the required inventories under the current (June 15, 1999) Operational Planning Regulations (OPR) under the FPC. Additional information is the responsibility of the Ministry of Environment, Lands and Parks (MELP) and the Department of Fisheries and Oceans (DFO).

## Okanagan - Shuswap LRMP Approved Plan

1.2) Conduct a risk assessment prior to development in watersheds, or sub-drainages, containing, or upstream of, the above fisheries values as defined on the "Fish RMZ" map.

Intent:

- i) The risk assessment needs to be of sufficient detail in order for the professional to make determinations and/or predictions about the impacts of future development; such that managers can make informed decisions.
- ii) The risk assessment is to include the information detailed in Table 2.
- iii) Where an Interior Watershed Assessment Procedure (IWAP) exists for the area, no additional assessment is required. However, fish attributes need to be incorporated into future management.
- iv) The risk assessment is to be preformed by a qualified professional.
- v) The risk assessment discussed in strategies 1.2, 1.3 and 1.4 will be completed by MELP in cooperation with the local forest industry according to an implementation plan based upon proposed activity. The priority is to be determined by MELP. Industry is to support MELP's funding requests and to provide forest development plan information regarding the block location.

1.3) Use the risk assessment to determine/project cumulative impacts resulting from proposed forest or road development to the defined attributes. (See Table 1.)

Intent:

- i) The attributes from Table 1 that apply with respect to this strategy include sediment, peak flows, riparian, and channel assessment (including attributes by channel type).
- ii) The Ministry of Forests (MoF) research is to test the usefulness and practicability of Table 1 and make recommendations to the LRMP Implementation and Monitoring Committee within one year of plan approval.

1.4) Include the risk assessment, including the assumptions made, with the forest development plan submissions, and provide a level of risk for each attribute.

Intent:

- i) Ensure forest and road development maintains the attributes listed in Table 2.
- ii) For the sediment attribute, while four categories are listed, the current condition is not to be increased as a result of the proposed development.



# Okanagan - Shuswap LRMP Approved Plan

1.5) Identify spawning areas, and assess the potential for enhancement.

Intent:

- i) This would be done as part of the regional fisheries inventory.
- ii) The intent is for forest licensees to gather the required inventories under the current (June 15, 1999) Operational Planning Regulations (OPR) under the FPC. Additional information is the responsibility of MELP and DFO.

1.6) Inventory the known bull trout watersheds, and those that may have bull trout (i.e., Fraser drainage) for presence of fish, and locations of critical habitats (i.e., staging, spawning, over-wintering congregations, or where obstructions cause bull trout to collect) to determine the distribution of fish and habitats within these watersheds.

Intent:

- i) The intent is to undertake inventories as required by the Forest Practices Code during operational planning, or through regional fisheries inventories.
- ii) Bull trout inventory requirements are likely to occur up to 30% gradient or to a known barrier.

1.7) For those inventoried systems that are known to contain bull trout, it should be assumed that management is required up to 30% gradient or to a barrier

1.8) The licensee can choose the default mechanism and assume that bull trout are present and management is required up to 30% gradient or to a barrier.

1.9) Where acid rock drainage problems are identified and determined to have a negative impact on water quality, remedial actions should be undertaken.

Intent:

- i) It is not intended to be an additional inventory or assessment requirement during forest management operations

1.10) When planning road development, reduce potential risks to fish habitat

Intent

- i) Consider recommendations in the Riparian Management Area Guidebook under roads and crossings to achieve this strategy.
- ii) Encourage the use of "Total Chance" planning.
- iii) The intent is to minimize road development.

# Okanagan - Shuswap LRMP Approved Plan

1.11) When planning non-forest development activities, ensure access management plans reduce potential risks to fish habitat.

## Broodstock Collection Sites

### Objectives and Strategies

2) Maintain the productivity of these provincially important broodstock collection sites as shown on the "Broodstock Collection Sites" map.

Intent:

- i) This objective goes to justifying the rationale for this proposed RMZ.
- ii) The intent is that these areas will be managed 'differently' than other areas.

2.1) Conduct a risk assessment prior to development in watersheds, or sub-drainages, containing, or upstream of, the above fisheries values as defined on the "Broodstock Collection Sites" map.

Intent:

- i) The risk assessment needs to be of sufficient detail in order for the professional to make determinations and/or predictions about the impacts of future development, such that managers can make informed decisions.
- ii) The risk assessment is to include the information detailed in Table 2.
- iii) Where an IWAP exists for the area, no additional assessment is required. However, fish attributes need to be incorporated into future management.
- iv) The risk assessment is to be preformed by a qualified professional.
- v) The risk assessment discussed in strategies 2.1, 2.2 and 2.3 will be completed by MELP in cooperation with the local forest industry according to an implementation plan based upon proposed activity. The priority is to be determined by MELP. Industry is to support MELP's funding requests and to provide forest development plan information regarding the block location.

2.2) Use the risk assessment to determine/project cumulative impacts resulting from proposed forest or road development to the defined attributes. (See Table 1.)

Intent:

- i) The attributes from Table 1 that apply with respect to this strategy include sediment, peak flows, riparian, and channel assessment (including attributes by channel type).
- ii) MoF research is to test the usefulness and practicability of Table 1 and make recommendations to the LRMP Implementation and Monitoring Committee within one year of plan approval.

# Okanagan - Shuswap LRMP Approved Plan

2.3) Include the risk assessment, including the assumptions made, with the forest development plan submissions, and provide a level of risk for each attribute.

Intent:

- i) Ensure forest and road development maintains the attributes listed in Table 2.
- ii) For the sediment attribute, while four categories are listed, the current condition is not to be increased as a result of the proposed development.

2.4) For all other fish bearing streams within the Pennask Creek drainage not included in the Pennask Creek protected area, any proposed activities will be addressed through the management direction found in the Riparian and Wetlands section.

Intent:

- i) A riparian management plan for the Pennask Creek watershed can be a future development.
- ii) Any riparian reserves that may be required will be delivered within the allotment established through the "enhanced riparian reserve" protection budget.

2.5) Limit timber harvesting within those portions of Echo Creek shown on the "Broodstock Collection Sites" map to only allow the removal of beetle attack and/or windthrow trees.

Intent:

- i) Timber harvesting is to address water quality concerns by minimizing sedimentation where practicable.

2.6) Within those portions of Alex Creek shown on the "Broodstock Collection Sites" map, only allow the removal of beetle attack and/or windthrow trees below the outlet of the creek from Alex Lake. Above the outlet, in the lakeshore management zone (LMZ), selection harvesting of green trees is permitted in addition to salvage harvesting.

Intent:

- i) Timber harvesting is to address water quality concerns by minimizing sedimentation where practicable.

## Okanagan - Shuswap LRMP Approved Plan

2.7) In watersheds and/or sub-drainages containing broodstock collection sites, manage livestock use away from streamside riparian areas such that:

- streambanks are not destabilized;
- concentrated trampling (i.e., > 10% of the surface area is affected by steep hoof prints) does not occur along spawning areas; and,
- livestock watering does not negatively impact spawning habitat.

Intent:

- i) Want this as a tool to address possible conflicts.
- ii) The strategy is not intended to preclude off-stream watering.
- iii) The periods referred to in the third point of this strategy are from approximately May 15<sup>th</sup> to August 15<sup>th</sup> for the Pennask Creek system, and from approximately May 1<sup>st</sup> to July 20<sup>th</sup> for systems on the east side of the Okanagan Valley.
- iv) The intent is to address these impacts in range use plans through a combination of the following:
  - adjusting grazing rotations with consideration for the critical time from spawning to fry emergence;
  - providing off-stream water developments;
  - providing strategically located fencing;
  - input into timber harvesting plans so as to maintain natural barriers to the stream, and so as not to concentrate livestock on critical spawning habitat; and/or,
  - assuring necessary range riding and strategically located salt placement.

2.8) Where acid rock drainage problems are identified and determined to have a negative impact on water quality, remedial actions should be undertaken.

Intent:

- i) It is not intended to be an additional inventory or assessment requirement during forest management operations

# Okanagan - Shuswap LRMP Approved Plan

## Large Lake Shoreline

### Objectives and Strategies

3) Manage use and development activities to ensure the protection of important shore spawning, rearing and migration habitats, which are indicated as "special habitats" along the shoreline of the large lakes as shown on the "Water - Special Fisheries" map.

#### Intent:

i) The intent is that these areas will be managed as a resource management zone.

ii) This zone includes all water below the natural boundary (at high water), foreshore, as well as the riparian zone around the lake above the natural boundary where the adjacent upland is Crown land.

iii) Proponents of development not covered by the FPC may be required to conduct inventory and impact assessments.

3.1) Minimize the development of structures below the high water mark.

i) An example of how to do this would be to discourage the development of numerous private boat launches (which only a small number of people may use) in favour of a few public launches (which would be used by many). Fewer boat launches would reduce the amount of shoreline that is covered with concrete slabs, which adversely impacts cover availability and invertebrate production. If boat launches are approved, two strips of concrete should be used rather than slabs.

3.2) Future structures are to be open to currents and wave action so as not to impede littoral drift.

3.3) Restrict the use of sand/silt traps, windrowing, and rock groins in order to allow for continued littoral drift.

3.4) Restrict removal of material and vegetation from the foreshore in order to maintain natural foreshore substrates.

#### Intent:

i) "Substrates" include gravel, cobble and boulders.

ii) To maintain natural substrates for more diverse invertebrate production.

iii) Does not include weeds, milfoil or other vegetation that may wash up on the shore.

3.5) Restrict dumping of sand in areas characterized by gravel beach in order to maintain natural foreshore substrates and vegetation.

# Okanagan - Shuswap LRMP Approved Plan

3.6) Restrict infilling of lakeshores.

Intent:

- i) To avoid the loss of shoreline habitat.
- ii) To provide guidance to those issuing permits.

3.7) Water intakes to be installed in at least 3 metres of water, as measured at low water.

Intent:

- i) To avoid disturbing substrates, as this makes them susceptible to colonization by invasive weeds. The weeds then need to be managed; thus, creating further problems.
- ii) To minimize interactions with fish, or impacts to spawning habitat.

3.8) Use directional drilling or augering when installing waterlines in spawning areas.

Intent:

- i) To avoid disturbing substrates, as this makes them susceptible to colonization by invasive weeds. The weeds then need to be managed; thus, creating further problems.

3.9) Retain a Crown shoreline strip (where feasible) or use covenants or restrictions to maintain shoreline vegetation and restrict development when alienating (i.e., selling or tenuring) Crown-owned shoreline and foreshore.

Intent

- i) To maintain the riparian zone and protect fish habitat.
- ii) This is not intended to be an absolute barrier to lakeshore development.
- iii) In areas of important fish habitat (e.g., spawning and rearing sites) a strip that is greater than 15 metres may be required.
- iv) Decisions on the application of setbacks and covenants will need to be assessed on a site by site basis, especially in areas of existing long-term fills.
- v) In most cases the width of the strip would be a minimum of 15 metres.

3.10) Prevent the removal of naturally generated large organic debris (LOD).

Intent:

- i) To maintain recruitment rate of LOD, and allow it to contribute to nutrient cycling, shoreline stabilization, and the provision of cover habitat.

# Okanagan - Shuswap LRMP Approved Plan

3.11) Avoid, wherever practicable, development within a 15 to 30 metre wide strip upslope of the high water mark (natural boundary).

## Intent

i) Proposals within the setback must be assessed or planned by a qualified professional, who can also propose mitigation or compensation measures as appropriate to alleviate potential impacts and/or compensate for any loss in capacity of habitat to produce fish or other riparian values.

3.12) For the areas shown on the "Large Lake Shoreline" map, wherever practicable, development within 100 metres upslope of the high water mark (natural boundary), and 50 metres out into the water.

## Intent

i) Proposals within the setback must be assessed or planned by a qualified professional, who can also propose mitigation or compensation measures as appropriate to alleviate potential impacts and/or compensate for any loss in capacity of habitat to produce fish or other riparian values.

ii) A reserve or "Notation of Interest" under the Land Act should be established over these areas to ensure they are not alienated. (BCAL notes that as with the establishment of other reserves, they wish to conduct the status of the mapped areas, and consider operational input prior to the establishment of the reserve.)

iii) Agencies to develop assessment procedures at the operational level and on a site-specific basis.

iv) Applies to Crown land developments other than forestry activities.

4) LRMP fish objectives and strategies should be incorporated into other planning initiatives, including those administered by local governments.

## Intent:

i) To manage proactively - i.e., identify fisheries management zones and reserve zones prior to development, guide development along the lakeshore to avoid sensitive fish habitats, and minimize cumulative impacts as opposed to reacting project by project.

ii) To manage fish values and habitats cooperatively between all levels of government.

4.1) Inventory and classify habitats relative to their importance and sensitivity.

## Intent:

i) The intent of strategies 4.1 and 4.2 is to develop more specific foreshore guidelines for developments along the lake shoreline based on habitat sensitivity and type of development to minimize cumulative impacts. This would be used to establish fisheries management and reserve zone boundaries in association with local government land use planning processes (e.g., 15 metre setback zoning exists on south shore of Shuswap Lake).

# Okanagan - Shuswap LRMP Approved Plan

4.2) Develop management prescriptions and setback requirements based on results of strategy 4.1

## Table 1: Attributes to be Addressed by IWAPs

### 1) Sediment

The degree of risk to a fishery caused by suspended sediment (SS) may be divided into four arbitrarily defined categories based on a range of concentrations, where ambient SS exposure is ongoing, or repeated each successive hydrological cycle. Where exposure is occasional or not continuous it is necessary to assume that at least one life history phase is harmed, and that harmful exposures recur annually:

a) water with <25 mg/SS/L should support excellent fisheries; however, the best trout streams are characterized by clear water with <5 mg SS/L for most of the hydrological cycle.

b) it should usually be possible to maintain good or moderate fisheries in waters that normally contain 25 to 80 mg/L suspended solids;

c) water that normally contain 80 to 400 mg/L suspended solids are unlikely to support good freshwater fisheries, although fisheries may sometimes be found at the lower concentrations in this range;

d) at best, only poor fisheries are likely to be found in waters that normally contain more than 400 mg/L suspended solids.

### 2) Peak Flows

- Maintain the hydrograph peak flow and return periods within the range of the evolved natural channel capacity downstream.
- Maintain timing of the rising and falling limbs of the hydrograph and the base flow component of the hydrograph within the normal range.

### 3) Riparian

- Vegetation functions to dissipate energy associated with freshet flows, filters sediment from the uplands, captures bedload (CWD), provided floodwater retention. Provides root masses that stabilize the stream banks against cutting action, provide shade, provide nutrients in way of leaf litter fall, assists in the formation of pools and undercut banks.

### 4) Channel Assessments

- In all channel types supporting fish maintain a stable stream channel. See "Fish Habitat Restoration Procedures Circular 9, Table 2.5" for those attributes defining a stable channel.

### 5) Other attributes concerning water quality for human consumption



# Okanagan - Shuswap LRMP Approved Plan

## Attributes by Channel Type:

Channel Type	Stable
Step-Pool Morphology	<ul style="list-style-type: none"> <li>• Intact stone lines                             <ul style="list-style-type: none"> <li>- clast steps</li> <li>- intervening pools</li> </ul> </li> </ul>
Bed sediment	<ul style="list-style-type: none"> <li>• Largely moss covered</li> </ul>
Bank sediment	<ul style="list-style-type: none"> <li>• Boulder bedrock, turf or roots</li> </ul>
LWD	<ul style="list-style-type: none"> <li>• Present, minimal function</li> </ul>
Cascade-Pool Morphology	<ul style="list-style-type: none"> <li>• Series of repeating stone lines forming overall steep zone connecting lower gradient pools that are <math>\geq 1W_b</math> in length</li> </ul>
Bed sediment	<ul style="list-style-type: none"> <li>• Moss covered stone steps</li> </ul>
Bank sediment	<ul style="list-style-type: none"> <li>• Boulder and cobble</li> </ul>
LWD	<ul style="list-style-type: none"> <li>• LWD present and functioning to limited extent (forms steps, traps/scours sediment and protects banks)</li> </ul>
Riffle-Pool Morphology	<ul style="list-style-type: none"> <li>• Repeating riffle-bar-pool sequences</li> <li>• Diverse pool size, shape and depth</li> <li>• Channel consists of <math>\frac{1}{2}</math> - <math>\frac{3}{4}</math> pool environment</li> </ul>
Riffle-Pool Morphology	<ul style="list-style-type: none"> <li>• One or two main channels</li> <li>• Diverse riffle shapes</li> <li>• Mainly diagonal and point bars</li> </ul>
Bed sediment	<ul style="list-style-type: none"> <li>• Cobble and gravels</li> </ul>
Bank sediment	<ul style="list-style-type: none"> <li>• Mainly cobbles, gravel and sand</li> </ul>
LWD	<ul style="list-style-type: none"> <li>• Large proportion of undercut/overhanging banks</li> <li>• Oriented across, and spans, the channel</li> </ul>
attributes concerning water quality for human consumption:	
choliform	<ul style="list-style-type: none"> <li>• no detectable increases in fecal choliforms</li> </ul>
temperature	<ul style="list-style-type: none"> <li>• within the range and duration of the natural variability of the undisturbed watershed</li> </ul>
nitrate - N	<ul style="list-style-type: none"> <li>• less than 10 mg/L at intake</li> </ul>
pesticides	<ul style="list-style-type: none"> <li>• not detectable at intake</li> </ul>
algae	<ul style="list-style-type: none"> <li>• less than 50 mg/m<sup>2</sup></li> </ul>

# Okanagan - Shuswap LRMP Approved Plan

## Table 2: Risk Assessment

The risk assessment is to be based on the best information available (i.e., previous assessment or inventories), and professional judgement. However, if little information is available, fieldwork data (to the level deemed necessary by the professional) may need to be gathered.

The risk assessment needs to accomplish the following:

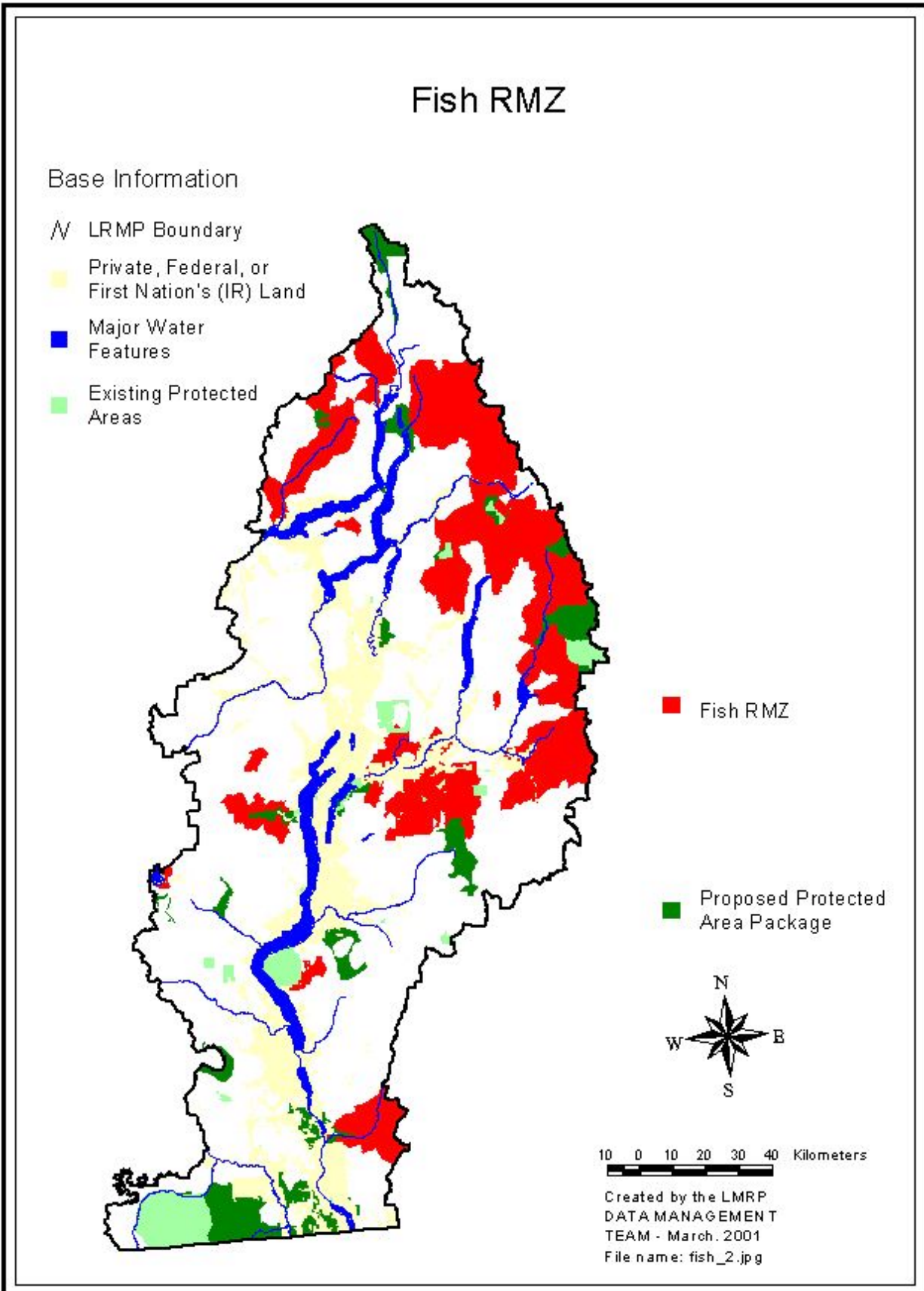
- 1) Describe the base case (i.e., historic range of variability).
- 2) Describe the current condition, including a summary of cumulative impacts of past developments and natural disturbances.
- 3) Identify areas of high hazard (e.g., terrain instability).
- 4) Describe the future status, assuming the current management regime is carried out for the long term.
- 5) Provide a low risk benchmark for each of the attributes (i.e., the preferred attributes from Appendix "x").
- 6) Provide a threshold equivalent clearcut area (ECA) by sub-basin.
- 7) Provide a risk rating (Very High, High, Moderate, Low or Very Low\*) as a result of the proposed activity proceeding.
- 8) Provide mitigative strategies (e.g., areas to avoid or alternative harvesting methods) to reduce risk, if the risk rating is in the Moderate, High or Very High category.

\* The following is to guide interpretation of risk

Risk Rating	Definition	Probability of Significant Hydrologic Impact	Mitigative Strategies
Very Low	The assessment indicates that the proposed development is very unlikely to cause impacts.	< 5	Few or no constraints.
Low	The assessment indicates that the proposed development is unlikely to cause impacts.	5 - 25	Minor constraints should be considered.
Moderate	The assessment indicates that the proposed development may cause impacts.	25 - 50	Modify development.
High	The assessment indicates that the proposed development is likely to cause impacts.	50 - 75	Modify development.
Very High	The assessment indicates that the proposed development is highly likely to cause impacts.	> 75	Modify development.



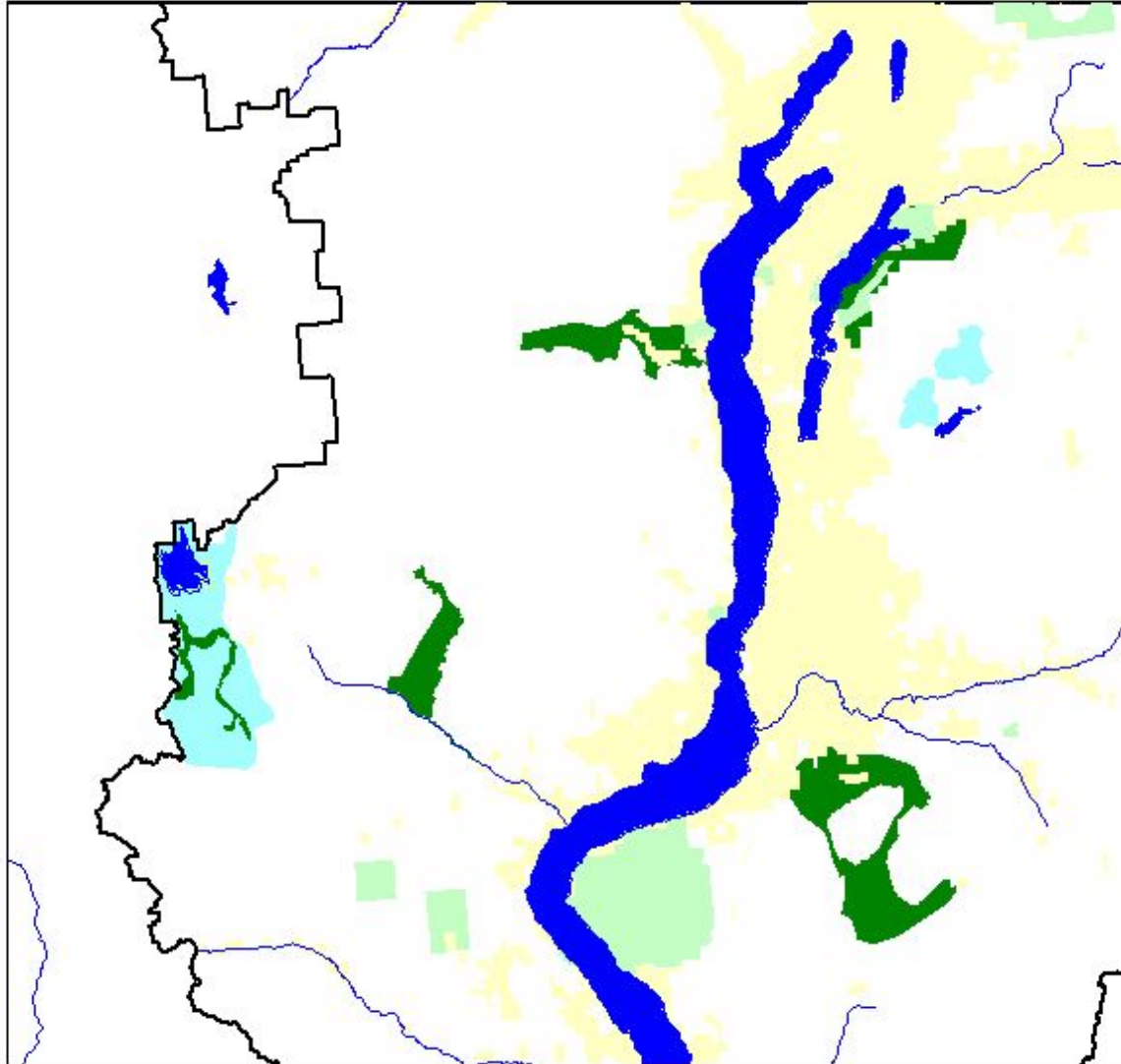
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## Broodstock Collection Sites

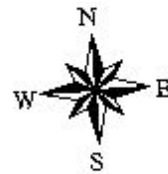


### Base Information

- LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas

### LRMP Information

- Broodstock Collection Sites
- Proposed Protected Area Package



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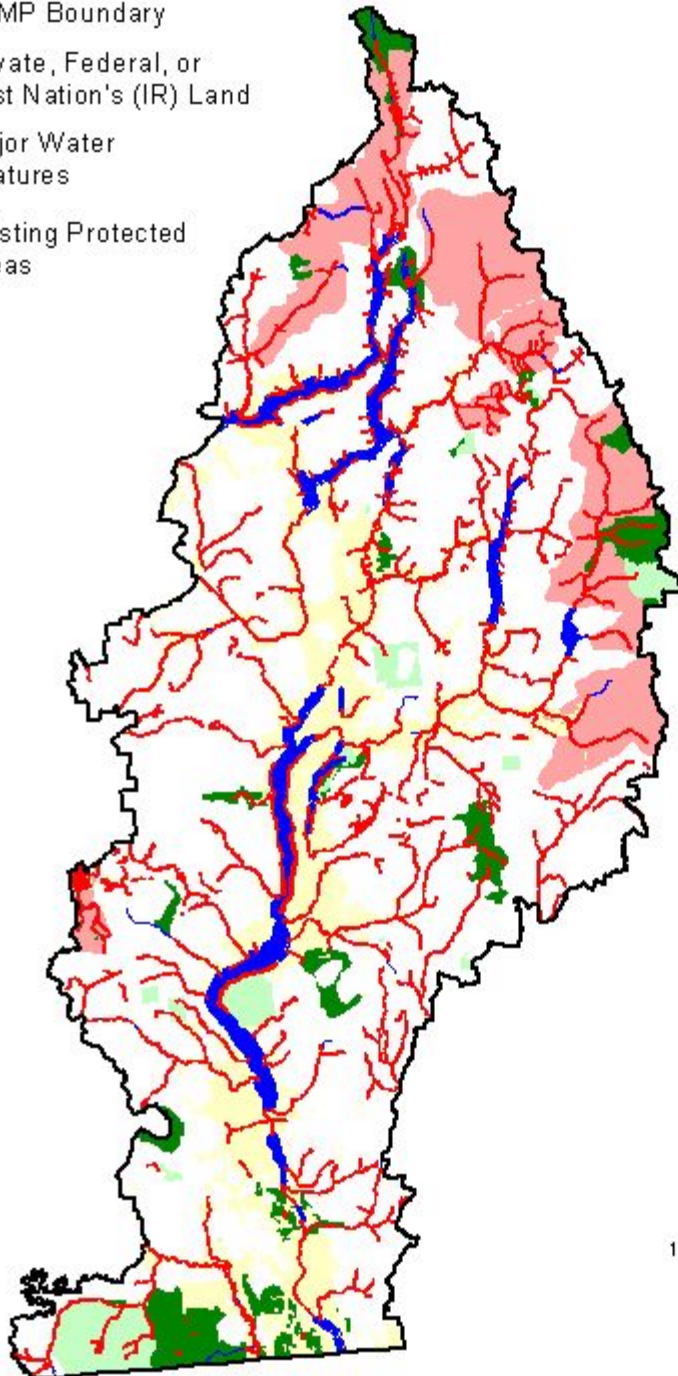


# Okanagan - Shuswap LRMP Approved Plan

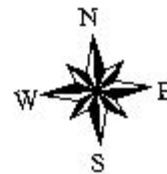
## Water - Special Fisheries

### Base Information

- ∕ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



- Known Fish Distribution, Special Stocks and Special Habitats
- Watershed Level Concerns
- Proposed Protected Area Package



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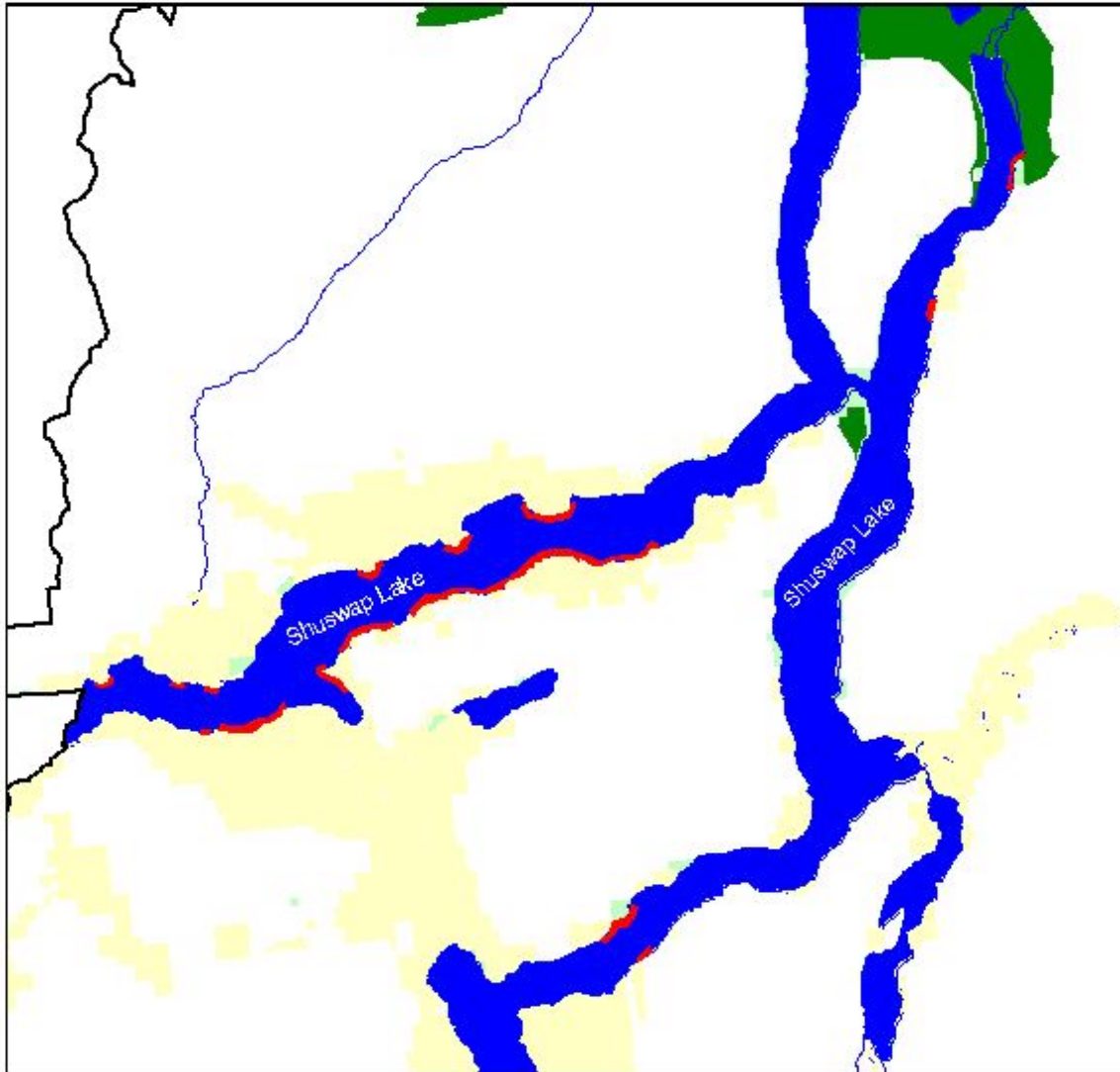
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## Large Lake Shoreline (where 3.12 applies)

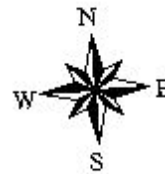


### Base Information

- LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas

### LRMP Information

- Large Lake Shoreline
- Proposed Protected Area Package



4 0 4 8 Kilometers

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## Polygon Specific Resource Management Zone

In this RMZ:

- Specific management direction for the Joe Rich area.

## Joe Rich Special Resource Management Zone

### Introduction

The Joe Rich Special Resource Management Zone is the area of north facing slopes between Highway 33 and the southern boundary of the Mission Creek Watershed as delineated on the "Joe Rich RMZ" map. This area has been the subject of intensive forest planning by Gorman Bros. Lumber Ltd.

### Goal

To demonstrate and evaluate the effectiveness of alternative silviculture systems implemented to address biodiversity, visual quality, water quality, wildlife habitat, recreational values, timber growth, forest health and economics.

# Okanagan - Shuswap LRMP Approved Plan

## Objectives and Strategies

1) Apply ecosystem-based forestry principles.

1.1) Manage the area according to the Joe Rich Total Resource Plan as developed by Gorman Bros. Lumber Ltd. Public input and ongoing monitoring are major components of the plan.

2) Evaluate the effectiveness of the alternative silviculture and harvesting systems.

2.1) Both economic and biological indicators will be included in the evaluation of the ecosystem-based resource plan.

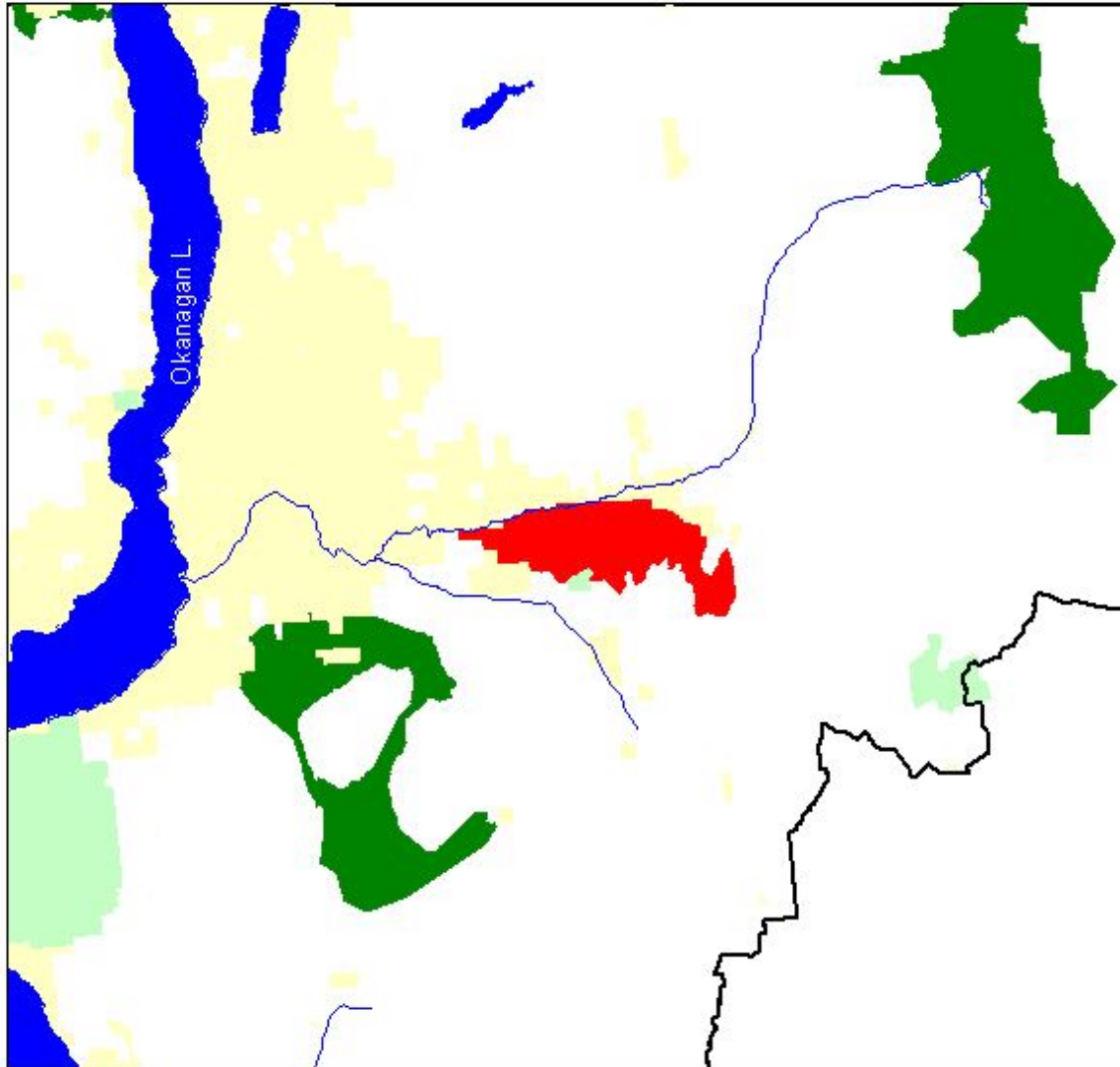
Intent:

i) Use standardized, widely accepted indicators in the monitoring of the economic and biological aspects of the plan.

2.2) Seek funding from government agencies to accomplish the monitoring and evaluation objectives of the plan.

# Okanagan - Shuswap LRMP Approved Plan

## Joe Rich RMZ

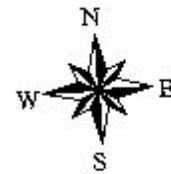


### Base Information

- ∩ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas

### LRMP Information

- Joe Rich RMZ
- Proposed Protected Area Package



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## Polygon Specific Resource Management Zone



## Mission Creek Enhanced Resource Management Zone

### **Introduction**

The Mission Creek watershed is the largest watershed in the Okanagan Basin at 859 square kilometres. Mission Creek's significance for fishery values, for drinking water and for recreational values is well recognized by the community at large. This significance is reflected in its designation as a provincial "Heritage River".

Under the Interior Watershed Assessment Procedure (IWAP) of the Forest Practices Code (FPC), the Mission Creek watershed is divided into eight sub-basins. Riverside, Gorman Bros., Weyerhaeuser, Tolko and the Ministry of Forests Small Business Forest Enterprise Program (SBFEP) currently have forest harvesting activities in the area.

Local governments and community-based environmental action groups (South Slopes Society, Joe Rich Watershed Monitoring Committee, Canadian EarthCare Society, etc.) have identified the Mission Creek watershed as an important watershed that requires additional management direction in order to protect resource values and water quality. This management direction is intended to build on and supplement that provided by the Community Watershed RMZ.



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<b>Current Management</b>	<p>The community watershed provisions of the Forest Practices Code govern the Crown portions of the Mission Creek watershed. Provincial watercourse regulations and local government bylaws govern lower elevations. Citizens of Kelowna and the Regional District of Central Okanagan have become proactive participants in the management of lower Mission Creek, in part due to its size, fishery value, proximity to the urban core, visibility, contribution to domestic water supply, and historic events of flooding.</p>
<b>Current status of monitoring programs</b>	<p>Riverside has developed a monitoring program in the upper Mission Creek basin. This is a Forest Renewal BC program with the Ministry of Environment, Lands and Parks (MELP) as a partner. Monitoring consists of collecting snow accumulation and snowmelt rates, snow line hydrologic data, channel monitoring, estimation of peak flows, green up data and a total chance plan.</p> <p>Gorman Bros. has implemented a water quality monitoring program for the Joe Rich Creek sub-basin that will measure suspended sediment, turbidity levels, chemical and bacteriological parameters (periodic basis) at three locations. (Note: This sub-basin is a separate RMZ.)</p> <p>MELP is in the process of developing water quality objectives. Further, MELP is working with Riverside and Gorman Bros. to provide technical advice on monitoring programs.</p>
<b>Goal</b>	<p>The goal is to establish a process that will ensure that the Mission Creek watershed is managed in a holistic and integrated manner for all water-related resource values. Crown land and private land management activities pertaining to water resources and aquatic habitat need to be accounted for and effectively coordinated and integrated to ensure sustainability of key values.</p>
<b>Objectives and Strategies</b>	<p>1) Manage the Mission Creek watershed for sustainability of both consumptive and instream uses in an integrated manner for both Crown land (industrial, commercial and recreational) activities and private land activities.</p> <p>1.1) The Regional District of Central Okanagan (RDCO), in partnership with the Ministry of the Environment, Lands and Parks, (MELP) and the Ministry of Forests (MoF), is to create and support an Enhanced Watershed Advisory Committee (EWAC). The EWAC will provide advice on the management of land use activities (resource extraction, urban development, etc.) on both the Crown and private land components of the Mission Creek watershed. A Memorandum of Understanding (MOU) will be put in place to establish the respective support roles and to ensure the success of this process.</p> <p>Intent:</p> <p>i) Draft terms of reference for the EWAC are to be developed by the</p>

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RDCO, the City of Kelowna, MELP, MoF, and the Ministry of Agriculture, Food and Fisheries (MAFF). The LRMP Implementation and Monitoring Committee will have the ability to review the terms of reference for this committee once it is established.

ii) Participation is to include the RDCO, City of Kelowna, MELP, MoF, MAFF, forest industry representatives, agriculture industry representatives, members of the Mission Creek IWAP committee, general public, environmental organizations, citizen's groups and other government agencies as required.

iii) The RDCO is to provide administrative and technical support, including GIS support. The province (MELP and MOF) is to provide technical support.

iv) The EWAC is to provide advice to the Regional District and the City of Kelowna on management of the private land (and local government owned) component of the watershed. The EWAC is to provide advice on mitigating the impacts of land use development and agricultural activities on water resources and aquatic habitat.

v) The EWAC is to provide advice to statutory decision-makers (SDMs) on the Crown land component of the watershed. In particular, the EWAC is to provide advice on mitigating the impacts of industrial, commercial and recreational activities on water resources and aquatic habitat.

vi) See Figure 1 for the organization chart.

2) Develop an integrated monitoring program for the Mission Creek watershed.

2.1) Create effective and accessible information management for water quality, stream flow data, fish productivity and land use.

Intent:

i) Consolidate and make readily accessible to all major interests, including the community at large, current and historic water quality, stream flow data, stream temperature data, and fish productivity data for the watershed.

ii) Create a common and shared information data base for all water quality, land tenure and land use information being gathered in the system - i.e., data from both private operators, non-governmental organizations and public agencies

iii) Standardize data collection in the system to facilitate the common database and to allow comparative analysis across sub-basins and outside the watershed. The EWAC is to work with various groups including the forest industry in developing the database.

iv) The EWAC, with the support of RDCO, would be the repository for the information.

v) The EWAC is to seek outside funding as required. (FRBC or other outside funding may be required.)

vi) Other parameters of aquatic health (e.g., stream temperature) could

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be included in a monitoring program as required.

vii) Referrals for activities under the Mines Act that pertain to the Mission Creek (ERMZ) objectives, will be brought forward by MELP or MoF.

2.2) Evaluate monitoring approaches within sub-basins and in the lower reaches of Mission Creek and develop approaches for creating and supporting a system-wide monitoring program for water quality, stream flow and fish productivity, in partnership with other interests (provincial and local government, private companies, and the community) in the watershed.

Intent

i) To coordinate current efforts between public and private groups collecting data to standardize approaches.

ii) Consult with interests in the watershed to achieve agreement on a system-wide approach.

iii) Facilitate and coordinate additional monitoring activities for water quality, stream flow data, fish productivity where required.

2.3) The EWAC is to make recommendations regarding water quality and quantity objectives to the IWAP and statutory decision-makers.

2.4) The EWAC is to make monitoring information available to the all partners and to the community at large.

Intent

i) To develop a reporting system which makes monitoring information readily available to all interests in the watershed.

3) The EWAC is to provide advice to Statutory Decision-Makers, provincial water managers, local government and other interests (e.g., community based stewardship groups) on actions for watershed restoration.

3.1) The EWAC is to provide advice to Crown agencies, local government and private interests undertaking remedial actions for watershed restoration. Also, the EWAC is to support, and where feasible, develop remedial action plans in partnership with government agencies, private companies and community-based stewardship groups.

Intent:

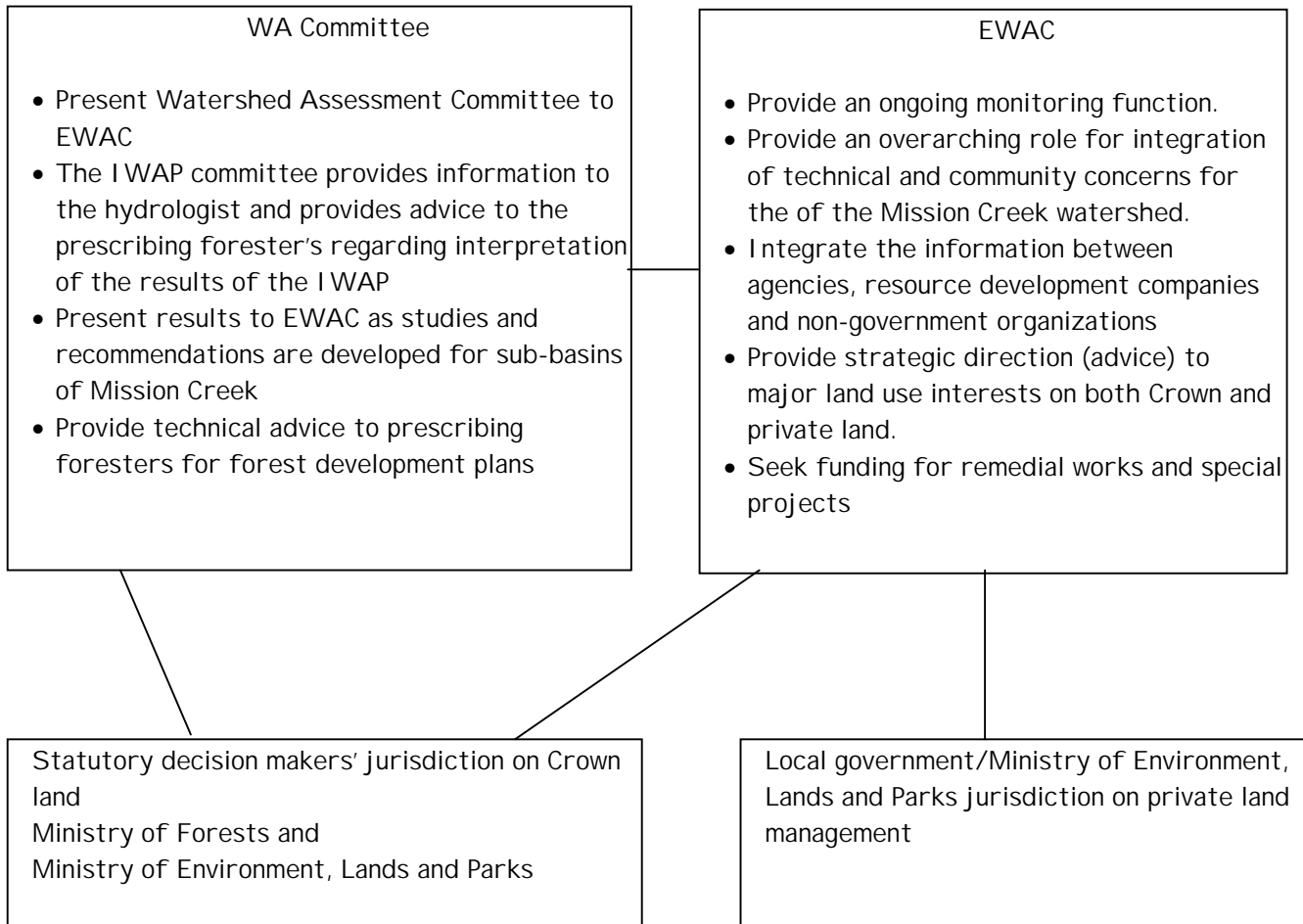
i) The EWAC is to seek funding to assist remedial actions and restoration on crown and private lands.

ii) EWAC recommendations must meet overall higher level plan (HLP) objectives.

3.2) The EWAC is to embark on a public education process in order to make landowners and users aware of the importance of riparian streamside vegetation management on private lands.

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**Figure 1: Relationship Between the WA Committee and the EWAC**

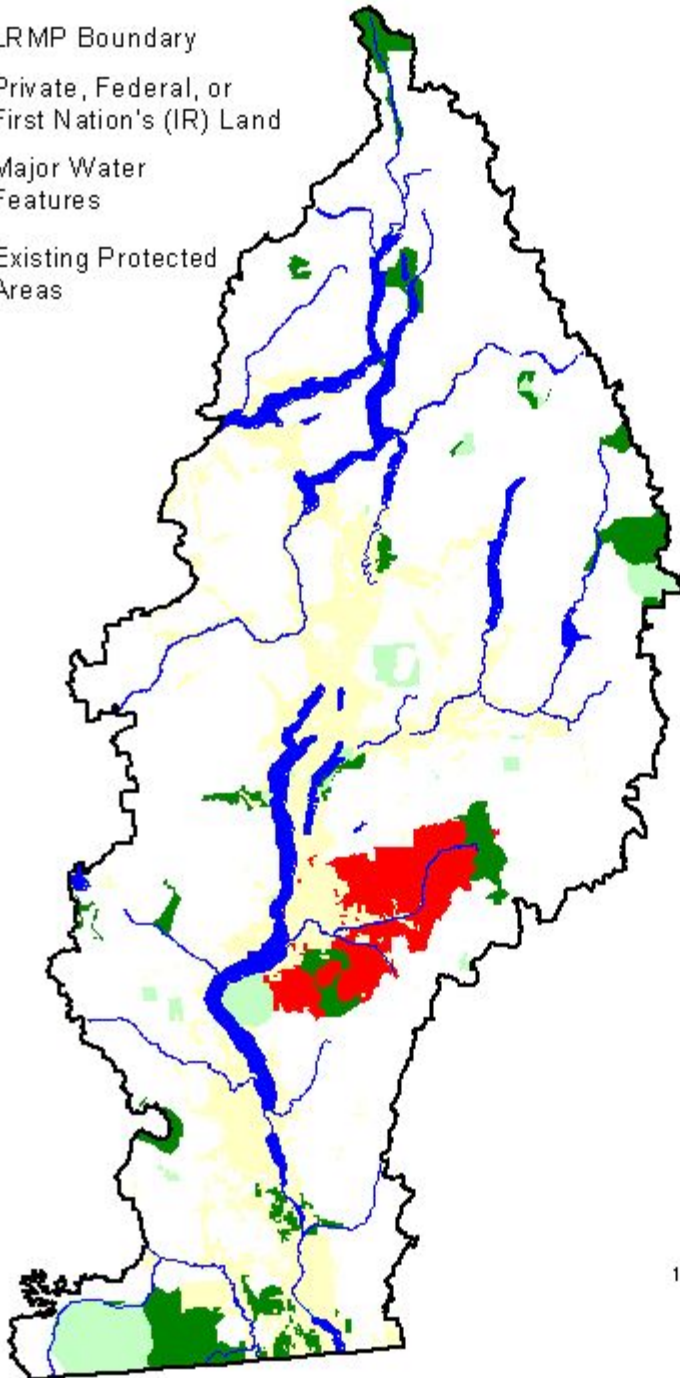




### Mission Creek Watershed RMZ

Base Information

- ∕ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



Mission Creek Watershed RMZ

Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

Created by the LMRP  
DATA MANAGEMENT  
TEAM - March 2001  
File name: mission\_2.jpg



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## Polygon Specific

## Recreation RMZ

### In this RMZ:

- Recreational user group interests are managed as either:
  - Regionally significant Trail Corridors.
  - Intensive Recreation Areas.
- Additional management provisions above those in the general zone are described.

### Introduction

The Recreation resource management zones (RMZs) are areas where incremental management (that is in addition to the general prescriptions) is prescribed. It focuses on areas where the recreation values relate to trails, specifically "regionally significant trail corridors" and "intensive recreation" areas (areas within which networks of unmapped trails exist).

It is acknowledged that within these areas there is important recreational use, both organized and unorganized, where more than general management is required. Conflicts within Recreation RMZs are resolved (by mutual agreement) and industrial uses are integrated wherever possible through early formal consultation. Commercial and industrial activity may co-exist with recreational use.

Stewardship by local recreational clubs is encouraged.

### Issues

See the Recreation general resource management section (Part 3) for a summary of the issues related to recreation.

### Goal

Manage the RMZs in such a way that the identified major value or values are maintained or enhanced, and that other values are maintained as much as possible, and in such a way that they do not interfere adversely with the recreation values.

### Objectives and Strategies

1) Ensure that the public and recreation groups are aware of the location of Recreation resource management zones (RMZs).

1.1) Erect and maintain appropriate signs to identify these RMZs.  
(implementation)

Intent:

i) Non-government groups to work with government to implement this strategy.

ii) Ensure that signs are all in a standard format.



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1.2) Provide the location of Recreation RMZs on the Ministry of Forests recreation maps. (implementation)

1.3) Provide additional information (e.g., brochures) for each polygon on the uses and behaviour therein. Include, where available, information from public forums. (implementation)

*A "round table" is a way to describe a problem solving or planning forum made up of local interest groups tasked with coming up with site specific strategies or plans for a geographic area.*

2) Encourage public recreation "round table" forums to develop site specific recreation strategies to manage and integrate recreation opportunities and uses, to encourage compatibility and resolve conflicts among recreational users.

Intent:

- i) The forum would be a public input/review process that obtains, considers and manages more detailed site specific information for recreational uses and values.
- ii) Commercial and non-commercial recreation interests should be represented at these tables, along with other interests as required.
- iii) Note: This process is not intended to be a barrier to dispute resolution by less formal processes (see strategy 2.7 in the Recreation general resource management section).

2.1) Local forums will be guided by the following principles:

- Involvement of all recreation stakeholders with agreement through consensus.
- Inclusion versus exclusion, in that all uses are considered acceptable on most Crown lands with preference towards integration.
- Recreational user restrictions over some areas may occur to ensure compatibility and safety.
- Proponents of facilities and intensive management will help support long term maintenance.
- Where consensus cannot be achieved then the default will be a decision by the statutory decision-maker (SDM).

Intent:

- i) To engage local recreation users or interest groups to deal with site specific recreational issues.
- ii) Provide some guidance to local forums in the way of principles.
- iii) Work towards inclusion and integration of recreational uses. However it is recognized that in some situations due to public safety, compatibility or to provide for a specific opportunity there may be a need to separate or exclude some uses (e.g., excluding snowmobiles from managed cross-country ski trail areas).
- iv) Have local discussions resulting in agreement and long term maintenance.
- v) Round tables should produce site specific recreation strategies relative to situations that are:

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- issues focused, site specific conflicts;
- seasonal (e.g., winter recreation strategy);
- setting focused (e.g., only back country); or,
- comprehensive, considering all aspects of recreation in a given area.

3) Encourage a stewardship role by organized user groups or clubs, in the management of recreational activities and facilities.

Intent:

i) Allow stewardship agreements with non-profit users for the maintenance and management of identified, limited, single purpose recreation facilities (e.g., existing agreements such as Nickel Plate and Telemark cross-country ski trails and the proposed Bear Creek motorcycle emphasis area).

3.1) Create a process that enables organized user groups to implement identification and registration of ATVs and allocate any licensing fees back into managing and developing the recreational resources.

Intent:

i) To gather knowledge and experience in managing motorized use on a self-controlling basis.

ii) This is not intended to limit extension of any user managed registration requirements outside these areas.

iii) It is recognised that the words "registration" and "identification" may not have the same meaning as under the Motor Vehicle (All Terrain) Act.

4) When planning for industrial activities (e.g., harvesting, mineral exploration, trapping, guide-outfitting, etc.), ensure the trail corridor/network and the associated recreation opportunities are maintained or enhanced for continued public use as directed by other objectives in the Recreation RMZ.

Intent:

i) Temporary industrial use may occur on existing trails. Industrial use should not create a parallel trail network unless industrial use of the existing trail would diminish its recreational value.

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4.1) Proponents of forest development, or other industrial/commercial activities, will consult and participate with identified recreation user groups to integrate uses. Parties will be guided by the following principles:

- The area has a high recreation value including trail network(s).
- The area is a managed forest with a variety of uses and experiences, both recreational and industrial, based on shared-use, not exclusive use.
- Strategies to resolve issues will be site specific, considering local attributes.
- The landscape will be managed in a dynamic manner, responding to changes in both recreational and industrial needs or uses.
- Consultation and participation will be continuous, in consideration of the degree of planned activity and the potential for conflict.

5) Manage the impact of industrial use on recreational values.

Intent:

i) Industrial activities should be compatible with recreational values.

5.1) Maintain a naturally appearing landscape, both foreground and viewsapes, that is compatible with the recreational values unless otherwise specified in the polygon specific objectives.

Intent:

i) Manage visuals in accordance with the LRMP visual quality guidelines for Zone 3.

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## Recreation RMZ: Regionally Significant Trail Corridors

### In this RMZ:

- The regionally significant trail corridor RMZ represents the specific trails listed below.
- Management seeks to retain the recreational values within a corridor along these trails.
- Does not include any private land sections unless agreed to by that landholder.

### LIST OF TRAILS:

#### Category A:

Brent Mountain Trails (the four or five trails that access Brent Mountain, including the one that runs through polygons "A" - "D").

Centennial Trail (located in the Ashnola/Joe Lake area, and only those portions outside of the Snowy protected area)

I sintok Lake Trail, from the Brent Mountain protected area to I sintok Lake (to be constructed)

Kettle Valley Railway (multi-use corridor proposed as a route for the Trans Canada Trail)

Mission Creek (Okanagan Lake to Graystokes)

Shingle Creek Trail (the trail starts at the landing just north of CP 311, Block 2 and runs from there up to the Brent PA)

The trail from Big Meadow Lake to Corporation Lake to the Myra - Bellevue protected area

The trail from Lacoma Lake to Jackpine and Banana Lakes, and only those portions outside of the Trepanier protected area (to be constructed)

The Canyon Rim Trail on the north side of Shorts Creek canyon

#### Category B:

Big Meadow

Highland Trail (west and east side high level trail. Note: portions have not been constructed)

Hudson's Bay Company Brigade Trail (where identifiable)

Mara Lookout (from Owl Head)

McDougall Rim (trailhead to Hidden Lake)

Nuttal Lake

Okanagan High Rim

Powers Creek

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## Introduction

Regionally significant trails (which may include provincially significant trails) are those where there is an ongoing intention to recognise and provide for ongoing summer and/or winter travel corridors. Management will emphasize retention of recreation features and scenic values, compatible recreation uses and maintenance of the trail route and associated infrastructure. Construction, rehabilitation and maintenance projects may be proposed by non-government organizations pursuant to Section 102 of the Forest Practices Code, the Forest Recreation Regulation and the Trails and Recreation Facilities Guidebook.

The definitions for Category A and B trails are as follows:

1) Category A trail:

- Trails where the recreational values are managed for within a linear corridor.
- The trails are managed according to the guidelines for Zone 2 visuals. (See the Visual Management section for more details on Zone 2 visuals.)

2) Category B trail:

- Trails where the recreational values are managed for without a linear corridor.
- The trails are managed according to the guidelines for Zone 3 visuals. (See the Visual Management section for more details on Zone 3 visuals.)

## Goal

Manage for recreational use, opportunities and experiences that are focused on the continuity of the trail corridor.

## Objectives and Strategies

6) Portions of trails may be identified as non-motorized or motorized.

Intent:

- i) Portions (or whole trails) may be designated as either motorized or non-motorised by the round-table.
- ii) This objective shall not limit motorized use in the Bear Creek motorcycle polygon.

6.1) In identifying any non-motorized portions of trails, the round-table should first consider options to increase compatibility with non-motorized use.

Intent:

- i) Encourage the use of noise suppression devices that achieve  $< =96$ db.
- ii) To provide for recreation opportunities that are compatible with other uses, the feature, or the experience.
- iii) To promote club involvement in the management of opportunities and facilities (e.g., education and trail management).

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## 7) Maintain recreational values along trails.

7.1) For the Category A listed trails, provide 200 metre wide corridors (100 metres on each side of the listed trails).

7.2) Within the corridor along Category A trails forest development shall be based on either:

a) single tree/group selection harvesting (> 66 - 75 % basal area retention); or,

b) patch cuts (0.1 to one ha in area) with less than 10% of the trail having patches less than 3 metres high).

Intent:

i) Silviculture prescription/harvesting should ensure that a wind firm trail corridor is maintained.

ii) Manage for foreground visuals within the corridor.

iii) For the 10% of the trail with patches having less than 3 metres high, regeneration may be dispersed along the length of the trail or concentrated in one area.

iv) The minimum distance between patches should be equal to the size of the adjoining patch.

v) Salvage logging may exceed the above strategies to manage for fire, blowdown, insect infestations or similar causes of tree mortality.

Wherever practical, salvage and control activities should focus on small patch and single tree removals.

vi) Patch cuts within trail corridors may join up with larger clearcut openings that are located outside of, but contiguous with, the corridor.

7.3) Seasonal access restrictions may be developed for specific trail sections.

Intent:

i) Should conflicts between users, or issues with maintaining the trail surface develop, the round table may recommend that seasonal restrictions be implemented.

7.4) All trails should be mapped (GPS) as resources permits. Organized user groups should be encouraged to undertake this work. (implementation)

## 8) Manage for viewsapes along trails.

Intent:

i) This is not to conflict with the LRMP visual quality guideline objectives for Zone 1.

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8.1) Utilize the LRMP visual quality guideline objectives for Zone 3 for all regionally significant trails.

8.2) Undertake a visual inventory from specific viewpoints along the old Kettle Valley Railway (KVR) right of way.

Intent:

- i) User groups to identify/confirm viewpoints for the inventory.
- ii) The visual inventory is to be managed according to the LRMP visual quality guidelines for Zone 2.

8.3) Manage viewsapes along the KVR identified in the inventory according to the LRMP visual quality guidelines for Zone 2.

8.4) For Category B trails manage according to the LRMP visual quality guidelines for Zone 3.

*Brent - I sintok Lake Trail  
Corridor*

9) Where practical, minimize the impacts of mineral exploration and development activities on the Brent - I sintok Lake trail corridor (see the "Recreation RMZ - Regionally Significant Trail Corridors" map).

Intent:

i) The Brent - I sintok Lake trail corridor is a parcel of land connecting the Brent and I sintok Lake protected areas (that have been recommended through the LRMP) that has been identified for the future construction of a Category A trail. The corridor is 100 metres wide where it follows the boundary between the Merritt and Penticton Forest Districts, 200 metres wide elsewhere, and extends about five kilometres.

ii) The purpose is to minimize non-mining, motorized or mechanical access to the trail corridor and adjacent recommended protected areas.

9.1) The Ministry of Energy and Mines will provide for information purposes applications for Mines Act permits that involve significant disturbance of the surface within the identified corridor to the Okanagan Similkameen Park Society.

Intent:

- i) Examples of significant disturbance include bulk sampling, excavated trails and temporary access roads.
- ii) Other groups may also request referrals.

9.2) Encourage groups, or individuals with an interest in the trail corridor, to monitor exploration activities by using the Ministry of Energy and Mines website ([www.em.gov.bc.ca](http://www.em.gov.bc.ca)), checking for referrals filed with the Ministry of Forests or Ministry of Environment, Lands and Parks offices in Penticton, or registering their interest with MEM's office in Kamloops.

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9.3) Provide opportunities for participation by the Okanagan Similkameen Parks Society and other interested groups or individuals in public reviews of major mine developments (either in the Mine Development Review Committee process or the Environmental Assessment Office process).

9.4) Review the objective and its strategies when any of the following conditions have been met:

- the trail has been constructed;
- a Mines Act application for significant disturbances has been reviewed and approved; or,
- the LRMP has been in effect for 8 - 10 years.

Intent:

i) The purpose is ultimately to manage the Brent - Isintok Lake trail in the same way as other Category A recreation trails once it has been constructed.

ii) This review only applies to mineral activities in the trail corridor.

## **Additional Management Direction for the Brent - Isintok Lake Trail Corridor**

The trail from Isintok Lake to the Brent Mountain protected area will be designated, in accordance with the Forest Practices Code of BC Act, Section 6(1), as a higher-level plan (HLP) recreation trail. (This gives the trail objectives legal status under Section 6(3) of the FPC of BC Act.) The following objectives will apply:

- The trail will be managed as a Category A trail in accordance with the Recreation RMZ - Regionally Significant Trail Corridors section of the LRMP.
- In order to protect the integrity of the trail bed, no roads for the purposes of resource development will be constructed across the trail.



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## Recreation RMZ: Intensive Recreation

### In this RMZ:

- Areas with extensive trail networks are managed for "intensive recreation" within the Recreation RMZ.
- Management seeks to retain the trail network within the polygon, with emphasis on the trail corridors therein.
- Categories reflect recreational interests.
- Stewardship by local clubs is encouraged.

The following seven categories are used to implement this RMZ:

**Shared Use (All Season):** Aberdeen Plateau, Apex, Big White, Brent Mountain, Graystokes, Harris, I dabel, Keefer Lake, King Edward, McCulloch, Mount I da, South Slopes, and Pukeashun.

**Shared Use (Summer):** Coldstream Creek, Galloping Hills, Larch Hills 1, Oliver, Osoyoos, and Silver Star.

**Snowmobile:** Crowfoot, Fly Hills, Galloping Hills, Hunters Range, Lichen, Park Mountain, Queest, and Silver Star.

**Cross Country Skiing/Non-Motorized:** Carmi, Ellis, Inkaneep, Larch Hills 2, Nordic, and Telemark.

**Winter Non-Motorized:** Brenda Mine Road, North Queest, Roddy Flat, and Silver Lake.

**Summer Non- Motorized:** Camels Hump, Jordan Range, Monashee, Mount Grace, Mount MacPherson, Shuswap Range, Pinacles, and Sugarloaf.

**Motorcycle:** Bear Creek

**Summer Motorized/Shared Use (Summer):** Peachland and Summerland.

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## Introduction

Within the plan area there are specific locations with high concentrations of recreational values. These areas have been identified as part of the Recreation RMZ. Locations have been grouped into eight categories (see the "Recreation RMZ - Intensive Recreation" map), some of which emphasise specific uses, while others emphasise shared use.

Management of this zone seeks to provide for inclusion of all uses with education, posting of appropriate signs, etc. as the initial means of resolving conflicts. Should a conflict emerge or exist then there is a progressively more intensive set of conflict resolution procedures in the general and polygon specific sections of the LRMP.

## Goal

The overall goal for all categories within this RMZ is to manage for intensive recreational use, opportunities and experiences.

## Shared Use (All Season) Category

### Goal

To acknowledge and manage areas with significant four-season recreation attributes for all forms of recreation in a shared use environment created by a spirit of cooperation.

## Objectives and Strategies

10) To establish areas which are capable of sustaining a wide range of recreational opportunities.

10.1) Manage to maintain all recreational opportunities within the area.

Intent:

i) Minimize, where practicable, areas where uses would be restricted.

10.2) Maintain compatibility of recreational and forestry values within the Apex Shared Use (All Season) Category polygon.

10.3) Manage forest development within polygons "A", "B" and "C" as identified on the "Recreation RMZ" map, as per Table 1.

10.4) Manage forest development within polygon "D" as identified on the "Recreation RMZ" map to reduce the risk of mountain pine beetle infestation within the adjacent Brent Mountain protected area.

Intent:

i) Consider the impact of forest development on range tenures.

10.5) Designate the remainder of the Brent Mountain trail through polygons "A" - "D" as a Category A trail up to (point) "x" (to be defined).

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10.6) The "Apex Round Table Forum" (i.e., the group identified in strategy 11.2 that will be addressing issues in the Apex Shared Use All Season polygon) will be consulted when detailed industrial development plans are prepared that cover polygons "A", "B", "C" and "D", as shown on the "Recreation RMZ" map.

Intent:

- i) Examples of the types of detail being referred to include road location and the distances between patches.
- ii) If there is disagreement between participants and proponents of industrial development, all information that has been considered, including the various options will be forwarded to the relevant statutory decision maker (SDM) and other relevant agencies as determined by the round table.
- iii) The names of the participants in the "Apex Round Table Forum" should be included in the list of user groups and known recreational users (referred to in strategy 2.8 in the Recreation general resource management section) that will be developed and maintained by the District Manager.

11) Provide opportunities for organized and maintained trail networks. (e.g., cross-country skiing, snowmobiling, hiking and motorized summer recreation.)

Intent:

- i) Any recreational user may undertake organized events (e.g., motorcycle events) within these polygons.

11.1) Seasonal access restrictions may be developed for specific areas in consultation with identified user groups.

Intent:

- i) To provide for organized recreation opportunities that are compatible - i.e., with other uses, with the feature, with the experience.
- ii) To promote club involvement in the management of opportunities and facilities (e.g., education and trail management).

11.2) Undertake a local recreation planning process in the Apex Shared Use All Season polygon on a priority basis.

Intent:

- i) Address issues associated with the Apex Mountain ski resort, Nordic Cross Country Ski Club, polygons "A" - "D" (approximately polygons 7 and 8 from the original Brent protected area proposal) and adjoining areas.
- ii) Utilize a structured consensus building process.
- iii) The planning group is to be formed and convened by the IAMC.
- iv) The process is to be initiated with an orientation session that provides participants with an understanding of the different approaches to consensus building that are consistent collaboration and cooperation. The reference materials that are to be provided to this group by the IAMC

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includes the "Apex Round Table Forum" document, as well as the one-page summaries of the various consensus-building (or ADR) processes. (These one page summaries have been included as part of the LRMP recommendations package - see Appendix IV.) Full orientation may take several meetings.

v) The facilitator must be acceptable to the whole group.

vi) The focus of the group's discussions is to address recreation conflicts, and to participate in the reviews of industrial development proposals.

vii) The results of this group are to be consistent with the direction or objectives and strategies of the LRMP - i.e., it should clarify LRMP direction by providing more detail on recreation management within this polygon.

viii) The recommendations from this group on the implementation of the LRMP are to go to the Implementation and Monitoring Committee for their consideration. Recommendations or comments on industrial development proposals are to go to the SDM as appropriate.

12) Maintain snowmobiling opportunities associated with existing infrastructure within these polygons.

Intent:

i) Infrastructure includes buildings, marked trails and mapped trails.

12.1) Snowmobile users are encouraged to develop stewardship agreements in consultation with agencies and all other users.

Intent:

i) Development of plans to provide a basis for discussions and review of concerns regarding new and existing recreational users.

## Shared Use (Summer) Category

**Goal** To acknowledge and manage summer recreation in areas that have significant summer recreation attributes and historical recreation use.

**Objectives and Strategies** 13) To establish areas which are capable of sustaining a wide range of recreational opportunities.

13.1) Manage to maintain all recreational opportunities within the area.

Intent:

i) Minimize, where practicable, areas where uses would be restricted.

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13.2) Develop a recreation use plan for the Oliver Shared Use (Summer) polygon on a priority basis.

Intent:

- i) This plan will be developed according to the general management direction found in the Recreation GMZ section (O-5, S-5.1 and S-5.2), and the objectives and strategies found in the Recreation RMZ: Intensive Recreation - Shared Use (Summer) Category.
- ii) All stakeholders with an interest in this area can be involved in the development of this plan.
- iii) The plan will also recognize the ecologically sensitive nature of the area.
- iv) Consistent with the agreement on the Burnell (Sawmill) Lake Goal 2 protected area proposal, motorized uses should not be encouraged within the vicinity of the lake. (The specific direction from the protected areas discussions was that there was to be a "non-motorized" category" immediately around the lake, and a "motorized" category around that.)

14) Provide opportunities for organized and maintained trail networks.

Intent:

- i) Any recreational user may undertake organized events (e.g., motorcycle events) within these polygons.
- ii) To ensure that the existing bush riding attributes are considered in the development planning process.

14.1) Seasonal access restrictions may be developed for specific areas in consultation with identified user groups.

Intent:

- i) To provide for organized recreation opportunities that are compatible - i.e., with other uses, with the feature, with the experience.
- ii) To promote club involvement in the management of opportunities and facilities (e.g., education and trail management).

14.2) Provide areas where clubs frequently ride and competition events occur.

Intent:

- i) For example, within the Coldstream Creek polygon encourage competition in the Bardof Lake drainage and early spring competitions around Becker Lake

15) Maintain the ecological integrity of the Oliver Shared Use (Summer) Category RMZ.

Intent:

- i) The grasslands and habitats of red- and blue-listed species are of particular concern.

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15.1) Recreational use must recognize and be managed for the sensitive nature of this area.

15.2) Develop a recreation use plan for this area.

Intent:

- i) Attempt to accommodate all types of recreational use in this area.
- ii) Follow the intent of objective 5 and its pursuant strategies from the Recreation GMZ section.
- iii) Areas of high intensity motorized use and trails between (linking) them are preferred to random use over the entire area.
- iv) Follow the intent of the "Summer Motorized Use Land Stewardship Principles" (Appendix V).
- v) Include stakeholders with an interest in the area in the development of the plan.

## Snowmobile Category

**Goal** To acknowledge and manage significant snowmobiling areas that have terrain and snow levels that will provide a safe and enjoyable recreation experience.

**Objectives and Strategies** 16) Maintain snowmobiling opportunities associated with existing infrastructure within these polygons.

Intent:

- i) Infrastructure includes buildings, marked trails and mapped trails.

16.1) Snowmobile users are encouraged to develop stewardship agreements in consultation with agencies and all other users.

Intent:

- i) Development of plans to provide a basis for discussions and review of concerns regarding new and existing recreational users.

## Cross Country Skiing/Non-Motorized Category

**Goal** To acknowledge and manage specific areas developed and maintained for cross-country skiing. These areas require exclusive non-motorized recreational use during winter months to maintain the defined trail network.

**Objectives and Strategies** 17) Management should aim to protect the trail surface.

Intent:

- i) To minimize ruts, wet season use should be controlled so that early grooming does not mix soil and snow.

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17.1) Seasonal access restrictions may be applied to motorized recreational use to maintain the trail surface.

Intent:

i) Consultation with motorized users is required prior to placing restrictions.

18) To ensure that other recreational uses do not interfere with the use of groomed trails by cross-country skiers.

Intent:

i) Exclusive use may be part of a stewardship agreement.

18.1) To enter into a use agreement for the area through a stewardship agreement.

18.2) Manage industrial and commercial use to “protect” cross-country ski trails, where practical.

Intent:

i) Compatibility between recreation and industrial and commercial uses is to be worked out through discussions at the local level.

ii) Resolve conflicts between motorized and non-motorized uses through the conflict resolution process identified elsewhere in this section.

iii) Cross-country ski clubs are free to use motorized equipment for trail grooming, maintenance and other purposes, at their discretion.

## Winter Non-Motorized Category

### Goal

To acknowledge and manage areas for intensive winter non-motorized recreation use, opportunities and experiences, providing for a quiet and safe space.

### Objectives and Strategies

19) Maintain trail networks and natural backcountry for cross-country skiing, snow shoeing, dog sledding, and winter camping.

19.1) Place seasonal restrictions on motorized recreational use (vehicles, bikes, snowmobiles, etc.) to maintain the quality of experience for non-motorized users.

Intent:

i) To provide for recreational opportunities that are not compatible with simultaneous use by motorized recreationalists.

20) Promote the appreciation of winter recreation values and winter safety.

20.1) Use a wide range of measures including appropriate mapping, signing, design and support for the efforts of organized user groups.

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20.2) Manage industrial and commercial use to “protect” cross-country ski trails, where practical.

Intent:

- i) Compatibility between recreation and authorized industrial and commercial uses is to be worked out through discussions at the local level.
- ii) Resolve conflicts between motorized and non-motorized uses through the conflict resolution process identified elsewhere in this section.
- iii) Cross-country ski clubs are free to use motorized equipment for trail grooming, maintenance and other purposes, at their discretion.

## Summer Non-Motorized Category

### Goal

To acknowledge and manage areas for intensive summer non-motorized recreation use, opportunities and experiences, providing for a quiet and safe space.

### Objectives and Strategies

21) Provide opportunities for summer non-motorized recreational activities (e.g., hiking, nature appreciation)

Intent:

- i) Winter snowmobiling is an acceptable (alternate season) recreational use

21.1) Use a wide range of measures including appropriate mapping, signing, design and support for the efforts of organized user groups.

21.2) Promote nature, cultural, heritage and environmental education.

Intent:

- i) To provide for recreation opportunities that are compatible - i.e., with other uses, with the feature, with the experience.
- ii) To promote club involvement the management of opportunities and facilities.

21.3) Strive to establish and maintain good quality trails.

Intent:

- i) Prevent damage from recreational use and other causes.
- ii) User groups should lead in undertaking these works and utilize the conflict resolution process if required (with the support of relevant government agencies).



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## Motorcycle Category

**Goal** Provide a motorcycle emphasis area where organized clubs frequently ride and competition events may occur.

## Objectives and Strategies

22) Maintain the area in a condition that benefits the bush riding experience.

Intent:

- i) To ensure that the existing bush riding attributes are considered in the development planning process.
- ii) Any recreational user may undertake organized events within these polygons.
- iii) There will be no new trail development within 100m of private land in the Bear Creek polygon.
- iv) The east side of Blue Grouse will not be used to stage motorcycle events more than three times per year.
- v) Trails will not be built east of the existing trail corridor on the eastern side of Blue Grouse.
- vi) Organized clubs will not use the eastern slopes of Blue Grouse to access the riding area.
- vii) It is recognised that McDougall Rim Trail is a shared use trail between the trailhead and Hidden Lake.
- viii) A maximum of three events per year would utilize McDougall Ridge
- ix) It is recognised that there will be a High Rim Trail corridor through Bear Creek. This trail will not affect motorized use.

22.1) Maintain continuity of trail corridors where practical.

Intent:

- i) Ongoing consultation and cooperation of forest tenure holders.

22.2) Every reasonable effort should be made to accommodate motorcycle interests in key riding areas within the RMZ (e.g., pit areas and key corridors).

Intent:

- i) Within the Bear Creek polygon, key riding areas and corridors shall be mapped for consideration in the referral process.

22.3) Any mineral development proposals within the Bear Creek polygon will be referred to the Kelowna Dirt Bike Club.

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## Summer Motorized/Shared Use (Summer) Category

**Goal** To acknowledge and manage summer motorized and non-motorized recreation in areas that have significant summer recreation attributes and historical recreation use. These areas are frequently used by organized clubs, and competition events may occur.

### Objectives and Strategies

23) To establish areas which are capable of sustaining a wide range of recreational opportunities.

23.1) Manage to maintain all recreational opportunities within the area.

Intent:

i) Minimize, where practicable, areas where uses would be restricted.

24) Provide opportunities for organized and maintained trail networks.

Intent:

i) Any recreational user may undertake organized events (e.g., motorcycle events) within these polygons.

ii) This can include ATVs.

24.1) Seasonal access restrictions may be developed for specific areas in consultation with identified user groups.

Intent:

i) To provide for organized recreation opportunities that are compatible - i.e., with other uses, with the feature, with the experience.

ii) To promote club involvement in the management of opportunities and facilities (e.g., education and trail management).

24.2) Provide areas where clubs frequently ride and competition events occur.

25) Maintain the area in a condition that benefits the bush riding experience.

Intent:

i) To ensure that the existing bush riding attributes are considered in the development planning process.

25.1) Maintain continuity of trail corridors where practical.

Intent:

i) Ongoing consultation and cooperation of tenure holders.

25.2) Every reasonable effort should be made to accommodate summer motorized interests in key riding areas within this RMZ (e.g., pit areas and key corridors)

# Okanagan - Shuswap LRMP Approved Plan

**Table 1: Management Direction for Forest Development within Polygons A, B and C.**

Harvesting System	Polygon A		Polygon B		Polygon C	
	Harvest Area	Reserve Area	Harvest Area	Reserve Area	Harvest Area	Reserve Area
Single Tree Group Selection	100%	> 66% basal area	100%	> 66% basal area	100%	> 66% basal area
Patch Cuts (0.1 - 1.0 ha)	5% - 10%	n/a	10% - 25%	n/a	15% - 30%	n/a
Clearcuts (1.1 - 5.0 ha)	-----	-----	10% - 20%	n/a	15% - 25%	n/a
Clearcuts with reserves (5.1 - 10.0 ha)	-----	-----	-----	-----	10% - 25%	5% - 10%

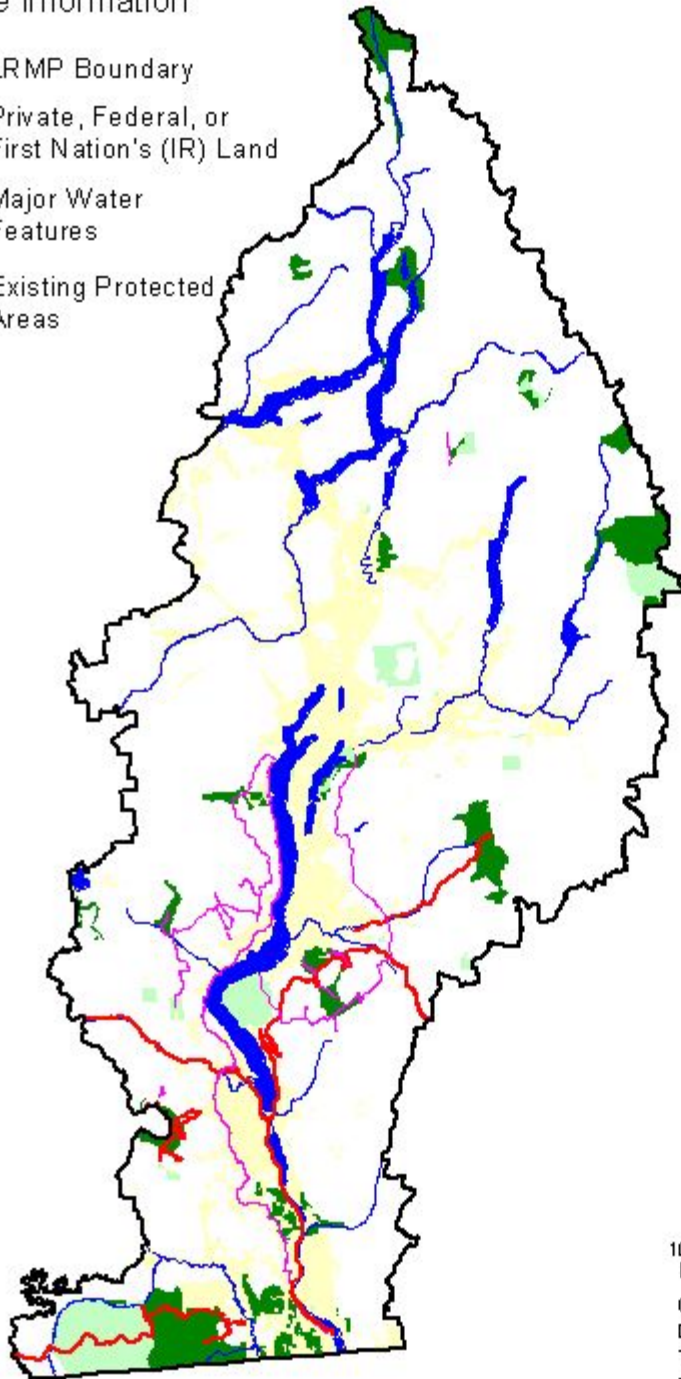
Polygon D is to be managed to reduce the risk of mountain pine beetle infestation within the adjacent Brent Mountain protected area.

# Okanagan - Shuswap LRMP Approved Plan

## Recreation RMZ - Regionally Significant Trail Corridors

### Base Information

- ∕∕ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



- Category 'A' Trails
- Category 'B' Trails
- Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

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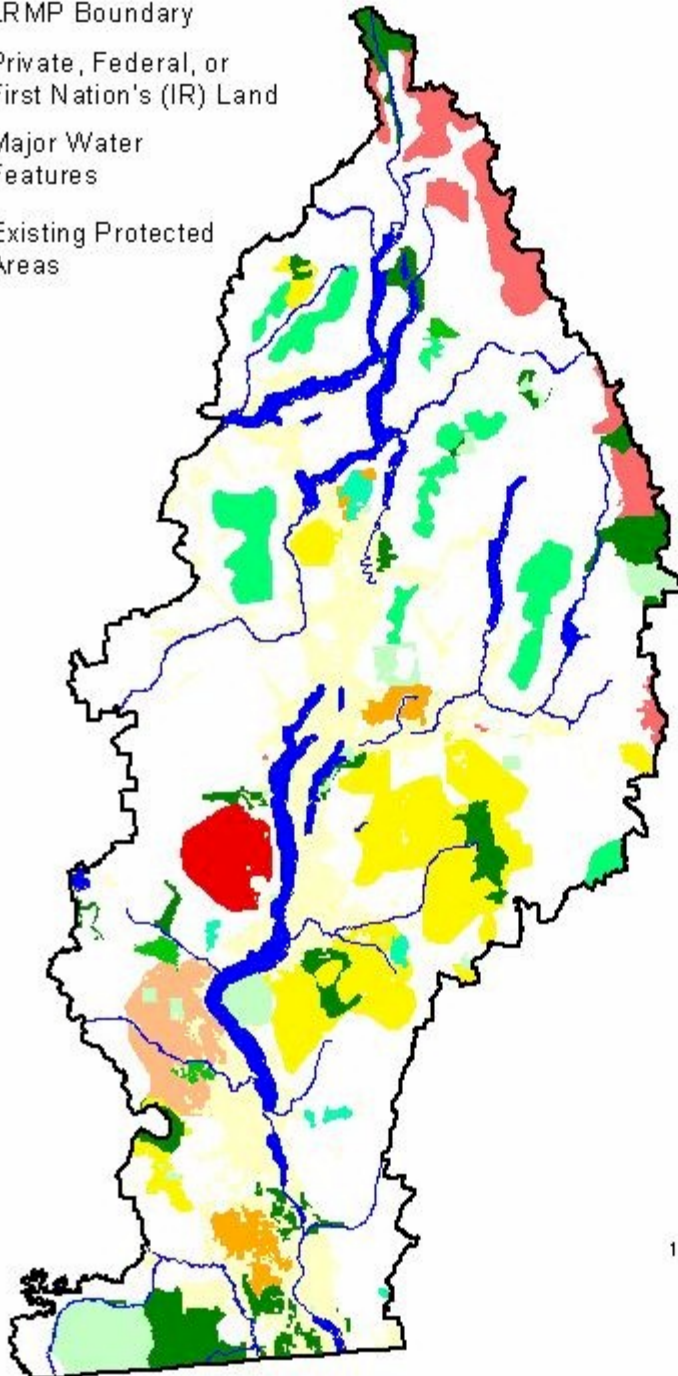
## Recreation RMZ - Intensive Recreation

### Base Information

- ∩ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas

### Intensive Recreation

- Shared Use (All Season)
- Shared Use (Summer)
- Snowmobile
- X Country Skiing Non-Motorized
- Winter Non-Motorized
- Summer Non-Motorized
- Motorcycle
- Summer Motorized Shared Use(Summer)
- Proposed Protected Area Package



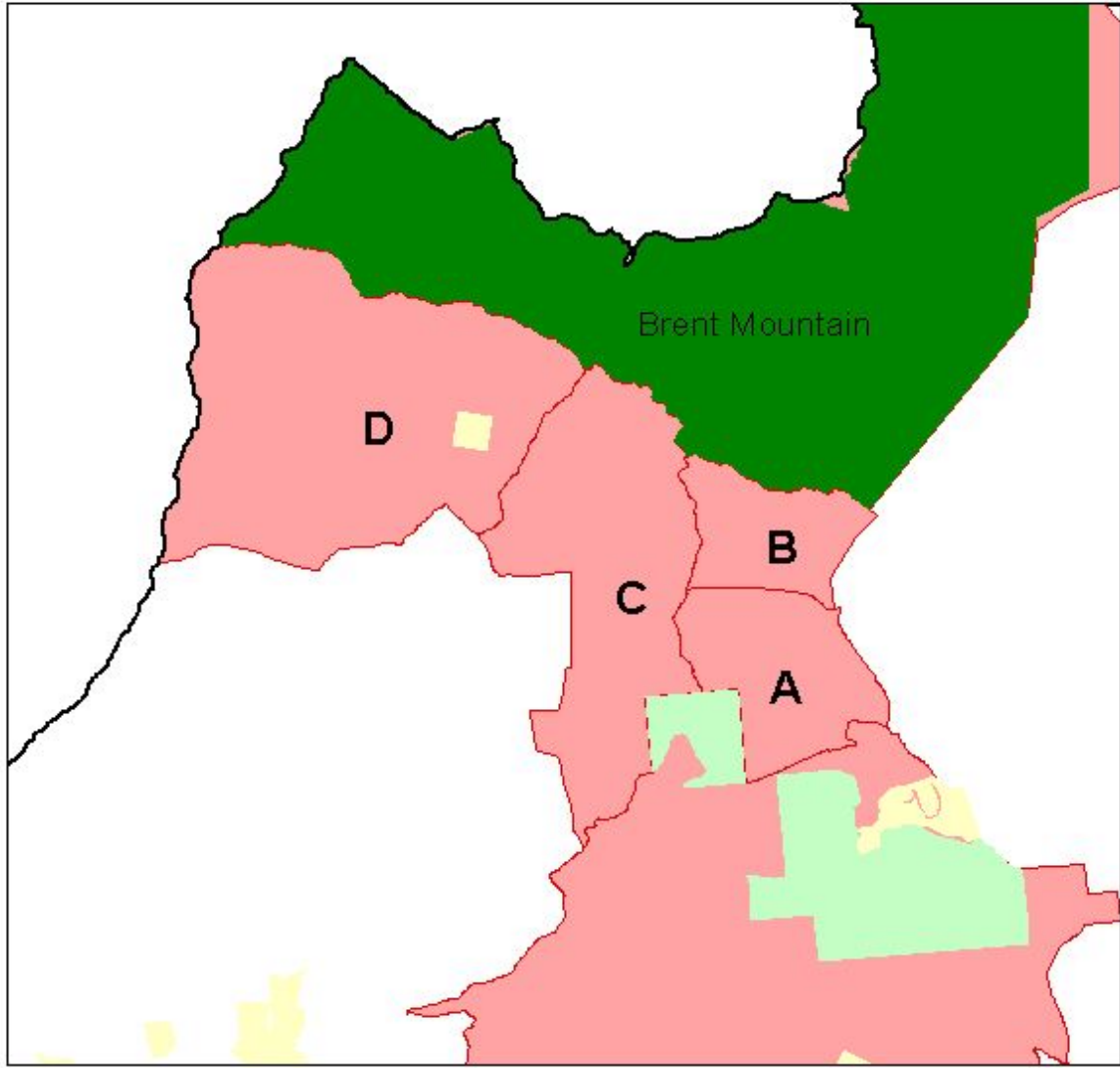
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## Recreation RMZ

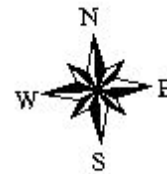


### Base Information

- LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas

### LRMP Information

- Recreation RMZ
- Proposed Protected Area Package



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# Okanagan - Shuswap LRMP Approved Plan

## Polygon Specific Resource Management Zone

## Tourism

In these RMZs:

- How to provide opportunities for existing and future tourism industry development.
- Provisions for minimizing conflicts between user groups.
- How to maintain backcountry tourism values.
- How to maintain a diversity of tourism settings.

## Back Country, Tourism Use, and Dispersed Tourism Use

### Introduction

*For more information on the economic contributions of tourism refer to Section 6 of the "Okanagan - Shuswap LRMP Socio-Economic and Environmental Profile" report.*

Tourism is a significant land use and economic generator in the plan area. Almost 500 businesses are estimated to be directly dependent on tourism, with many more deriving a portion of their income from tourists. Of the businesses directly dependent on tourism, roughly 30% provide outdoor adventure/backcountry experiences. The market for outdoor adventure/backcountry tourism is one of the fastest growing in British Columbia. Crown land and resources such as scenic views, parks and other natural settings, fish and wildlife and quality water are important to most tourism businesses, and often critical to backcountry tourism businesses.

In the plan area there are approximately 156 tourism businesses offering outdoor adventure/backcountry related experiences (see table below).

### Outdoor/Recreation Related Tourism Business in the Plan Area

Regional District	Number of Tourism Businesses Within Regional District				Total
	Land Based Activities	Lake/River Related*	Lic. Guide Outfitters	Destination Ski Resorts	
Okanagan Similkameen	11	22	2	1	36
Central Okanagan	13	30	2	1	46
North Okanagan	8	9	3	1	21
Columbia Shuswap	6	42	4	1	53
<b>Total</b>	<b>38</b>	<b>103</b>	<b>11</b>	<b>4</b>	<b>156</b>

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The above numbers do not include tourism businesses within the Thompson - Nicola Regional District, nor the Kootenay - Boundary Regional District, both of which contribute additional outdoor recreation businesses (such as the Big White ski resort) to the LRMP area. In addition, "club operated" businesses such as sailing clubs and cross-country ski destinations are not included within these numbers.

Land based activities provided by tourism businesses include guided hiking, horseback riding, biking, wildlife viewing, snowmobiling, guide-outfitting and cross-country skiing. These activities are offered as both single-day and multi-day trips. Access to Crown land, both inside and outside of parks, that has natural settings, wildlife species for viewing, and high quality scenery is very important to these businesses.

Lakes and rivers are the dominant tourism features in the plan area. Most outdoor tourism businesses make use of these features by offering water-based activities and/or waterfront facilities. In the plan area there seven marinas, 28 boating related operations offering tours, houseboats and motorised and non-motorised boating, and 69 water related accommodation facilities including more than 20 backcountry fishing lodges. In the Shuswap area houseboating is an important and growing component of both the tourism industry and the local economy. Key resource values for water-related tourism businesses are the availability of fish for sport fishing, wildlife species for viewing and high visual quality both from the shore out and across the lake, and from the lake to the surrounding land.

## Issues

The major land and resource issue facing outdoor adventure/backcountry tourism businesses is the availability of, and access to, natural settings where visitors can enjoy features such as lakes, trails, wildlife viewing and scenic vistas. There is a rapidly growing demand for tourism businesses offering both summer and winter activities in these natural settings, especially near urban areas. With this growth a second issue has become the management of tourism and recreational use to minimize conflicts between users and to ensure that the level of use is sustainable. This is especially important in backcountry areas, where maintaining the quality of the experience depends to some extent on managing the number of visitors. Management of tourism businesses, so that conflicts are minimized and the quality of the environment is maintained, should be done through tourism tenuring under the commercial backcountry recreation (CBR) policy.

# Okanagan - Shuswap LRMP Approved Plan

## Goals

The goal of the tourism sector is a healthy and sustainable tourism industry, which both contributes to the economy and works to maintain environmental quality in the plan area. This can be achieved by:

- Maintaining a diversity of tourism settings from frontcountry to backcountry;
- Maintaining or enhancing fish and wildlife populations, including those that operators rely on for viewing and hunting/fishing; and,
- Providing opportunities for existing and future tourism development.

Visual quality is an important component of all tourism settings. The objectives and strategies guiding forest activities in visually sensitive areas, including tourism settings are found in the Visual Management RMZ section (Part 4).

Healthy fish and wildlife populations are also important to the tourism industry. They support guide outfitting, fishing lodge and wildlife viewing businesses and enhance the experience of many visitors. Objectives and strategies supporting fish and wildlife are found elsewhere in this document.

## Backcountry RMZ

### Objectives and Strategies

1) Maintain backcountry tourism values in the Backcountry resource management zone (RMZ) as identified on the "Tourism Areas RMZ" map.

1.1) Maintain a portion of the Backcountry RMZ at any one time in a non-motorized state.

Intent:

i) Not intended to restrict commercial resource development activities. The non-motorized portion can be fluid, and can move in response to resource development.

1.2) Design logging and access so that trail access to the alpine is available through a corridor of older age class forest.

Intent:

i) This assumes the trail location will move as logging occurs.  
ii) Not intended to restrict resource development activities.

2) Recognize the importance of high visual quality to the tourism values in this zone.

2.1) Manage visuals according to the visual management guidelines for Zone 3 (see the Visual Management RMZ section).

# Okanagan - Shuswap LRMP Approved Plan

## Tourism Use RMZ

### Objectives and Strategies

3) Maintain the scenic quality of views from existing tourism facilities, lakes, use areas and trails.

3.1) Manage portions of this RMZ within Visual Management Zone 1 according to the visual quality objectives (VQOs) established by the LRMP (see the Visual Management RMZ section).

3.2) Manage those portions of this RMZ within Visuals Management Zone 2 according to the guidelines in the Visual Management RMZ section.

3.3) Manage those portions of this zone not in Visual Management Zones 1 or 2 according to the guidelines for Visuals Management Zone 3.

#### Intent

i) Portions of this zone fall within Visual Management Zones 1 and 2. These should be managed according to the guidelines for these zones. Portions of this RMZ not within Visual Management Zones 1 or 2 should be managed according to Visuals Management Zone 3.

ii) The Ministry of Small Business Tourism and Culture (MSBTC) will identify trails for input into the forest development plan.

## Dispersed Tourism Use RMZ

### Objectives and Strategies

4) Maintain the scenic quality of views from existing tourism use areas, trails and features. Recognize the importance of high visual quality to the tourism values in this zone.

#### Intent:

i) Portions of this RMZ fall within Visual Management Zones 1 and 2. These should be managed according to the guidelines for these zones. Portions of this RMZ not within Visual Management Zones 1 and 2 should be managed according to Visuals Management Zone 3.

4.1) Manage those portions of this RMZ within Visual Management Zone 1 according to the visual quality objectives established by the LRMP (see the Visual Management RMZ section).

4.2) Manage those portions of this RMZ within Visual Management Zone 2 according to guidelines in the Visual Management RMZ section.

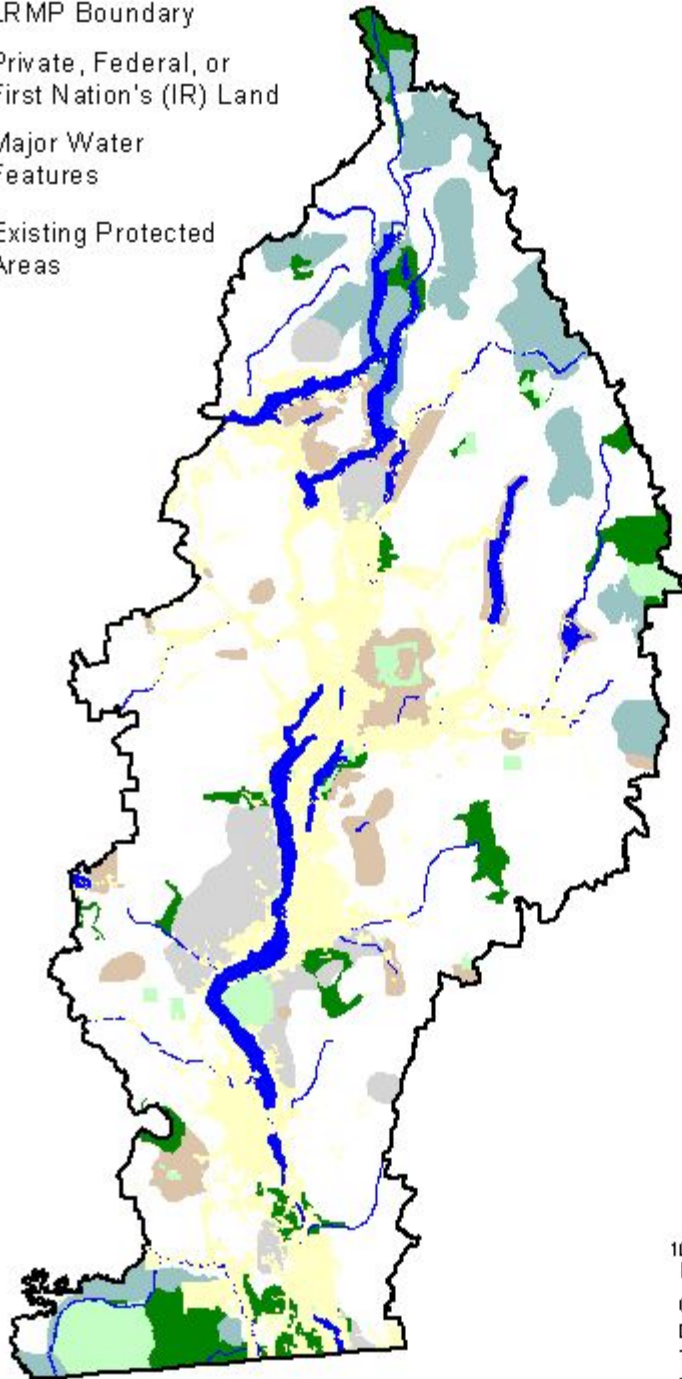
4.3) Manage those portions of this RMZ not in Visual Management Zone 1 or 2 according to the guidelines for Visuals Management Zone 3.

# Okanagan - Shuswap LRMP Approved Plan

## Tourism Areas RMZ

### Base Information

- ∕ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



- Dispersed Use
- Large Backcountry
- Tourism Use
- Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

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TEAM - March 2001  
File name: tour\_2.jpg



## Polygon Specific Resource Management Zone

### In this RMZ:

- Location of visual management Zones 1, 2 and 3.
- How to maintain a natural appearing landscape within important scenic areas within Zone 1.
- How to maintain a diverse managed landscape in visually sensitive areas in Zone 2.
- How to manage for visual concerns related to dispersed recreation in Zone 3.

## Visual Management RMZ

### Introduction

*For detailed guidelines on visual landscape management practices refer to the Visual Quality Guidelines in Appendix VI*

The viewsapes within the Okanagan - Shuswap LRMP area are a source of recreational enjoyment for residents, as well as a foundation for the tourism industry. The purpose of the objectives and strategies in this section is to outline visual landscape management practices for resource management activities within the Okanagan - Shuswap. They focus primarily on forest management, but are also applicable to activities such as mining, utility corridors, recreation facilities, urban developments, etc. They also apply to forested, as well as non-forested, Crown land (e.g., grasslands, alpine areas, and wetlands). In addition to the objectives and strategies outlined below, the "Visual Quality Guidelines" (see Appendix VI) that have been developed as part of the LRMP provide the detailed management guidelines that support the overall objectives and strategies.

### Visual Management Zone 1

*A "Visual Impact Assessment" provides maps, photographs, and perspective views of the visual effects of a proposed activity.*

The plan area has been classified into three visual landscape management zones, based on relative visual importance and type of use.

Visual management Zone 1 areas have been mapped according to the Ministry of Forests' visual landscape inventory procedures and standards, with input from the LRMP. Within these areas the main focus is on meeting the definition and intent of the visual quality objectives (VQOs). Visual quality objectives represent levels of publicly acceptable visual alteration. These areas will be declared "scenic areas" with established VQOs under the Forest Practices Code, and managed consistent with the provisions of the Code, and the objectives and strategies of the LRMP. Visual impact assessments (VIAs) are required in Zone 1.



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## Visual Management Zone 2

Visual management Zone 2 areas are not scenic areas as defined under the Forest Practices Code, and they do not have established VQOs. Within these areas the main focus is on designing and implementing resource management activities which blend with the natural landscape. These areas will be managed consistent with the recommendations of the LRMP. Visual impact assessments (VIAs) are not required in Zone 2. Cutblock design may be checked using visual force analysis.

## Visual Management Zone 3

These areas have been mapped by tourism (commercial recreation use) and non-commercial recreation interests as being areas where visual management concerns are related to dispersed recreation use (such as horse back riding, hiking, etc.), and are not necessarily related to specific viewpoints. The main concern in these areas is foreground management around specific trails and some vistas. While roads and harvesting will be present and visible in these areas, the objectives, strategies and guidelines developed for the LRMP will help to reduce the impact of these activities on visual quality and recreation experiences, and in some cases enhance these experiences.

## Issues

Forest practices such as harvesting and road building have the potential to create visible disturbances that do not blend into the natural landscape. Many of the tourism and recreation experiences in the Okanagan - Shuswap rely heavily on maintaining naturally appearing landscapes. The main issue in managing for visuals is to maintain publicly acceptable levels of visual quality, while balancing social, environmental, economic, and aesthetic considerations.

## Goals

The primary goals are to maintain naturally appearing landscapes, and to encourage new practices and techniques that maintain visual quality.

## Objectives and Strategies

1) Maintain a natural appearing landscape in the important scenic areas identified as Zone 1 on the "Visual Management RMZ" map.

### Zone 1

1.1) Establish the areas identified as Zone 1 on the "Visual Management RMZ" map as FPC "scenic areas" and maintain the visual quality objectives (VQOs) that have been identified for this area.

Intent:

- i) Achieve VQOs by implementing the Okanagan - Shuswap LRMP Visual Quality Guidelines.
- ii) The strategy does not preclude flexibility to deal with forest health issues, blowdown, fire salvage, mine site development, utility rights of way, ski runs, etc.

# Okanagan - Shuswap LRMP Approved Plan

1.2) Improve understanding and coordination between various landowners (both private and public) and agencies to improve visual practices. (implementation)

Intent:

i) To illustrate the intent of this, an example was cited of a situation where private and Crown land are adjacent to each other, where it might prove beneficial to develop these lands together in a way that leads to improved visual management.

2) Restore a natural landscape appearance to those sites in Zone 1 on the "Visual Management RMZ" map that have been visually impacted by past development.

2.1) Visual rehabilitation should be considered where past visual impacts can be improved through redesign, re-vegetation, or other measures.

## Zone 2

3) Maintain the appearance of a diverse landscape in the visually sensitive areas, as identified as Zone 2 on the "Visual Management RMZ" map.

3.1) Manage as visually sensitive areas without established visual quality objectives.

Intent:

i) Not managed as "scenic areas".  
ii) Visual impact assessments are not required.

3.2) Resource development in the visually sensitive areas, shown in Zone 2 on the "Visual Management RMZ" map, will be designed to blend with the natural landscape through application of landscape design principles.

Intent:

i) Use Zone 2 landscape design principles in the Okanagan - Shuswap LRMP Visual Quality Guidelines to assist in following this objective.

## Zone 3

4) Maintain the appearance of a diverse landscape in the visually sensitive area related to dispersed recreation use, as identified as Zone 3 on the "Visual Management RMZ" map.

4.1) Resource development in the visually sensitive areas shown in Zone 3 on the "Visual Management RMZ" map will be designed to blend with the natural landscape with an emphasis on foreground management around specific trails and some vistas.

Intent:

i) Use Zone 3 landscape design principles in the Okanagan - Shuswap LRMP Visual Quality Guidelines to assist in following this strategy.

# Okanagan - Shuswap LRMP Approved Plan

## All Zones

5) Improve information related to the visual management inventory, and how well visual quality is being managed.

5.1) Refine and keep a current inventory of "scenic areas".

5.2) Undertake monitoring to examine whether implementation of the Visual Quality Guidelines will meet VQOs. The guidelines may be revised by consensus of the LRMP Implementation and Monitoring Committee. (implementation)

## Crater Enhanced Visual Quality Zone

6) Manage the Crater "Enhanced Visual Quality Zone" as shown on the "Crater Enhanced Visual Quality Zone" map to maintain the appearance of a diverse landscape.

6.1) Manage the Crater "Enhanced Visual Quality Zone" as a visually sensitive area equivalent to an enhanced Zone 2

### Intent:

i) Manage the area as an "enhanced" Zone 2 as follows:

- Scenic Area - yes
- Establish VQOs - yes (designate the area as Partial Retention as per Table 5)
- VI A requirement - yes (with reduced content as outlined below)
- Public review - to occur through the FDP review and comment process
- Natural design - yes
- Design guidelines - yes
- Silvicultural system guidelines - yes
- Roads soils guidelines - yes
- Green-up guidelines - yes
- Scale/Alt. guidelines - yes
- Foreground management - no

### VI A Content:

- Topographic map showing visual landscape inventory and VQO information, existing roads and harvesting, and proposed roads and harvesting.
- Colour photographs from key viewpoints.
- Simulation of proposed harvesting consisting of a photograph with hand drawn overlay from key viewpoints (see below).

Key Viewpoints: the ridge above Ladyslipper Lake, Red Mountain.





### Boundaries:

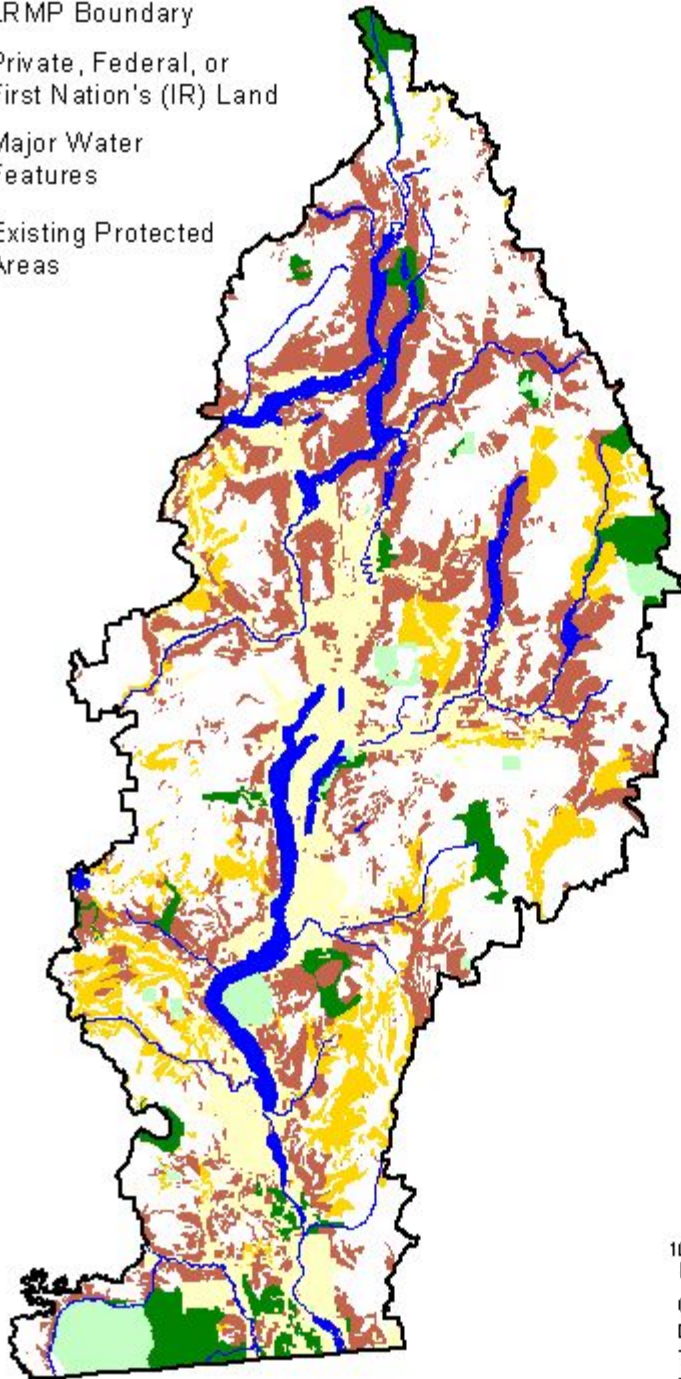
The boundaries would be those identified on the Dec. 1st summary of the Southern Protected Areas Working Group meeting - i.e., polygons 2A and 2B, which exclude the grasslands on Crater Mountain itself.




# Okanagan - Shuswap LRMP Approved Plan

## Visual Management RMZ

### Base Information

-  LRMP Boundary
-  Private, Federal, or First Nation's (IR) Land
-  Major Water Features
-  Existing Protected Areas



-  VQO Zone 1
-  VQO Zone 2
-  Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

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DATA MANAGEMENT  
TEAM - March 2001  
File name: vqo\_2.jpg



# Okanagan - Shuswap LRMP Approved Plan

"Crater Enhanced Visual Quality Zone" map under development.



## Polygon Specific Resource Management Zone

## Water

### In this RMZ:

- Location of community watersheds.
- How to maintain the quality of water in order to minimize measures required to treat water, to meet standards in community watersheds.
- Provisions for maintaining the quantity and flow of water in community watersheds.

## Community Watershed RMZ

### Introduction

There are currently over 60 community watersheds within the plan area, which have been designated under the Forest Practices Code (see Table 1 for the current list). Within these watersheds, water is the primary resource use and forest management requires more detailed forest development plans, including watershed assessments, which may require more restrictive harvesting and range use practices.

The purpose of designating community watersheds is to allow for a greater protection of the water resource. This is done through impact assessment, more detailed planning and increased monitoring.

### Current Management

Management of activities within community watersheds are governed by laws, such as the Forest Practice Code (FPC), higher level plan (HLP) objectives from an approved LRMP, the Water Act and regulations, and the Fish Protection Act and its expected regulations. Activities are also guided by the Community Watershed Guidebook (FPC). The federal Fisheries Act and the Mineral Exploration Code may also apply. All the objectives and strategies outlined in the Water general resource management section also apply.

The Forest Practices Code covers (FPC) forest practices necessary to protect the quality and quantity of water in these watersheds. The FPC Community Watershed Guidebook contains sections dealing with topics such as terrain hazard mapping, watershed assessment, long term forest development planning, cutblock size and green-up requirements, riparian management, range practices, pesticides, fertilizers, forest road hydrology, stream crossings, and water quality monitoring.



# Okanagan - Shuswap LRMP Approved Plan

The water purveyors and/or water licensees are consulted through the forest development plan process and their interests considered prior to any approvals of proposed activities being granted, including forest development plans. The Forest Practices Code requires joint approval (sign off) of forest plans by the forest District Manager (DM) and the Designated Environment Official (DEO). Referrals to the water purveyor regarding other resource development and use proposals are encouraged. Water purveyors are encouraged to participate in the technical Interior Watershed Assessment Procedure (IWAP) process.

## Goals

Within these watersheds, water quality, water quantity, and timing of flows are recognized as the principal values. Resource development and extraction activities are permitted provided community water supply objectives are achieved.

The overall goal is to ensure that the surface and ground water resource will continue to provide a healthy, safe and affordable supply of drinking water in the future.

## Objectives and Strategies

1) Maintain water quality in community watersheds to minimize, where practical, the measures that are required to treat water to meet minimum standards (i.e., Canadian Drinking Water Guidelines).

### *Water Quality*

1.1) Manage community watersheds to meet the identified attributes listed in Table 2 (to be used in the Interior Watershed Assessment Procedure process).

#### Intent:

i) The hydrologist is to incorporate the target conditions in Table 2 unless otherwise directed by the Watershed Advisory Committee.  
ii) Utilize the target conditions stated in the Community Watershed Guidebook as minimum standards in the IWAP and manage development activities to meet them unless variances are required by the Watershed Advisory Committee or by more stringent requirements elsewhere in this plan. (Specifically, these targets would be those found in Water Quality p.36; Forest Road Engineering, p.65; and, perhaps, other targets found in riparian p.44; Range p. 82-3, Fertilizer p.93; Pesticide p.101)

1.2) Develop water quality objectives for all community watersheds on a priority basis, and then manage to meet these objectives.

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1.3) Proponents, and where applicable, government are to develop plans to implement watershed assessment recommendations on a prioritized basis within five years and monitor the results.

Intent:

i) Where a Watershed Assessment Committee has made recommendations pertaining to an IWAP that are not applicable to a forest development plan, proponents and, where applicable, government are to develop plans to implement those recommendations on a prioritized basis within five years and to monitor the results.

1.4) Implement water quality and flow monitoring programs in each community watershed and known associated aquifer recharge areas. (implementation)

1.5) Develop methods to inform and allow water purveyors and local governments to have meaningful input to resource extraction and other development activities, which may have an impact on water quality. (implementation)

1.6) Where there are indicators of unacceptable water quality and quantity take prompt, appropriate measures to address the problem. (implementation)

2) Manage livestock within community watersheds to maintain water quality.

Intent:

i) Ensure that range use plans (RUPs) have objectives and strategies to address water quality issues.

ii) Management is not to be less than what is required in the Forest Practices Code.

2.1) Manage livestock away from riparian areas.

Intent:

i) To manage livestock access both on Crown land, as well as to Crown foreshore accessed through private land.

ii) This includes the drawdown areas in reservoirs.

iii) To not restrict all livestock from riparian areas.

iv) Tools to prevent cattle from congregating in riparian areas and causing detrimental impact include, but are not limited to, placement of salt blocks, off stream stock watering works, temporary or permanent fences in critical areas, riders, moving livestock to other grazing areas when upland grazing adjacent to riparian areas is depleted, following scheduled grazing rotations designed to minimize cattle use of riparian areas, etc.

v) An additional tool is input into cutblock design (this is not intended to increase costs or restrict access to timber and is to be negotiated on a site-specific basis between forest licensee and range licensee).

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- vi) The intent is not to fence all riparian areas.
- vii) Management is not to be less than what is required in the Forest Practices Code.

2.2) A 30 metre wide band on each side of a stream, for a distance of one (1) kilometre above the intake, should be managed to prevent contamination from cattle defecating directly into the stream, or from runoff of fecal deposits close to the stream.

Intent:

- i) The rancher will use all management efforts to keep cattle away from intakes (but does not imply continuous fencing).
- ii) If cattle move within one km upstream of intake (within the "no livestock" zone), then the rancher will remove them as soon as possible.
- iii) Multiple events should be addressed by more aggressive management efforts.

2.3) Where livestock use of the watershed has caused the water quality to fail to meet the water quality objectives established by the Ministry of Environment, Lands and Parks (MELP) or the water quality indicator level established by a professional, then corrective measures need to be enacted. These may include any of the strategies identified in the intent for strategy 2.4 and may also include the need for removal of livestock until corrective measures are in place.

Intent:

- i) Identify water quality problems (measure fecal) and get proof of source (field inspection with rancher).
- ii) The water quality professional is to identify appropriate levels and components (likely fecal) to measure (trigger). See Table 2 for triggers.
- iii) One of the corrective measures could be to increase the distance of the "no livestock" zone beyond one kilometre.
- iv) The water purveyor (e.g., municipality, improvement district), Ministry of Health, or the Ministry of Environment, Lands and Parks can trigger the decision to take action.

2.4) When range tenures within community watersheds become vacant (i.e., have been relinquished), and livestock use of that watershed has been a documented concern registered with the Ministry of Environment, Lands and Parks, or the Ministry of Health, steps will be undertaken to address these concerns before the tenure is re-issued. These steps may include:

- adjusting stocking levels;
- ensuring that needed range improvements are in place; and,
- the new tenure holder accepts the need for elevated management, and is aware of health implications as they relate to good animal husbandry.

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2.5) To implement management practices which ensure minimal risk of livestock contributing harmful levels of parasites or harmful levels of bacteria to streams.

Intent:

- i) Livestock husbandry on the home ranch is important. Ranchers need to be informed and to accept the responsibility of herd health implications.
- ii) Address these concerns with appropriate wording in range use plans.

2.6) Do not allow young calves with scours onto rangelands.

Intent:

- i) The concern is that young scouring calves may shed high levels of giardia and/or cryptosporidium leading to contamination of surface water and resulting cryptosporidiosis and giardiasis.
- ii) Address this concern through range use plans. Focus on good livestock husbandry on the home ranch.
- iii) Continue with education of ranchers, providing herds with supplemental minerals to avoid deficiencies often associated with scour outbreaks.
- iv) Ranchers are encouraged to ensure calving occurs on clean ground, and to continue moving newborn calves to clean feeding areas to avoid risk of infection.

3) Address water quality impacts related to physical access.

Intent:

- i) To minimize, where practicable, sediment delivery potential and peak flow changes which will affect human health.
- ii) Recognizes that roads will be necessary in community watersheds for trapping and industrial purposes.
- iii) Requires judicious road development to reduce the total amount of road, and potential quality impacts resulting from road development.

3.1) All roads, trails, and other construction activity (e.g., installing culverts, bridges, etc) must be undertaken under appropriate regulations and standards (i.e., Forest Practices Code, Mineral Exploration Code) under appropriate weather conditions and deactivated in a similar manner.

Intent:

- i) Weather conditions should not contribute to sediment delivery to streams/water bodies.

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3.2) Where required by the statutory decision maker (SDM), develop access management plans to reduce water quality impacts.

Intent:

- i) All stakeholders shall have the right to participate in the development of the plans (as per the provisions described in the Access section - see Part 6).
- ii) To encourage/require joint use and maintenance responsibilities for all the required roads and trails that need to be active.
- iii) To reduce the area of exposed soils subject to sediment transport, the number of stream crossings, the opportunity for introduction of harmful bacteria or parasites, and protect licensed water works infrastructure (e.g., dams, control valves, pump stations, etc.) from vandalism.
- iv) SDM should require an access plan where significant concerns have been raised related to access.
- v) Access management plans to address non-status roads to be undertaken by Ministry of Forests and the Ministry of Environment, Lands and Parks.

3.3) Reduce access to and fording of streams that result in harmful impacts on water quality.

Intent:

- i) An example would be to locate fords in areas of low sediment delivery potential.
- ii) To reduce indiscriminate fording of streams.

3.4) Reduce the number of non-status roads that result in harmful impacts on water quality.

Intent:

- i) To be implemented over time as resources permit.

## *Water quality*

4) Restore and maintain properly functioning conditions of streams, including the timing and magnitude of flows.

Intent:

- i) Maintain natural drainage patterns to assist in attenuating peak flows to prevent destabilization of stream channels, the associated deterioration of instream habitat, and prevent downstream flooding.
- ii) Maintain the hydrograph to within the range of the evolved channel capacities downstream.
- iii) Maintain the low flows to within the range of the current licensed demand so that the situation gets no worse than which exists at present. It is a conservative approach that provides options for future demands and uses.
- iv) Ensure that construction activities, primarily roads and trails, do not disrupt natural drainage patterns leading to erosion, mass wasting, and debris torrents.

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4.1) When recommended by a Watershed Advisory Committee, proponents are to consider undertaking long-term plans to address quantity and timing of flow issues identified in the IWAP.

## *Water quality*

5) Maintain water quality in reservoirs and other lakes in community watersheds for which water is used for community use.

Intent:

i) This includes lakes regulated by storage dams.

5.1) Limit access to the lakeshore and drawdown zone by motor vehicles and other mechanized means of transportation (e.g., mountain bikes).

Intent:

i) Locate new roads at least 210 metres from the lakeshore unless there is no practicable alternative.

ii) Immediately following industrial use, rehabilitate or deactivate with barriers any new roads constructed within 210 metres of a lakeshore.

iii) Where industrial use is required on an ongoing basis, the industrial user should work with the water purveyor, relevant Crown agencies and other interested parties to implement alternative measures (signage, education, etc.) to prevent indiscriminate access to the lakeshore.

iv) Only applies to lakes that are direct storage reservoirs (i.e., dammed lakes with licensed storage).

v) Not intended to restrict access for uses that are not detrimental to maintaining water quality.

5.2) Direct camping to designated recreation sites and tenured facilities

Intent:

i) Use a range of techniques specified in access management section.

ii) Reduce the contamination of water supply by unmanaged campsites.

5.3) Encourage water purveyors to include those roads that provide access to their infrastructure within their Land Act and/or Water Act tenure/licensed works and prevent unauthorized access to dams on those roads.

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**Table 1: List of Community Watersheds in the Plan Area (as of April 2001)**

<b>Penticton Forest District</b>	<b>Salmon Arm Forest District</b>	<b>Vernon Forest District</b>
Affleck Creek	Anglemont Creek	BX Creek
Alocin Creek	Bass Creek	Coldstream Creek
Chute Creek	Bastion Creek	King Edward (Deer) Creek
Ellis Creek	Brash Creek	Duteau Creek
Farleigh Lake	Corning Creek	Fortune Creek
Hydraulic Creek	East Canoe Creek	Glanzier Creek
Keremeos Creek	Gordon Creek	Hope Creek
KLO Creek	Hobson Creek	Irish Creek
Lambly Creek	Hudson Creek	Kelowna Creek
Mission Creek	Kruly Creek	Kendry Creek
Naramata Creek	Newsome Creek	Klim Brook
Ollala Creek	Sicamous Creek	Maid Creek
Peachland Creek	Silver Creek	Meighan Creek
Penticton Creek	Wade Creek	Norris Creek
Pooley Creek	White Cliff Gulch	Oyama Creek
Powers Creek	Wiseman Creek	Swayne Brook
Rancher Creek		Vernon Creek
Robinson Creek		
Rose Valley Lake		
Shingle Creek		
Skiing Brook		
Trapping Creek		
Trepanier Creek		
Trout Creek		

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**Table 2: Attributes for Peak Flows Sediment Delivery, Riparian Function and Channel Stability to be used in the IWAP Process to meet Objective 1 in Community Water Supply Resource Management Zone - Water quality objectives**

[Specifically, these targets would be those found in the Community Watershed Guidebook sections relating to Water Quality p.36; Forest Road Engineering, p.65; and, perhaps, other targets found in riparian p.44; Range p. 82-3, Fertilizer p.93; Pesticide p.101.]

ATTRIBUTE	TARGET CONDITION
streamflow	<p>No change in the natural variability of timing, duration or magnitude of peak flows</p> <p>No change in the natural variability of magnitude or duration of low flows</p> <p>No change in the natural variability of stream peak flows as a result of road densities in any sub-basin. (This includes rain response flows.)</p>
turbidity and suspended sediments	<p>Within range and duration of the natural variability of the undisturbed watershed</p> <p>No long term change in turbidity measured at the intakes as a result of road and stream crossing construction, maintenance or deactivation.</p>
choliforms	No detectable increase in fecal choliforms at the intake.
temperature	Within the range and duration of the natural variability of the undisturbed watershed.
nitrate-N	Less than 10 mg/L at the intake (to be assessed if data is available.)
pesticides	Not detectable at the intake.
algae	Less than 2µg/L in lakes, less than 50 mg/m <sup>2</sup> chlorophyll-a in streams (to be assessed if data is available.)



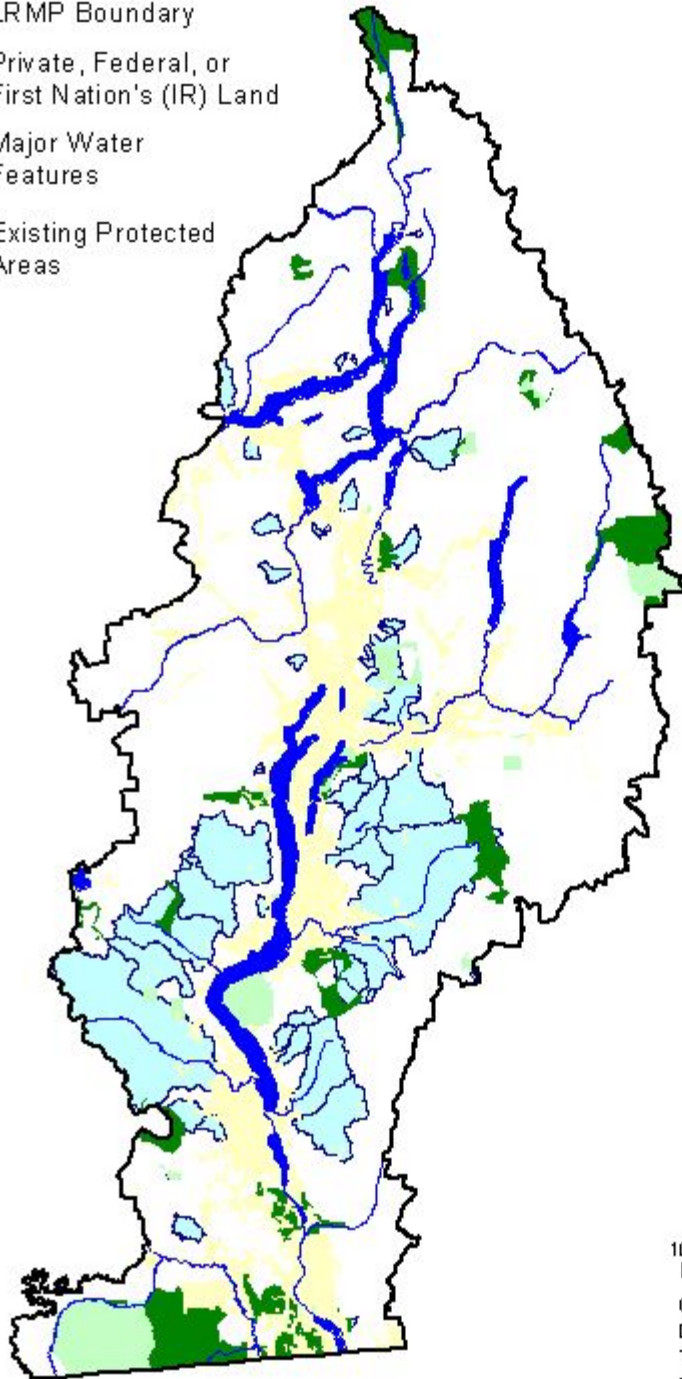


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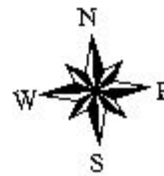
## Water RMZ - Community Watersheds

### Base Information

- ∕ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



- Community Watershed
- Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

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DATA MANAGEMENT  
TEAM - March 2001  
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## Polygon Specific Resource Management Zone

## Wildlife

### In this RMZ:

- Location of important sheep habitat.
- Provisions to minimize adverse impacts of access on sheep habitat, including special habitat features.
- How to maintain or enhance forage productivity.
- How to maintain forest cover requirements and movement opportunities.

## Bighorn Sheep Habitat RMZ

### Introduction

Bighorn sheep are sensitive to disturbance associated with human related activities, and they are vulnerable to climate, disease, predators and hunting pressures. There are both California and Rocky Mountain bighorn sheep in the plan area. California bighorn sheep are relatively abundant, with scattered populations throughout the south and central portions of the plan area. Rocky Mountain bighorn sheep populations are significantly less, and are restricted to a range near Chase.

The key habitats for bighorn sheep are lambing grounds, escape terrain, and winter and spring ranges. Lambing grounds usually have early spring forage close to steep, rugged, terrain where ewes are secure from predators during birthing and nursing. Winter and spring ranges are found on grassland habitats. Forested cover, used for thermal shelter and snow inception cover, is an important attribute of winter ranges.

The Vaseux and Ashnola areas support significant bighorn sheep populations. However, the Vaseux area population experienced a major disease related die off during the winter/spring of 2000. Shorts Creek, Penticton Creek and the Olalla area support smaller populations. Bighorn sheep occupy only a portion of their former ranges, and programs are underway to encourage sheep re-occupation of former ranges. Guidelines exist that provide supplementary information on management of bighorn sheep. (See Appendix VII.)

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## Issues

The most serious impacts to bighorn sheep result from being excluded from indigenous winter ranges. Urban, agricultural and corridor development have displaced big horn sheep, and fragmented populations, making them vulnerable to extirpation. Vehicle/sheep collisions, poaching, noxious weeds, forage availability, and fire suppression have all impacted sheep or sheep habitat. Lungworm is endemic in bighorn sheep, and when sheep are forced to concentrate in feeding areas the spread of the parasite is greatly facilitated.

Bighorn sheep are recognized as a primary user in certain local planning levels (e.g., the Ashnola Coordinated Resource Management Plan, or CRMP). Certain cattle management practices, when prescribed to "condition" forage (i.e., promote forage growth prior to sheep utilizing the range), and prescribed burning, have aided in forage production for bighorn sheep.

## Goals

The goal is to maintain and enhance bighorn sheep populations and habitats in the plan area. Where sheep and deer habitat overlap apply sheep management objectives and strategies except for forest cover

## Objectives and Strategies

1) Minimize adverse impacts of access and access related activities on important sheep habitat as shown on the "Wildlife – Bighorn Sheep Habitat" map.

1.1) Where practicable, locate roads outside of known lambing and rutting areas.

1.2) Carry out pre- and post-development access management in order to minimize habitat alienation, the potential for animal stress, habitat abandonment, vulnerability to poaching, and the spread of noxious weeds.

Intent:

- i) The intent is to manage industrial and recreational access and development to minimize impacts to sheep and sheep habitat.
- ii) Of particular importance are lambing, rutting or wintering habitats and migration corridors.
- iii) Operational details determined through access management plan.

1.3) Avoid expansion of recreational use in critical sheep habitats during April - July (lambing areas), and October - November (rutting).

Intent:

- i) Of particular concern is rock climbing.
- ii) Educate climbers through signage, climbing guides, etc., regarding sheep values.
- iii) Not to preclude regulated hunting.
- iv) Not intended to restrict trapping activities.

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1.4) Reduce existing conflicts between recreation uses and sheep by establishing boundaries around current recreation use areas as shown on map "p" (to be developed as part of implementation), and restrict recreation use during April - July 1st (lambing areas) and October - November (rutting).

Intent:

- i) Not to stop use, but to restrict numbers of users during these critical times.
- ii) The main concerns are with helicopter tours and cliff climbing.
- iii) Not to preclude regulated hunting.
- iv) It is intended that "map 'p'" would indicate recreation use areas within sheep habitat (as shown on the "Wildlife - Bighorn Sheep Habitat" map).

2) Maintain and/or enhance forage abundance and availability for bighorn sheep in the areas shown in the "Wildlife - Bighorn Sheep Habitat" map.

2.1) Range use plans (RUPs) in areas of sheep habitat are to identify and manage for desired plant communities that provide forage for sheep.

Intent:

- i) The level of use, timing of use, and the desired plant community are prescribed with the intention of "conditioning" forage species by cattle for the benefit of sheep.

2.2) Manage for early or mid-seral understorey vegetation in lambing areas in order to promote a higher forb content in sheep forage.

Intent:

- i) To have a good mix of species diversity combined with adequate forage.

2.3) Manage for at least 50% of each sheep winter range in late seral/climax condition (bluebunch wheatgrass dominated communities) with abundant, tall grass (easily accessible above snow cover) for winter forage.

2.4) Where external funding is secured, intensive silviculture or habitat enhancement activities are to enhance important habitat features in bighorn sheep habitat.

Intent:

- i) Activities, such as spacing and commercial thinning, can be beneficial to cover and forage needs of bighorn sheep.
- ii) Such activities are to be done with a focus on bighorn sheep habitat enhancement (e.g., retaining Douglas-fir).
- iii) Such activities may require outside funding. Where external funding is secured, proponents (e.g., government agencies, BC Wildlife Federation) are encouraged to undertake these activities.
- iv) Habitat enhancement activities are an acceptable use of Forest Renewal BC (FRBC) funds.

## Okanagan - Shuswap LRMP Approved Plan

2.5) In areas that have been harvested, reforest at stocking rates that promote understorey (herbs, grasses and shrubs) development.

Intent:

i) Speaking to tree establishment only - i.e., it's recognized that there will be "naturals" that establish themselves within the planted areas, which may effect the stocking rate.

ii) The stocking standards are to be developed by the Regional NDT4 Committee (similar to how the stocking standard issue is being addressed in the Mule Deer Winter Range RMZ).

iii) If the Regional NDT4 Committee is unable to deliver these stocking standards within a year of plan approval, the Ministry of Environment, Lands and Parks, the Ministry of Forests, and the forest industry are to develop "interim" stocking standards as appropriate. If the Regional NDT4 Committee is close to delivering stocking standards (i.e., within a couple of months), then it's possible that MELP, MoF and the forest industry may collectively choose to wait for these rather than to develop interim standards.

iv) To develop and implement biogeoclimatic (BGC) subzone/variant tree stocking rates that approximate natural stocking densities.

2.6) In sheep winter range, limit the removal of browse species by livestock to 10%, or less, of annual browse growth.

2.7) Re-vegetation of disturbed sites in sheep habitat will, wherever possible, be done using available adaptable and cost-effective native species mixes.

2.8) Through range use plans ensure new livestock range enhancements, such as drift fences and water developments, do not negatively impact range utilization patterns or traditions of sheep.

2.9) Grass seeding for erosion control will be done in a timely manner.

Intent:

i) The timing of grass seeding can be spelled out in operational plans and road permits.

ii) Encourage checking for, and removal of, noxious weeds from vehicles.

iii) Where practical, minimize ground disturbance.

iv) This is not intended to obligate or transfer the responsibility for noxious weed control to forest licensees.

v) Non-invasive, non-rhizomatous types are preferred when non-native seed is used.

# Okanagan - Shuswap LRMP Approved Plan

2.10) Prevent domestic sheep from being located near (i.e., within 15 km, as per provincial guidelines) or in bighorn sheep habitat.

Intent:

- i) Applies to Crown land.
- ii) Applies to all tenures and use of sheep for silvicultural work.

2.11) Where practicable, develop and implement prescribed burn plans to enhance forage availability or improve habitat suitability on winter ranges.

Intent:

- i) Focus on grassland and open parkland.
- ii) Government will undertake these activities.

2.12) Incorporate new knowledge about forage needs of sheep into sheep habitat prescriptions. This is to be accomplished through the Implementation and Monitoring Committee. (implementation)

2.13) Assess the capacity of the forage habitat in terms of the number or density of sheep that the habitat could support. Mitigate negative factors and enhance positive factors to allow sheep to reach sustainable levels. (implementation)

Intent:

- i) Consideration is to be given to reduce impacts to existing tenures.
- ii) This is to be undertaken by MELP.
- iii) This deals with the balancing of animal unit months (AUMs) between livestock and wild sheep.

2.14) Develop a strategy to enhance forage productivity by actively managing forest in-growth into grasslands, and open forest sites. Where practical, develop prescribed burn plans or utilize other methods to enhance forage production. (implementation)

2.15) The Implementation and Monitoring Committee is to examine effectiveness of current weed control measures and make recommendations to government. (implementation)



# Okanagan - Shuswap LRMP Approved Plan

3) Provide forest cover that is adequate to meet bighorn sheep thermal, snow interception and security requirements in the bighorn sheep habitats outside of mule deer winter range as shown on the "Wildlife - Bighorn Sheep Habitat: Mule Deer/Bighorn Sheep Overlap" map.

Intent:

i) Forest cover to be well distributed within planning cells.

3.1) In sheep habitat, as per the "Wildlife - Bighorn Sheep Habitat: Mule Deer/Bighorn Sheep Overlap" map, maintain 33% of the stand to a height of 16.0 metres or greater, and a crown closure class of 3 or greater.

Intent:

i) The 33% could include netdowns (e.g., problem forest types, or PFTs), but would not include stocking class 4.

3.2) Forest health to be considered and balanced with sheep cover objectives.

Intent:

i) Intent is that neither sheep objectives or forest health objectives will override each other.

3.3) Maintain forested cover where it exists over or adjacent to special features.

Intent:

i) Use forest cover requirements from objective 3 to maintain forest cover adjacent to special features.

ii) Special features include open grasslands, mineral licks, rutting areas, lambing areas and loafing sites.

iii) MELP will supply as known information.

3.4) Incorporate new knowledge about cover needs of sheep into sheep habitat prescriptions. This is to be accomplished through the Implementation and Monitoring Committee. (implementation)

4) Provide opportunities for the movement of bighorn sheep in the sheep habitat areas shown in the "Wildlife - Bighorn Sheep Habitat" map.

4.1) Discourage Crown land alienation that disrupts movement opportunities between seasonal habitats, or permanently reduces the suitability of the area for sheep.

# Okanagan - Shuswap LRMP Approved Plan

4.2) Within bighorn sheep habitat, apply forest management prescriptions that restore, maintain or enhance sheep use of corridors linking seasonal sheep ranges and linking fragmented sheep populations.

Intent:

- i) The intent is to link ranges within the defined areas.
- ii) The LRMP Implementation and Monitoring Committee will review management criteria for corridors.
- iii) The Regional NDT4 Committee is to define the criteria for the corridor, which will define how they are then located.
- iv) If the Regional NDT4 Committee is unable to deliver this information within a year of plan approval, MELP, MoF and the forest industry will then develop this information and locate the corridors as appropriate. If the Regional NDT4 Committee is close to delivering this (i.e., within a couple of months), then it's possible that MELP, MoF and the forest industry may collectively choose to wait for the NDT4 Committee product rather than develop this information themselves.

4.3) Identify and map current or potential movement corridors within specific ranges, and between seasonal ranges and populations.

(implementation)

Intent:

- i) The bulk of the work to focus on seasonal ranges.
- ii) The Ministry of Environment, Lands and Parks is to undertake this contingent on funding.
- iii) If MELP identifies and maps these, and some activity is proposed that affects the corridor, this would be brought to the Implementation and Monitoring Committee.
- iv) This strategy would not preclude the use of clearcuts with reserves.

4.4) Subject to sheep being re-established in the area, and a commitment from BC Parks to maintain the portion of the corridor that is within the park, identify and establish movement corridors for bighorn sheep within the area identified on the "Wildlife - Bighorn Sheep Habitat: Bighorn Sheep Corridor" map. (implementation)

Intent:

- i) The corridors are to be approximately 300 - 400 metres wide.
- ii) The licensee is to determine the most effective way to maintain the corridor (e.g., utilizing old open forest combined with sequencing of cutblocks).
- iii) There is a need to consider historic movement in designing the corridor.

# Okanagan - Shuswap LRMP Approved Plan

5) Improve information regarding the location and use of bighorn sheep habitat.

5.1) Identify and map important sheep habitats. Implementation strategies may not require action outside of specific agency mandates (i.e., MELP). Particular emphasis on lambing, rutting and seasonal habitats. (implementation)

5.2) Where practicable, restore sheep to areas where the species has been extirpated, or reduced to critical levels, as identified by the "Wildlife - Bighorn Sheep Habitat" map. (implementation)

Intent:

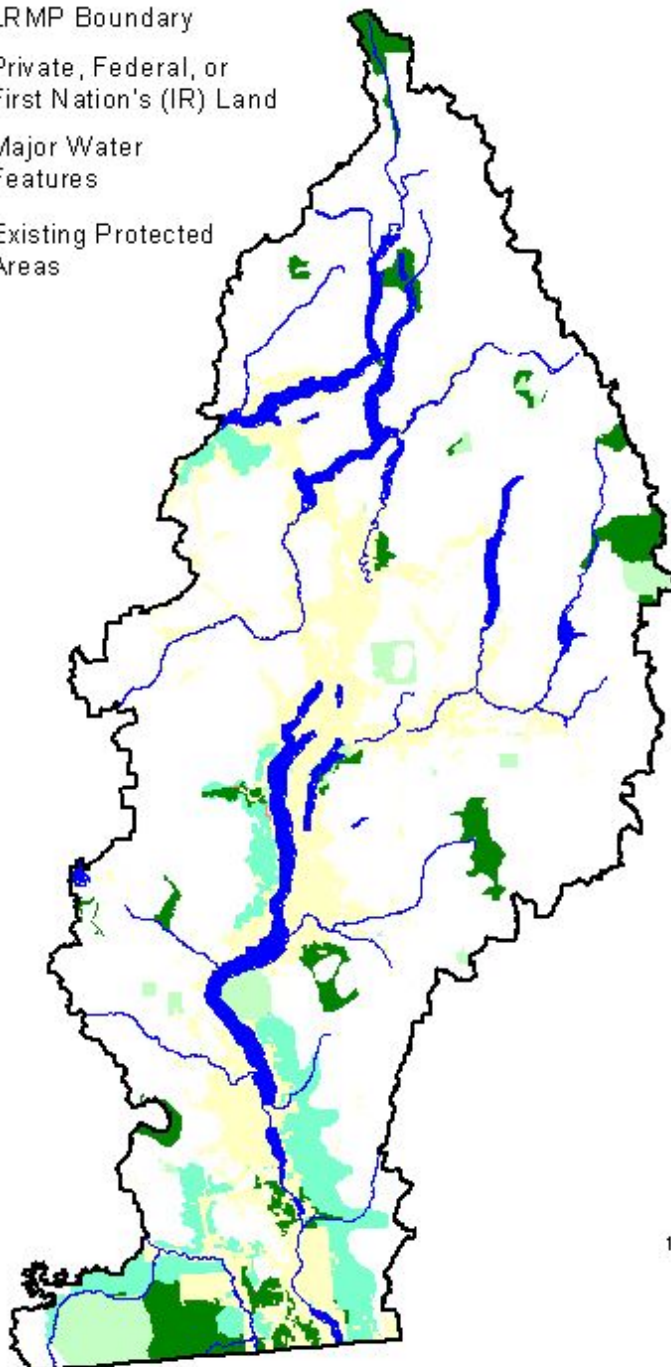
- i) Research should be undertaken to ascertain why a herd is extirpated before initiatives are made to restore it.
- ii) This will be done according to the current (1984) MELP transplant policy with the involvement of all stakeholders. This does not preclude the augmentation of existing herds.
- iii) The current transplant policy would apply to both augmentation and restoration.

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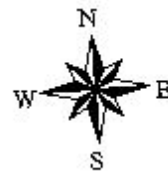
## Wildlife - Bighorn Sheep Habitat

### Base Information

- ∕ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



- Sheep Habitat
- Sheep Corridor
- Proposed Protected Area Package



10 0 10 20 30 40 Kilometers





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DATA MANAGEMENT  
TEAM - March 2001  
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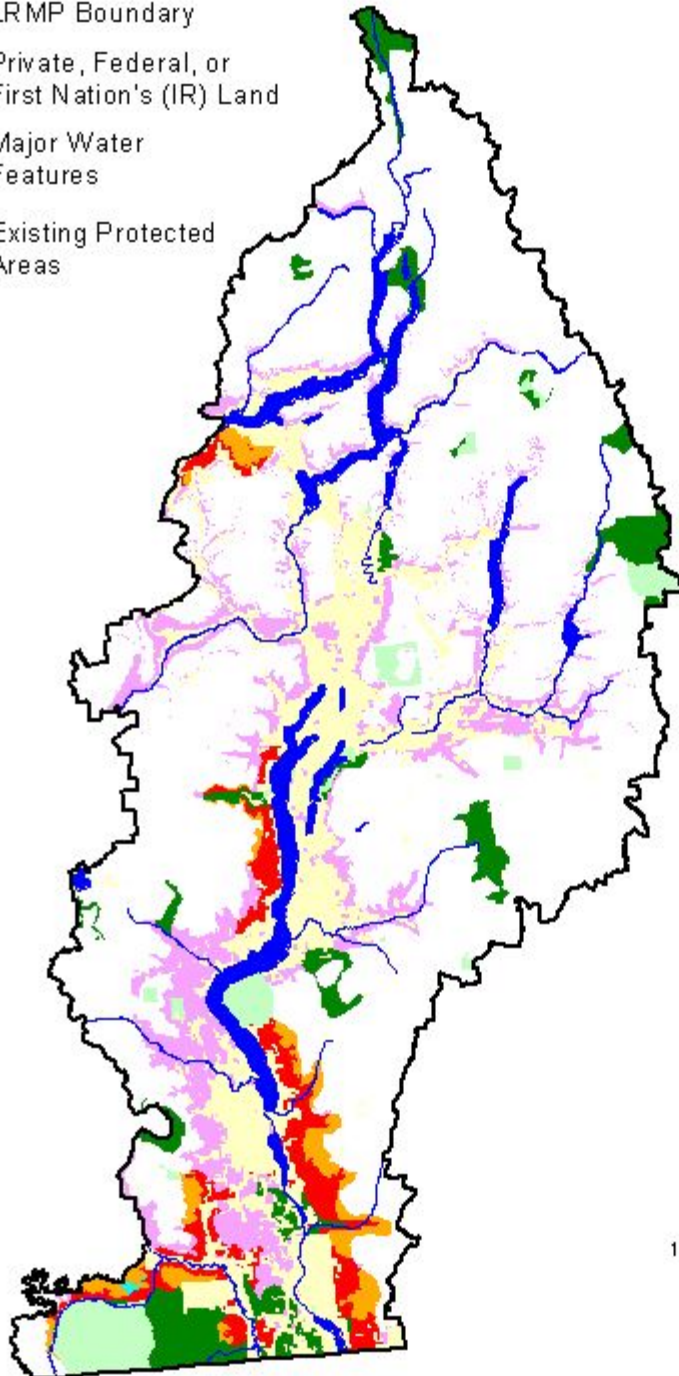





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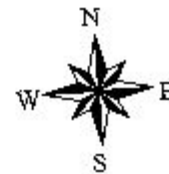
## Wildlife - Bighorn Sheep Habitat Mule Deer / Bighorn Sheep Overlap

### Base Information

-  LRMP Boundary
-  Private, Federal, or First Nation's (IR) Land
-  Major Water Features
-  Existing Protected Areas



-  Sheep Winter Range Outside of Mule Deer Winter Range
-  Sheep Habitat
-  Mule Deer Winter Range
-  Area of Mule Deer Sheep Overlap
-  Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

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DATA MANAGEMENT  
TEAM - March 2001  
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## Okanagan - Shuswap LRMP Approved Plan

"Wildlife - Bighorn Sheep Habitat Bighorn Sheep Corridor" map under development  
(file: sheep\_corridor.jpg)





## Polygon Specific Resource Management Zone

## Wildlife – Big Horn Sheep

### In this RMZ:

- Important bighorn sheep habitat is identified.
- A wildlife management area (WMA) is recommended in order to help maintain the herd (decimated by disease).
- Access development is directed in a manner compatible with sheep management.
- Existing recreational use is managed.

## Derenzy Bighorn Sheep Habitat RMZ

### Introduction

The Derenzy Bighorn Sheep Habitat RMZ is a subset of the Bighorn Sheep Habitat RMZ. It is located on the east side of the Okanagan valley in close proximity to Penticton and Okanagan Falls (see the "Wildlife – Derenzy Bighorn Sheep Habitat" map at the end of this section). The area supports a significant year-round population of California bighorn sheep. Important habitat requirements for bighorn sheep, including lambing areas, escape terrain, winter and spring foraging areas, and forested cover, are located within the RMZ.

In addition to bighorn sheep, the RMZ also provides winter habitat for mule deer, elk, and mountain goat. Predators, such as cougar and coyote, are fairly common due to the presence of the variety of ungulates. Also, because of the variety of habitat types (eg. rock outcrops, cliffs, interspersed grasslands, open grown Douglas-fir and ponderosa pine forests at the lower elevations, and lodgepole pine and larch forests in the upper elevations, and riparian areas), the area provides habitat for a variety of smaller wildlife species including raptors, songbirds, small mammals, reptiles and amphibians. Several of these species are considered rare, including the bighorn sheep, and have been designated as Red or Blue-listed (see Wildlife GMZ for more details).

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## Issues

Like many areas of the southern Okanagan valley, the general area has been significantly influenced by human presence. Bighorn sheep, and wildlife in general, have been affected. Urban and agricultural developments have reduced habitat availability; fire suppression has altered plant community composition; recreational access has resulted in habitat displacement; industrial access has increased the vulnerability of the bighorn sheep populations to increased harvest and 'poaching'; corridor development has also increased access to the area; and the spread of weeds into the area has become an increasing concern.

Bighorn sheep populations in the southern Okanagan underwent a significant disease related die-off in the winter/spring of 2000. Although not impacted to the same degree as the Vaseux bighorn sheep population to the immediate south, there were significant concerns for the Derenzy population. Hunting of sheep in the entire area has been restricted to allow for the populations to increase. Management attention for this area is a high priority.

## Goals

The specific goals are as follows:

- To maintain and enhance wildlife and their habitats to ensure an abundant, diverse and self-sustaining wildlife resource throughout this RMZ.
- To maintain, enhance and promote opportunities to appreciate, study and view bighorn sheep in their habitats.
- To maintain, enhance and promote recreational opportunities to hunt game species, including bighorn sheep in their habitats.

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## Objectives and Strategies

1) Manage activities within Zone 1 and 2, as identified on the "Wildlife - Derenzy Bighorn Sheep Habitat" map, to protect, maintain and/or enhance habitat for bighorn sheep and other wildlife.

1.1) Establish Zone 1, as identified on the "Wildlife - Derenzy Bighorn Sheep Habitat" map, as a wildlife management area (WMA).

Intent:

- i) This area could be available for an old growth management area (OGMA) or wildlife tree patches (WTPs).
- ii) Prior to approving any development activities in this area (including access), there should be a detailed review of the potential impacts on the sheep herd consistent with standard WMA practices.
- iii) Timber harvesting requires joint approval from the Ministry of Forests (MoF) and Ministry of Environment, Lands and Parks (MELP), with the main intent to enhance sheep habitat.
- iv) Grazing will continue to be an allowable use administered by the Ministry of Forests in line with the sheep management guidelines. This intent will be written into the management plan for the WMA.

1.2) Within Zone 1, habitat enhancement work may be undertaken for the benefit of sheep.

Intent:

- i) Sheep habitat enhancement work should not be assumed to be an increased ranching opportunity.

1.3) Within Zone 2, as identified on the "Wildlife - Derenzy Bighorn Sheep Habitat" map, maintain 33% of the stand to a height of 16 metres or greater, and a crown closure class of 3 or greater.

Intent:

- i) The 33% could include netdowns (e.g., problem forest types, or PFTs), but would not include stocking class 4.
- ii) 15% of the total, but within the 33% would be greater than 140 years of age. This shall be achieved within the fir and spruce types (not lodgepole pine types).
- iii) In the fir/spruce types the harvesting system will be restricted to small patch cuts, partial retention systems as per Table 1.
- iv) In the lodgepole pine types, the harvesting system will be clearcuts with reserves as per Table 1. Clearcuts will have irregular edges.
- v) The woodlot would be exempt from this strategy.

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*Note: Access can be restricted during the course of ongoing operations under Section 55 and 57 of the Forest Practices Code of BC Act.*

1.4) Within Zone 2, develop a "Total Chance Plan" to manage access.

Intent:

- i) To prevent poaching and harassment of sheep and wildlife.
- ii) Possible tools for access management include gating, Section 105 closures, road construction to provide for access control points, and road deactivation.
- iii) Access will come through identified access control points that provide for access restriction and subsequent deactivation.
- iv) There should be no "through" (east - west) access opportunities created.
- v) Any access from the southwest (McLean Creek) should not traverse the steep, rocky terrain present towards the MSdm1 typeline. Similarly, the cutblocks on the Derenzy side should maintain a natural barrier in relation to access from lower elevations.

1.5) Avoid Crown land alienation within Zone 1 and 2.

1.6) Rock climbing should be discouraged within Zone 1.

Intent:

- i) The intent is to restrict rock climbing to the Skaha Bluffs Goal 2 protected area.
- ii) One of the ways this can be achieved is through the use of appropriate signage.

1.7) If disease or parasites of sheep become an unacceptable mortality factor the Ministry of Environment, Lands and Parks will consider all available management options.

1.8) The Ministry of Environment, Lands and Parks will encourage the natural re-occupation and, if needed, transplants of suitable ranges historically used by California bighorn sheep.

Intent:

- i) It's recognized that such re-occupation may not be feasible in certain areas because of negative impacts on adjacent agricultural operations.
- ii) To facilitate re-occupation, MELP may consider transplanting sheep to high capability areas, as part of a damage mitigation project in agricultural areas of concern.
- iii) Transplants will have full stakeholder referral and will follow the transplant protocol.

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1.9) Should it be determined that predator control (particularly for coyote) may result in increased lamb recruitment and benefit the sheep population, the Ministry of Environment, Lands and Parks should consider this as a management tool.

Intent:

- i) As deemed appropriate, stakeholders and government agencies should work co-operatively to develop a strategy, including funding sources, to address the issue.
- ii) Current hunting of coyote, cougar and black bear by resident and non-resident hunters is supported.

1.10) The existing local stakeholder group will be involved in the Zone 1 WMA and Zone 2 development, as well as the development of access management objectives.

Intent:

- i) All interests should be involved in these discussions (e.g., ranching, motorized recreation, etc.)

2) Maintain and enhance opportunities for the public to appreciate, study, and view wildlife in their natural habitat, and to maintain and enhance public use of the wildlife resources of the RMZ (Zone 1 WMA and Zone 2) for hunting.

2.1) Within Zone 1, ensure that wilderness-type outdoor experiences and high value scenic opportunities are available for recreational users.

3) Ensure cooperation and involvement with the federal government, adjacent landowners, BC Parks, other Crown agencies, licensed forest resource users, recognizing that adjacent lands have an important impact on management of the RMZ, and that management of the RMZ may have potential impacts on those adjacent lands.

3.1) Solicit public, private, and government agency understanding and involvement in wildlife management.

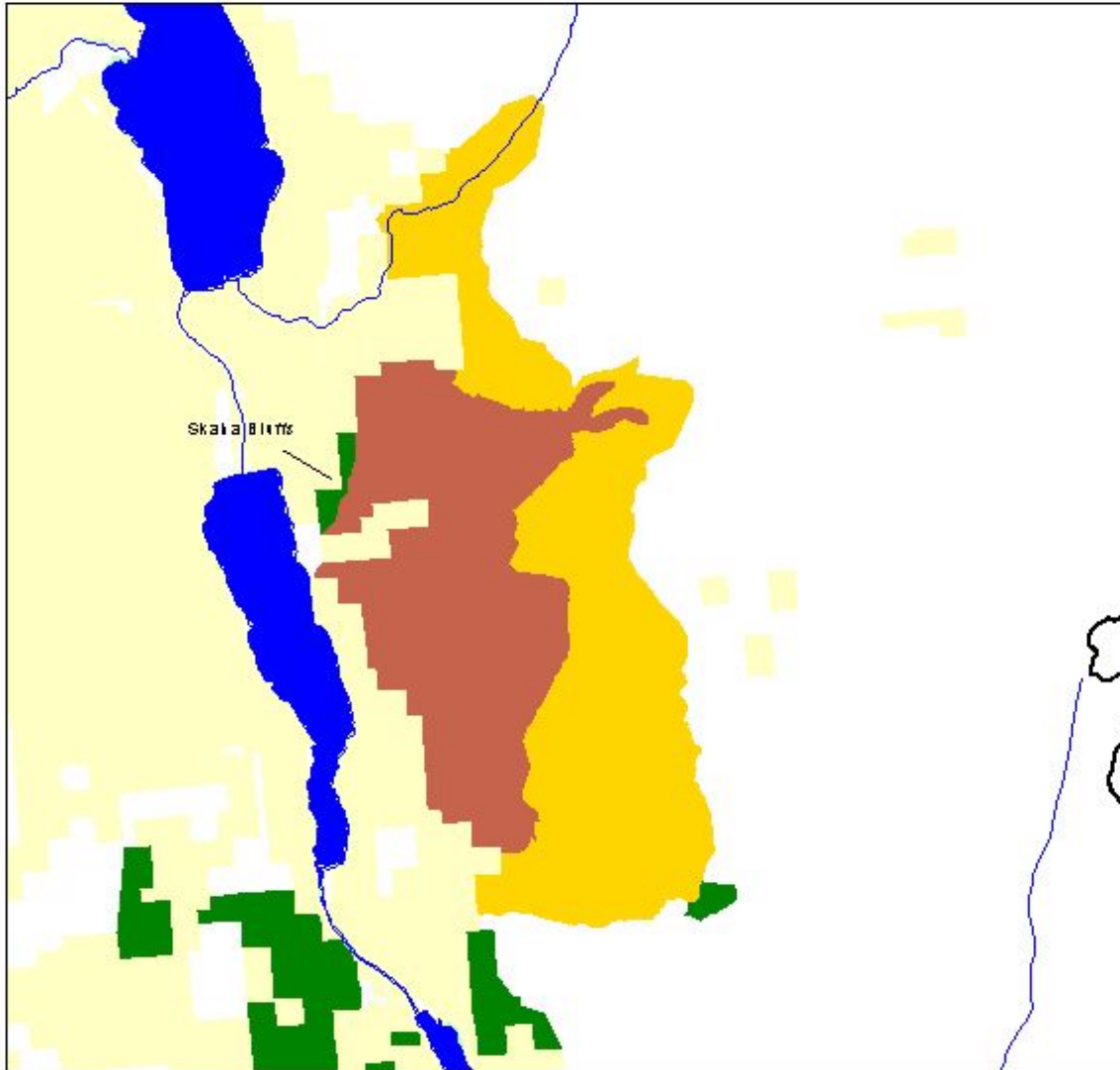
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**Table 1: Silviculture Systems**

Silviculture System	Harvest %	Reserve Area
Partial retention systems (single tree/group selection)	100	66% basal area
small patch cuts (0.1 - 1.0 ha)	25	N/A
clearcuts (1.1 - 5.0 ha )	20	N/A
clearcuts with reserves (5.1 - 20.0 ha )	15	5 - 10% (within block)

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## Wildlife - Derenzy Bighorn Sheep Habitat

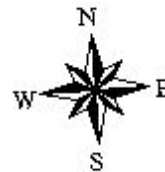


### Base Information

- LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas

### LRMP Information

- Zone 1 / Wildlife Management Area (WMA)
- Zone 2
- Proposed Protected Area Package



2 0 2 4 Kilometers

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DATA MANAGEMENT  
TEAM - March 2001  
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# Okanagan - Shuswap LRMP Approved Plan

## Polygon Specific Resource Management Zone

## Wildlife

## Elk Habitat RMZ

### In this RMZ:

- Location of elk winter range.
- Additional provisions, over and above those for mule deer, to provide forage and security cover for elk.

### Introduction

Within the plan area, elk are located in two relatively small population centers on the east side of the Okanagan valley south of Mission Creek. Depending on season, elk use a wide variety of habitats from lower valley slopes to sub-alpine meadows. In winter, elk concentrate on grassy, south or west facing slopes within ponderosa pine (PP) and interior Douglas-fir (IDF) biogeoclimatic (BGC) zones. The majority of elk winter habitat overlaps mule deer winter range.

### Issues

Elk habitat requirements are similar to those of mule deer. They are, however, more sensitive to disturbance associated with access, particularly during fall and winter months. Security cover is important to maintaining habitat suitability. The availability of grasses, and to a lesser extent shrubs, for winter forage is key to maintaining healthy populations. Similar to mule deer, access, forestry, cattle grazing, recreational activities, direct loss of habitat and displacement are all concerns on elk winter habitat.

### Goals

The objectives and strategies in the Mule Deer Winter Range RMZ will generally provide adequate management direction for elk winter habitat. The additional management practices in elk habitat are to address access concerns, security cover, movement opportunities between summer and winter habitats, and forage requirements should not compromise mule deer.

The primary goal for managing for elk is to provide adequate forest cover and forage, to minimize the impacts of access, and enhance current populations.

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## Objectives and Strategies

1) Provide adequate forest cover and forage for elk in the habitat areas shown on the "Wildlife - Elk Habitat RMZ" map.

1.1) Of the security and snow interception cover within the elk winter habitat shown on the "Wildlife - Elk Habitat RMZ" map, ensure that approximately 30 - 50% occurs within patches that are 10 hectares or greater.

Intent:

- i) The location and frequency is to be balanced with mule deer requirements.
- ii) Where elk winter range exists, use deer cover percentages for either moderate or low snowpack, and clump in 10 ha patches.
- iii) Forest cover attributes for snow interception are the same as for mule deer.

1.2) In large tracts of uneven aged stands within the elk winter habitat shown on the "Wildlife - Elk Habitat RMZ" map, provide canopy openings, or decrease retention levels in areas not required as snow interception cover.

Intent:

- i) To increase ground forage productivity.

1.3) Identify and maintain a security buffer on, or adjacent to, special habitats, such as wallows or rutting areas.

Intent:

- i) These are to be identified through operational planning or detailed inventories (provided by guide-outfitter).
- ii) Security buffers will be determined on a site-specific basis. These vary depending upon the type of feature and the time of year that the feature is used.
- iii) Also achieved through continued input into operational plans.
- iv) Not intended that these would be permanent reserves.
- v) Where wallows are identified, use a WTP if possible; if not use a 100 metre buffer where selection logging is practiced (percentage of selection harvest dictated by windfirmness), and no roads are to be located within 100 metres of a wallow.
- vi) For known rubbing sites, use a WTP if possible; if not, use a 100 metre buffer where selection logging is practiced (percentage of selection harvest dictated by windfirmness), and utilize rub trees as leave trees.

# Okanagan - Shuswap LRMP Approved Plan

1.4) Unless an approved access management plan directs otherwise, maintain visual screening along main haul roads.

Intent:

- i) Screening will not apply if dealt with in access management plan.
- ii) The intent is to impair visibility (i.e., break up the line of site).
- iii) Not intended to leave merchantable timber as a buffer (use deciduous, wildlife tree patches, etc.).
- iv) Where an access management plan exists, it will deal with this issue.

2) Provide congregation areas and movement opportunities and for elk between summer and winter habitats.

2.1) Provide for a mosaic of age classes within corridors identified on the "Wildlife - Elk Habitat RMZ Corridor" map.

Intent:

- i) Maximum 30% removal with 3 metre green up for hiding cover within the corridors.
- ii) At least 30% of the stands must be greater than 16 metres in height at any onetime.
- iii) Maximum opening length is 300 metres (one side). This does not apply when utilizing selective harvesting systems.
- iv) Selective harvesting systems up to 40% basal area retention.

2.2 Manage congregation areas, identified in the "Wildlife - Elk Congregation Areas" map, according to strategy 1.9 in the Mule Deer Winter Range RMZ.

Intent:

- i) This area could be available for an old growth management area or wildlife tree patch.

3) Minimize, to the extent practical, the amount of "open" (i.e., accessible to a 4wd pick-up) road within elk habitat shown on the "Wildlife - Elk Habitat RMZ" map.

Intent:

- i) Intent is to minimize the potential for animal stress, habitat abandonment, vulnerability to unregulated harvest, and the spread of noxious weeds. (Refer to the Access Management section for further direction on noxious weeds.)

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3.1) Use access management planning to guide road development, deactivation, rehabilitation and regulated closures.

### Intent

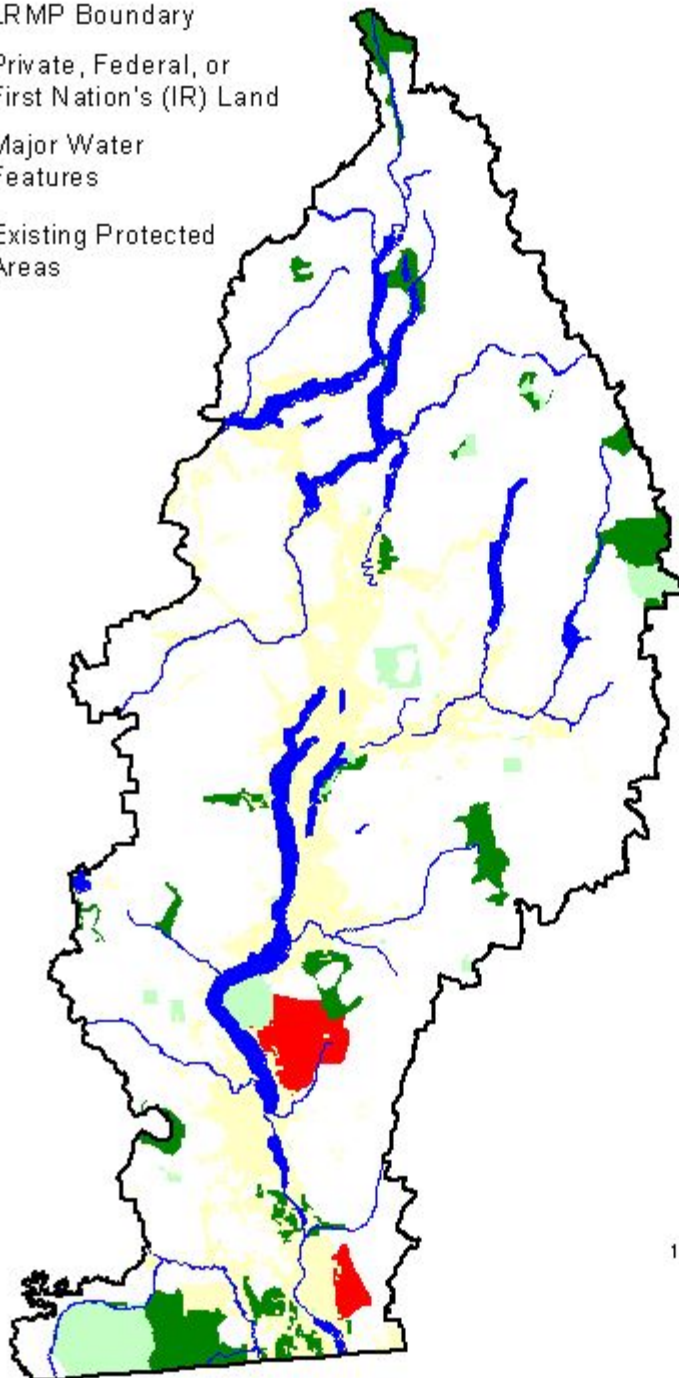
- i) To be undertaken in a manner consistent with coordinated access management plan (CAMP) principles (see Appendix VIII).
- ii) Not intended to change commitments in existing cutting permits.
- iii) Where available, funding for works on non-status roads will be from sources specifically dedicated to these types of roads (e.g., the Watershed Restoration Program).
- iv) Road development in elk habitat (winter and summer) prior to the access management planning direction is to be planned utilizing "Total Chance" planning concepts. (This does not require the submission of a Total Chance Plan.)

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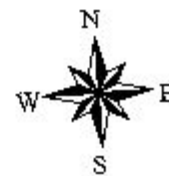
## Wildlife - Elk Habitat RMZ

### Base Information

- ∩ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



- Elk Habitat
- Proposed Protected Area Package



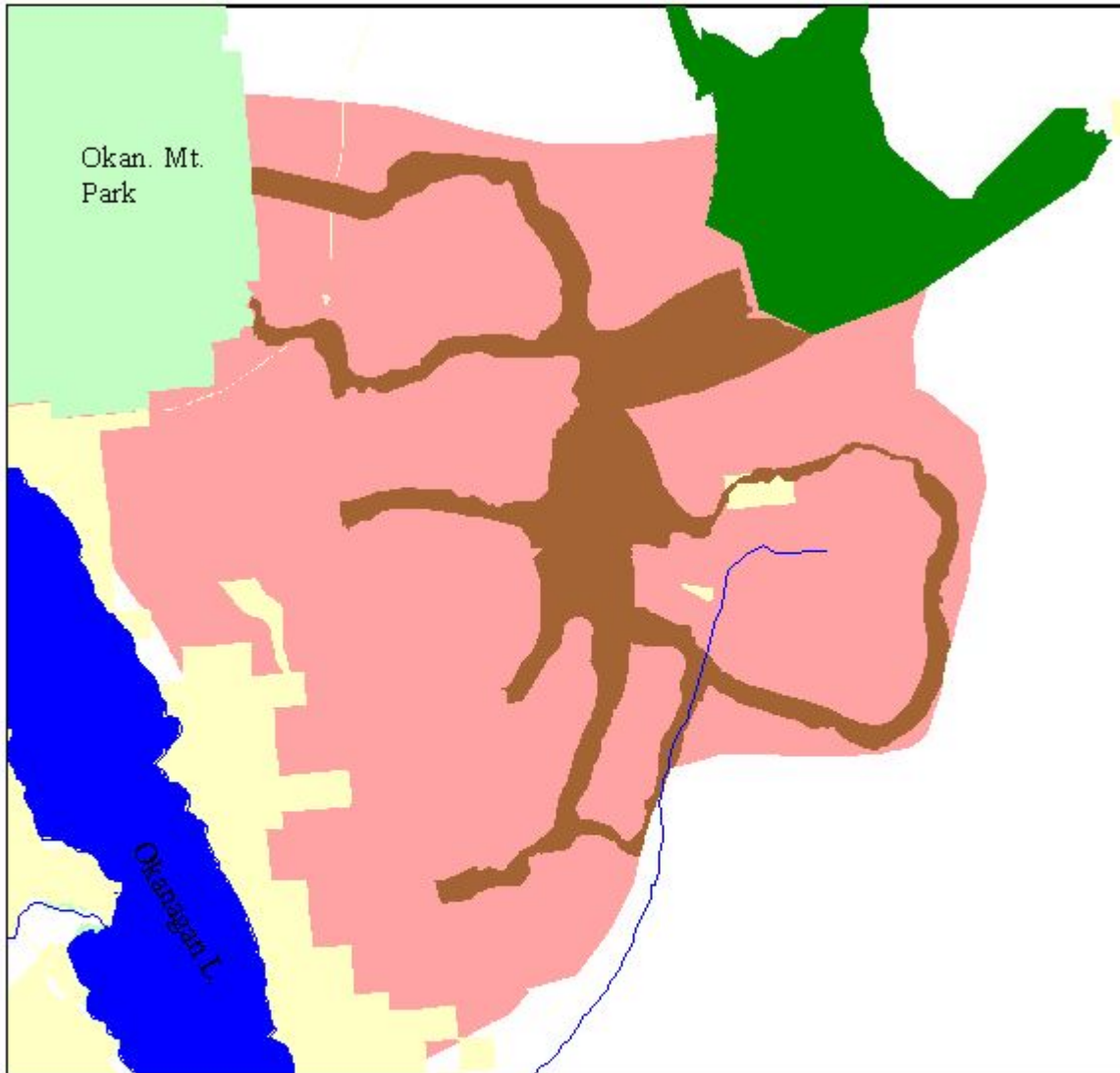
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TEAM - March 2001  
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## Wildlife - Elk Habitat RMZ Corridor



### Base Information

- LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas

### LRMP Information

- Elk Habitat Corridor
- Elk Habitat
- Proposed Protected Area Package



2 0 2 Kilometers

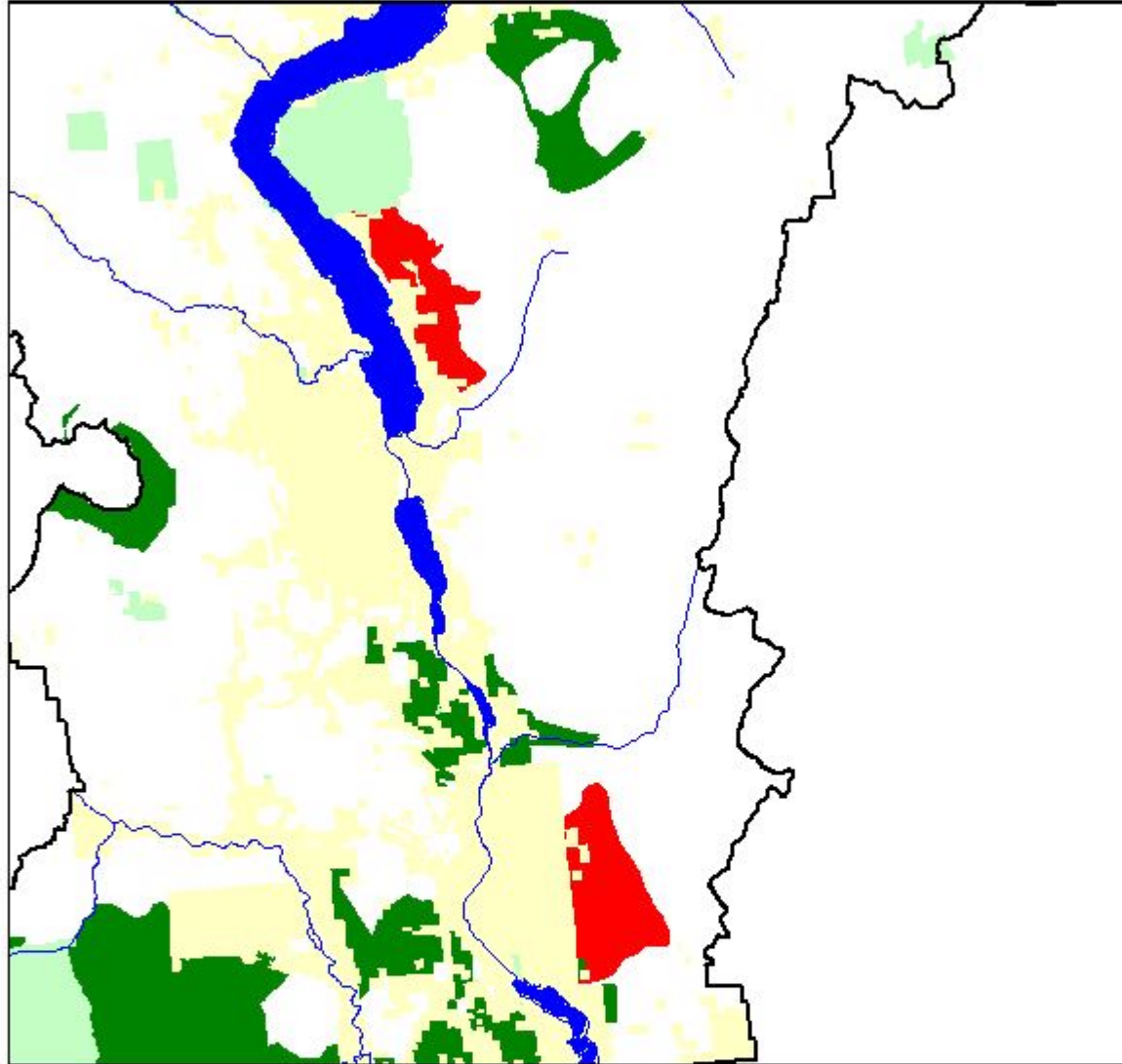
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TEAM - March 2001  
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## Wildlife - Elk Congregation Areas

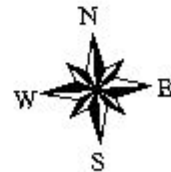


### Base Information

- LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas

### LRMP Information

- Elk Congregation Areas
- Proposed Protected Area Package



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TEAM - March 2001  
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## Polygon Specific Resource Management Zone

## Wildlife

### In this RMZ:

- Locations of areas being managed as grizzly bear habitat.
- How to maintain or enhance forage availability sources, cover and connectivity.
- Provisions for maintaining screening, security and thermal cover adjacent to critical habitats.
- How to minimize negative interactions associated with access.
- How to minimize negative interactions associated with commercial tourism and recreation developments.

## Grizzly Bear Habitat RMZ

### Introduction

Grizzly bear occupy only a portion of their former range in the south-central area of the province. Grizzly bear are opportunists and utilize a variety of habitats wherever they occur. Key grizzly bear habitat features include moist floodplain or riparian areas, avalanche chutes, sites that produce abundant berries and sedge meadows. Use of forested habitats is required for security and thermal cover.

Grizzly bears occur sporadically throughout the Okanagan - Shuswap. However, there have been few recent occurrences of grizzly bear within, or adjacent to, the major valleys. Grizzly bear are more common in the Shuswap, with concentrations in the Monashee Ranges, and in the Sugar and Mabel Lake area, with lesser numbers in the Park, Sawtooth, and Hunter Ranges. Populations are stable along the northern and northeastern boundaries. The two population areas identified in the Pentiction Forest District are thought to be well below the capacity of habitat.

### Issues

Grizzly bear have large home ranges, specialized habitat requirements, a slow reproductive rate, and can be displaced from important habitats. Habitat fragmentation and alienation has depleted grizzly bear habitat, particularly in the main valleys. They are sensitive to disturbance resulting from increased human development and activities. Increased access development into former wilderness areas has resulted in an increase in bear-human conflicts. Access to accommodate resource development activities has resulted in increased non-regulated mortalities.

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The FPC "Identified Wildlife Management Strategy" (IWMS) has provided more detailed, although limited in application, management direction for grizzly bear. Those management practices have been synthesized into this document, and it recognized that application of the following management direction is not limited by FPC "implementation policy". Mandatory requirements of the IWMS must be applied.

## Goals

The main goal is to maintain or restore habitat suitability and effectiveness, and to minimize risks to populations through mortality or displacement.

## Objectives and Strategies

1) Enhance food and forage sources, cover and connectivity for grizzly bear as per the "Wildlife - Grizzly Bear Habitat RMZ" map.

1.1) Manage for "enhanced" levels of coarse woody debris (CWD) within moderately high and high grizzly bear habitat.

Intent:

- i) See objective 6 in the Ecosystem Management - Forests section for the definition of "enhanced" CWD.
- ii) Balance with strategy 3.1 in the Range section.
- iii) For moderate grizzly bear habitat, achieving "enhanced" levels of CWD is encouraged, but voluntary until information is collected on the level of CWD left under normal practices.

1.2) Maintain naturally occurring non-forested features (avalanche tracks, non-productive brush sites, berry sites in the non-timber harvesting land base).

Intent:

- i) The intent is to maintain the early seral shrub abundance.
- ii) The intent is not to convert these areas to forested stands through artificial methods.

1.3) Plan development in watersheds so that at a minimum approximately 20% of the area is in early seral condition

Intent:

- i) This is not intended to force forest licensees into undeveloped watersheds.
- ii) Early seral is as per the FPC Biodiversity Guidebook (0 - 40 years).
- iii) Watersheds are defined as the area above the 3<sup>rd</sup> order stream (no smaller than 5000 ha).

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1.4) Where possible, prime berry producing sites will be incorporated into wildlife tree patches (WTPs), provided they have WTP characteristics.

Intent:

- i) The intent is to utilize voids for berry sites. In some circumstances wildlife tree patches may be utilized.
- ii) Wildlife tree patches as per the FPC definition.

1.5) Maintain areas for berry production by promoting variable inter-tree spacing and/or cluster planting.

Intent:

- i) Cluster plant to maintain openness on high-value berry site series (see Table 1) where *Vaccinium* is present on greater than 25% of the cutblock, in order to create areas for berry production.
- ii) The intent is have openings on important berry producing site series, so that those areas provide berries longer than would occur in areas subjected to "normal" reforestation.
- iii) Applies to the highest berry productivity sites series listed in Table 1.
- iv) For reforestation obligations the survey methodologies should address the need for a diversity of tree spacing in order to accommodate the objective and strategy.

1.6) In important berry producing areas, as defined in Table 1, minimize, where practicable, the adverse impacts of site preparation and timber harvesting on *Vaccinium*.

Intent:

- i) To maintain/increase berry production on berry producing sites by reducing impacts of site preparation.
- ii) To minimize mechanical site preparation damage on *Vaccinium* sites when other viable options are available.
- iii) Only applies to high value berry producing sites where *Vaccinium* is present. (See Table 1 for list of high value berry producing sites.)
- iv) Where possible, timber harvesting should occur on a snowpack that would buffer disturbance to *Vaccinium*. Where timber harvesting is not done on snowpack, reasonable efforts are to be made to minimize disturbance to *Vaccinium*.

1.7) In forested riparian site series (i.e., no distinct water feature) manage to the stocking standards outlined in Table 2.

Intent:

- i) Applies to site series as per Table 2.

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1.8) For site series associated with water features (i.e., streams, lakes or wetlands - see Table 2), manage riparian site series for bear forage, cover and connectivity by:

a) avoiding road construction in these areas, except for crossings or where no other practical option exists;

b) de-activating new roads to the extent that they become non-open roads for standard 4x4 use or access immediately after post-harvest site preparation, except crossings that are required as main haul roads; and,

Intent:

i) For de-activation immediately after post harvest site preparation, the intent is for site preparation to take place, where practical, within one year.

c) Managing to the stocking standards outlined in Table 2.

Intent:

i) Relates to riparian site series defined in Table 2.

ii) To provide for forage and cover in areas with important bear habitat.

iii) Applies to riparian site series greater than 20 metres in width.

1.9) For riparian, inundated and forested site series adjacent to the main stem floodplains of the Seymour, Anstey, Perry, upper Eagle, and upper Shuswap River systems, and the Ratchford and Wap Creek systems, manage riparian site series as defined in Table 2 for bear forage, cover, and connectivity by:

a) avoiding road construction in these areas, except for crossings or where no other practical option exists;

b) de-activating new roads to the extent that they become non-open roads for standard 4x4 use or access immediately after post-harvest site preparation, except crossings that are required as main haul roads; and,

Intent:

i) For de-activation immediately after post harvest site preparation, the intent is for site preparation to take place, where practical, within one year.

c) managing to the stocking standards outlined in Table 2.

1.10) Through ongoing inventories and research, identify and assess the amount and quality of habitat and the ecological process that are required to ensure effective management of grizzly bear.  
(implementation)

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1.11) Review the recovery plans for the North Cascades and Kettle/Granby grizzly bear units as they apply to the plan area. (implementation)

Intent:

- i) The recommendations of these plans are to be considered by the LRMP Implementation and Monitoring Committee.
- ii) The recovery plan will be reviewed by local interests/stakeholders prior to it coming to the Implementation and Monitoring Committee.
- iii) Only small portions of these bear units are within the plan area (i.e., the North Cascades is primarily within the Merritt Forest District, and the Kettle/Granby is primarily in the Boundary Forest District).
- iv) Both of these bear units are considered as "threatened" bear units.
- v) The recovery plans are not to apply to the Snowy protected area or Cathedral Park, and being that the adjacent habitat within the plan area is a "fringe", the Ashnola drainage is not supported for grizzly enhancement or transplants.

1.12) On a trial basis, for those subzone variants defined in Table 1, manage to minimum stocking rates as targets and look at planning for 10% voids in other areas. (implementation)

Intent:

- i) Trials for minimum stocking standards are to include one or more blocks equaling approximately 300 hectares per biogeoclimatic subzone. These are to be jointly determined by MELP, MoF and the licensee.
- ii) May include already harvested areas.
- iii) For 10% voids the intent is to establish two trials (blocks) per subzone variant.

2) Minimize, where practical, negative livestock/grizzly bear interactions.

2.1) Limit range tenure increases and new tenure opportunities in areas within grizzly bear habitats that have historically had no livestock use.

Intent:

- i) This is not intended to eliminate any cattle increases in existing tenured areas where the risk of conflict with bears is acceptable to the statutory decision-maker.
- ii) Risk would be determined by factors such as known occurrences, suitability of habitat, and season of cattle grazing.
- iii) New opportunities within transitory range are possible provided the range use plan demonstrates that intended livestock use is to be outside of critical grizzly bear habitats such as alpine, sub-alpine, avalanche chutes, wetlands and floodplain riparian habitats.



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2.2) Ensure timing of cattle use is designed to reduce conflicts on critical bear habitats (e.g., spring ranges).

Intent:

i) The range use plan (RUP) will minimize, where practical, potential seasonal conflict with grizzly bears.

2.3) Include management strategies in range use plans that will reduce conflicts and habitat displacement and loss.

2.4) No domestic sheep tenures (other than for silviculture purposes) will be allowed in recognized threatened grizzly bear population units as shown on the "Wildlife - Grizzly Bear Habitat RMZ" map.

Intent:

i) This strategy applies to three grizzly bear population units: 1) North Cascades; 2) Granby (from Big White to Hwy 6); and, 3) Monashee (from Hwy 6 to Hwy 1).

2.5) In grizzly bear habitat (as identified on the "Wildlife - Grizzly Bear Habitat RMZ" map), avoid using domestic sheep for silvicultural purposes in areas of potentially high conflict.

Intent:

i) Areas of potentially high conflict are areas depicted as high, moderately high and moderate capability as per the above noted map.  
ii) This is not intended to be an absolute restriction on the use of domestic sheep in these areas as there may be mitigative strategies incorporated into the prescription that allow for such use, such as season of use, length of activity, etc. Proposals in these areas should: be assessed on a site-specific basis, follow provincial guidelines, and be acceptable to MELP to ensure minimal potential for conflict.

3) Maintain screening, security and thermal cover adjacent to critical habitats.

Intent:

i) Critical habitats include herb dominated avalanche tracks, meadow/wetland complexes and riparian site series as outlined in Table 2, areas of high suitability spring habitat, glacier lily complexes, and old burns dominated by Vaccinium species.

3.1) Unless an approved access management plan directs otherwise, maintain visual screening along main haul roads.

Intent:

i) Screening will not apply if dealt with in an access management plan.  
ii) To impair visibility (i.e., break up the line of site).  
iii) Not intended to leave merchantable timber as a buffer (use deciduous, wildlife tree patches, etc.).  
iv) Where an access management plan exists, it will deal with this issue.

## Okanagan - Shuswap LRMP Approved Plan

3.2) Retain 10% of each 1000 hectare management unit in height class 3 (19.5 metres) or greater within grizzly bear habitat to provide summer thermal cover, security/escape cover, buffers for critical habitats and movement opportunities.

Intent:

- i) Patches should be a minimum of 5 to 10 ha in size, where possible. This may be achieved through the existing non-contributing land base (e.g., inoperable), constrained areas, or through planning that identifies areas that would be retained until replacement (i.e., meeting height class 3) areas are identified. Preference is to be given to areas that best meet the needs of grizzly bear. This is to occur in consultation with the designated environment official (DEO).
- ii) Where mature and old seral stands are available they should be the first to contribute to the 10%. These areas can be harvested when replacement areas (of height class 3) become available.
- iii) The 10% would be applied across 1000 ha units. These units will be delineated by MELP. They are intended to provide some guidance at a broad scale. A formal GIS analysis would not be required unless an ocular assessment shows that the 10% "threshold" is about to be crossed. MELP is responsible for the assessment.
- iv) Locate the 10%, where practical, in the site series as outlined in Table 2.

3.3) Within a 100 metre perimeter maintain at least 50% of the forest lands adjacent to avalanche chutes in stands of 15 metres in height or greater.

Intent:

- i) To keep cover adjacent to good forage sites.
- ii) Where practical, retain residuals within 50 metres of the avalanche track.
- iii) The intent is not to have an incremental timber impact.
- iv) This strategy directed towards areas adjacent to avalanche chutes that are at least 40 metres in width.
- v) Where possible use the forest cover requirement used to achieve strategy 3.2.
- vi) A 50% removal two-pass system might be suitable if adequate access management could be incorporated into the equation. This is to be done in consultation with the DEO.

4) Reduce negative interactions associated with access on grizzly bear as defined on the "Wildlife - Grizzly Bear Habitat RMZ" map.

Intent:

- i) Negative interactions include habitat loss, displacement, and vulnerability to unregulated harvest of grizzly bear

# Okanagan - Shuswap LRMP Approved Plan

4.1) Carry out access management planning on existing and future roads with the intent of minimizing, where practicable, the amount of open roads to minimize the amount of habitat loss, displacement, harassment, and vulnerability to unregulated harvest.

Intent:

i) Open road means 4x4 accessible.

ii) The operational details are to be determined through access management planning. Pre- and post-access management planning (i.e., planning and timing) could be implemented through coordinated access management plans (CAMPs). Pre-planning could be implemented through forest development plan (FDP) access management planning (but not post-planning).

iii) The "no open road" areas should be in the high to moderately high suitability habitats and should encompass the full range of elevational range of habitats. Areas of no open roads should be as large and contiguous as possible.

iv) Applies to all status roads (Forest Service roads and MoF operational permitted roads). Deactivation of all existing non-status roads will be subject to a needs review as part of the access management planning process. The focus is on area defined in Table 2.

4.2) Minimize, where practical, on main haul roads and, where practicable, on operational and block roads, road development and use through or adjacent to critical habitat where there is high and demonstrated consistency of use.

Intent:

i) Industry is to consult with MELP, either through the FDP or other means (e.g., "Total Chance Planning" process), when planning development in an area or determining the best locations for new roads. MELP will assist in the identification of critical habitats.

ii) Avoid road development in or adjacent to critical habitats where possible. It is recognized that there may be exceptions to this owing to other environmental concerns - e.g., if the only other alternative for the road is through an area with known slope instability, it may be preferable to put the road through the grizzly bear habitat.

iii) Critical habitats include herb dominated avalanche tracks, meadow/wetland complexes and seepage sites, areas of high suitability spring habitat, glacier lily complexes, and old burns dominated by *Vaccinium* species and refer to Table 3 for seasons of use.

4.3) Where possible, place critical habitats into old growth management areas (OGMAs) or wildlife habitat areas (WHAs).

Intent:

i) Use biodiversity/WHAs as tool to manage habitat.

# Okanagan - Shuswap LRMP Approved Plan

4.4) Utilize temporary access development structures where possible.

Intent:

i) This is a tool for restricting access.

4.5) Where practicable, access controls must be put in place for all new access development in watersheds with moderately-high and high habitats within the access management area north of Highway 6 on shown on the "Wildlife - Grizzly Bear Habitat" map. Access control points should be at the location that is likely to be most effective in controlling access, takes advantage of existing structures and minimizes the amount of open road within the watershed.

Intent:

i) The intent is to promote the rapid deactivation of new roads after an area has been harvested, promote planning so that development does not result in high open road densities throughout a watershed and to encourage the use of methods such as gates, removable bridges or bridge decking, etc. Access control points for entire watersheds are encouraged where they are practicable.

ii) Access controls on existing roads will be managed through local access management planning processes (see Grizzly Bear Habitat RMZ strategy 4.1 and objective 7 in the Access Management section)

iii) The method of access control is to be determined by the licensed resource user. Access controls are not needed on smaller spur roads off existing roads unless determined by licensees and DEO.

iv) The responsibilities for purchase, installation, management and maintenance of access control structures are as outlined in the Access Management section (see objective 7).

v) Access controls should be put in place as soon as practical after harvesting and no later than immediately after planting.

vi) Tools for access control include Section 105 closures, gating, and tank traps.

vii) If a coordinated access management plan establishes an access control point lower in the drainage on an existing road then no further access controls would be required in the part of the drainage above the access control point.

viii) MELP is to be responsible for signage associated with access controls.

ix) Areas north of Highway 6 that are currently moderate, moderately high or high grizzly bear habitat may be re-assessed by MELP, MoF and licensees. Any recommendations resulting from this assessment will be brought to the LRMP Implementation and Monitoring Committee.

## Okanagan - Shuswap LRMP Approved Plan

4.6) Where practicable, access controls must be put in place for all new access development in moderate, moderately-high and high habitats within the access management area south of Highway 6 shown on the "Wildlife - Grizzly Habitat RMZ" map. Access control points should be at the location that is likely to be most effective in controlling access, takes advantage of existing structures and minimizes the amount of open road within the watershed.

Intent:

- i) The intent is to promote the rapid deactivation of new roads after an area has been harvested, promote planning so that development does not result in high open road densities through out a watershed and to encourage the use of methods such as gates, removable bridges or bridge decking, etc. Access control points for entire watersheds are encouraged where they are practicable.
- ii) Access controls on existing roads will be managed through local access management planning process (see Grizzly Bear RMZ strategy 4.1 and objective 7 in the Access Management section)
- iii) The method of access control to be determined by the licensed resource user. Access controls are not be needed on smaller spur roads off existing roads unless determined by licensees and DEO.
- iv) The responsibilities for purchase, installation, management and maintenance of access control structures are as outlined in the Access Management section (see objective 7).
- v) Access controls should be put in place as soon as practical after harvesting and no later than immediately after planting.
- vi) Tools for access control include Section 105 closures, gating, and tank traps
- vii) If a coordinated access management plan establishes an access control point lower in the drainage on an existing road then no further access controls would be required in the part of the drainage above the access control point.
- viii) MELP is to be responsible for signage associated with access controls.
- ix) Areas south of Highway 6 that are currently moderate, moderately high or high grizzly bear habitat may be re-assessed by MELP, MoF and licensees. Any recommendations resulting from this assessment will be brought to the LRMP Implementation and Monitoring Committee.

# Okanagan - Shuswap LRMP Approved Plan

4.7) Minimize, where practicable, open road access and maintain unroaded areas in grizzly bear habitat using a variety of planning tools that result in less open road.

Intent:

- i) Possible tools include aggregated cut blocks, concentrating development activities on one side of a watershed, scheduling harvesting in alternate watershed, etc.
- ii) Concentrate areas of harvest to the greatest extent practicable to minimize open road access.

4.8) On road rights of way, use forage mixes that are less likely to attract grizzly bears

Intent:

- i) Discourage clover and legumes in forage mixes.

4.9) Forestry and other operations, such as exploration camps, are to dispose of material that creates an attractant to bears (e.g., through burning or disposal in bear proof facilities/containers).

Intent:

- i) To cover camps not included in the Health Act and other legislation.

4.10) Develop an interagency planning group to proactively address resource development conflicts in high capability habitats. (implementation)

5) Minimize negative interactions between grizzly bears and commercial tourism and recreational developments.

Intent:

- i) To minimize negative interactions (displacement, increased mortality risks) between bears and commercial tourism and recreational developments by avoiding development in high value areas (potentially high conflict), and planning and locating any developments in such a way as to minimize, where practicable, impacts and increased mortality risks to bears.

5.1) When a proposal is in a high value grizzly bear area, carry out an assessment that identifies associated impacts and risks to grizzly bears. Identify areas where impacts and risks are unacceptable.

5.2) All recreational and commercial tourism development must consider and ensure that development minimizes increased risk of mortality to grizzly bears or a direct or indirect (displacement) loss of high value habitats.

Intent:

- i) This is of particular importance in areas of high to moderate capability as identified in the "Wildlife - Grizzly Bear Habitat" map.
- ii) Site specific mitigation measures may be required.

# Okanagan - Shuswap LRMP Approved Plan

6) Minimize mortality risks to grizzly bear populations by maintaining moderately high and high grizzly bear habitat as Crown land.

6.1) Minimize alienation of Crown land within moderately high and high habitat that are known to support grizzly bears.

Intent:

i) To be determined based on site specific reviews by MELP.

6.2) Encourage public education efforts on how to avoid conflicts with grizzly bears (e.g., how to prevent attracting them to garbage dumps, how to avoid conflicts when out in the bush, etc.).

**Table 1: Important Berry Producing Sites Series**

Biogeoclimatic Subzone variants	Site Series
ESSFdc1	01, 04
ESSFdc2	01, 04, 05
ESSFwc2	01, 02, 03, 04, 05
ESSFwc4	01, 02, 03, 04
ESSFxc	01
ESSFvc	01, 02, 03
ESSFv	01, 03
ICHvk1	03
ICHwk1	01, 04

# Okanagan - Shuswap LRMP Approved Plan

**Table 2: Riparian Site Series**

BEC Subzone	Site Series	Stocking Target	Stocking Minimum	Strategy 1.8 Applies	Strategy 1.9 Applies
ESSFdc1	06	700	400	Yes	
ESSFdc1	07	NF			Yes
ESSFdc2	08	700	400	Yes	
ESSFdc2	09	NF			Yes
ESSFvc	05	700	400	Yes	
ESSFvc	06	NF			Yes
ESSFvw	05	NF			Yes
ESSFwc2	08	700	400	Yes	
ESSFwc2	09	400	200		Yes
ESSFwc2	10	NF			Yes
ESSFwc4	07	700	400	Yes	
ESSFwc4	08	NF			Yes
ESSFxc	08	700	400	Yes	
ESSFxc	09, 10	NF			Yes
ICHmk1	07	700	400		Yes
ICHmk1	08	NF			Yes
ICHmk2	06	700	400		Yes
ICHmw2	06, 07	700	400		Yes
ICHmw2	08	NF			Yes
ICHmw3**	07	900	600	Yes	
ICHmw3	08	700	400		Yes
ICHmw3	09	NF			Yes
ICHvk1**	05	900	600	Yes	
ICHvk1	06	700	400		Yes
ICHwk1**	05	900	600	Yes	
ICHwk1	06	700	400	Yes	
ICHwk1	07	700	400		Yes
ICHwk1	08	NF			Yes
IDFdk2	06, 07, 08				Yes *
IDFdm1	07				Yes *
IDFmw1	06				Yes *
IDFmw2	05				Yes *
MSdm1	07	700	400	Yes	
MSdm1	08	NF			Yes

Yes \* denotes that only the access management planning component of strategy applies, i.e. no reduction to stocking standard

\*\* Only applies to those portions of the site series that are on the toe, depression or level ground (as per blue book)

NF = non-forested



# Okanagan - Shuswap LRMP Approved Plan

**Table 3: Important Grizzly Bear Habitat Types and Their Season of Use.**

Habitat Types	Season of Use		
	Spring	Summer	Fall *
South facing, low elevation (below 1200m) early seral, wetlands or open habitats	✓		
Avalanche tracks and run out zones	✓	✓	
Hedysarum and Glacier Lily complexes	✓	✓	
Meadow - wetland complexes and seepage sites	✓	✓	✓
Subalpine parkland meadows		✓	✓
Riparian areas (including inundated site series)		✓	✓
Berry producing sites (see table) including post fire stands dominated by <i>Vaccinium</i> spp.			✓

\* Spring refers to the period after bears emerge from their dens - late March through April until spring habitats are no longer used - the end of June.

\* Fall refers to the period when berries become abundant - often late July/ early August through to November.

# Okanagan - Shuswap LRMP Approved Plan

## Wildlife - Grizzly Bear Habitat RMZ

### Base Information




-  LRMP Boundary
-  Private, Federal, or First Nation's (IR) Land
-  Major Water Features
-  Existing Protected Areas

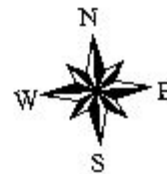
### Population Units

-  Grizzly Habitat
- 1 Seymour
- 2 Monashee
- 3 Granby
- 4 Cathedral

Note: The four population units comprised make up the RMZ.

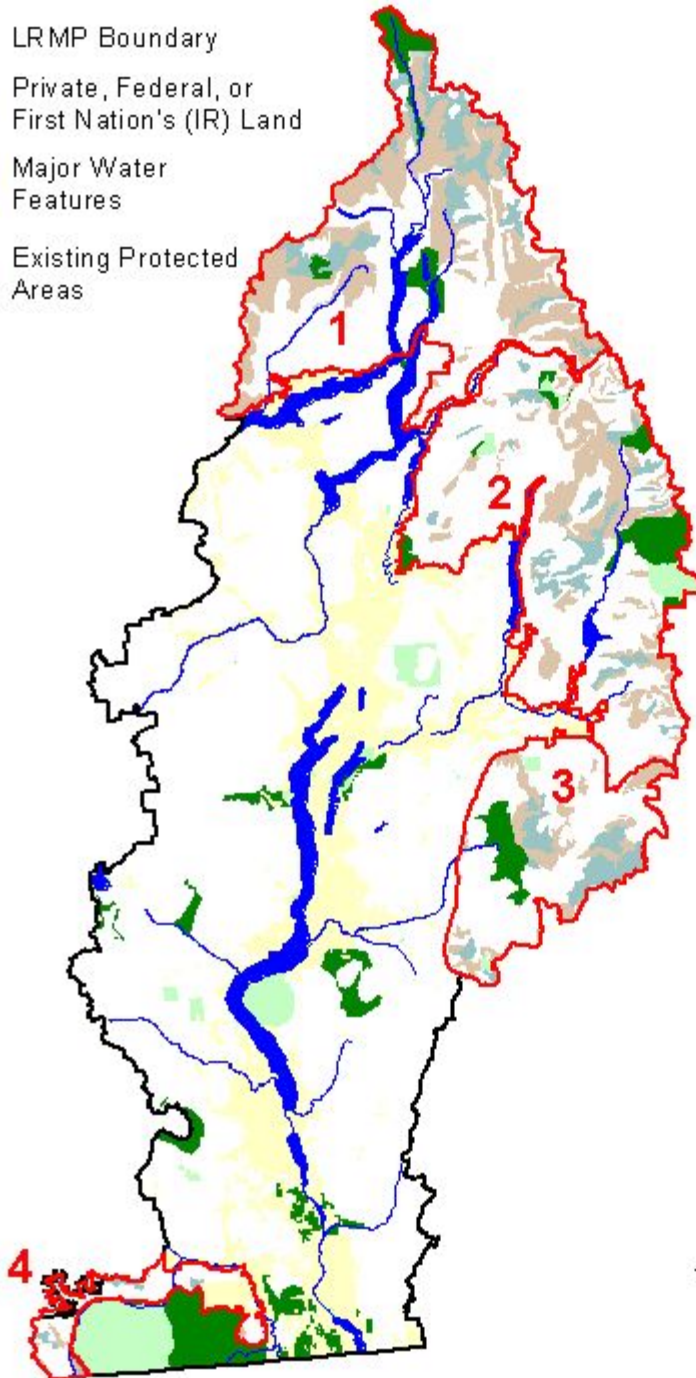
### Grizzly Suitability

-  High
-  High - Moderate
-  Moderate
-  Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

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DATA MANAGEMENT  
TEAM - March 2001  
File name: grizzly\_3.jpg





## Polygon Specific Resource Management Zone

## Wildlife



## Marten Habitat - Fly Hills

### Introduction

Marten will use a variety of habitats if food and cover are available. Mature and older conifer forests provide important habitat requirements. Large trees and coarse woody debris (CWD) are important for denning sites and access to prey below snow during winter. Riparian habitat and overhead cover appears to be an important factor in selecting habitat.

A set of guidelines entitled "Maintaining Marten Habitat in Managed Forests" were established for the Fly Hills area and signed of by the District Manager for the Salmon Arm Forest District and the Ministry of Environment, Lands and Parks regional Habitat Protection section head in early 1995. This plan will replace the current guidelines for the Fly Hills area.

### Issues

Marten thrive in forested ecosystems dominated by mature and older seral stages. Their habitat can be impacted by forestry activities. Retention of forest attributes during forest operations can reduce many impacts. Intact riparian systems, retention of coarse woody debris (CWD) and other structural attributes, and identification of Forest Practices Code (FPC) old growth management areas (OGMAs) will provide important habitat attributes.

Riparian retention is fundamental to this species, as it provides access to the prey base, movement opportunities and suitable denning and resting sites. The location of wildlife tree patches (WTPs) and old growth management areas along riparian systems can supplement forest cover in those areas to the benefit of marten, and should consider connectivity and forest interior conditions, which are also beneficial.

# Okanagan - Shuswap LRMP Approved Plan

## Goals

Manage for a sustainable marten population for the area including the production of a harvestable surplus of marten for the trappers of that area.

Determine the effectiveness of these enhanced Marten objectives and strategies by establishing a longer term monitoring program.

## Objectives and Strategies

### Access

1) Minimize disturbance associated with roads within corridors.

1.1) Road crossings should not exceed one crossing for each kilometre of corridor.

Intent:

i) Facilitate the ease of movement of marten through corridors.

### Cover and Forage

2) Use, on a priority basis, the old growth management area (OGMA) budget, wildlife tree patches (WTPs) and the "enhanced riparian reserve" budget (see the Riparian and Wetlands section for details) to maintain a network of connected mature/old seral marten corridors, to provide cover/habitat requirements and facilitate the movement of marten across the landscape.

2.1) Develop a network of mature/old seral upland and riparian corridors

Intent:

i) These corridors must fit within the OGMA, WTP or "enhanced riparian reserve" budget for the proportionate area of the appropriate landscape unit and BEC zone (approximately 2,300 ha).

ii) To provide movement opportunities, these corridors could be relocated to areas that are more favourable to marten.

iii) Tenure holders and resource agencies will jointly map corridors.

iv) Corridors are to be approximately 200 metres wide.

v) To the extent practical, make efforts to reduce windthrow in corridors.

3) Maintain marten habitats within harvested areas.

3.1) Maintain 33% of the forested area in stands 19.0 metres or greater and distributed across the RMZ.

Intent:

i) The intent is to maintain the mature cover and habitat.

ii) To be spatially allocated over at least four sub-units.

3.2) Incorporate the Marten Habitat - Fly Hills RMZ into the marten operational inventory and monitoring program.

# Okanagan - Shuswap LRMP Approved Plan

4) Where practicable, maintain "enhanced" levels of coarse woody debris (CWD) in riparian management areas for S5 and S6 streams greater than 1.5 metres in width.

4.1) Retain at least 10 "green" trees, 10 "stubs", or 10 "tree pieces" per hectare, or any combination thereof.

Intent:

- i) Intended to replace strategy 5.2 in the Ecosystem Management - Forests section (not be incremental to) for areas described in objective 4.
- ii) This is to provide a mid-term source of CWD.
- iii) Not intended to be additive to WTP requirements, but the intent is that the stubs or standing trees will be well distributed over the block.
- iv) The proponent has the discretion for the appropriate stems to retain.
- v) To remain scattered throughout the cutblock.
- vi) "Stubs" are to be created in a safe manner, and should be at least 3 - 5 meters in height.
- vii) "Tree pieces" are to be at least 3 - 5 meters in length and greater than 40 cm in diameter, where available; otherwise, use the next closest size.
- viii) Green trees are to be selected based on a combination of windfirmness and large size.

4.2) Locate debris brush piles close to the edge of the cutblock and riparian areas.

5) Maintain denning opportunities by maintaining and creating wildlife trees within harvested blocks

5.1) Where attributes are available in riparian areas, locate WTPs in riparian management areas. Where the attributes are outside riparian areas, locate WTPs outside riparian areas up to the WTP allotment (i.e., WTP policy).

6) Maintain a diversity of stocking densities within regenerating stands.

6.1) When spacing or thinning, patches of dense young coniferous stands should be left randomly over the landscape.

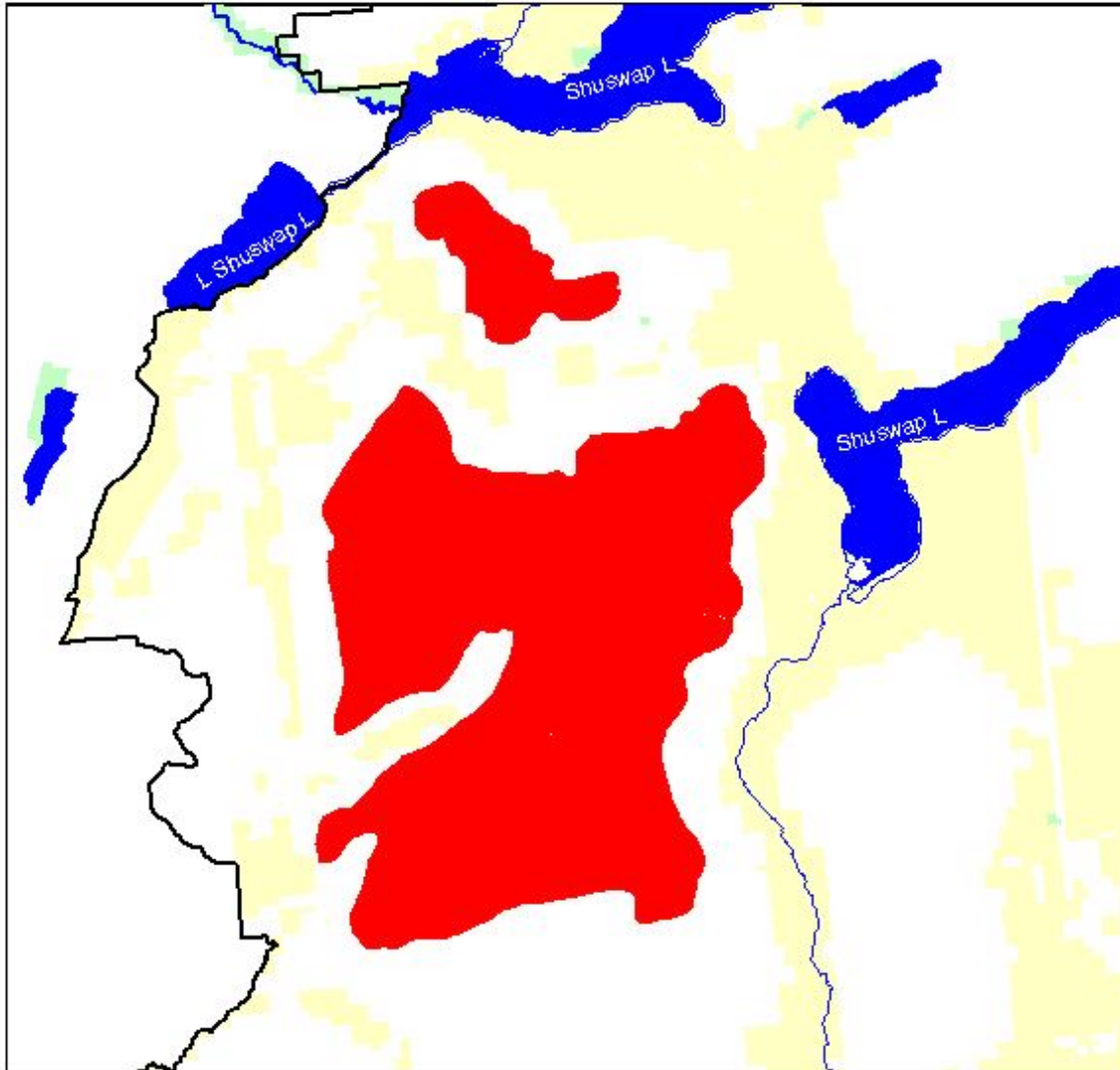
Intent:

- i) Maintain a proportion of regenerating stands that provide forage and cover.



# Okanagan - Shuswap LRMP Approved Plan

## Wildlife - Marten Habitat (Fly Hills) RMZ

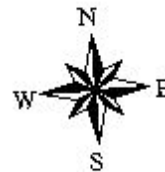


### Base Information

- ∩ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas

### LRMP Information

- Marten Habitat
- Proposed Protected Area Package



2 0 2 4 Kilometers

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TEAM - March 2001  
File name: mar\_fly\_hills\_2.jpg





## Polygon Specific Resource Management Zone

## Wildlife

### In this RMZ:

- Location of areas to be managed as moose winter range.
- Provisions for maintaining forage availability.
- How to maintain adequate forest cover to allow for access to forage, movement, thermal cover, and protection from harassment.
- Provisions for minimizing adverse impacts of access on moose habitat.

## Moose Winter Habitat RMZ

### Introduction

Moose are found throughout the plan area. Populations are stable in the north, and likely increasing slightly in the south. Like most ungulates, they depend on adequate forage and cover in winter habitat. However, without adequate supplies of forage moose productivity is limited. In wetter ecosystems, over-wintering moose rely on dense coniferous cover along major valley bottom riparian systems. In the drier plateau ecosystems of the Thompson uplands and Okanagan highlands, moose winter in areas of high shrub productivity. Snow accumulations are less restrictive to moose on the plateaus, and only in severe winters is snow interception cover of primary concern. Several key wintering areas have been identified in the LRMP area, although scattered populations winter throughout the plan area in relatively low numbers. In summer, moose prefer riparian and wetland habitats (for forage), adjacent to closed canopy forests (to escape the heat). They may also be found in cool sub-alpine areas where gently sloping topography permits. High summer temperatures in the southern portions of the plan area may eventually limit moose abundance.

### Issues

Moose populations are affected indirectly and directly by forest practices, both beneficially and detrimentally. Access management into areas where moose congregate is very important, as they are quite vulnerable to both legal hunting and poaching. Although logging in certain ecosystems provides early seral shrub communities to the benefit of moose, rapid reforestation practices require the continual need to create more early seral conditions. As a result, access networks, which may be detrimental to moose populations, are usually required through or adjacent to wintering areas. Retention of coniferous cover adjacent to key winter foraging areas is necessary when snow accumulations restrict movement.

# Okanagan - Shuswap LRMP Approved Plan

## Goals

The goal for moose winter habitat is to provide adequate forage and cover, and limit the adverse impacts of access.

## Objectives and Strategies

1) Maintain forage availability in moose winter range (MWR) as per the "Wildlife – Moose Winter Habitat RMZ" map, and moose management units (MMUs) over the long term.

Intent:

- i) Moose management units are smaller parcels of habitat that are of extreme value to moose as wintering and/or foraging sites.
- ii) MMUs are usually associated with wetland/riparian habitats that are within the dry biogeoclimatic subzones (MSdm2, and MSxk), and they are often nested within a broader important moose winter habitat (IMWH) area.
- iii) MMUs must be within moose winter range.
- iv) MMUs are to be located where there is high value moose habitat that is demonstrated and field verifiable.
- v) MMUs are to extend 200 metres out from the riparian/forested edge.
- vi) Where MMUs overlap, leave areas and harvested areas can be combined.
- vii) MMUs would be confirmed through field investigation.
- viii) MMUs are defined as wetlands that are either 200 metres in length, or greater than one hectare.
- ix) The Ministry of Environment, Lands and Parks will locate and map MMUs.

1.1) In areas of moose winter range (see the "Wildlife – Moose Winter Habitat RMZ" map), maintain a minimum of 15% of the net forested land base in young forests.

Intent:

- i) The intent is to always have an early seral component within MWR.
- ii) Young forests defined as less than 25 years for IDF/ICH, and less than 35 years for MS/ESSF.

1.2) Within moose winter range avoid use of broadcast treatments. Spot treatment is acceptable when brush species are in competition with commercial species.

Intent:

- i) The intent is to, where practical, use mechanical treatment.

1.3) In areas of moose winter range, retain a component of deciduous (mature aspen, birch and cottonwood) within cutblocks.

Intent:

- i) Clumps or patches are preferred.
- ii) The intent is to approximate the pre-harvest deciduous component of the stand.
- iii) It is not intended that any harvesting of deciduous would take place to meet the approximate pre-harvest level

# Okanagan - Shuswap LRMP Approved Plan

- iv) To not eradicate the pre-harvest deciduous component.
- v) These measures are not to preclude meeting "free to grow".

2) Provide adequate forest cover to allow for access to forage, movement, thermal cover, snow interception and protection from harassment.

2.1) Maintain a minimum of 33% of the stands in moose winter range at least 16 metres in height.

Intent:

- i) While recognizing that it will be the mature stands that are being harvested, locate thermal cover areas where there is the best combination of crown closure (6, 7 and 8 preferred) and height class.
- ii) The percentage refers to gross forested land base (including wildlife tree patches).

2.2) Within moose winter range, maintain approximately 50% of the cover requirements in units of 20 hectares or greater to provide security cover.

2.3) Maintain forest cover adjacent to identified moose management units, key forage areas and mineral licks.

Intent:

- i) Utilize the 33% forest cover identified in strategy 2.1
- ii) Within MMUs, concentrate forest cover requirements adjacent to key forage features.
- iii) Key forage areas include old burns, non-productive brush sites, deciduous forest, and riparian features.

2.4) Maintain 40% of the area of each moose management unit at greater than or equal to 16 metres in height.

Intent:

- i) Utilize forest cover from strategy 2.1

2.5) Within NDT3 (excluding ICHmw3), retain, as necessary, the forested thermal cover adjacent to riparian areas that are determined, based on demonstrated use, to be very high value foraging sites.

Intent:

- i) To be determined through operational planning and/or inventory information.
- ii) MELP will map these areas as known information in consultation with MoF and licensees.
- iii) Maintain 1/3 of the area adjacent to these sites in forest cover of 16 metres in height or greater.
- iv) It is intended to maintain the value of important foraging sites within the dry, high elevation variants and is not limited to winter range.

# Okanagan - Shuswap LRMP Approved Plan

## 3) Reduce adverse impacts of access on important moose habitat.

3.1) In early seral patches greater than 40 hectares within moose winter range and in moose management units retain sufficient understorey vegetation to break up sight lines.

Intent:

- i) The intent is to break up sight lines without interfering with harvesting or silviculture activities.
- ii) Early seral patches are considered to be less than 40 years old.

3.2) Within moose management units, block access to new roads within cutblocks that are greater than 100 metres in length, provided that such roads are not required to provide imminent access to future cutblocks.

Intent:

- i) The intent is to restrict four wheel drive access through road blockages or to post signs.
- ii) Road blockage to include tank traps, boulders, bridge removals or permanent deactivation.

3.3) Within moose winter range and moose management units permanently deactivate new in-block roads within 200 metres of wetland complexes immediately after silviculture treatments have been undertaken, provided that such roads are not required to provide imminent access to future cutblocks.

Intent:

- i) The intent is to block any non-active road within MWR.

3.4) Unless no other practical option exists, avoid the construction of mainline and operational roads within 200 metres of wetland complexes greater than five (5) hectares, or within a moose management unit.

Intent:

- i) The intent is, where practical, to keep road construction out of MMUs. It is recognized that there may be exceptions to this owing to other environmental concerns. For example, if the only other alternative for the road is through an area with known slope instability, it may be preferable to put the road through the moose habitat (i.e., minimize compromising generally accepted forest road engineering practices).

## Okanagan - Shuswap LRMP Approved Plan

3.5) Reduce the amount of "open" (4x4 accessible) road in moose winter range.

Intent:

- i) Responsibility is as outlined in strategy 2.6 in the Access Management section.
- ii) Utilize "Total Chance" road development in MWR that incorporates moose habitat requirements in order to avoid new access impacts on moose populations.

4) Reduce the impacts of cattle fencing within moose winter range.

Intent

i) Intent is to describe the management practices that will be used to achieve this objective in the range use plan.

4.1) "Top rail" or lay down the portion of fences that intersect trails in MWR.





4.2) On new fences, the bottom strand on fences is to be no lower than 45 cm (18"), and the fence height is not to exceed 105 cm (42").

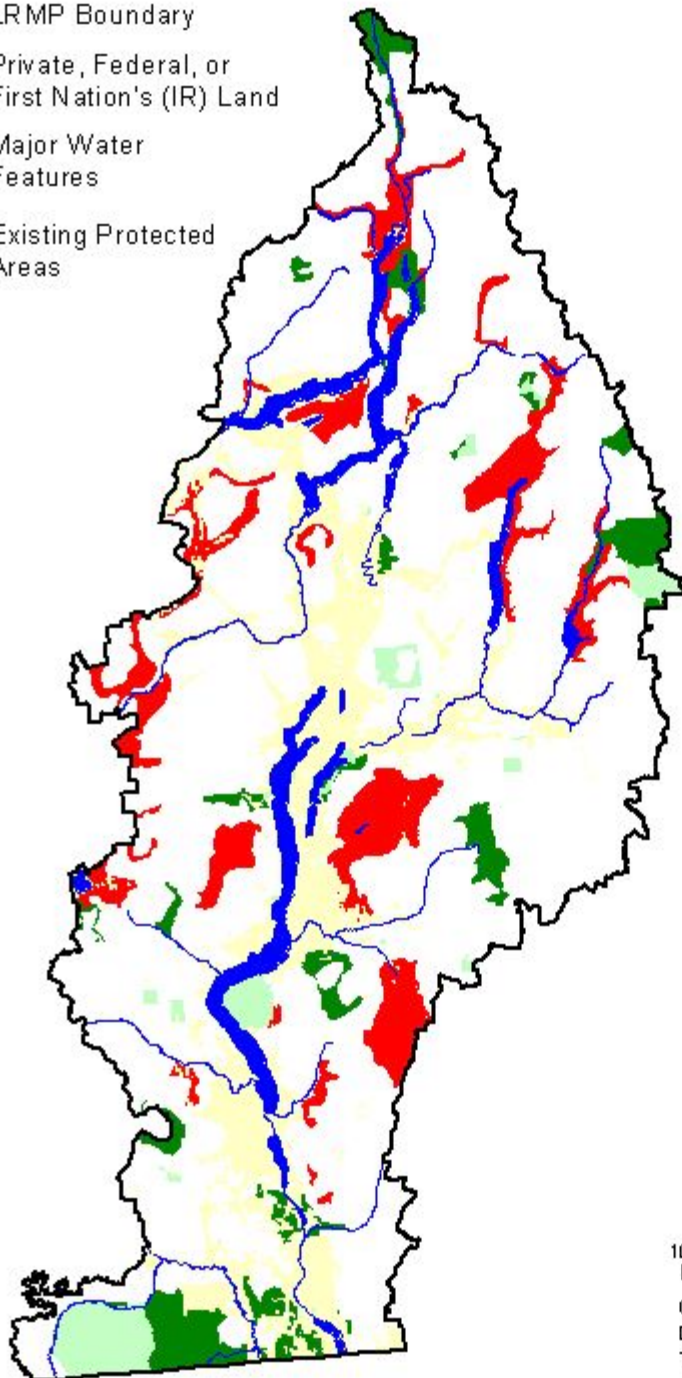



# Okanagan - Shuswap LRMP Approved Plan


## Wildlife - Moose Winter Habitat RMZ

### Base Information

-  LRMP Boundary
-  Private, Federal, or First Nation's (IR) Land
-  Major Water Features
-  Existing Protected Areas



 Moose Winter Habitat

 Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

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DATA MANAGEMENT  
TEAM - March 2001  
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# Okanagan - Shuswap LRMP Approved Plan

## Polygon Specific Resource Management Zone

## Wildlife

### In this RMZ:

- Location of important caribou habitat.
- How to provide forest cover and lichen in winter habitats.
- How to provide for movement opportunities for caribou.
- Provisions for reducing caribou and recreation use conflicts.

## Mountain Caribou Habitat RMZ

### Introduction

The LRMP area includes all or part of the range of three caribou populations: the Monashee population in the east-central part of the plan area; the Wells Gray South population along the northwestern boundary; and, the Revelstoke population along the northeastern boundary. Management for caribou has been recognized in strategic planning processes in adjacent areas (i.e., Kamloops LRMP and the Kootenay-Boundary Land Use Plan), and maintaining connectivity between the two areas is an issue of concern.

Occupied mountain caribou range has decreased drastically over the last hundred years. Hunting, fire (both wild and human caused), recreation, forest harvesting, and predation have all contributed to the decrease in occupied habitat.

During the late winter, caribou feed largely on arboreal lichens which are most common in forests greater than 140 years old, making this species vulnerable to loss of late seral and old growth forests. Key caribou habitats include early winter range consisting of mature and older closed canopy forests for snow interception, late winter sub-alpine forest, early spring open forage areas (e.g., riparian, avalanche chutes), and calving grounds with hiding cover. Movement between early winter and late winter habitats is key to their survival. Mountain caribou reproduce slowly compared to other deer species, and are only marginally able to adapt to habitat alteration or mortality pressures.

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**Issues** Logging, mining, forest fires, and increased public access may impact caribou habitat. Human disturbance from recreational and industrial activities (especially snowmobiling) has the potential to affect caribou populations by displacement and degrading important habitats. No hunting of caribou is permitted within the region.

**Goals** The primary goal in managing for caribou is to maintain adequate habitat to provide opportunities for viable populations within the plan area, and to maintain connectivity with adjoining areas.

## Objectives and Strategies

1) Provide forest cover, lichen and forage for caribou habitat as identified in the "Wildlife - Caribou RMZ" map.

1.1) Subject to strategy 1.3 below, 9,500 hectares of timber harvesting landbase (THLB) will be allocated for "core caribou reserves", and they will be placed in the portion of the Mountain Caribou Habitat RMZ that overlaps the Pukeashun, Seymour, Eagle and Anstey Landscape units. (hereafter referred to as the "four landscape units" or four LUs)

### Intent

- i) The core caribou reserves will be located on the Mountain Caribou Habitat RMZ map by the licensees and the Ministry of Environment, Lands and Parks (MELP). (Refer to the attached "Caribou Mapwork Agreement".)
- ii) This does not include approximately 1,500 hectares of suitable habitat within recommended protected areas.
- iii) There shall be no THLB impact associated with the 9,500 hectares of core caribou reserve described in strategy 1.1 above that is incremental to the THLB impacts of biodiversity (as described in objective 3 in the Ecosystem Management – Forests section).

1.2) Upon final research recommendations (see strategy 1.3), all of the 9,500 hectares of core caribou reserves located within the Mountain Caribou Habitat RMZ shall be considered as old growth management areas (OGMAs), and will be considered on a first priority basis for placement.

### Intent:

- i) The OGMAs will draw from the combined THLB budget from the Pukeashun, Seymour, Eagle and Anstey Landscape Units to cover the 9,500 hectares of core caribou reserves.
- ii) The location of the OGMAs will be mapped jointly by MELP and the Shuswap Okanagan Forestry Association (SOFA).
- iii) If research reveals that better alternative core caribou reserve locations exist, then they may be relocated. Since the 9,500 ha is utilizing the landscape unit OGMA budget, the number of core caribou reserve hectares will not be reduced.

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1.3) For the areas designated on the Mountain Caribou Habitat RMZ map as "caribou research areas", a caribou research project will be developed and administered jointly by licensees, MELP and the Ministry of Forests (MoF).

## Intent

i) The purpose of the research is to identify, based on an analysis of the habitat use patterns of the Thompson, Revelstoke, and Queest herds, the extent to which caribou habitat is required in ICH and ESSF. More specifically, the research will:

- Examine relationships between forest management activities and relative use of ICH and ESSF by caribou (e.g., the need for reserves).
- Identify opportunities for forest management practices to supply suitable attributes for caribou habitat.
- Review sub-alpine forested use by caribou and its importance.
- Examine timber types within the caribou habitat and their use by caribou (what specific forest/alpine forest types attributes are utilized by caribou - e.g., forest structure, openness, lichen, etc.).
- Examine the predation aspect (wolf population correlation with caribou population dynamics).

ii) Caribou habitat specialists from MoF, licensees, and MELP will jointly develop recommendations, based on the research. Initial recommendations are expected within seven years. Staff from MELP, MoF and licensees will play a consultative role.

iii) If at the conclusion of the caribou research it is determined that any or all of the caribou research areas are required as a permanent reserve for caribou, such areas shall be added to the caribou reserve described in strategy 1.1. If it is determined that the area is not required for the caribou reserve then it will be available for harvest. The impact to the THLB will be incremental to any of the other THLB impacts described herein.

iv) For greater certainty, the THLB impact associated with any addition to the caribou reserve as described in strategy 1.3 above will be incremental to the THLB impacts of biodiversity as described in objective 5 of the Ecosystem Management - Forests section.

1.4) Prior to the initiation of the forest development plan (FDP), MoF, MELP and licensees will jointly identify new areas for harvest, within the Mountain Caribou Habitat RMZ.

## Intent

i) The location of the new proposed harvest areas will:

- be practical;
- incorporate cutblocks up to 40 ha (unless aggregated into larger patches); and,
- utilize a balance of conventional and cable harvest systems.

ii) The silviculture system utilized will be clearcut with reserve or other systems proposed by the licensee in consultation with MELP.

## Okanagan - Shuswap LRMP Approved Plan

iii) Within the four landscape units, in the ICH, 325 hectares per year of age class 8 and 9 will be harvested in the Mountain Caribou Habitat RMZ. This will be implemented commencing with the 2001 FDP. Bell Pole has an incremental periodic cut that is not included in the above (not done on an annual basis).

iv) Within the four landscape units, in the ESSF, 500 hectares per year of age class 8 and 9 will be harvested in the Mountain Caribou Habitat RMZ. This will be implemented commencing with the 2001 FDP.

v) Upon final research recommendations (see strategy 1.3), within the four landscape units 400 hectares of additional "core caribou reserve" area within the Mountain Caribou Habitat RMZ is to become OGMA. (In addition to the 9,500 ha noted in strategy 1.2, this totals 9,900 ha.) The budget (OGMA) is to come from the four caribou landscape units (i.e., Seymour, Anstey, Eagle and Pukeashun). This additional (400 ha) core caribou reserve area will be placed in the ESSF BEC zone. If research reveals that better alternative core caribou reserve locations exist, then they may be relocated. Since the 400 ha utilize the landscape unit OGMA budget, the number of core caribou reserve hectares will not be reduced.

vi) Within the four landscape units, commencing with the 2001 FDP, new harvest proposals within age class 5, 6 and 7 stands in the ICH BEC zone will be capped at 325 ha over the next seven years. The licensees are to work with MoF and MELP to develop the stands that are economically viable and least value to caribou.

vii) A recommendation will be required within seven years. If a joint recommendation is not forthcoming the DM is not constrained by the current rate of cut in making a decision on caribou management in the caribou reserve area.

viii) Where necessary to meet annual ICH and ESSF annual harvest targets referred to in "iii)" and "iv)" above, constraints may be relaxed as follows: green-up; block size; targeted aggregation of blocks in roaded and/or fragmented areas. (Note: Most occur below the H60 line.)

1.5) A connectivity corridor will be established between the upper Shuswap River caribou herd and both the Crazy Creek caribou planning cell and the Mount Griffin protected area. The management within the connectivity corridor will be consistent with objective 2 and strategy 2.1 within the Mountain Caribou Habitat RMZ.

1.6) The location of the OGMA, to achieve caribou habitat retention targets on the THLB that is within the Upper Shuswap Landscape Unit, will be jointly mapped by MELP, MoF and Tolko Ltd. The OGMA budget will come from the Upper Shuswap Landscape Unit.

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1.7) The location of the OGMA's to achieve caribou habitat retention targets on the THLB that is within the Crowfoot Landscape Unit will be jointly mapped by MELP, MoF and Federated Co-operatives Ltd. The OGMA budget will come from the Crowfoot Landscape Unit.

1.8) Timber harvesting is not to occur in sub-alpine parkland areas.

Intent:

i) To provide maximum protection for this very sensitive portion of the late winter habitat zone.

1.9) Silvicultural practices within caribou habitats should strive to maintain the natural distribution of tree species.

Intent:

i) Avoid the conversion to pure spruce stands.

ii) This does not preclude planting sites to 100% spruce.

iii) Government is to review the percentage of balsam coming back into these sites.

2) Provide movement opportunities for caribou.

2.1) Plan the distribution and timing of cutblocks within caribou movement corridors, as shown on the "Wildlife - Caribou RMZ" map to ensure that at all times, throughout the forest rotation, caribou can move between the caribou habitat zones through continuous cover.

Intent:

i) At least 30% of the timber within the corridor must contain canopy closure sufficient to intercept snow and exhibit pruning of lower branches. It is expected that this would occur when the trees reach 14 - 16 metres in height. If self pruning occurs at a different height then this would meet the intent of this strategy.

3) Reduce caribou/recreation conflicts.

3.1) Manage off-road vehicle use in caribou summer habitats.

Intent:

i) Work with appropriate clubs/associations to identify non-conflict and conflict areas within caribou habitats and develop agreements to prevent habitat alienation. These agreements could limit or preclude the use of off-road vehicles in important caribou summer habitats (e.g. high elevation alpine and sub-alpine meadows or riparian areas).

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## 3.2) Manage snowmobile use in caribou winter habitats.

### Intent:

- i) Work with appropriate clubs and associations to identify non-conflict and conflict areas for snowmobiling within caribou habitats, and develop agreements to prevent habitat alienation through harassment.
- ii) Snowmobiling areas that are within caribou habitats should be zoned to allow use in areas that are not critical, and to limit or preclude snowmobile use in areas that are critical to caribou survival.
- iii) Not intended to restrict trapping activities.

## 3.3) Incorporate provisions into commercial backcountry management plans to prevent/mitigate adverse recreation impacts on caribou.

### Intent:

- i) Examples would include heli-skiing, cat skiing, etc., tenures.

## 4) Minimize the negative impacts of access on caribou.

4.1) Incorporate caribou habitat concerns into mine planning through the appropriate processes (e.g., regional mine development review process, Environmental Assessment Act process).

## 4.2) Develop access management plans for caribou habitats.

### Intent:

- i) The locations of open road should be determined through an access management planning processes that considers long-term forest management objectives, recreation, mining and caribou sensitivity to disturbance.
- ii) Consider legislated access control.
- iii) During implementation consider prioritizing planning cells.
- iv) Consider grizzly information (concerns) at the same time.

## 5) Limit negative livestock/caribou interactions.

5.1) Do not introduce livestock into known caribou range areas that currently have no range tenures where livestock could impact critical caribou areas.

### Intent:

- i) Within areas of existing range use, livestock use of all habitat types will not be restricted, and the reallocation or increase of tenures will not be restricted providing caribou habitat concerns are addressed.
- ii) Opportunities for introducing livestock into new range areas within known caribou range areas are possible, provided the range use plan (RUP) demonstrates that the livestock can be kept out of alpine, sub-alpine, wetlands, wet meadows, or other identified critical areas.

## Okanagan - Shuswap LRMP Approved Plan

5.2) Include desired plant community objectives and management strategies in range use plans that will address caribou habitat requirements, and minimize caribou displacement within caribou range areas.

Intent:

i) Caribou habitat requirements will be considered for all caribou ranges. Priority for implementing additional management strategies to specifically address caribou concerns (e.g., to avoid caribou displacement) will be focused in areas of known caribou use.



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## CARIBOU MAPWORK AGREEMENT

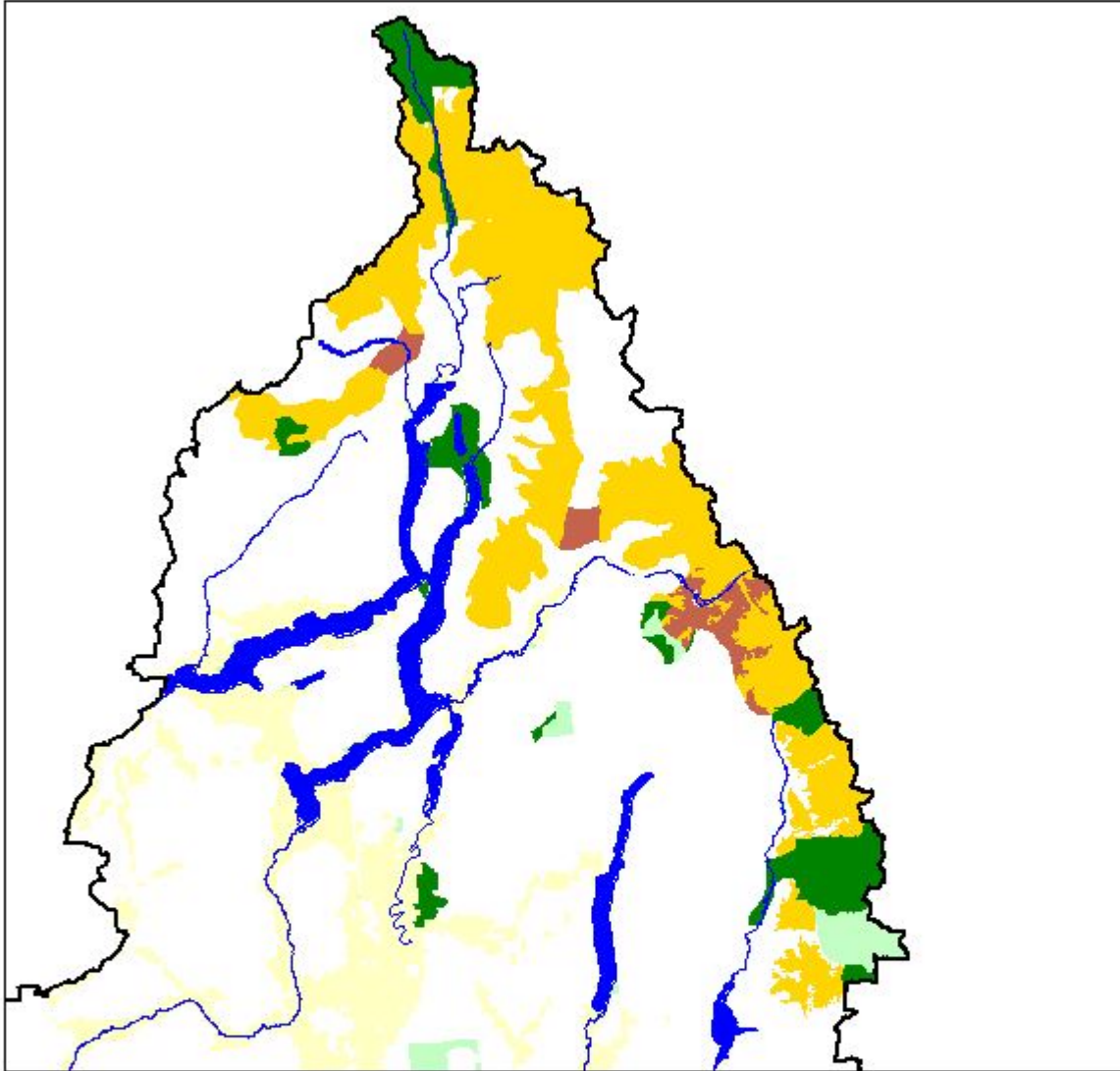
- 1) It is understood that maps have been developed by SOFA and MELP, which identify gross harvest opportunity and also identify some potential "core caribou reserves". There may be references in the Mountain Caribou Habitat RMZ objectives and/or strategies to maps that are not yet completed. It is anticipated that these will be completed in the near future. Work will continue on the maps in order to further define:
  - a) Further harvest opportunities that may be required in order to meet the agreed harvest budget.
  - b) Further caribou reserves, to a maximum of 9,900 ha, in which harvest will be deferred. For clarity, the 9,900 ha is the 9,500 ha (identified in strategies 1.1 and 1.2), as well as the additional 400 ha identified in strategy 1.4, intent statement "v". Core caribou reserves will be based on the best understanding of caribou habitat requirements, and in ICH and ESSF habitats based on the relative proportions that occur in the RMZ's THLB. Core caribou reserves should be reasonably balanced within cells and between licensees.
  - c) Caribou research areas in which harvest will be deferred pending research results. Caribou research areas are the winter habitats within the RMZ that are not identified for harvest or as core caribou reserves.

Note: If research reveals that better alternative core caribou reserve area locations exist, then they may be relocated. Since the 9,900 ha utilize the landscape unit OGMA budget, the total number of hectares will not be reduced.

- 2) Cells 19 and 20 can be combined and the distribution of OGMAs will be such that Tree Farm Licence (TFL) 33 will not be impacted beyond that which would result from the assigned biodiversity emphasis within the TFL.
- 3) Timber Licence (TL) harvest does not contribute to harvest limits and harvest within. TLs will not be restricted. However TL lands will remain within the RMZ. TL lands will not contribute to age class calculations and targets for harvest opportunities for cells containing TL lands.
- 4) Protected areas (e.g. Upper Seymour River, Pukeashun) that are within the Mountain Caribou Habitat RMZ, and that contain suitable habitat will contribute to the caribou planning cell requirements. Opportunities to create caribou research areas (potential OGMAs) will be maintained for the areas outside the park. Future direction will be taken from the research project recommendations.
- 5) Changes to the Caribou Habitat RMZ boundary (for cells north of Highway 1), as per the "August 2000 For site mapping", will be incorporated into the final Wildlife - Caribou RMZ map.

# Okanagan - Shuswap LRMP Approved Plan

## Wildlife - Caribou RMZ

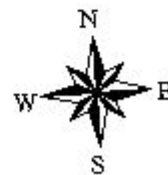


### Base Information

- ▮ LRMP Boundary
- ▨ Private, Federal, or First Nation's (IR) Land
- ▮ Major Water Features
- ▨ Existing Protected Areas

### LRMP Information

- ▨ Winter Range
- ▨ Corridor Areas
- Note: Winter Range and Corridors comprised make up the RMZ
- Note: Late winter and summer habitats, and early winter and spring habitats, are the same.
- ▨ Proposed Protected Area Package



10 0 10 Kilometers

Created by the LMRP  
DATA MANAGEMENT  
TEAM - March 2001  
File name: caribou\_2.jpg



## Polygon Specific Resource Management Zone

## Wildlife

### In this RMZ:

- Location of goat habitat.
- How to minimize adverse impacts of access on important goat habitat.
- Provisions for enhancing forage and forest cover requirements for goats.

## Mountain Goat Habitat RMZ

### Introduction

Mountain goats occur in a variety of habitats from lower elevation Douglas-fir forests to rugged alpine terrain where discrete locations of suitable habitat exist. Generally, they prefer steep slopes or broken and ledged cliffs close to available forage, which provide escape cover from predators. Most winter range is on south to west facing slopes either below 1500 metres where snow depth is low, or above 2000 metres on wind swept peaks and ridges.

More definitive information is available for mountain goat populations in the central and southern portions of the plan area. In these areas, major mountain goat herds are located in the lower Similkameen River, Penticton Creek, and the Shuswap River drainage near Sugar and Greenbush Lakes. Increases in smaller herds, transient goat sightings, and large horn growth over a five-year period prior to 1988 suggested that the goat population might be slowly expanding. This trend may be the result of mild winters and moist summers maintaining succulent forage on dry goat range.

### Issues

Due to the ruggedness of most goat terrain, land development impacts have been minimal, although there is potential for localized impacts. Most issues concerning goats are related to access (e.g., roads, aerial recreation) and protection of winter/natal habitats.

### Goals

The goal is to maintain areas of suitable habitat, and minimize the impacts of access on important habitats.

# Okanagan - Shuswap LRMP Approved Plan

## Objectives and Strategies

1) Within goat habitat identified in the "Wildlife - Mountain Goat Habitat RMZ" map, minimize adverse impacts of access and resource development on mountain goats.

1.1) Avoid ground based or cable logging activities within 500 metres of winter/natal habitats as identified in the "Wildlife - Mountain Goat Habitat RMZ" map from December to July, unless harvest during this period is prescribed for protection of other resource values (e.g., winter harvest on wet or sensitive soils).

Intent:

- i) During kidding - avoid May/June.
- ii) During early rearing - avoid June/July.
- iii) During winter - avoid December to April.

1.2) Avoid heli-logging, heli-skiing, blasting, and other activities that would likely cause habitat displacement within two kilometre line of sight distance of winter and natal habitats identified in the "Wildlife - Mountain Goat Habitat RMZ" map from December 1<sup>st</sup> to July 15<sup>th</sup>.

Intent:

- i) During kidding - avoid May/June.
- ii) During early rearing - avoid June/July.
- iii) During winter - avoid December to April.
- iv) The two-kilometre line of sight distance guideline is based on the best available information. Studies are ongoing and this distance may be revised as regional and provincial guidelines evolve and are refined.
- v) Winter and natal habitats include both those winter and natal habitats identified on the "Wildlife - Mountain Goat Habitat RMZ" map and any occupied winter and natal habitat not presently identified on the map.
- vi) The "Wildlife - Mountain Goat Habitat RMZ" map will be continually updated as more information is available.
- vii) With respect to existing heli-ski and commercial recreation operations, operators may need to adjust day to day procedures as more site specific data and information regarding helicopter use and goat behavior becomes available.

1.3) Discourage recreational activities in winter/natal habitats during season of use.

Intent:

- i) During kidding - avoid May/June.
- ii) During early rearing - avoid June/July.
- iii) During winter - avoid December to April.
- iv) Not to preclude regulated hunting.

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1.4) On an as needed basis, develop access management strategies through the operational planning process in goat range to prevent or mitigate impacts on goats and goat habitats, in particular rearing and wintering habitats.

Intent:

- i) Not intended to require works on non-status roads.
- ii) To manage industrial and recreational access and development to minimize impacts to goats and goat habitat.
- iii) Minimize the amount of "open road" (4x4 accessible) within or adjacent to all goat habitat (winter/natal and summer).
- iv) Of particular importance are kidding, rearing and wintering habitats.
- v) Efforts must be undertaken to minimize animal stress and the potential for habitat abandonment or alienation.
- vi) Vulnerability to unregulated harvesting is also of great importance.
- vii) Not intended to restrict trapping activities.
- viii) The specific priorities for access management as per the list found at the end of the Access Management section (Part 6).

1.5) Where possible, avoid road construction in the 200 metre band within plateau habitats as identified on the "Wildlife - Mountain Goat Habitat RMZ" map.

Intent:

- i) Where road construction is necessary, as soon as practicable, vehicular access (4x4) should be precluded immediately after harvesting activities.
- ii) If required, the roads could be reopened during periods of silviculture activity.

1.6) Develop access, resource extraction, movement corridors, and recreational development guidelines for specific identified goat habitats and ranges on an "as needed" basis. The intent is to cover off commercial backcountry recreation (CBR) and mine development applications. (implementation)

2) Within goat habitat identified in the "Wildlife - Mountain Goat Habitat RMZ" map, provide forage for goats.

2.1) Where other resource values are not threatened, enhance early seral foraging opportunities by implementing a "let burn" policy for high elevation wild fires in inoperable areas that are on, or adjacent to, goat winter ranges.

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2.2) Where goat habitats and tenured rangelands overlap as per the "Wildlife – Mountain Goat Habitat RMZ" map, manage for a desired plant community (DPC) that favors goat forage.

Intent:

i) Desired plant communities include grasses, and forbs and shrubs, such as maple, willow, red-osier dogwood, and falsebox.

*See the Forest Health section for specific direction on addressing forest health concerns in Mountain Goat Habitat RMZs.*

3) Provide forest cover for thermal and security purposes in areas of winter/natal goat habitat, as shown on the "Wildlife – Mountain Goat Habitat RMZ" map.

3.1) In the 200 metre band within plateau as identified in the "Wildlife – Mountain Goat Habitat RMZ" map, maintain a component of the stands with thermal and security cover attributes.

Intent:

- i) While goats usually prefer steep, open terrain, the forested plateau habitats provide thermal cover during periods of extreme heat and storms.
- ii) Plateau habitats comprise approximately of a 200-metre band beyond the break that separates the steeper slopes from the plateau.
- iii) Three pass system over a 100-year rotation within the identified area to ensure that the early stage component (0-33 years) will not comprise of more than 33% of the habitats.
- iv) Selective logging within the remaining habitats will not count against the above criterion provided a height class of 2 (10.5 -19.4 metres) and a crown closure class of 4 (36 - 45%) is maintained.
- v) Stems that have well-developed canopies and high lichen loading should be chosen for retention.
- vi) Where it does not threaten reforestation objectives, non-commercial cover should be retained.

3.2) In goat winter/natal habitat, where practicable, utilize selective harvesting systems to maintain a minimum of 50% of the basal area. In the remaining areas within the goat winter range where selection systems are not practicable, clearcut-harvesting cutblocks are not to exceed five (5) hectares in size.

Intent:

- i) Operable terrain within mountain goat winter/natal ranges is relatively rare.
- ii) A three pass system over a 150-year rotation (100 year for lodgepole pine) within the winter/natal habitat.
- iii) Selective harvesting (single tree or group selection) suitable for spruce/balsam and Douglas-fir stands.
- iv) Clearcut harvesting suitable for even-aged stands, not to exceed 200 metres in one dimension.

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v) Due to the scale of mapping, some areas may be included as goat winter range which are not suitable (e.g., lower slope valley bottom areas). These areas could be amended/removed from winter range by the licensee and DEO.

4) Improve knowledge of mountain goat populations and habitats, including the use of these habitats.

4.1) Conduct inventories to monitor population trends and expansions and/or contractions of occupied ranges by determining the current distribution and abundance of mountain goat populations through inventory and aerial surveys. (implementation)

Intent:

i) MELP to implement as part of their agency's mandate, and through outside funding sources.

4.2) Identify and map key mountain goat habitat and ranges. Include migration corridors, natal (kidding and early rearing) areas, and mineral licks. (implementation)

Intent:

i) The Implementation and Monitoring Committee is to review these products prior to any changes to current LRMP maps.



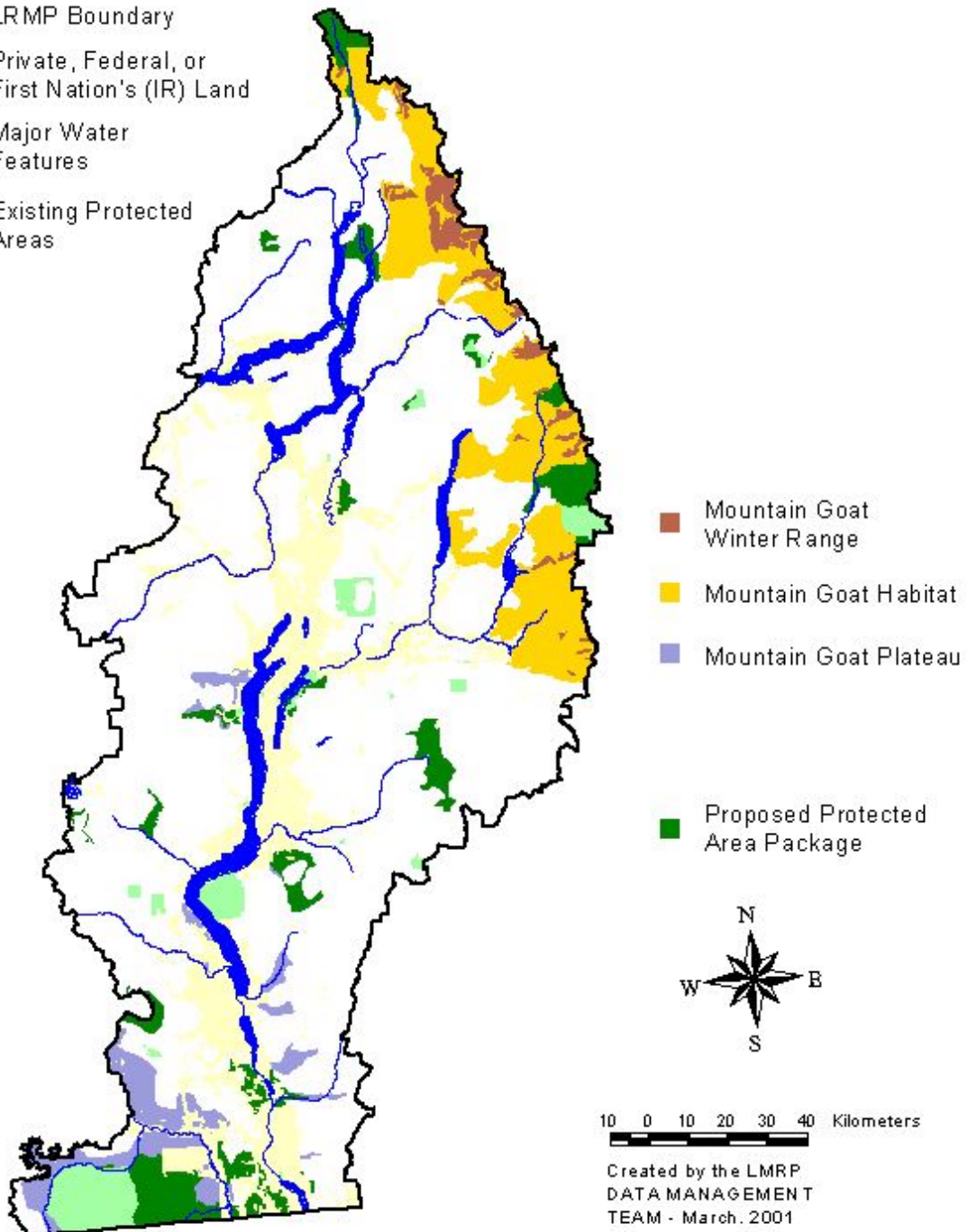


# Okanagan - Shuswap LRMP Approved Plan

## Wildlife - Mountain Goat Habitat RMZ

### Base Information

- ∕ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



10 0 10 20 30 40 Kilometers

Created by the LMRP  
DATA MANAGEMENT  
TEAM - March, 2001  
File name: goat\_2.jpg



## Polygon Specific Resource Management Zone

## Wildlife

### In this RMZ:

- Location of mule deer winter range.
- How to provide forest attributes that are adequate to meet mule deer snow interception, thermal and security requirements.
- How to minimize the adverse impacts of access on important mule deer ranges.
- Provisions for enhancing forage productivity.

## Mule Deer Winter Range RMZ

### Introduction

Mule deer are found throughout the plan area. Populations have decreased over the last several years. Like most ungulates, deer are susceptible to severe winter conditions. Managing winter range to appropriate forage and cover habitats should minimize impacts of severe winters. Understorey vegetation, including shrubs such as saskatoon and rose, provide an important forage source during winter months. As snow accumulates on the ground, deer become increasingly more dependent on snow interception cover, and litterfall (i.e., lichens and Douglas-fir twigs) for forage. Winter ranges with appropriate spatial distributions of older aged Douglas-fir and areas of suitable understorey vegetation can provide forage and cover in close proximity. Such situations reduce energy expenditures and decrease mortalities associated with severe winters.

### Issues

Deer winter ranges have been affected by loss of habitat due to urban and agricultural development. Certain cattle management and forestry practices can also adversely impact winter ranges. Fire suppression has decreased forage productivity on winter ranges. Access onto winter ranges can result in increased legal hunting and poaching, vehicle/deer collisions and displacement of deer from winter ranges.

### Goals

The overall goal is to enhance habitat suitability to allow for current populations to increase. This meets both conservation and consumptive demands.

# Okanagan - Shuswap LRMP Approved Plan

## Objectives and Strategies

1) Provide forest cover that is adequate to meet mule deer thermal, snow interception and security requirements in the mule deer winter range habitats shown on the "Wildlife - Mule Deer Winter Range RMZ" map.

1.1) If there is a good distribution of forage and cover in the mule deer winter range planning cell there will be no restrictions on block width, if not, where practicable, one dimension within a cutblock must be 200 metres or less.

Intent:

i) Fire or blowdown may preclude meeting the 200 metre width in one direction

ii) Clearcuts in excess of 200 metres will generally be acceptable provided there is good distribution of forage and cover.

iii) The phrase "a good distribution of forage and cover" means that it is preferred to have numerous patches of cover well distributed over the planning cell, as opposed to one, or few, cover patches

1.2) Wildlife tree patches (WTPs) that are identified in operational plans must give priority to the inclusion of areas of Douglas-fir that are age class 8+ (140 years or older).

Intent:

i) In addition to Douglas-fir, ponderosa pine (Py) and larch may also be used for WTPs (re: potential red- and blue-listed species habitat requirements, as deemed necessary by the DEO).

1.3) Operational plans will give priority to timber harvesting on sites that do not supply important habitat features.

Intent:

i) Timber types that are not dominated by Douglas-fir are to be harvested as a first priority. Douglas-fir stands with age classes that are below those specified are to be harvested preferentially, provided they are not required as recruitment areas for older age classes. Douglas-fir stands that do not have the specified crown closure are to be harvested preferentially, provided they are not required recruitment areas for areas of higher crown closure. Proponents should not plan harvesting in stands that would deplete the amount of habitat, beyond the values specified.

ii) Once minimum attributes are achieved in the planning cell, harvesting could take place in the preferred types to meet these attributes.

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1.4) After utilizing the suitable non-timber harvesting land base (NTHLB), preferentially locate the remaining forest cover retention allotments on important habitat features.

Intent:

- i) MELP will be responsible for providing the above information to licensees during the forest development plan (FDP) review, if it is known.
- ii) Important habitat features include: snow interception areas; south, southeast, southwest and west aspects; ridges and areas around rock outcroppings; and, mineral licks.

1.5) Where possible, maintain snow interception cover that is connected to allow for movement throughout the winter range.

Intent:

- i) During operational planning, reasonable efforts will be made to provide snow interception cover that is linked together, both within planning cells and between planning cells, to provide opportunities for movement and access to foraging areas. There is to be some flexibility in attempting to optimize the location of cover units to meet optimal cover attributes, the protection of special habitats, and movement corridors. MELP district staff are to be consulted where this occurs.
- ii) Linkages between snow interception cover are to be maintained by using the percentage area retained for cover (i.e., there is to be no additional timber retention to meet connectivity).

1.6) On a site-specific basis, forest cover requirements in any planning cell may be varied (i.e., increased or decreased) to reflect the relative importance of a site.

Intent:

- i) Where this occurs, there will be an equal adjustment of cover requirements within the deer winter range with the proposed activities. (Note: Equitable means not only in terms of volume but also in terms of species and quality.)
- ii) This is to be accomplished through discussions between MELP, MoF, and licensees.
- iii) If MELP wants to do a site-specific variation it will provide the licensee with notification early in the operational planning process.
- iv) Addresses the need to look at a mechanism that allows variations from the management objectives on a site-specific basis.
- v) Noted that these are to balance off - i.e., if there are higher constraints in one place, the constraints in another place will be relaxed.
- vi) This strategy is to occur on a very limited basis.

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1.7) In areas of uneven aged forest management, at least 50% of wildlife tree patch requirements must be provided as patches (i.e., groupings/clusters) of trees, as opposed to retention of single wildlife trees.

Intent:

i) The intent is to provide for wildlife tree patches rather than all scattered individual trees that would be retained under a selection harvesting system.

1.8) For a period of ten years, in the deep snowpack zone (ICH other than ICHdw), maintain 60% of the forested area within the capable deer winter range in stands that are suitable for snow interception cover.

Intent:

i) This strategy applies to deer winter range as per the "Wildlife - Mule Deer Winter Range RMZ" map, which is the most current map of deer winter range. Changes to this map can occur based on recommendations from the Implementation and Monitoring Committee and as approved by IAMC.

ii) The following attributes are to be incorporated in the initial allocation of stands into the percentage target for snow interception cover.

Species:

a) Where practicable, utilize stands with the greatest percentage of fir dominants and co-dominants on site (by volume). Greater than 70% fir is preferred; if this is not available, greater than 50% is acceptable.

b) In applying the deer deep winter range 60% objective, up to 1,300 hectares of the suitable deer deep winter range (i.e., 50%+ fir stands) within the plan area timber harvesting land base (THLB) may be accessed for harvesting subject to the following understandings:

- The primary interest of licensees in this exception to the 60 % objective is the ability to meet their fir requirements.
- Through their forest development plans, licensees are committed to focus reasonable efforts to harvest opportunities outside of suitable mule deer winter range. Harvest of mule deer winter range is acceptable where Douglas-fir availability is constrained by: economic or operational isolation; conflicting integrated resource management (IRM) objectives; or, other situations as jointly agreed by MELP, MoF, and the licensee.
- The 1,300 ha figure is based on 20% of the 6,500 ha of suitable deer deep winter range that has been identified within the plan area timber harvesting land base.
- The location of the 1,300 ha of suitable deer deep winter range that may be accessed for harvesting will be determined during planning cell

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delineation, in cooperation with MELP, MoF, and licensees.

- The intent in locating which 1,300 ha of suitable deer deep winter range may be accessed for harvesting is to make this determination based primarily on biological criteria, and to have this information available for the 2001 forest development plan.
- Any THLB impacts associated with deer deep winter range, as described above, except for those associated with OGMAs that are located in deer deep winter range of an appropriate age class, are incremental to the THLB impacts of biodiversity.

## Crown Closure:

Where practicable, utilize stands with the highest crown closures. Crown closure classes less than crown closure class 5 are not considered suitable for snow interception.

## Age:

The initial allocation of stands into deer winter range will, where practicable, utilize stands with the highest age/height. Once initial allocation is made, long term harvest plans can incorporate stands greater than 100 years or 40 cm DBH (which ever comes first) as replacement stands to ensure long term viability of deer winter range and allow for harvesting of some of the older stands over time.

## Site units

Where site unit information is available, locate the species/age/crown closure attributes preferentially on xeric site units (i.e., O2 and O3 site units). In the absence of site unit information use the best information available to locate on steeper, drier exposed sites. When site unit information is available at the silviculture prescription stage, it may be used to fine tune block location. If the percentage of desired snow interception cover is not met on the xeric site units then other site units as per Table 1 are preferred. Preferentially locate cover adjacent to open (non-treed) xeric sites.

iii) Selective harvesting may be acceptable within the 60% of forested area subject to agreement of DEO.

iv) Where the deep snowpack is linked directly to the moderate snowpack, then the percent target for snow interception cover for the deep will be the weighted average (by area) of the two. This will be done on units mutually agreeable between MELP and licensees.

v) Fire and blowdown salvage may preclude meeting the desired attribute distribution.



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vi) A mule deer implementation strategy will be developed post-LRMP that will focus on research that will improve the mapping, objectives and strategies contained in this section (see Appendix IX). The intent is to incorporate the changes arising from the post-LRMP work in an expedient manner. The specific reference to a ten year period in the strategy is there to prevent the parties from accomplishing their goals by not agreeing to the implementation recommendations arising from the implementation work.

vii) The follow-up research will focus on management techniques and practices that will promote suitable winter range forage while evaluating forest cover requirements. The results of this work will be referred to the LRMP Implementation and Monitoring Committee for consideration.

viii) The decision on implementing the mule deer winter range objectives on woodlots will be dealt with through follow up (i.e., after ratification), and once the appropriate information is gathered (as noted below). If the Implementation and Monitoring Committee cannot come up with a consensus recommendation then government will make a decision.

The information that is to be gathered includes:

- More exact locations for mule deer winter range areas.
- The impacts on mule deer and the mule deer proposals arising from activities undertaken in the woodlots.
- The economic impacts, including AAC impacts, on woodlots if the mule deer winter range strategies are implemented.

1.9) For a period of ten years, in the moderate snowpack zone (IDFdk1, IDFdk2, IDFdm1, IDFmw, MS), maintain 33% of the forested area within the capable deer winter range in stands that are suitable for snow interception cover.

Intent:

i) This strategy applies to deer winter range as per the "Wildlife - Mule Deer Winter Range RMZ" map that is the most current map of deer winter range. Changes to this map can occur based on recommendations from the Implementation and Monitoring Committee and as approved by IAMC.

ii) The following attributes are to be incorporated in the initial allocation of stands into the percentage target for snow interception cover.

Species:

Where practicable, utilize stands with the greatest percentage of fir dominants and co-dominants on site (by volume).

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## Crown Closure:

Where practicable utilize stands with the highest crown closures. These are not to be less than crown closure 4.

## Age:

The initial allocation of stands into deer winter range will, where practicable, utilize stands with the highest age/height. Once initial allocation is made, harvesting will be allowed in these areas as per the selection harvesting section above, or once replacement stands are identified. Replacement stands on the timber harvesting land base are defined as stands greater than 40 cm DBH or 175 years (which ever is reached first), except in IDFmw2 where the replacement is 40 cm DBH or 140 years (which ever is reached first).

## Site units:

In the absence of site unit information use the best information available to locate on steeper, drier exposed sites. Preferentially locate cover adjacent to open (low tree density) xeric sites. Where practical, preferentially harvest hygric and hydric sites, which generally produce good forage.

iii) Process for locating snow interception cover on the Non-Timber Harvesting Land Base (NTHLB).

Locate up to 50 % the snow interception cover (for all subzones except IDFmw1 and 2) on the non timber harvesting land base as long as it meets the following criteria:

- at least 50% fir
- at least 120 years in age
- at least crown closure 4
- slope less than 80%

Once 50% of the snow interception cover is located on the NTHLB then locate the remaining snow interception cover where the best combination of attributes exist.

For IDFmw1 and 2, where possible locate snow interception cover on NTHLB with the same criteria as above except the stands have to at least be crown closure 5 and there is no requirement regarding the 50% area rule.

iv) Selection Harvesting.

Selective harvesting is acceptable within a portion of the area set aside for snow interception cover. Of the 33%, 20% (or approximately two-thirds) can be managed by selection harvesting that concentrates on preferentially harvesting trees less than 40 cm DBH and 13% (or approximately 1/3) is to be managed with no harvesting until replacement areas are available. When the area set aside is less than 33%, because of it being linked with the low snowpack (i.e., weighted average calculation),

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then the area that can be selectively logged gets proportionately less, while the area that is managed as no harvesting until replacement stands are found stays the same as it would under the 33% scenario. Within the area that can be selectively harvested, 20% of the volume can be selection harvested with a 40-year re-entry period. The 20% removal can be increased where species other than Douglas-fir comprise more than 20% of the original stand. Where Douglas-fir is less than 75% of the stand of the stand, and species distribution is not uniform throughout the stand (e.g., lodgepole pine in patches), harvesting is subject to maintaining windfirmness of the stand. Where species other than Douglas fir are relatively uniform throughout the stand, canopy closure and windfirmness is to be maintained. The 20% could be exceeded along trails, but the percentage would be met within the entire selection harvest area.

v) Elevation linkage between moderate and low snowpack zone. Where the moderate snowpack is linked directly to the low snowpack then the percent target for snow interception cover for the moderate will be the weighted average (by area) of the two as per the "Wildlife - Mule Deer Winter Range RMZ" map. The low deer winter range will be adjusted to take out the bunchgrass and non-forested areas within the ponderosa pine. If moderate snowpack is less than 10% of the assessment unit then the whole unit is managed to the low snowpack strategy percentage. The weighted average percentage in the moderate snowpack zone can never be less than 20% (the only exception being when the moderate is less than 10% of the assessment unit).

vi) Fire and blowdown salvage  
Fire and blowdown salvage may preclude meeting the desired attribute distribution.

vii) Mule deer implementation and research strategy  
A mule deer implementation strategy will be developed post-LRMP that will focus on research that will improve the mapping, objectives and strategies contained in this section (see Appendix IX). The intent is to incorporate the changes arising from the post-LRMP work in an expedient manner. The specific reference to a ten year period in the strategy is there to prevent the parties from accomplishing their goals by not agreeing to the implementation recommendations arising from the implementation work. The follow-up research will focus on management techniques and practices that will promote suitable winter range forage while evaluating forest cover requirements. The results of this work will be referred to the LRMP Implementation and Monitoring Committee for consideration.

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1.10) For a period of ten years, in the shallow snowpack zone (BG, PP, IDFxh1, and IDFxh2), manage 15% of the area of the forested area within the capable deer winter range in stands that are suitable for snow interception cover.

## Intent:

i) This strategy applies to deer winter range as per the "Wildlife - Mule Deer Winter Range RMZ" map, which is the most current map of deer winter range. Changes to this map can occur based on recommendations by the Implementation and Monitoring Committee and as approved by IAMC.

ii) The following attributes are to be incorporated in the initial allocation of stands into the percent target for snow interception cover.

## Species:

Where practicable, utilize stands with the greatest percentage of fir dominants and co-dominants on site (by volume).

## Crown Closure:

The 15% will be a combination of stand patches, clumps, and distribution of "vets" (allotments of clumps and "vets" are to be determined by basal area equivalency). Where dwarf mistletoe is present, the preference is toward stand patches.

## Age:

The initial allocation of stands into deer winter range will, where practicable, utilize stands with the highest age/height. Once initial allocation is made, long term harvest plans can incorporate stands greater than 140 years of age as replacement stands to ensure long term viability of deer winter range and allow for harvesting of some of the older stands. Allotment of clumps and "vets" is to be determined on a basal area equivalency.

## Site units

When site information is available at the silviculture prescription stage, it may be used to fine tune block location. Where practical, preferentially locate cover adjacent to open (low tree densities) xeric sites and harvested 07 and 08 sites.

iii) Selective harvesting is permitted within the 15% of forested area, stems less than 30 cm DBH and non-fir species can be removed.

iv) Fire and blowdown salvage may preclude meeting the desired attribute distribution

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v) A mule deer implementation strategy will be developed post-LRMP that will focus on research that will improve the mapping, objectives and strategies contained in this section (see Appendix IX). The intent is to incorporate the changes arising from the post-LRMP work in an expedient manner. The specific reference to a ten year period in the strategy is there to prevent the parties from accomplishing their goals by not agreeing to the implementation recommendations arising from the implementation work. The follow-up research will focus on management techniques and practices that will promote suitable winter range forage while evaluating forest cover requirements. The results of this work will be referred to the LRMP Implementation and Monitoring Committee for consideration.

1.11) Silviculture activities should focus on preferentially managing for Douglas-fir species as a means of enhancing mule deer winter range.

Intent:

- i) Over the mid-term the intent is to manage these sites to a high percentage of fir. Greater than 70% is preferred in the deep and moderate snow packs within deer winter range, and greater than 50% in the low snow pack.
- ii) Where a decision is made to manage a site to a high percentage of fir with the explicit knowledge that there is a high risk in regards to forest health (i.e., root rot), reduced stocking standards may be acceptable if approved by the SDM.
- iii) Forest health concerns (i.e., mistletoe) may dictate managing for other ecologically acceptable species.

1.12) Where external funding is secured, intensive silviculture or habitat enhancement activities are to enhance important habitat features in mule deer winter ranges.

Intent:

- i) Activities, such as spacing and commercial thinning, can be beneficial to cover, and forage, needs of mule deer.
- ii) Such activities are to be done with a focus on mule deer range enhancement (e.g., retaining Douglas-fir).
- iii) Such activities may require outside funding. Where external funding is secured, proponents (e.g., government agencies, BC Wildlife Federation) are encouraged to undertake these activities.
- iv) Habitat enhancement activities are an acceptable use of Forest Renewal BC funds.

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1.13) Forest cover attributes are to be well distributed across the planning cells.

Intent:

i) MELP and licensees will develop 200 – 400 hectare planning cells utilizing, where possible, geographic features and administrative boundaries. The intent is that snow interception cover is to be well distributed within the planning cells and therefore well distributed across the deer winter range. Planning cells may be less than 200 ha in size for discreet units.

ii) Need to balance distribution of attributes with initial preferential location on the non-timber harvesting land base.

1.14) The actual location of the deer winter range will be finalized when the planning cells are identified. The precise location may vary according to site specific variables but there will not be an increase to the overall area (any increases would be offset by decreases of equal area and value). If an area is determined not to be winter range through joint assessment by MELP, MoF and licensees, then don't manage it as deer winter range. If an area is determined to be winter range through joint assessment by MELP, MoF and licensees, then manage it as deer winter range.  
(implementation)

2) Minimize the adverse impacts of access on important mule deer winter ranges.

Intent:

i) To reduce the potential for unregulated harvest, loss of habitat, habitat displacement and harassment.

*For further details on access please refer to the Access Management section.*

2.1) On existing roads, minimize, where practical, the amount of open road (i.e., 4x4 accessible) in mule deer winter range.

Intent:

i) Government is to initiate access management to guide deactivation, rehabilitation and closures (e.g., physical and regulated).

ii) It is recognized that no particular government agency is responsible for non-status roads

2.2) Do not promote recreational activities on deer winter ranges.

Intent:

i) These areas should not be selected for organized events, and un-organized users should be sensitive to the needs of the species and sensitivity of the site to disturbance.

ii) This strategy refers to organized events on areas outside of Recreation RMZs

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2.3) Utilize the "Total Chance" planning concept for road development on winter ranges.

Intent:

i) Where practical, roads are to avoid known important habitat features.

3) Maintain and/or enhance forage for mule deer.

3.1) Promote ground forage productivity.

Intent:

i) The follow-up research will focus on management techniques and practices that will promote suitable winter range forage while evaluating forest cover requirements. The results of this work will be referred to the LRMP Implementation and Monitoring Committee for consideration.

3.2) Range use plans (RUPs) in mule deer winter range areas (see the "[Wildlife - Mule Deer Winter Range RMZ](#)" map) will identify and manage for desired plant communities (DPC) that favor mule deer winter browse species.

Intent:

i) Winter deer browse includes *Ceanothus* spp., saskatoon, *Rosa* spp., chokecherry, Douglas maple, *Salix* spp., etc.

ii) A DPC, based on physical site conditions, will be determined and managed for through the range use plan.

3.3) Re-vegetation of permanent grassland range within mule deer winter range will, wherever practicable, be done using available native species mixes.

Intent:

i) In transitory range use of non-rhizomatous, non-native seed is acceptable. (Note: This seed is cost effective and in the long term doesn't out compete or replace the native species.)

ii) Refer to the definition for "grasslands" in the glossary (Appendix III) for the permanent grasslands site series.

3.4) Where practicable, utilize prescribed burns under specific conditions or mechanical treatments to enhance winter range forage values.

Intent:

i) This cannot be used to direct prescribed burning on cutblocks.

ii) Prescribed fire can have a positive effect on winter range forage productivity. Outside funding sources are usually required to identify and address areas of concern. Over the life of the LRMP it would be desirable to assess each district for enhancement opportunities, prioritize them, and develop and implement an action plan.

iii) Focus on areas that will not reduce the suitability of snow interception cover.

iv) Reduce risks to other resource values.

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v) A mule deer implementation strategy will be developed post-LRMP that will focus on research that will improve the mapping, objectives and strategies contained in this section (see Appendix I X).

3.5) Forest harvesting is to be distributed across the planning cells to maintain sufficient early seral areas for forage.

Intent:

i) The Mule Deer implementation committee, as per strategy 3.6 will determine the definition of what would be a sufficient area.

ii) In the moderate snowpack zone, where practical, no more than 30% of the planning cell is to be in stands less than 20 years of age. Variations may be acceptable where required to satisfy both operational and ecological interests. Licensees are to review with the DEO.

3.6) Specific forage objectives will be developed as part of the implementation strategy so as to coordinate the relationship between forage and cover and incorporate proposed research trials (see Appendix I X). (implementation)

3.7) Manage for tree stocking densities as outlined in Table 2.



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**Table 1: Preferred Location for Snow Interception Cover within Mule Deer Winter Ranges**

Variant	Site Units	SPZ
IDF xh1,1a, PP, BG	all	shallow
IDF dm1	02, 03, 04, 01,05	moderate
IDF dk1	02, 03, 04, 01,05	moderate
IDF dk2	02, 03, 01, 04, 05	moderate
IDF mw1	02, 03, 04, 05, 01	moderate
IDF mw2	02, 03, 01	moderate
MS dm1	02, 04	moderate
MS dm2	02, 03, 04	moderate
ICH mw2	02, 03,01,	deep
ICH mw3	02, 03, 04, 05, 01	deep
ICH mk1	02, 03, 04	deep
ICH mk2	02, 03, 04	deep

Note:

- For ICHmw2 and ICHmw3 the 01 site unit refers to the steeper (toe of the slope) 01/03 transition, it does not apply to the flat 01 site units.
- Where sufficient forest cover exists, 02 and 03 sites are preferred for providing snow interception forest cover





**Table 2: Preferred Stocking Rates**

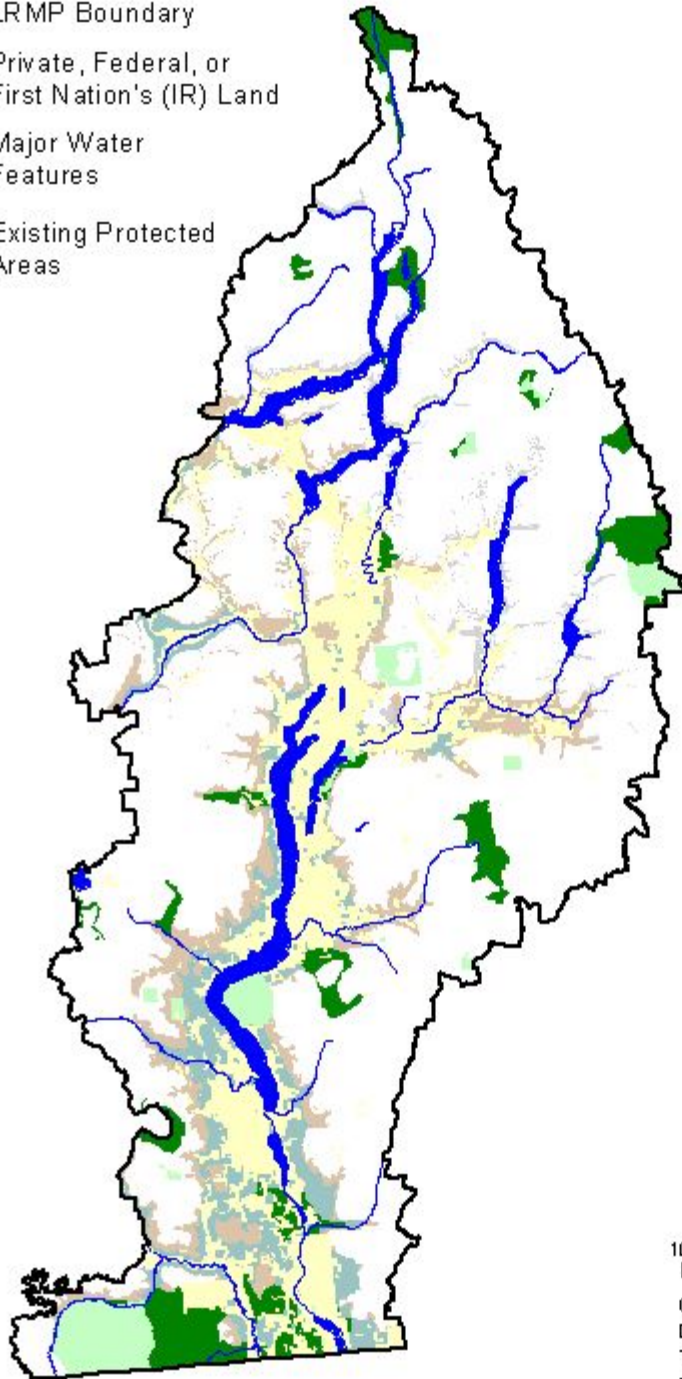
BEC Zone	BEC Subzone	Comments
MS	dm	<ul style="list-style-type: none"> <li>• MSdm2 02 sites do not reforest</li> <li>• MSdm1 02 400min. – 500 target</li> <li>• MSdm2 03 on 50%+ angled south facing slopes, 500 min. – 800 target.</li> <li>• MSdm1 04 on 50%+ angled south facing slopes, 700 min. – 1000 target</li> </ul>
MS	xk	<ul style="list-style-type: none"> <li>• MSxk 03 sites do not reforest</li> <li>• MSxk 02 on 50%+ angled south facing slopes, 500 min. – 800 target</li> </ul>

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## Wildlife - Mule Deer Winter Range RMZ

### Base Information

-  LRMP Boundary
-  Private, Federal, or First Nation's (IR) Land
-  Major Water Features
-  Existing Protected Areas



### Snowpack Zones

-  Shallow
-  Moderate
-  Deep
-  Proposed Protected Area Package



10 0 10 20 30 40 Kilometers

Created by the LMRP  
DATA MANAGEMENT  
TEAM - March 2001  
File name: md\_wr\_2.jpg



## Part 5

In this section:

- Location of new protected areas that are being recommended through the LRMP.
- Recommended management regime for protected areas.

## Protected Areas (Goal 1 and Goal 2)

### Introduction

Protected areas are established to protect their natural, cultural heritage and/or recreational values. The LRMP Table used the “Protected Area Strategy” as a guide in the selection of protected areas and in providing directions for their management.

The Protected Area Strategy has two goals. Goal 1 is to protect viable, representative examples of the natural diversity in the province, representative of the major terrestrial, marine and freshwater ecosystems, the characteristic habitats, hydrology and landforms, and the characteristic backcountry recreational and cultural heritage values of each ecosection.

Goal 2 is to protect the special natural, cultural heritage and recreational features of the province, including rare and endangered species and critical habitats, outstanding or unique botanical, zoological, geological and paleontological features, outstanding or fragile cultural heritage features, and outstanding outdoor recreational features such as trails.

A list of the protected areas in the plan area that pre-date the Okanagan-Shuswap LRMP can be found in Appendix X. The new protected areas recommended through the LRMP are listed below.

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## **Recommended Protected Areas**

The following protected areas (PAs) are being recommended through the Okanagan - Shuswap LRMP. (Note: Unless noted otherwise, additions to ecological reserves have not been endorsed for ecological reserve status - i.e., the additions are to have provincial park status.)

- Adra Tunnel
- Anarchist
- Anarchist Larch
- Anstey - Hunakwa
- Brent Mountain
- Browne Lake
- Cathedral Park Addition (Crater)
- Cinnemousun Narrows Provincial Park Addition
- Denison - Bonneau
- Eagle River
- Enderby Cliffs
- Englishman River
- Graystokes
- Greenbush Lake
- I sintok Lake
- Kalamalka Lake Provincial Park Addition
- Kingfisher Creek
- Mara Meadows
- Monashee Provincial Park Addition - Sitkum Site
- Monashee Provincial Park Addition - Spectrum Falls Site
- Monashee Provincial Park Addition - Vigue Creek Site
- Mt. Griffin
- Myra - Bellevue
- Naramata Creek
- Oliver Mountain
- Pennask Creek
- Pillar
- Pukeashun

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- Richter Grasslands
- Shorts Canyon
- Shuswap Lake Marine Park Addition – Bughouse Bay Site
- Shuswap Lake Marine Park Addition – Swall Site
- Shuswap River Islands
- Shuttleworth Creek Larch
- Similkameen Cottonwoods
- Similkameen River
- Skaha Bluffs
- Skookumchuk Rapids
- Snowy
- South Okanagan Grasslands – Chopaka East Site
- South Okanagan Grasslands – Chopaka West Site
- South Okanagan Grasslands – Kilpoola Site
- South Okanagan Grasslands – Mt. Kobau Site
- Trepanier
- Turnbull Creek
- Upper Perry River
- Upper Seymour River
- Upper Shuswap Ecological Reserve Addition
- Upper Violet Creek
- Vaseux
- Vigue Creek
- Wap Creek
- White Lake Grasslands
- White Lake Park Additions
- Wrinkly Face
- Yard Creek Provincial Park Addition

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## **Management of Protected Areas**

Commercial logging, mining and energy exploration and development will not be allowed to occur in protected areas. However, many other existing activities will continue to be allowed, subject to the management plan for each protected area.

Protected areas are managed under authority of the Park Act and Regulations. BC Parks and other agencies will carry out the planning and management of new protected areas in a cooperative manner. Local level planning processes will develop the management plans for individual protected areas, consistent with the objectives and strategies outlined in the Okanagan - Shuswap LRMP, and will encourage the involvement of all parties with a key interest or stake in the plan.

There are five different management categories for protected areas, as outlined in "A Protected Areas Strategy for BC": strict preservation; wilderness; cultural and heritage sites; natural environment-based outdoor recreation; and intensive recreation and tourism sites. The appropriate management category, or combination of categories will be identified for each unit.

### *Interim Management Direction for Recommended Protected Areas*

Specific management direction for the recommended protected areas is found starting on page 5-6. This direction will guide management of the individual protected areas until such time as a "Management Direction Statement" or a "Management Plan" is developed. Any subsequent management plans will be consistent with the initial management direction provided by the LRMP, and will be developed using a public consensus-based approach. There is to be a clearly defined dispute resolution process. When a decision cannot be reached through the consensus-based process or the dispute resolution process in a timely manner, the final decision will rest with the Parks District Manager.

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## *Park Management Plans*

For each protected area, a park management plan will be established as follows:

- a) it will involve stakeholder groups, including all tenure holders;
- b) it will involve First Nations;
- c) it is to be open and inclusive (LRMP table representatives; process used in the LRMP);
- d) some parks may require an ongoing multi-stakeholder monitoring committee;
- e) the process will be open to the public; and,
- f) management plans will have a five year term;

Each park management plan will address and/or include:

- a) any development within the boundary;
- b) be explicit in terms of basic management direction;
- c) each park management plan will be consistent with the park management category;
- d) naturally occurring impacts such as windthrow, disease, noxious weeds, flooding and fire etc;
- e) access management issues/concerns specific to that protected area, including issues related to providing access to the protected area; and,
- f) those matters generally agreed to in this document that affect or impact on park management or use.

## **First Nations**

Most of the material in this section was taken from "A Protected Areas Strategy for British Columbia" (1993), and provides government direction with respect to First Nations and protected areas.

- The participation of First Nations in land and resource planning will not limit their subsequent treaty negotiations with the Crown. The provincial government takes the view that strategic land use planning activities such as LRMPs are undertaken without prejudice to aboriginal rights, possible aboriginal title, and either ongoing or future treaty negotiations. This means that land use plans and any First Nations involvement in such plans do not prejudice aboriginal rights recognized by the courts, or the position First Nations may choose to take in formal, comprehensive negotiations involving the federal and provincial governments. The provincial government has also stated that land use plans will form the basis of its position in treaty negotiations on land and resources in a particular planning area.
- The Protected Area Strategy will respect the treaty rights and aboriginal rights and interests that exist for land and resource use in the province.



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- Aboriginal peoples may use protected areas for sustenance activities (including hunting and fishing), subject to conservation objectives, and for ceremonial and spiritual practices.

## Management of Lands Adjacent to Protected Areas

### Management Direction:

- 1) The area immediately adjacent to a protected area boundary will be managed in accordance with the management objectives and strategies for the RMZ/SRMZ established for that area, unless specifically stated to the contrary.
- 2) Development planning adjacent to protected areas should not encourage windthrow within the protected area. This is not intended to preclude resource development adjacent to the protected area.
- 3) Development planning should avoid undesirable/unmanaged access to the protected area. Any access issues will be addressed through an access management plan, or direct discussions between Parks and the licensee or proponent of the new road.
- 4) It is important to note that the establishment of these protected areas should not prevent resource development activities on the adjacent land base. For example, mineral exploration and mine development can proceed adjacent to a protected area, subject to existing regulations and standards.

## Boundary Location

### Management Direction:

For purposes of establishing protected area boundaries for forest development planning purposes or other purposes, such boundaries can be established using GPS.

- i) GPS is an acceptable method of establishing legal boundaries (legal surveyor is responsible, and can use whatever tools he or she wants).
- ii) The Implementation and Monitoring Committee will have access to TRIM data in order to verify the location of protected area boundaries.
- iii) It is recognized that there will be uncertainty (+/-5 metres) associated with surveys (e.g., GPS measurements).

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## Management Direction for all Protected Areas

- 1) Logging (except for forest health reasons), mineral and energy exploration and development are not allowed in protected areas.
- 2) All existing liens, charges, and encumbrances other than those applying to commercial logging, mining or energy exploration and development will continue to be authorized through issuance of park use permits (PUPs). This policy recognizes all existing Land Act tenures, special use permits (SUPs), water rights, trapping licenses and other legal tenures and rights.
- 3) Operational activities in protected areas should be consistent with the management direction for the unit.
- 4) Allocation of new tenures will be subject to the direction provided by the management plan for the protected area. Proposals for new uses will respect existing uses.
- 5) Some protected areas will have pre-existing water licenses that may include domestic, irrigation, diversions and water storage structures. These licenses and the ability to manage them for their licensed use will be allowed to continue. Protected area management plans will allow for the continued access, maintenance and rehabilitation of water tenures.
- 6) Existing communications sites and utilities, such as transmission lines, pipelines and communications towers, will be allowed to continue. Protected area management plans will allow for the continued access, maintenance and rehabilitation of these facilities.
- 7) Water storage reservoirs within protected areas must be operated and maintained primarily for safety from structural failure.
- 8) Activities within protected areas are to respect conservation values, particularly the needs of red- and blue-listed elements.

## Access

### Management Direction:

- 1) Access management issues will be dealt with in the LRMP and subsequent park management plans.
- 2) Ensure that the quality, amount and timing of access are consistent with the objectives and prescribed character of the protected area. This does not apply to roads excluded from the protected area.
- 3) Ensure that the rights of way for roads that are excluded from protected areas are sufficiently wide enough to accommodate maintenance, re-alignments, management of hazard trees, etc.

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4) Access for maintenance of existing water and weather data collection stations (e.g., snow courses, snow pillows, stream gauges, etc.) in new protected areas must be maintained.

## Grazing

### Management Direction:

1) Grazing under existing Range Act tenures will continue, with rights being fully transferable, renewable, and eligible for re-allocation.

i) Such grazing will be consistent with the management plan established for each protected area.

ii) It will also be managed in accordance with the Ministry of Forests (MoF)/Ministry of Environment, Lands and Parks (MELP) Protocol Agreement, and within the framework of the Park Amendment Act.

2) Administration and management of range tenures is to be the responsibility of the Ministry of Forests.

3) Range tenure holders will continue to be able to access the area to maintain infrastructure/improvements (e.g., fences, water impoundment structures, etc.) and manage cattle (e.g., if they have used all-terrain vehicles to maintain fences in the past, they would be allowed to continue to do so).

i) This is essentially covered by the MoU between MoF and Parks, which provides for the continued administration and management of range tenures and activities by the Forest Service.

ii) Tenure holders are to work out their means of access with the Ministry of Forests, and include this information in the range use plan (RUP).

4) Tenure holders are not to incur additional management costs, as a result of protected area designation, over and above those that are faced by those operating in similar areas outside of the protected area.

5) Monitoring of ecosystem health should be undertaken to determine if grazing is compatible with the long-term conservation goals of the protected area. This information will provide a basis for changes to livestock management. If necessary, animal unit months (AUMs) could be adjusted by the Ministry of Forests in the protected area, or the portion of the protected area where grazing is a concern.

i) MoF should undertake any monitoring, in consultation with BC Parks. If other groups or agencies are going to undertake monitoring activities this should be done in consultation with MoF and BC Parks.

ii) Any changes to livestock management or adjustments to AUMs should be based on the best scientific information or expertise available.

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6) With respect to the development of new range improvements, the Ministry of Forests will be expected to consult with BC Parks. An example of a new improvement would be a fence required to replace a natural barrier taken out by wildfire.

7) Any new grazing tenure for horses (e.g., in conjunction with a commercial recreation operation) should be referred to the Ministry of Forests and the range tenure holder(s). (This is to address concerns over potential impacts - e.g., AUMs, plant communities, etc.)

8) Any new grazing tenure for commercial recreation horse use should not be at the expense of public recreational horse use.

9) Management of livestock should be consistent with the general management direction of the protected area.

## Ungrazed Areas

### Objectives for "Ungrazed Areas":

The main objective of "ungrazed areas" (UAs) is the societal desire to have areas ungrazed by livestock that are representative of the ecosystems and special values of the protected areas in the LRMP. These areas can serve as either "benchmarks" for future scientific study (e.g., between grazed and ungrazed areas), or other, more specific, objectives such as:

- i) the conservation of specific wildlife/plant species and ecosystems; specifically, the conservation of rare wildlife, plants, and ecosystems;
- ii) the conservation of special features or historical sites;
- iii) the education of the public regarding natural ecosystems and their management; and/or,
- iv) to allow natural processes in larger ungrazed areas.

### Size of Ungrazed Areas:

There is an existing "Range Reference Area" program for exclosures of approximately one hectare in size. Some historical exclosures are over 50 years old. These areas are used to track plant community changes, and to determine what the potential natural community (PNC) would be in the absence of livestock grazing. These small exclosures may result in anomalies due to their ungrazed condition attracting rodent use, deer bedding down, inappropriate use as a horse corral by recreationalists, edge effects, etc. Therefore, these exclosures generally are not seen as being of a sufficiently large size to meet the objectives of ungrazed areas.

It is anticipated that ungrazed areas will vary in size, ranging from several hectares to hundreds of hectares in size. In instances where the establishment of larger units cannot be achieved, the creation of a grouping

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of small sites, with connectivity, to represent the full spectrum of locally occurring ecosystems (e.g., upland with riparian areas, elevation cross sections, aspen copses, etc.) should be considered.

## **Where Would Ungrazed Areas be Established:**

1) Ungrazed areas may be established in any protected area where livestock grazing occurs. There is no requirement or obligation that ungrazed benchmarks have to be established in each protected area.

2) Ungrazed areas can also be established outside of protected areas if no suitable area exists within the protected area. The establishment of these sites would follow the same process as for those ungrazed areas within protected areas. The intent is that these should be located on sites that are permanent in nature. If areas are being considered that includes timbered areas, old growth management areas (OGMAs) or areas that are otherwise constrained should be targeted.

i) A reserve under the Land Act should be considered for these areas to afford them some level of "security" that they would be maintained in the future.

ii) If something happens to the site that results it no longer being suitable as an ungrazed area, an alternate (replacement) area could be identified using the same process. The need for an alternate site will be decided on a case by case basis by the "Ungrazed Area Advisory Panel".

iii) Noted that there may be advantages to using an area that is already ungrazed outside of a protected areas as it may be more suitable than an alternative area within the protected area that is currently grazed or has been grazed in the past. Consequently, there may be advantages to choosing an ungrazed area outside of a protected area instead of creating an ungrazed area inside the protected area that has been grazed in the past.

iv) Ungrazed areas outside of protected areas are only for representation purposes.

## **General Considerations When Establishing Ungrazed Areas:**

1) When establishing ungrazed areas, every effort should be made to limit the impact on individual range tenure holders (e.g., no increase in management costs, and no impact on the movement of cattle), as well as the ranching industry as a whole.

i) Use tools such as range improvements, NDT4 ecosystem restoration/rehabilitation activities, the use of funding from the Grazing Enhancement Fund, etc., to mitigate impacts from the establishment of ungrazed areas.

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2) Ungrazed areas will be designed so as to have a minimal impact on animal unit months (AUMs). Examples of how to achieve this include:

i) Look to naturally occurring ungrazed areas (due to lack of water, topography or other reasons) first to see if these or portions of them would be suitable as ungrazed areas.

ii) Vacant tenures or tenures that are about to be re-allocated should receive priority consideration should they provide the desired representation. However, when evaluating the potential impacts on AUMs from the establishment of an ungrazed area, these untenured areas should be treated the same as areas that are tenured. I.e., limit the impact on AUMs available within that tenure, how the location of an ungrazed area may affect cattle use, management, or movement within the tenure, etc., just as would be the case if the area was tenured.

iii) When evaluating locations for ungrazed areas, if two areas are under consideration that essentially provide the same ecosystem representation that the ungrazed area is supposed to provide, choose the area that has less impact on the range tenure holder(s).

iv) When evaluating locations for ungrazed areas, if two areas are under consideration that essentially provide the same ecosystem representation, choose the area that is naturally ungrazed (due to lack of water, topography or other reasons) as the ungrazed area instead of an area that may require fencing to exclude livestock.

3) Ungrazed areas do not necessarily have to be fenced. Naturally occurring ungrazed areas can be used as well.

4) Ungrazed areas should be representative of the ecosystems of the protected areas as appropriate, and include wetlands, riparian areas, grasslands, and deciduous and coniferous forests.

5) Ungrazed areas should also be a range of sizes. Larger areas are needed in order to ensure these areas are of sufficient size to detect long-term ecosystem changes. Focus on larger areas to include multiple features, with smaller sites used to fill gaps or to represent specific features.

6) The issue of replication of sites should also be a consideration. If similar ecosystems are already captured in ungrazed areas outside of the plan area, similar or replicate ungrazed areas in this plan area may not be required.

7) Ungrazed areas could also be used to address red- and blue-listed species habitat concerns. For example, when evaluating locations for ungrazed areas, if two areas are under consideration which essentially provide the same ecosystem representation, choose the area that provides the greatest benefit to red- and blue-listed species habitat concerns.

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## **Management of Ungrazed Areas:**

- 1) Range tenure holders will not be responsible for costs associated the construction (e.g., fencing) and/or maintenance of any ungrazed areas.
- 2) Fencing of ungrazed areas must address potential impacts on wildlife.
- 3) Incidental grazing may be allowed in ungrazed areas that are not fenced as appropriate (e.g., as cattle are being moved through the area from one pasture to another).
- 4) If livestock breach a fence or natural barrier, and are found in an ungrazed area when they are not supposed to be, compliance should focus on removing the livestock from the area and ensuring a similar situation does not arise in the future rather than on punitive measures.
- 5) NDT4 ecosystem restoration or rehabilitation activities will be allowed in ungrazed areas if they are consistent with the objectives for the protected area and the ungrazed area.

## **Composition and Role of the “Ungrazed Areas Advisory Panel”:**

- 1) An “Ungrazed Areas Advisory Panel” should be established to guide and assure the establishment of representative ungrazed areas. There could be one panel to cover the entire plan area, or there could be an advisory panel established for specific geographic areas (e.g., the north and south halves of the plan area, for each forest district, etc.).
- 2) It is expected that there will be reporting relationship between the advisory panel(s) and the Implementation and Monitoring Committee (e.g., the chair of the advisory panel could report to Implementation and Monitoring Committee as required).
- 3) IAMC will be responsible for establishing a core group to lead the advisory panel. If more than one advisory panel is established this core group would be consistent among all the panels. A lead person within government should be identified to assume responsibility for the management and implementation of this process, and this should be formally incorporated as part of their role. This core group should ensure that this process is managed on a holistic basis.
  - i) It is suggested that designated representative from each of the ministries of Agriculture, Food and Fisheries, Forests, Parks and Environment would make up this core group, along with a representative from each of the ranching and environmental/conservation interests. A representative from the forest industry can be included as required (e.g., if the panel was dealing with an ungrazed area proposal outside of a protected area that included a forested area of concern to the forest industry).

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- ii) The I AMC should consult with stakeholders regarding the government representatives who make up the core group.
  - iii) Government representatives on the core group should be consistent (i.e., not replaced with someone new every year or two).
  - iv) The intent is for this core group to represent a balance of the disciplines related to grassland management and ecology.
- 4) The advisory panel(s) should include professional expertise (e.g., agronomists, biologists, ecologists, etc., who could either be government staff or from outside government), appropriate ministry staff, ranching industry representatives, and local "lay people" (stakeholders in LRMP – e.g., environmental interests, recreation interests, etc.). Other considerations with respect to the panel include:
- i) There should be a balanced representation of the various interests on the panel.
  - ii) The panel(s) should include a core group as outlined above.
  - iii) People with experience in the implementation of this type of process in other planning areas (e.g., Kamloops LRMP) could also be involved to assist in moving things forward in a more expedient manner.
- 5) If more than one advisory panel is established (e.g., each district), the core group should be consistent to ensure consistency in the delivery of this process.
- 6) The role of the advisory panel is: to identify the types of ecosystems to be represented in the ungrazed areas, what is an adequate amount of representation overall, develop a process to objectively evaluate ungrazed area proposals, and to provide recommendations on the sites that could be considered as ungrazed areas.
- 7) All decisions by the advisory panel will be made by consensus. The advisory panel and not just the core group will make all major decisions, with regards to the delivery of the ungrazed area process.

### **Process for Establishing Ungrazed Areas:**

- 1) There will be an objective or "scientific" process to evaluate ungrazed area proposals. It is recommended that the delivery would be similar to the Protected Areas Strategy -- i.e., look at establishing representative areas first, and then special features.



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i) One of the first tasks of the advisory panel will be to determine the various ecosystem types found in all the protected areas that could be considered for representation, and the relative values/conditions for each of these before identifying specific ungrazed areas in any of the protected areas.

ii) They should also make an estimate of how much area should be ungrazed (this could be a range).

iii) Suggestions for ungrazed areas and protected areas that could be designated as ecological reserves (which, by definition, preclude livestock grazing) must be vetted through the advisory panel –i.e., they cannot be established outside of this process. Only areas that are agreed to as ungrazed areas can be considered for designation as ecological reserves (or the strict preservation management category).

2) When it comes time to delivering this process “on the ground”, members of the advisory panel will work with local stakeholders, (e.g., local environmental interests, affected range tenure holders, members of local planning committees that may have dealt with this area in the past, or are currently dealing with this area, etc.) and appropriate government staff to locate and evaluate ungrazed areas. These local interests will be involved in the discussions and be part of the consensus recommendations regarding the location of the ungrazed areas.

i) Where possible the advisory committee should “piggy back” on the work of groups that will be developing management plans for the protected areas (e.g., the timing should be concurrent when possible).

ii) The intent is that ungrazed areas should be established in a cooperative manner with the range tenure holder(s).

iii) When agreement cannot be reached within the advisory panel, the decision will be left to the core group. Any decision reached by the core group will be referred to the advisory panel for their consideration and approval. If the advisory panel is still unable to reach agreement, then the decision rests with IAMC. Non-consensus issues will be clearly documented when they are referred for a decision. Should the IAMC need to make a decision, their decision should take into account the objectives documented in the “Ungrazed Areas” portion of the Protected Areas (Part 5) section of the LRMP recommendations package.

### **Monitoring of Ungrazed Areas:**

1) Ungrazed areas should be monitored over time to determine changes that occur to the ecosystem over time. (This is seen as being different than the monitoring that occurs in exclosures, which tends to focus on changes to the vegetation community over time.)

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## Guide-Outfitting

### Management Direction:

- 1) As provided for under existing policy, guide outfitting is a permitted activity subject to the protected area management plan established for each protected area. This includes:
  - maintenance and construction of new facilities subject to the management plan; and,
  - any snowmobile access required to maintain guiding activities within the area.
- 2) Guide outfitters will be able to continue their current outfitting activities subject to the protected area management plan.
- 3) Notwithstanding the foregoing, a park use permit (PUP) will be required from the managing agency. (This is current practice.)
- 4) The Ministry of Environment, Lands and Parks (MELP) acknowledge guide outfitting, and the requirement it has, as an acceptable practice within future protected areas, subject to the management plan.
- 5) Guides will only be required to acquire one permit for operating in all protected areas within their territories within the LRMP area.
- 6) The sundry permit issued to guide hunters in the White Lake - Kobau - Kilpoola - Chopaka area will continue to be issued on an annual basis to the present permittee as long as he uses it. The permit will be for a specific time period and specific species. The permit holder will be able to use motor vehicles on roads and trails open to the public for such use, or as specified in the park management plan. The permit will not be transferable, and no new permit will be issued for any portion of the protected areas established in the area covered by the present sundry permit. BC Parks, in consultation with MELP, will consider proposals for sundry permits in new protected areas other than those covered by the White Lake - Kobau - Kilpoola - Chopaka area sundry permit. Such proposals must be in accordance with the park management plan, and will be reviewed in a similar manner as other commercial recreation proposals
- 7) The continued use of trucks and/or all-terrain vehicles (ATVs) for access on designated roads and trails within a protected area will be allowed, subject to the protected area management plan.
- 8) The current horse grazing for the purpose of guiding and commercial backcountry recreation activities will continue in protected areas, subject to the park use permit.

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- Any new grazing tenure for horses (e.g., in conjunction with a commercial recreation operation) beyond current levels should be referred to the range tenure holder(s).
- Any new tenure should be balanced with public recreational horse use.

9) When resident hunting opportunity exists through general open seasons or limited entry draws in a protected area, then the protected area allocation of wildlife will be consistent with the allocation policy that exists outside of the protected area.

**Intent:**

- i) Currently, the allocation of wildlife is done by involving MELP, BC Wildlife Federation (BCWF) and guide outfitters.
- ii) In protected area allocations a representative from BC Parks will be involved.
- iii) Where consensus is not achieved within the protected area allocation the BC Parks in consultation with MELP will make the decision.

10) The time frame for park use permits should be consistent with the timeframe for guide-outfitting permits issued by MELP.

## Hunting and Fishing

**Management Direction:**

- 1) Hunting in protected areas to be allowed subject to the management plan, or conservation or safety concerns.
- 2) Fishing is allowed subject to the management plan subject to conservation concerns.
- 3) Fish stocking and enhancement will be allowed subject to the management plan.
- 4) Habitat enhancement activities are allowable subject to the management plan.
- 5) Wildlife transplants are allowable subject to the management plan and the existing Ministry of Environment, Lands and Parks transplant policy.

## Trapping

**Management Direction:**

- 1) Existing tenures will be honoured. They are renewable, transferable, and the portion outside of the protected area will be eligible for re-allocation.
- 2) The continued use of trucks and/or all-terrain vehicles for access on designated roads and trails within a protected area will be allowed, as provided by the park use permit (PUP).

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3) Trappers will only be required to acquire one permit for operating in all protected areas within their territories within the LRMP area.

## Forest Health

### Management Direction:

1) Appropriate control measures may be undertaken to control disease, insect infestation, noxious weeds (control methods will emphasize biological and cultural control methods), and prescribed fire where this is consistent with maintaining values within and outside of the protected area, and such activities are consistent with the protected area management plan.

2) Monitoring of forest health will be ongoing within all protected areas and will be conducted through interagency cooperation. Management of insect and disease will utilize the most practical and effective techniques including but not limited to fire, trap trees, MSMA application, or fall and burn.

### Objectives and Strategies:

1) Manage forest health factors to an acceptable risk level, where they pose a significant risk to resources and/or values.

1.1) BC Parks is to assign forest health objectives and strategies for each protected area that are consistent with the purpose of the protected area. These will include fire management strategies.

#### Intent:

i) Each protected area will have its own inherent forest health factor capability, and present and future forest health condition. Depending on the purpose for protection, human intervention will vary.

1.2) Areas are monitored for forest health factor indicators in conjunction with adjacent, non-protected areas.

#### Intent:

i) Monitored in conjunction with adjacent Crown land by the MoF.

1.3) Where there is a low risk from forest health factors no human intervention is necessary.

#### Intent:

i) Low risk means there will not be a significant impact on resources and/or values inside or outside of the protected area (e.g., endemic levels of beetles or defoliators).

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1.4) Where there is a significant risk from forest health factors, management should follow direction from BC Parks, and consider the potential impact to resources and values within and external to the protected area.

Intent:

- i) Significant risk means there will be a significant impact on resources and/or values inside or outside of the protected area (e.g., pre-epidemic or epidemic levels of beetles or defoliators).
- iii) Preference for management activities should be given to those that adequately address the forest health factor while minimizing the impacts to the identified park values. In general the use of non-invasive treatments, such as fall and burn and lethal trap trees to control low levels of infestation, are preferred.

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## Additional Recommended Protected Area Management Direction

### Notes:

- This is a summary of the additional recommended management direction for the protected areas that are being recommended through this LRMP. This material was reviewed by the Table to determine whether or not there was Table support on each item. Material that is not underlined is supported as a recommendation from the Table. The items that are underlined are those which individual Table members have put forward that do not have the support of the entire Table. They are included, as it was believed that these could be considered through future discussions when a "Management Direction Statement" or "Management Plan" for the protected area is developed.
- Issues and concerns associated with specific items have been noted in square brackets, with the expectation that these will be addressed through the course of future discussions.
- These provide interim management and a starting point for future protected area management planning.
- Unless noted otherwise, additions to ecological reserves have not been endorsed for ecological reserve (ER) status - i.e., the additions to ERs are to have Provincial Park status.

### Management Direction That Applies to Two or More Units

1) To maintain and improve the productivity and health of NDT4 (or fire-maintained forests and grasslands) by restoring or rehabilitating stand structure and species composition. The intent is to provide improved or increased habitat for a wide range of red- and blue - listed species, as well as maintaining forage opportunities associated with grassland, shrubland and open forest communities. This can be achieved by employing techniques and practices that will mimic or recreate the features and ecosystems that historically were maintained or influenced by the presence of fire. [Concern that this is too black and white, and that "where practical" or "where practicable" is needed.]

2) No new tenures will be issued in parks without a public consultation process, and not until a "Management Direction Statement" or "Management Plan" is in place. This does not apply to replacement tenures to cover existing (grandparented) uses.

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## Management Direction for Specific Protected Areas

### ***Anarchist***

- 1) The primary purpose is for conservation (red- and blue-listed species) and ecosystem representation.
- 2) Only low intensity recreation or nature appreciation type activities should be allowed.

### ***Anstey - Hunakwa***

- 1) The proposed management categories that could apply in this unit are "Wilderness", "Natural Environment", and "Intensive Recreation".

### ***Brent Mountain***

- 1) No summer motorized traffic.
- 2) The interaction between horse, mountain bike, and hiking will be dealt with through the management plan.
- 3) A guiding principle of the management plan is to maintain biodiversity.
- 4) Snowmobile access trail from Apex - Nickel Plate Road to start west of the Nickel Plate cross-country ski club area. Snowmobile use is to be on specific trails.
- 5) Maintain the old Forest Service fire lookout on the top of Brent Mountain.
- 6) Control knapweed and other noxious weeds.
- 7) Given the backcountry recreation nature of this unit, a commercial backcountry recreation tenure may be appropriate.

### ***Browne Lake***

- 1) The addition is to have park status.

### ***Cinnemousun Narrows Provincial Park Addition***

- 1) The proposed management category is "Natural Environment".

### ***Denison - Bonneau***

- 1) This area is to be managed for recreation. The present Forest Service recreation site is to remain.
- 2) There is to be no road access, other than trailhead access.
- 3) The management category should be "Natural Environment" (conservation).
- 4) New trails may be built as needed (e.g., the "Bonneau" trail is not in great shape).

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## ***Eagle River***

1) Should future boundary adjustments be required to facilitate the re-alignment/widening of the highway, these will be allowed.

## ***Enderby Cliffs***

1) No trails are to be built in the Brash Creek watershed owing to concerns over biological values and water quality (drinking water).

2) A trail should be developed to the top of the cliff. However, there is a concern about building a trail from the Brash Creek side. There is an access problem right now as it's only accessible through private land. The trail should come from the other side.

3) Toilets should be built at the top. This should be done as soon as possible, as over 2,000 people annually are climbing this right now. The location of these facilities should take into account concerns over possible impacts on the community watershed.

4) No campground should be developed within this unit.

5) There should be no public road access to the interior to the protected area (re: concerns about the road being built by the lake and the need for access control).

6) The proposed management category is "Natural Environment".

## ***Graystokes***

1) The principle values to be managed for are water, recreation, conservation/biodiversity and recreation (including snowmobiling).

2) The restrictions on motorized recreation are to continue (i.e., "... no motorized recreation vehicles, including off road and all-terrain vehicles, except snowmobiles..."), and to be expanded to cover the entire park except for the motorized trail through the park to allow access to the other side that was agreed to.

## ***Greenbush Lake***

1) Caribou transplants should be encouraged/allowed.

2) The old "trappers" cabin should remain (heritage value).

3) There should be no road access into the protected area.



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## ***Isintok Lake***

- 1) The general direction is to protect those parts of the site that are not currently used for camping (i.e., point and 5 metres from the shore).
- 2) Noted that there was a provision made for future access as follows:
  - That if access becomes necessary across the protected area for resource development activity, the site of one of the existing crossings will be used on the understanding that a new crossing will need to be constructed.
  - The site to be used will be selected in the near future.
  - Depending upon where the crossing is actually located (i.e., which of the sites is selected), there may be a need to change the previously identified trail location.

## ***Kalamalka Lake Provincial Park Addition***

- 1) The management category should be "Natural Environment".
- 2) Consider the area down by the lake (between the cabins and private land) as a rustic pack-in campground.
- 3) No new roads.
- 4) Any areas not tenured for livestock are to remain untenured.

## ***Mara Meadows***

- 1) Suggested that a portion of the addition is to be considered as an "ungrazed area" in order to facilitate its possible designation as an ecological reserve.

## ***Monashee Provincial Park Addition - Sitkum Site***

- 1) The management category should be "Wilderness".
- 2) There is to be no commercial development within this area.
- 3) There is to be no motorized access.
- 4) The area is to remain free of any livestock tenures.

## ***Monashee Provincial Park Addition - Spectrum Falls Site***

- 1) The proposed management categories are "Natural Environment" and "Intensive Recreation".

## ***Monashee Provincial Park Addition - Vigue Creek Site***

- 1) The management categories should be "Wilderness" for the Vigue Creek portion, and "Natural Environment" for the Shuswap River portion.
- 2) There is to be no commercial development within this area.
- 3) There is to be no road access.

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## ***Myra-Bellevue***

- 1) This unit should be a high priority for a management plan.
- 2) The principal values to be managed for are recreation, heritage/historical/cultural, conservation/biodiversity, and as a watershed.
- 3) There is to be no motorized use throughout the protected area. All other recreational uses can continue.
- 4) KVR right of way:
  - Route of the Trans Canada Trail.
  - Vehicle access will be allowed from the Little White Forest Service Road (FSR) to the parking lot (1.5-km).
  - Renewal of existing backcountry (commercial) tenures for the KVR to be limited to one year at a time pending park status.
- 5) The Little White FSR is to retain this status to the point of deactivation, beyond which it will be included in the park.
  - The use of this road will be decided through the park management plan.
  - In the interim manage this road to ensure there is no travel off of the road.
- 6) All of the flat (developable) land near the intersection of the Myra FSR and the KVR r/w is to be included in the park to preclude commercial development.
- 7) There should be no commercial structures within the park.
- 8) In order to ensure the park is not adversely impacted by ancillary Land Act application on Crown land ensure applications for these types of tenures within one km of the park boundary are vetted through the appropriate agencies - e.g., local governments, user groups, the LRMP Implementation and Monitoring Committee, etc.
- 9) Maintain, enhance, rehabilitate and complete the existing trail system.
- 10) Maintain the old Forest Service fire lookout on Little White Mountain.
- 11) The Regional District of Central Okanagan's campsite at Bellevue is to continue.

## ***Pennask Creek***

- 1) The management plan for this area to be developed by various stakeholders and interest groups (perhaps utilizing existing participants from the Local Resource Use Plan for that area).
- 2) The management category is to be "Natural Environment". Recreation use is not to be encouraged in this unit because of the important fisheries values this area is being established to protect.
- 3) That the Ministry of Environment, Lands and Park (Fisheries) and BC Parks develop a Memorandum of Understanding (MoU) that will enable MELP to manage for fish.
- 4) In areas where a high environmental impact exists from cattle, then steps are to be taken to ensure cattle grazing and/or watering does not occur in these areas.
- 5) Ensure that corrective measures are taken by appropriate agencies to remedy existing water quality problems.

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6) No new roads are to be developed in the park, but all existing roads are to be maintained at a high level owing to environmental concerns.

## ***Pillar***

1) Keep people away from the bottom of the rock. The development of a trail to this feature and a platform for viewing is fine.

## ***Pukeashun***

1) The proposed management category is "Wilderness". [Note: There is a conflict between the proposed management category and the continued use of snowmobiles.]

2) Consider the impact of snowmobile use on wildlife.

## ***Richter Grasslands***

1) A provision is to be made for an access corridor through this unit for mine development (but not exploration) should this be required at some point in the future.

## ***Shorts Canyon***

1) Bighorn sheep transplants should be allowed/encouraged subject to the provisions of the transplant policy and referral to stakeholders.

2) There is to be no road access to canyon bottom.

3) A trail could be built on the south side of the canyon to the top of Shorts Mountain.

4) The management emphasis should be conservation/natural environment (re: bighorn sheep requirements).

5) The following direction was provided regarding the potential for a highway corridor through this protected area at some point in the future:

- It is recognized that there is a strong likelihood for a future additional road corridor through this protected area.
- "Addition 4" of the protected area proposal is to be established under the Environment and Land Use Act with provisions to manage the area as a Class A park, and to provide for the linear corridor. (Note: Addition "4" was not included in the original RPAT protected area proposal because of the corridor interest.)
- The remaining portion of the protected area is to be established as a Class A provincial park under the Park Act.
- Highway planning proceeds using normal review processes.
- Once the corridor is established, Class A park status under the Park Act is to be extended over the remaining area of "Addition 4" by the legislature.

# Okanagan - Shuswap LRMP Approved Plan

## ***Shuswap River Islands***

- 1) This unit is to have ecological reserve status as wetland areas are becoming increasing rare habitat.
- 2) Need to work with the local rancher to ensure cattle do not stray onto the islands (the islands are not covered by range tenure).

## ***Skaha Bluffs***

- 1) It is to be specifically noted that the primary purpose of this protected area is for rock climbing.

## ***Skookumchuck Rapids***

- 1) The recreation uses for this area include canoeing (portage) and picnicking.
- 2) Facilities for people use (e.g., washrooms, shelter, and tables) should be developed.

## ***Snowy***

- 1) A MoU between the Ministry of Environment, Lands and Parks (Wildlife) and BC Parks should be developed for this protected area, stating that management of sheep is a joint responsibility.
- 2) The MoU will also cover the setting of harvest levels for sheep.
- 3) This unit should be managed for wildlife values, with California bighorn sheep being the primary consideration, and all activities being compatible with the management of bighorn sheep.
- 4) The protected area is to be left in natural state with no maintenance of existing trails, and no expansion of the trail systems.
- 5) The protected area will not be advertised or promoted as a destination park.
- 6) The Order in Council Wildlife Reserve, (established in 1913) covering South Slope and Joe Creek, is to be recognized for its historical importance for the protection of California bighorn sheep. This reserve should be acknowledged when the management plan for this protected area is developed.
- 7) The re-burning of the Joe Creek burn of 1985 is to be part of the management plan for the protected area, and that controlled burning for wildlife habitat enhancement is to be an integral part of this plan.
- 8) That management discussions be an open table forum with all stakeholders and interested parties involved.
- 9) When the planning process for this unit begins that the Cathedral Park plan be re-opened and dealt with at the same time.
- 10) This unit is to be a high priority for the development of a management plan.

## ***South Okanagan Grasslands - Chopaka East Site***

- 1) The primary purpose is for conservation (red- and blue-listed species) and ecosystem representation.
- 2) Only low intensity recreation or nature appreciation type activities should be allowed.
- 3) No mechanized public access on the "Coulee Road" to ensure low intensity recreation use.

## Okanagan - Shuswap LRMP Approved Plan

4) The sundry permit issued to guide hunters in the Chopaka area will continue to be issued on an annual basis to the present permittee as long as he uses it. The permit will be for a specific time period and specific species. The permit holder will be able to use motor vehicles on roads and trails open to the public for such use, or as specified in the park management plan. The permit will not be transferable, and no new permit will be issued for any portion of the protected areas established in the area covered by the present sundry permit.

5) The determination of the existing number of animal unit months should be calculated collectively for all of the 'sites' that comprise the South Okanagan Grasslands Provincial Park.

### ***South Okanagan Grasslands - Chopaka West Site***

1) The primary purpose is for conservation (red- and blue-listed species) and ecosystem representation.

2) Only low intensity recreation or nature appreciation type activities should be allowed.

3) No mechanized public road access is to be allowed to ensure low intensity recreation use.

4) The determination of the existing number of animal unit months should be calculated collectively for all of the 'sites' that comprise the South Okanagan Grasslands Provincial Park.

5) The sundry permit issued to guide hunters in the Chopaka area will continue to be issued on an annual basis to the present permittee as long as he uses it. The permit will be for a specific time period and specific species. The permit holder will be able to use motor vehicles on roads and trails open to the public for such use, or as specified in the park management plan. The permit will not be transferable, and no new permit will be issued for any portion of the protected areas established in the area covered by the present sundry permit.

### ***South Okanagan Grasslands - Kilpoola Site***

1) The sundry permit issued to guide hunters in the Kilpoola area will continue to be issued on an annual basis to the present permittee as long as he uses it. The permit will be for a specific time period and specific species. The permit holder will be able to use motor vehicles on roads and trails open to the public for such use, or as specified in the park management plan. The permit will not be transferable, and no new permit will be issued for any portion of the protected areas established in the area covered by the present sundry permit.

2) Only the Strawberry Creek Road and Kruger Mountain Road would remain open to public motorized road access.

3) An allowance should be provided somewhere for mountain bike use on designated trails within this unit.

4) The primary purpose is for conservation (red- and blue-listed species) and ecosystem representation.

5) Only low intensity recreation or nature appreciation type activities should be allowed.

6) The determination of the existing number of animal unit months should be calculated collectively for all of the 'sites' that comprise the South Okanagan Grasslands Provincial Park.

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## ***South Okanagan Grasslands - Mt. Kobau Site***

- 1) The sundry permit issued to guide hunters in the Kobau area will continue to be issued on an annual basis to the present permittee as long as he uses it. The permit will be for a specific time period and specific species. The permit holder will be able to use motor vehicles on roads and trails open to the public for such use, or as specified in the park management plan. The permit will not be transferable, and no new permit will be issued for any portion of the protected areas established in the area covered by the present sundry permit.
- 2) Close all spur roads to public motorized access off the main road to the summit, as well as the Kobau - Fairview Road. This latter road should be gated at the lake.
- 3) The primary purpose is for conservation (red- and blue-listed species) and ecosystem representation.
- 4) Only low intensity recreation or nature appreciation type activities should be allowed outside of the road corridor.
- 5) Maintain the old Forest Service fire lookout tower.
- 6) The determination of the existing number of animal unit months should be calculated collectively for all of the 'sites' that comprise the South Okanagan Grasslands Provincial Park.

## ***Trepanier***

- 1) The principal values to be managed for are water, conservation/biodiversity and recreation.
- 2) This area is to be non-motorized.
- 3) The existing trail from Trepanier Creek to Lacoma Lake is to be extended to Jackpine and Banana Lakes (outside the protected area, as a Category A trail when constructed, and added to the list of trails in the Recreation RMZ section), and to Cameo Lake (inside the park).
- 4) Brenda Mines will continue to be allowed access to the creek for their legislated requirement to carry out water monitoring.

## ***Upper Seymour River***

- 1) The existing forest tenure for timber salvage will continue until expiry (December 2001).
- 2) The proposed management categories are "Natural Environment" and "Wilderness" (North PA WG).

## ***Upper Shuswap Ecological Reserve Addition***

- 1) The addition is to have ecological reserve status (protection of cedar and white pine).

# Okanagan - Shuswap LRMP Approved Plan

## ***Upper Violet Creek***

- 1) Suggested that a portion of the addition is to be considered as an "ungrazed area" in order to facilitate its possible designation as an ecological reserve.
- 2) Those portions of the Larch Hills cross country ski trails, that are included in the Upper Violet Creek Bog Complex, will be managed in the same manner as the trails outside the park; so effectively they will be managed as one trail system, under the same management plan, with the same organizations that are involved in the management of the trails outside of the protected area, (MoF, user groups) also being involved in their management inside the protected area (i.e., in addition to BC Parks).

## ***Vaseux***

- 1) The primary purpose is for conservation (red- and blue-listed species, bighorn sheep) and ecosystem representation.
- 2) Only low intensity recreation or nature appreciation type activities should be allowed.
- 3) The ranching industry wants to be involved in decisions regarding grazing.

## ***White Lake Grasslands***

- 1) The primary purpose is for conservation (red- and blue-listed species) and ecosystem representation.
- 2) Only low intensity recreation or nature appreciation type activities should be allowed.
- 3) Allow for the collection of native seed if required.
- 4) The sundry permit issued to guide hunters in the White Lake area will continue to be issued on an annual basis to the present permittee as long as he uses it. The permit will be for a specific time period and specific species. The permit holder will be able to use motor vehicles on roads and trails open to the public for such use, or as specified in the park management plan. The permit will not be transferable, and no new permit will be issued for any portion of the protected areas established in the area covered by the present sundry permit.

## ***White Lake Park Additions***

- 1) For the portion of this unit covering the south shore the priority should be protection of the red- and blue-listed botanical species that require protection. (These would be at risk from recreational use.)
- 2) Access to the privately owned and leased parcels is to be maintained or provided for.
- 3) The main road itself is to be excluded, as is the forestry road in the western addition, as well as the road that heads off to the north near the leased lot(s).
- 4) BC Parks is to consider signing of area north of the leased property, on the other side of the road to discourage camping.

## ***Wrinkly Face***

- 1) This unit is to have ecological reserve status (for the protection of red- and blue-listed botanical species).

# Okanagan - Shuswap LRMP Approved Plan

## Details on Specific Agreements, Understandings, Issues and Government Decisions Associated with Individual Protected Areas

### Note:

- Several compensation issues have been identified through an initial review by the forest industry. Noted that this is not an exhaustive list and a more detailed review is required.

### *Adra Tunnel*

- 1) A 200 metre wide area adjacent to the east side of the old KVR r/w (approximately adjacent to the existing Rock Ovens Regional Park, as far south as the eastern end of the Adra Tunnel) is to be managed as a Category A trail would be.
- 2) The existing Rock Ovens Regional Park is to continue as a regional park.
- 3) This unit (i.e., the “additions” to the existing Rock Ovens Regional Park) is to be designated as a provincial park, with the following understanding regarding administration of this site:
  - Establish a public advisory committee to oversee public input and park management planning for the Adra Tunnel protected area.
  - This public advisory committee will include representatives from BC Parks, local government, First Nations, stakeholder interest groups, the Trans Canada Trail committee, and the public.
  - A draft terms of reference for this committee is to be jointly developed between BC Parks, local government and the public advisory committee.
  - The objective of this committee will be to ensure effective, meaningful public input into park management and planning for this protected area.
  - The KVR r/w will be managed to allow the existing motorized use along the r/w and Little Tunnel to continue, except for the area around the Adra Tunnel.
  - Any park management plan must be reviewed through an open public review process and have the support of the public advisory committee and the Regional District of Okanagan Similkameen before being adopted.
  - Any park management plan must be co-ordinated with Rock Ovens Regional Park and be compatible with the management of this regional park.

### *Anarchist*

- 1) The package of silviculture systems, as per the Partial Retention visual quality objective (VQO) in the Visual Management Guidelines (see Appendix VI), are to be used on those portions of the original Anarchist protected area proposal that were not included in the final recommended protected area.
- 2) There are three existing cutblocks (FL A18674, CP 186, and Blocks 1, 2 and 3) that are to be excepted from the above noted direction.



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## ***Anstey - Hunakwa***

- 1) This protected area was recommended by the Table subject to
  - The Ministry of Forests either: i) agreeing to “swap” the three Timber License (TL) blocks within the proposed protected area for new TL blocks with timber of equivalent quality/volume/access located elsewhere in the Timber Supply Area; or, ii) agreeing to compensate Federated Cooperatives Ltd. (FCL) on a reasonable basis for the timber within these TL blocks. Government has directed Ministry of Forests staff to resolve this issue, within government’s obligations.
  - That a time frame be established for resolving the above noted issue of the TL blocks. It was suggested that this time frame should be the same as that for the designation of this area as a park.
- 2) With respect to the road access on the west side of Wright Lake, the following direction is provided:
  - Provision for parking will be maintained at the current terminus of the Beach Bay access road.
  - The extent to which the road is used for activities other than forestry should be addressed through a locally developed access management plan. This includes the issue of deactivation (e.g., removing culverts, pulling the bridge, etc.) when the road is not in use or required for forestry activities.
  - Access will be managed in a manner that limits summer use of the road, including a requirement that its use by logging trucks during the months of July and August will be avoided to the greatest extent possible. This is not intended to preclude construction of the road during these months if necessary.
  - The concerns of the owners of private property along the east side of Seymour Arm should be taken into consideration by FCL in determining the specifics of road design and construction (e.g., narrow right of way, use of crushed rock for the running surface to minimize dust, etc.). Their views should be solicited for any local access management planning discussions.
  - The Ministry of Forests (MoF) and FCL will ensure that local residents and conservation groups are provided an opportunity to review logging plans for the peninsula (in particular, visuals, Hummingbird Cove, etc.), and make recommendations to MoF and FCL regarding these plans prior to approval.

## ***Apex Mountain Recreation Area***

- 1) Government accepted the Table's recommendation that the Apex Mountain Recreation Area that is currently administered by BC Parks be cancelled.

## ***Brent Mountain***

- 1) The trail from I sintok Lake to the Brent Mountain protected area will be designated, in accordance with the Forest Practices Code of BC Act, Section 6(1), as a higher-level plan (HLP) recreation trail. (This gives the trail objectives legal status under Section 6(3) of the FPC of BC Act.) The following objectives will apply:
  - The trail will be managed as a Category A trail in accordance with the Recreation RMZ – Regionally Significant Trail Corridors section of the LRMP.
  - In order to protect the integrity of the trail bed, no roads for the purposes of resource development will be constructed across the trail.
- 2) The harvesting of CP 326, Block 3, and part of block 4 (which is inside the protected area boundary, and will be logged before the park is created) being undertaken in a manner that manages for wind firmness within the block (maintaining 625 stems per ha), beetle proofs at 4x4 spacing, and deactivating the road after harvesting.

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3) The following agreement was reached regarding that part of the Brent "Area of Interest" (AoI) that falls within the Merritt Forest District.

- All parties (those Shuswap Okanagan Forestry Association members operating in Merritt, and members of the southern environmental and recreation sectors) will support within the Merritt LRMP, or other discussions/process regarding this "Area of Interest", the establishment of a protected area using the boundary as identified on the map.
- All parties will encourage others to support this boundary as well.
- With respect to the remainder of the Brent "Area of Interest" in the Merritt Forest District, the parties have agreed that they will not support protected area status for this portion of the Brent AoI in the Merritt LRMP, or other discussions/process regarding this "Area of Interest". The appropriate management will be dealt with in the Merritt LRMP (or equivalent process). The parties agree that the outcome of this discussion on management will not affect or alter the agreement on the protected area boundary in the Okanagan - Shuswap portion of the Brent unit.
- All parties acknowledge that all decisions regarding that portion of the Brent AoI, in the Merritt Forest District, will be made by the Merritt LRMP, or equivalent process.

4) All parties understand that that the existing Brent "Area of Interest" within the Merritt Forest District will be maintained until a final decision on protected area status for the Merritt Forest District portion of the Brent AoI is made by the Merritt LRMP (or equivalent process).

5) The government's decision with regards to the mineral tenures that are overlapped by this unit (318834 and 318835) is that they are to be expropriated.

### ***Denison - Bonneau***

1) Portions of the southern boundary for this unit are to follow a resource road that has yet to be built. In those areas where the boundary is to follow this future resource road, the present location of the boundary should be considered as approximate only. The expectation is that once this resource road is built that the original legal boundary will be amended to use this road as the new legal boundary. It is understood that there may be small deletions and additions to the protected area as a result of this boundary revision.

### ***Eagle River***

1) Should future boundary adjustments be required to facilitate the re-alignment/widening of the highway, these will be allowed.

2) The government's decision is that an allowance will be made for a future access corridor through the southeast portion of this protected area to facilitate access to lands beyond this unit.

### ***Enderby Cliffs***

1) Portions of the northern boundary for this unit are to follow a resource road that has yet to be built. In those areas where the boundary is to follow this future resource road, the present location of the boundary should be considered as approximate only. The expectation is that once this resource road is built that the original legal boundary will be amended to use this road as the new legal boundary. It is understood that there may be small deletions and additions to the protected area as a result of this boundary revision.

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## ***Englishman River***

1) The government's decision is that an allowance will be made for a future access corridor through this unit to facilitate access to lands beyond this protected area.

## ***Graystokes***

1) That as part of the park management plan a trail will be designated for non-licensed all-terrain vehicles that provides cross-country access through this protected area. (The trail corridor is that shown on the map.)

## ***Greenbush***

1) The government's decision is that an allowance will be made for a future access corridor through this unit to facilitate access to lands beyond this protected area.

## ***Isintok Lake***

1) Noted that there was a provision made for future access as follows:

- That if access becomes necessary across the protected area for resource development activity, the site of one of the existing crossings will be used on the understanding that a new crossing will need to be constructed.
- The site to be used will be selected in the near future.
- Depending upon where the crossing is actually located (i.e., which of the sites is selected), there may be a need to change the previously identified trail location.

2) Noted that the boundary was adjusted to eliminate any overlap between the existing mineral claim(s) and the Isintok Lake protected area.

## ***Kalamalka Lake Provincial Park Addition***

1) Consider using the viewpoint from the Allan Brooks Nature Centre when a future visual quality management inventory is done for this area.

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## *Mara Meadows*

1) The following direction was provided with regards to the existing road through the existing Mara Meadows Ecological Reserve and the protected area "addition" to this ER:

- For an interim period, until such time as BC Parks has assessed the issue of access use of the existing road through the Mara Meadows Ecological Reserve and the recommended protected area addition, this road can continue to be used as in the past.
- Every effort will be made to minimize disturbances on the road.
- This is not intended to prejudice BC Parks' management of either the existing ecological reserve or the recommended protected area addition.
- For clarity, it is understood that BC Parks will make the decision on road use within the ecological reserve.
- As a follow up item (i.e., subsequent to ratification), Tolko, MoF, the Shuswap Okanagan Woodlot Association, BC Parks and the Implementation and Monitoring Committee will review the unnamed creek, that flows from the north-east into the park extension and the ecological reserve, for the potential to establish a 100 metre wide park extension.

## *Myra - Bellevue*

1) The spruce stand in polygon "6s/w", which has been excluded from the protected area, be managed for forest health in the same manner as the existing management by Gorman Bros. in this area. (The licensee is to forward the silviculture prescriptions for this area to assist in developing management details).

- Harvesting for forest health only.
- Helicopter harvesting only.
- Generally harvesting of green attack trees only (the reds are all gone). It is anticipated that there will not be anymore red attack if they manage for the green attack appropriately.
- Generally only spruce will be harvested, not balsam.
- Access must be controlled. The existing access is okay, so long as it is controlled. Elk is the access issue to be managed for.

2) Regarding the Little White Forest Service Road (FSR), the following agreement was reached:

- That portion of the Little White Forest Service Road from the park boundary at the "do-nut" to the summit of Little White Mountain is to be included in the protected area.
- The use of this road will be decided through the park management plan.
- In the interim, manage this road to ensure there is no travel off of the road.

3) The government's decision is that those portions of the old Kettle Valley Railway right of way that were being recommended for protected area status will be designated as park under the Environment and Land Use Act, in order to maintain the option of using the r/w as a utility corridor in the future if required.

4) The Table's recommendation is that the protected area boundary is to be adjusted to exclude the Crawford mineral claims should this prove necessary (there is only a small overlap), so long as there is only a small area that is to be excluded.

5) The government's decision is that the following mineral claims be expropriated (378799, 378800, 378801, 378802, 378803, 378804, 378875, 378876, 379179 and 379502).

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## ***Oliver Mountain***

- 1) The establishment of a moto-cross track in the vicinity of Oliver is to be a high priority for the relevant government agencies. The "Seacrest" site near Oliver should be assessed, and a decision made on its availability for a moto-cross track as soon as possible. Again, if this site is not approved, an alternate location should be identified and should be a high priority in the application process. The motorized recreation sector's support for the Oliver Mountain Goal 2 protected area is contingent on approval of a moto-cross track near Oliver.
- 2) The boundary for this protected area is to ensure there is a sufficiently wide allowance along the existing White Lake Road r/w to accommodate minor re-alignments.
- 3) All of the mineral claims should be permanently excluded from this protected area (i.e., Mike #2 - #4, Snowflake, Lot 3585<sup>s</sup>, Lot 3099<sup>s</sup>, Lot 3583<sup>s</sup>, Lot 3098<sup>s</sup>, including the "wedge" between Lots 3585<sup>s</sup> and Lot 3099<sup>s</sup>).
- 4) A Land Act reserve to maintain habitat (antelope brush) and prevent alienation is to be established over that portion of the original protected area proposal that lies west of the White Lake Road, and was not included in the recommended protected area.

## ***Pennask Creek***

- 1) The Table left it up to government to decide on how to deal with the mineral tenures in this unit. The government's decision was to revise the protected area boundary so the mineral tenures are no longer overlapped by this unit.

## ***Richter Grasslands***

- 1) A provision is to be made for an access corridor through this unit for mine development (but not exploration) should this be required at some point in the future. This recommendation was endorsed by government.

## ***Shorts Canyon***

- 1) The following direction is provided regarding the potential for a highway corridor through this protected area at some point in the future:
  - It is recognized that there is a strong likelihood for a future additional road corridor through this protected area.
  - "Addition 4" of the protected area proposal is to be established under the Environment and Land Use Act with provisos to manage the area as a Class A park, and to provide for the linear corridor. (Note: Addition "4" was not included in the original RPAT protected area proposal because of the corridor interest.)
  - The remaining portion of the protected area is to be established as a Class A provincial park under the Park Act.
  - Highway planning proceeds using normal review processes.
  - Once the corridor is established, Class A park status under the Park Act is to be extended over the remaining area of "Addition 4" by the legislature.
- 2) With regards to the four claims of the Ace Group (364990, 364992, 364994 and 364995) that are affected by this protected area, the government's decision is to save and except these claims.

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3) One of the products from the discussions regarding the Chapperon - Shorts protected area proposal was an agreement to address connectivity issues between the recommended Shorts Canyon protected area and lands west of this unit. The area covered by the "Shorts - Chapperon - Managing for Connectivity" agreement is to be managed according to the following direction. (Note: This area is not part of the protected area.)

### A. Intent

The intent of this document is to describe the short and long-term principles that will guide the management for connectivity within the (former) Chapperon - Shorts "Area of Interest". The overall goal is to manage for connectivity using a dynamic ecosystem based sustainable total resource management model under the Riverside Forest Products Sustainable Total Resource Management Project.

### B. Short Term Management Direction

For up to a three-year period (commencing at the date of ratification of the Okanagan - Shuswap LRMP), or until the advisory panel makes recommendations on managing for connectivity, no resource development activities will take place in the area defined as the "connectivity corridor". The only exception will be to address forest health issues. (Note: For mineral exploration activities, "no resource development" means only exploration activities that do not involve mechanical disturbance will be allowed.) The intent is that over this three-year period detailed objectives and strategies will be developed to manage for connectivity.

### C. Long Term Management Direction

An advisory panel operating under the direction of the "Riverside Forest Products Sustainable Total Resource Management Project" will develop objectives and strategies for managing for connectivity.

The guiding principles:

- Ecological sustainability
- Economic sustainability
- Total resource planning

Potential tools:

- Linkages by mature forest cover and/or wetland complexes.
- Utilization of harvesting systems and prescriptions that recognize both forest and non-forest values.
- Utilization of old growth management areas (OGMAs), wildlife tree patches (WTPs) and riparian management areas (RMAs).

Connectivity management would not necessarily be restricted to the short-term area identified as the "connectivity corridor".

The advisory panel will make recommendations on connectivity management on both the Tree Farm License (TFL) and Forest License (FL) component of the land base. The FL component will be implemented through the LRMP Implementation and Monitoring Committee.

5) Riverside will use its best efforts to locate the road in a manner that results in a minimum 20-metre buffer between the road and the canyon wall. (This location was marked on an orthophoto.) It is recognized that it may not be possible to achieve this at every point along the road.

# Okanagan - Shuswap LRMP Approved Plan

## *Shuswap Lake Marine Park Addition - Swall Site*

1) The existing park site, which is incorrectly located, will be cancelled when this unit is designated.

## *Skaha Bluffs*

1) It is to be specifically noted that the primary purpose of this protected area is for rock climbing.

## *Snowy*

1) The following is the basis for the Table's agreement on the protected area recommended for the Snowy area.

A) The Table recognizes that: i) the Okanagan - Shuswap LRMP is intended to address the social, economic and environmental interests of the plan area region; and, ii) the South Similkameen is an economically depressed area in the Province.

B) Recognizing the foregoing, the Table recommends that in order to address the economy in the lower Similkameen, the first priority for any additional AAC within the Okanagan TSA, except for any increases arising out of an Innovative Forest Practices Agreement (IFPA), should be allocated to the Lower Similkameen for the development of an ecologically and economically sustainable community forest in the Lower Similkameen and Ashnola drainage; there is an understanding that this initiative would be developed jointly with the Lower Similkameen Indian Band, local government, and the present licensee's currently operating in the South Similkameen watershed (the "Community Forest").

C) The Table recognizes that there is a need to provide effective community input into the management of both parks and the Community Forest to facilitate environmental and recreational investments (i.e., low impact eco-tourism) within the entire area south of the Similkameen River. The Table recommends that this be achieved by:

- i) Ensuring that public input and park management planning for both the existing Cathedral Provincial Park and the recommended Snowy protected area is undertaken in a coordinated manner
- ii) Recommending that the Ashnola Coordinated Resource Management Plan (CRMP) be expanded to become the South Similkameen CRMP:
  - The CRMP would provide public input and park management planning for Cathedral Provincial Park and the recommended Snowy protected area:
  - The CRMP should include representatives from BC Parks, local government, First Nations, stakeholders, and members of the public of the Lower Similkameen, the public, etc.
  - A draft terms of reference for expanded CRMP is to be jointly developed by BC Parks, Ministry of Forests (MoF), First Nations and local government representatives as a starting point for others on the CRMP to consider.
  - The objective of this committee would be to ensure, amongst other things effective/meaningful public input into park management and planning for Cathedral Provincial Park and the recommended Snowy protected area
  - To provide adequate consultations with the CRMP on planned development activities, the MoF and licensees will provide adequate time for the CRMP to address their concerns during the open house consultations (i.e., specific time for the CRMP on the agenda at open houses)

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- iii) Any development<sup>1</sup> in the proposed Snowy protected area is to be compatible with wildlife (bighorn sheep). Any new tenures, licenses, or allocations within the park must be reviewed and supported by the CRMP.
- D) With regards to Snowy, commercial recreation developments should be low impact eco-tourism (i.e., not big lodges, etc.; perhaps small cabins for hut to hut excursions, etc.). Any park management plan must be reviewed through an open public process and have the support of local government before being approved by BC Parks.
- i) For areas outside of the park, MoF will coordinate the development of: i) the annual workplan for the CRMP for the coming year; and, ii) a report on the past year's progress for review and comment by the CRMP prior to implementation.
- ii) For areas inside of the park, the Ministry of Environment, Lands and Parks (Parks) will coordinate the development of: i) the annual workplan for the CRMP for the coming year; and, ii) a report on the past year's progress for review and comment by the CRMP prior to implementation.
- iii) The Table strongly encourages government and businesses operating in the Lower Similkameen watershed (both inside and outside of the park) to make employment opportunities available to local residents and First Nations to support local community stability.
- E) Given the Table support for the development of a Community Forest, the Ministry of Forests, BC Parks, the South Similkameen local governments, and the present licensee's are committed to jointly exploring, in partnership, the viability of establishing a Community Forest license in the South Similkameen, on the basis of the following:
- i) Any Community Forest that is established needs to be economically and environmentally sustainable, and needs to ensure a sustainable harvest level in the Community Forest is maintained.
- ii) The Community Forest needs be developed in a manner that would not result in the reduction of the present allowable annual cut (AAC) to any of the existing licensees in the Okanagan Timber Supply Area (TSA).
- iii) The AAC for the Community Forest will require a policy change that would result in the AAC for the Community Forest being made available. This could be achieved either through AAC determinations, or additional/new timber supply opportunities that may come available. These opportunities could include joint ventures with existing forest licensees, whereby companies would retain their volume allocation for the portion being considered and part of the stumpage revenue would be directed to the Community Forest to cover start up costs (i.e., business plans), and/or be re-invested within the Community Forest for such things as increased silviculture activities to increase future stand yields, or ecological enhancements. This is not intended to fetter the discretion of the Chief Forester.
- iv) The Community Forest may also pursue opportunities based on Small Business Forest Enterprise Program (SBFEP) volume, which may become available from time to time.
- v) The Table requests the Ministry of Forests gives priority consideration to allocating any incremental volume, which may become available as a result of the current timber supply review (TSRI I), or any other opportunities to the Community Forest.

<sup>1</sup>This refers only to development that is permissible within a protected area as defined by legislation.



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F) The objective of the Community Forest is to:

- i) Acquire a forest tenure that can serve as a nucleus for community economic development.
- ii) Provide greater community input into forest management in the Lower Similkameen watershed to ensure the South Similkameen ecosystem is managed in a sustainable manner
- iii) Create greater certainty of fibre access to local businesses and increase employment in the forest and recreation sectors in the local area.
- iv) Acquire the financial resources to assist in developing forest-related opportunities, to enhance the economic benefits to the community, and invest in the protection of the environmental values within the Lower Similkameen area in general.

G) As an initial contribution to the partnership, the participating licensees, Ministry of Forests and BC Parks will provide technical assistance relative to:

- i) Developing a business plan for the development of a Community Forest;
- ii) Develop an overall eco-system based Landscape Unit plan (Lower Similkameen and Ashnola Landscape Units) that includes the parks and the land base included in the Community Forest.
- iii) Developing a Community Forest proposal for consideration by the Ministry of Forests. Should the existing proposal not be within current policy for a Community Forest that support would be forthcoming to adjust the proposal as appropriate.

2) Dragon claims 1, 2, 3, 4, 5, 6, 7 and 10 (374690, 374691, 374692, 374693, 374694, 374695, 374696 and 374699) are affected. The government's decision is to expropriate all of these claims except Dragon 10. For that portion of the Dragon 10 claim that is overlapped by the protected area the government's decision is save and except it. If this claim lapses the area will be incorporated into the protected area.

3) The forest industry identified a compensation issue associated with this unit. More specifically, they will be seeking compensation for past planning activities within this protected area. Government has directed Ministry of Forest staff to resolve this issue, within government's obligations.

### ***South Okanagan Grasslands - Kilpoola Site***

1) The west and south of the Azure claim block (343096) is affected. The government's decision is to take the 15-20% of the Azure claim that is overlapped by this protected area.

2) With respect to mineral leases 247408 and 247414, and mineral claims 318267, 319362, 319364, 319366, 319367, 319368, 319369, 321326, 321327, 377525, 377526, 375878, 377613, 377614, 380903, 380904 and 380905, the government's decision is expropriation.

### ***South Okanagan Grasslands - Mt. Kobau Site***

1) The package of silviculture systems, as per the Partial Retention visual quality objective (VQO) in the Visual Management Guidebook (see Appendix VI), are to be used on those portions of the original Kobau protected area proposal that were not included in the final recommended protected area.

2) The government's decision is that the 12 mineral claims overlapped by this unit (246522, 371466, 371467, 371468, 371469, 371470, 371471, 371472, 371473, 371474, 371475 and 379522) be expropriated.

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## *Trepanier*

1) The following understanding was reached between environmental interests and the Chamber of Commerce regarding this unit.

- a) The principal values to be managed for are water, conservation/biodiversity and recreation.
- b) Cameo Lake is integral to maintaining these values.
- c) The Environmental sector recognizes that:
  - Mineral exploration, development and extraction on mineral properties outside of and immediately adjacent to the protected area can be compatible with maintaining the integrity of the protected area.
  - Mineral exploration development and extraction may occur on 100% of the adjacent mineral claims.
  - Visual and auditory impacts of mining are not an issue here.
  - The environmental community supports the Dobbin property given that mineral exploration development and extraction are allowed on all areas outside of the protected area.

2) One mineral claim is affected (374908). The government's decision is to save and except this claim, If this claim lapses the area will be incorporated into the protected area.

## *Upper Perry River*

1) Government decided that an allowance will be made for a future access corridor through this unit to facilitate access to lands beyond this protected area.

## *Upper Seymour River*

1) The forest industry identified a compensation issue associated with this unit. More specifically, they will be seeking compensation for two existing approved cutting permits (CP 661 and 687), one Forest Development Plan approved permit area (CP 704), and associated access and planning costs. Government has directed Ministry of Forests staff to resolve this issue, within government's obligations.

## *Upper Shuswap Ecological Reserve Addition*

1) The extreme northeast corner of the existing ER that lies on the other side of the forestry road is to be deleted. (This is in keeping with the intent of these additions, which are intended to rationalize the ER boundary to reflect the features found in the field.)

## *Upper Violet Creek*

1) Those portions of the Larch Hills cross country ski trails, that are included in the Upper Violet Creek unit, will be managed in the same manner as the trails outside the protected area, so that effectively they will be managed as one trail system, under the same management plan, with the same organizations (e.g., MoF, user groups) involved in their management.

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## ***Wap Creek***

1) Portions of the western boundary for this unit are to follow a resource road that has yet to be built. In those areas where the boundary is to follow this future resource road, the present location of the boundary should be considered as approximate only. The expectation is that once this resource road is built that the original legal boundary will be amended to use this road as the new legal boundary. It is understood that there may be small deletions and additions to the protected area as a result of this boundary revision.

## ***White Lake Grasslands***

1) The package of silviculture systems, as per the Partial Retention visual quality objective VQO in the Visual Management Guidebook (see Appendix VI), are to be used on those portions of the original White Lake protected area proposal that were not included in the final recommended protected area.

2) The following direction was provided regarding the potential for a highway corridor through this protected area at some point in the future:

- Establish the protected area as a Class A park under the Park Act.
- When determining the detailed legal description for this protected area, delete the White Lake Road right of way to a distance of 25 metres each side of the centreline.
- Upon future completion of construction and highway survey, re-establish the boundary of the Class A park along the White Lake Road right of way.
- Planning for this highway corridor is ongoing, and future negotiations may be required.

3) The government is to make the decision with regards to how to deal with the mineral tenures within this unit.

## ***White Lake Park Additions***

1) Access to the privately owned and leased parcels is to be maintained or provided for.

2) The main road itself is to be excluded, as is the forestry road in the western addition, as well as the road that heads off to the north near the leased lot(s).

3) The local Fish and Game Club will “partner” with BC Parks with regards to camping and management (fish habitat values) of Cedar Creek.

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## Protected Area Proposals With Some Other Form of Management

The following are protected area proposals (or portions thereof) for which some other type of management is specifically being recommended (i.e., they have not been recommended as protected areas).

### ***Arthur (Blair) Lake Dragonfly Site***

The existing management regime for the swamps will continue, even if there are changes to the current (~1998) management guidelines for Class B lakes.

### ***Beaver Lake Tributaries***

The values associated with the Rankin, Alex and Park Lakes, Alex Creek, and Echo Creek to Swalwell Lake will be addressed through Fish and Aquatic Habitat RMZ designation.

### ***Blackwell Lake***

Establish a 210-metre zone around Blackwell, Pond (Pogo) and Pratt lakes, and a 200-metre corridor along either side of the trail as a recreation site. Specific management direction is to be developed by the licensee, the Ministry of Forests (MoF), Neils and Erin. This group will also address access management in and around this area. The MoF is to follow up with the Kamloops Forest District regarding the possibility of a similar management regime for Todd Lake.

### ***Brunell (Sawmill) Lake***

Establish a Recreation RMZ - Intensive Recreation Summer Non-Motorized category immediately around the lake and Summer Motorized/Shared Use (summer) category around that. [Note: The lake presently is located within the Oliver Recreation RMZ, Shared Use (summer) Category.]

### ***Cherry Ridge***

This area is to be considered as a possible "sensitive area".

### ***Cooke Creek***

Maintain the existing Land Act reserve.

### ***Corporation Lake Cabin***

The values are to be addressed, by designating the recreation trail through this area as a Category A trail, and a notation that future timber harvesting activities may require a road that runs parallel to this part of the trail corridor, or a consideration of the value in utilizing the fire guard as an alternative.

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## ***Cummins/Blue Lakes***

Any changes to the existing Land Act reserve are to be referred through the Implementation and Monitoring Committee.

## ***Daly Slough***

Establish a Land Act reserve over this area for wildlife habitat values and to prevent alienation.

## ***Eagle River Floodplain - Griffin Lake Outlet***

Establish a Land Act reserve to prevent alienation over this site.

## ***Ellison Lake***

Consider establishing a Land Act reserve over this site.

## ***Finlayson Lake***

Recommended as a Forest Service recreation site, and management objectives are to be developed for this site. [Work is well underway on this.]

## ***Galcak's Bluff Ecological Reserve Proposal***

Maintain the existing Land Act reserve.

## ***Larch Hills***

The old growth around the cross country ski trails is to be "protected" through the placement of old growth management areas (OGMAs), or as a recruitment area if the trees are not of "old" age.

## ***Middle Shuswap River Floodplain***

Establish a Land Act reserve to prevent alienation over this site.

## ***Mission Creek Corridor***

To be considered as a Recreation - Trail Corridor RMZ.

## ***North Onyx Creek/Crowfoot Telegraph Trail***

To be considered for designation as a trail under the Forest Practices Code.

## ***Okanagan River Valley Bottom Mineral Reserve***

All Crown suitable parcels within the original proposal are to be added to the existing Okanagan River Wildlife Management Area (WMA).

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## ***Oliver Mountain***

A Land Act reserve to maintain habitat (antelope brush) and prevent alienation is to be established over that portion of the original protected area proposal that lies west of the White Lake Road, and was not included in the recommended protected area.

## ***Railway R/Ws - KVR Chute - Chute Lake to Little White FSR (forest service road)***

Recommended as a Recreation Trail Corridor RMZ. Road crossings and seasonal industrial use are acceptable, as is snowmobile use.

## ***Railway R/Ws - KVR Penticton West***

Recommended as a Recreation Trail Corridor RMZ. The issue of motorized vs. non-motorized uses is to be decided as per direction in the Recreation RMZ section for trail corridors.

## ***Ratchford - Pettipiece Trail***

Should a concern arise over management of this trail in the future, those people with concerns can pursue this with the Salmon Arm Forest District, including designation as a higher level plan (HLP).

## ***Richter Mountain Southwest Slope***

The Ministry of Environment, Lands and Parks' (MELP) proposed guidelines for red- and blue-listed species (found in the NDT4 RMZ section) will be applied to this area. [Note: The "default" management for this unit is the Ecosystem Management - NDT4 RMZ, so no further action is required.]

## ***Seymour River Falls***

Objectives and strategies to address concerns over the management of this site are to be developed as required.

## ***Swan Lake and Foreshore***

Designate as a wildlife management area (WMA), and a management plan is to be developed for this area, picking up from where the old (WMA) process left off in 1994.

## ***Upper Shuswap River Old Growth***

The values are to be "protected" through the placement of an old growth management area (OGMA) over this site. If there is not a sufficient budget for this under the biodiversity emphasis option (BEO) assignment, it can go forward as a protected area.

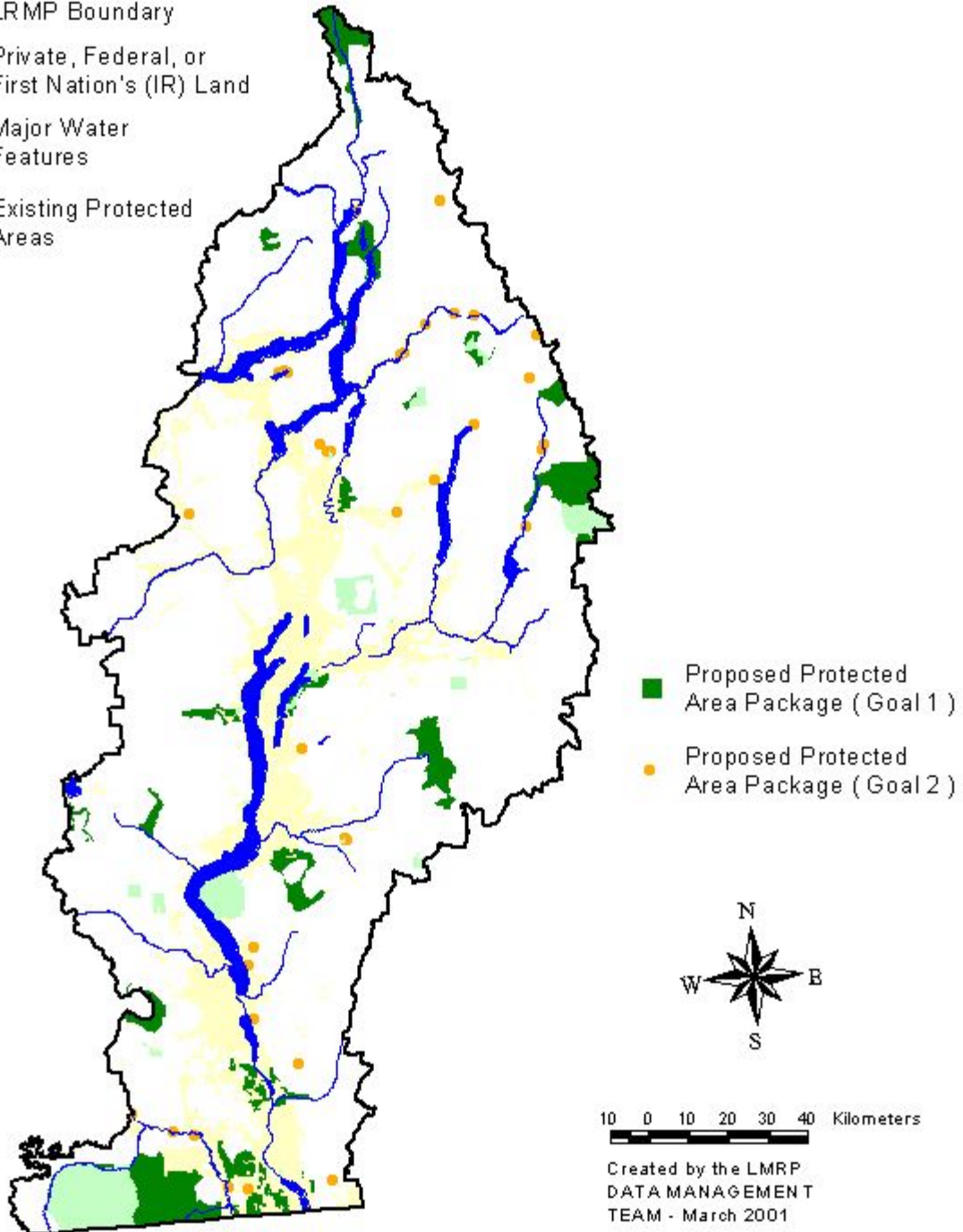


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## Protected Areas ( Goal 1 and Goal 2 )

### Base Information

- ∕ LRMP Boundary
- Private, Federal, or First Nation's (IR) Land
- Major Water Features
- Existing Protected Areas



10 0 10 20 30 40 Kilometers

Created by the LMRP  
DATA MANAGEMENT  
TEAM - March 2001

File name: pas\_areas\_2.jpg





## Part 6

## Access

In this section:

- Provisions to minimize impacts of road development and use on sensitive areas.
- How to consider the implications of tributary access requirements when planning and developing destination features like trails, recreation sites, etc.
- How to minimize or reduce the impacts of noxious weed invasion due to development and road use.
- A planning framework to resolve local issues within a geographic area.

## Access Management

### Introduction

*Access is defined as "entry to Crown land."*

Visitors and the citizens of British Columbia have long enjoyed access to Crown land. For many people, access simply means that there are no physical or legal barriers preventing them from entering Crown land. For others, it may also refer to the provision of access structures such as roads and trails. Regardless, access is generally viewed as a fundamental right that is essential to the pursuit of recreational, commercial and industrial interests on Crown land.

As the land base has developed, the intensity and scope of diversified uses on Crown land has increased. As a result of more and more people pursuing a diversified range of interests, conflicts between user groups have surfaced and impacts on the environment have materialized.

The goal of access management is to meet the needs of the public (all users including industrial, commercial and recreational) for unencumbered access to Crown lands, while minimizing conflict between user groups, minimizing negative impacts on the environment and recognizing the changing nature of the access structure network.

For clarity, "access" is defined as entry to Crown land and refers to the ability to:

- use existing access structures such as roads, trails, bridges, and culverts.
- build new access structures (subject to appropriate tenure).
- use unimproved access; i.e. travel over Crown land by foot, horse, mountain bike, snowmobile, all terrain vehicle, motorbike or other means without access structures.

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"Encumbered access" refers to:

- deactivated or rehabilitated access structures that are impassable for the intended use.
- physical barriers such as gates ditches and berms.
- legal restrictions as in HLP objectives and regulations (e.g. section 105 of the Forest Practices Code).
- access routes blocked by private land.

## Objectives and Strategies

*Note: For definitions or specific descriptions of sensitive areas, critical habitats, or for site specific objectives and strategies dealing with access, refer to the Polygon Specific Resource Management Zone section (Part 4) for particular resource values - e.g., Mountain Caribou Habitat RMZ.*

### Access Planning and Assessment - General

1) Provide all users with opportunities for access.

Intent:

i) Subject to meeting plan objectives and legal constraints.

1.1) Reduce private land blockages of access routes to Crown Land.

Intent:

- i) Maintain existing public access to Crown lands when disposing of Crown land.
- ii) Establish Crown rights of way in new subdivisions and other Crown land dispositions.
- iii) Acquire new access over private land (subject to priority and government funding).

1.2) Avoid access conflicts by respecting the rights to access of other interest groups.

Intent:

- i) Encourage communication between interest groups whose access needs overlap or are in close proximity.
- ii) User groups should avoid conflicts by taking the initiative to identify and resolve potential sources of irritation at an early stage.
- iii) Encourage education and signage to get the message across.
- iv) The Ministry of Forests has jurisdiction over forest roads. In general, the intent is to minimize the number of signs on forest roads for a variety of reasons, including aesthetics, costs, maintenance and to avoid confusion. Installation of signs is subject to MoF approval, including format and location. Proponents are responsible for the costs of signs, including installation and maintenance.

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1.3) Treat the environment (grasslands, wetlands, alpine, etc.) and improvements (fences, corrals, buildings, roads, etc.), with respect so that there will not be a need for encumbrances such as gates, blockages and legal controls.

Intent:

- i) Encourage self-regulation, including education, communication and signage by user groups to reduce the need for physical or legal restrictions.
- ii) The Ministry of Forests has jurisdiction over forest roads. In general, the intent is to minimize the number of signs on forest roads for a variety of reasons, including aesthetics, costs, maintenance and to avoid confusion. Installation of signs is subject to MoF approval, including format and location. Proponents are responsible for the costs of signs, including installation and maintenance.

1.4) Provide opportunities for public input to any plans that propose to alter access.

Intent:

- i) Proponents are to use local papers to advertise access management plans (includes forest development plans).
- ii) Proponents are to send separate notification of access management plans to known user groups and licensed resource users or contact them directly for input.
- iii) Wherever it is planned to modify access structures to the point where four-wheel drive would be difficult or impossible, proponents are to provide notification of this fact in advertisements for plan input, and attempt to notify a wide range of potential users.
- iv) This does not apply to private land right of way acquisitions.
- v) This does not apply to road closures resulting from catastrophic road or slope failures when there are insufficient funds to repair the damage.

1.5) Consider the implications of access requirements when planning and developing destination features such as trails, recreation sites, etc. (i.e., who will build, maintain and deactivate roads to such features).

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1.6) Improve the stakeholder consultation process. (implementation)

Intent:

- i) Develop and maintain a LRMP website by district that all interested parties could register their interest on by category of use. (Note: The website is already partially developed.)
- ii) Modify all land tenure issuance processes to include registration on the LRMP website.
- iii) Use this website to notify all registered parties of any planning initiative.
- iv) Sectors provide government with sufficient contacts to cover all geographic areas of interest by forest district.

1.7) The Ministry of Forests is to establish a formal management strategy/framework to manage trails by: (implementation)

- a) legally designating a system of major trails;
- b) establishing management responsibility for existing trails;
- c) implementing a referral and consultation process for future trail development; and,
- d) posting specific trails for specific uses.

1.8) Each forest district should develop a prioritized list of access issues or areas of concern where access planning should take place. (A list of recommended areas that should be incorporated into this list is found at the end of this section.) Planning may take the form of forest development plan discussions, landscape unit planning or other planning consistent with objective 7. (implementation)

2) Manage potentially negative impacts of road development and use and off road use on the environment and other social values.

Intent:

- i) Specific direction to achieve this objective and its pursuant strategies can be found elsewhere in this document (e.g., Community Watershed RMZ, Grizzly Bear Habitat RMZ).

2.1) Locate roads to reduce potential negative impacts on all resource values.

Intent:

- i) Specific direction for achieving this strategy is found in the following sections of the LRMP: General Resource Management (Part 3) sections on Crown Land, Ecosystem Management – Forests, Energy, Fish & Aquatic Habitat, Forest Health, Mining, Range, Recreation, Timber & Silviculture, Trapping, Water, Wildlife; Specific Resource Management Zone (Part 4) sections on Fish & Aquatic Habitat, Community Watersheds, Ecosystem Management – NDT4, Bighorn Sheep Habitat, Derenzy Bighorn Sheep Habitat, Grizzly Bear Habitat, Mountain Caribou Habitat, Mountain Goat

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Habitat, Elk Habitat, Moose Winter Habitat, Mule Deer Winter Range, Recreation, Tourism; Protected Areas (Goal 1 and Goal 2) – Part 5; and Access Management – Part 6.

ii) A reduction in road densities, as much as is practical, is desirable.

2.2) Mitigate impacts on water quality from road, trail and corridor location, construction, deactivation and maintenance.

Intent:

i) Construction is to be carried out in a manner to reduce impacts to water quality and channel integrity.

ii) Deactivation is to be carried out in a manner that reduces impacts to water quality and channel integrity.

iii) Maintenance on status roads (i.e. Forest Service Roads, public roads and roads permitted by a resource agency) is to be performed as necessary to reduce impacts on water quality and channel integrity.

iv) One method of achieving this strategy is to seed disturbed areas with legumes and/or grass to provide soil stability and weed control.

2.3) As much as practicable, avoid use and development of roads and other developments on sensitive ecosystems (i.e., grasslands, alpine) and during periods that are sensitive to wildlife.

Intent:

i) New development of roads should be planned to avoid the need for the development of more roads to access the same general area.

ii) Reduce the amount of roads by taking into account both immediate and future development of the area.

2.4) Reduce the amount of "active" road by deactivating those roads that are no longer required.

Intent:

i) Applies only to operational and Forest Service Roads (FSRs).

ii) Refer elsewhere within this section for non-status roads.

iii) To reduce the liability associated with an increasing inventory of "active" roads in a timely manner.

iv) Unless otherwise directed through a local access management plan or the SDM, the decision as to which roads to maintain or deactivate will be the licensee's, based on a jointly developed and consistently applied risk evaluation process (see strategy 2.16).

v) Commercial users of roads or road segments (e.g., trappers, ranchers, commercial recreation operators) may have their needs for continued access addressed in a number of ways, including the following:

- A SDM specified deactivation standard that will meet their needs.
- A road use agreement with the road permit holder - i.e., agreement to supplement maintenance costs.
- Obtaining road use permits for non-permitted roads, and assuming maintenance and/or deactivation responsibilities.

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2.5) Manage non-status roads to reduce potential negative impacts and existing problems. (implementation)

Intent:

- i) Repair, rehabilitate or deactivate, as appropriate, any access structures determined to be impeding fish passage or negatively impacting fish habitat, riparian ecosystems or water quality.
- ii) The consensus recommendations of watershed assessment committees are a primary source for this kind of information.
- iii) Subject to public consultation, non-status roads should be deactivated or rehabilitated, as appropriate, with due consideration for anticipated level and type of use, values, safety risk, and environmental risk.

2.6) Subject to appropriate public consultation, rehabilitate roads and landings that are no longer required on those sites where it is practical to re-establish forest and forage productivity.

Intent:

- i) Responsibility for rehabilitation lies with:
  - For FPC roads, a person who uses a road under the authority of a road permit, cutting permit, timber sale license that does not provide for cutting permits or special use permit or the government for a forest service road, or
  - Holders of road construction/use authorizations issued by ministries other than the Ministry of Forests.
- ii) Does not apply to non-status roads. Non-status roads may be rehabilitated under the Watershed Restoration Program, subject to funding.
- iii) The intent is not to rehabilitate roads and landings exclusively for forage.
- iv) It is anticipated that this will mostly involve on-block roads and landings.
- v) Selecting roads and landings proposed for rehabilitation is the licensee's or permittee's responsibility.
- vi) Where a license decides to do this, it would be desirable to give priority to community watersheds and higher productivity sites.

*See strategy 1.3 in the Wildlife general resource management section for direction related road development in red- and blue-listed species habitat, and objective 4 in the Grizzly Bear Habitat RMZ section for direction related to access in grizzly bear habitat.*

2.7) Avoid road development through all known licks, lambing and kidding areas, recognized sheep rutting areas, wallows, elk winter range congregation areas, old growth management areas and wildlife tree patches, except where no other practicable alternative exists.

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2.8) On grasslands, as much as practicable, avoid use and impacts on vulnerable areas (i.e. wet or seasonably wet sites, areas of high biodiversity or range condition, known areas or rare elements, and sensitive soil types).

2.9) Discourage winter recreational activities that could have a negative impact on the wildlife occupying an ungulate winter range.

Intent:

i) Work with appropriate clubs and associations to identify non-conflict and conflict areas for various winter recreational activities, and develop agreements to prevent habitat alienation through harassment.

2.10) Avoid, or where necessary minimize, to the extent practicable, road development in or accessing alpine or rare ecosystems.

2.11) Use a "Total Chance" planning concept for all forest development access proposals in previously undeveloped drainage. Encourage "Total Chance" planning elsewhere.

2.12) Within community watersheds, limit access to lakeshore and draw-down zone by motor vehicles and other mechanized means of transportation (e.g., mountain bikes).

Intent:

i) Locate new roads at least 210 metres from the lakeshore unless there is no practicable alternative.

ii) Immediately following industrial use, rehabilitate or deactivate with barriers any new roads constructed within 210 metres of a lakeshore.

iii) Where industrial use is required on an ongoing basis, the industrial user should work with the water purveyor, relevant Crown agencies and other interested parties to implement alternative measures (signage, education, etc.) to prevent indiscriminate access to the lakeshore.

iv) Only applies to lakes that are direct storage reservoirs (i.e., dammed lakes with licensed storage).

v) Not intended to restrict access for uses that are not detrimental to maintaining water quality.

2.13) Eliminate "mud bogging" on Crown lands except on areas that are designated by the MoF in consultation with MELP.

Intent:

i) It is recognized that "mud bogging" destroys environmental values but some previously disturbed areas may exist to meet this demand.



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2.14) Encourage public education on the hazards of using deactivated roads.

2.15) Where extreme safety hazards are identified, users should work with the appropriate resource agencies to reduce the risk associated with the hazard.

2.16) Ministry of Forests in conjunction with the licensees and related agencies to develop and implement a common road risk rating process to be applied to the entire TSA. (implementation)

2.17) Ministry of Forests to develop a long-term operational road management strategy. (implementation)

## Access Planning and Assessment - Mining

3) Ensure appropriate levels of access for exploration, development, production and processing of geological resources throughout the planning area.

### Intent:

- i) Recognizes that government policy allows access for exploration to 100% of the plan area, wherever tenure may be acquired.
- ii) Relates to physical access (e.g., roads, trails, helicopter landings; "exploration access" as defined in the Mineral Exploration Code.).
- iii) Does not apply to protected areas.
- iv) Recognizes that deactivation and rehabilitation measures may be appropriate.
- v) "Appropriate access" is defined in this strategy as "access by means that are necessary or sufficient to accomplish the intended work". In some cases, this may entail no-impact or low-impact methods (foot; ATV; helicopter). In other cases, it may entail construction of industrial roads. Access involving mechanical disturbance receives regulatory review before approval.

*Same as strategy 2.1 in the Mining section.*

3.1) Include the mineral industry (e.g., mining associations, free miners and tenure holders) in strategic and operational access management planning (e.g., Watershed Restoration Program projects, road deactivation, coordinated access planning, forest service network planning.)

### Intent:

- i) This applies to all aspects of access.
- ii) The intent is to encourage "due diligence" by proponents of access management planning processes to include mining industry representatives and mineral tenure holders in plans that may change the quality or quantity of roaded and unroaded access.
- iii) Recognizes that, given notification, the Ministry of Energy and Mines (MEM) will provide mineral tenure, resource, and resource management information to assist access planning, or alternatively, advise access

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planners of internet sources for this information.

- iv) Recognizes that the current system of notification for forest development planning (advertisements, etc.) is adequate for new roads.
- v) Recognizes that the current procedure for Watershed Restoration Planning (which includes notification of mineral tenure holders via the Ministry of Energy and Mines, and an FRBC-funded contractor) is adequate for these projects.

*Same as strategy 2.2 in the Mining section.*

3.2) Ensure that access management plans and regulatory and physical controls on access reasonably accommodate present and future mineral exploration and development activities.

Intent:

i) "Reasonably accommodate" entails the following considerations and qualifications:

- Recognizes the extreme variability of mechanized or motorized access requirements for mining, from seasonal, transient, or intermittent access for early stages of exploration to year-round, permanent access for mine developments.
- Recognizes that some areas are more sensitive to mechanical disturbance, i.e., they are less resilient to change or more difficult to reclaim. Examples include wetlands, grasslands, dry forests, sub-alpine and alpine areas, unstable soils, and steep slopes. Regulatory agencies give careful consideration to these site-specific conditions before authorizing surface disturbance.
- Recognizes the current practice of the mining industry, and supported by the Ministry of Energy and Mines, to prefer low-impact methods of access (e.g., ATV; helicopter) in sensitive areas, rather than construct new roads.
- Recognizes that, in some cases, exploration access may involve methods that apparently contravene broadly defined access restrictions (e.g., motorized access in non-motorized zones).
- Also recognizes that in some areas or for time periods, specified or defined in this plan, mechanized access may not be allowed. In general, restrictions on motorized or mechanized access are expected to be sufficiently flexible, on a site-specific basis, to accommodate exploration activities.
- Recognizes that the construction of new access to, or on, mineral tenures is a complex issue that requires the balanced consideration of safety, cost, environmental, social and technical concerns. The concerns may range from minor to severe, depending on where exploration activities take place. Each application for ground access is considered on its own merits.
- Recognizes that physical barriers (e.g., gates) and regulatory controls (e.g., vehicle closures under the Wildlife Act or FPC) are increasingly used to manage access. The intent is, for these controlled-access areas, to encourage resource managers and gate custodians to provide

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free miners with permits and keys, in a timely manner and upon request, for all stages of exploration and development (pre-tenure prospecting through property development).

- Recognizes that measures to mitigate adverse effects on environmental values (fish, water, wildlife, and ecosystems) may be locally required. These will be implemented through normal project review and permitting processes. Adverse effects on social and commercial values (tourism, recreation, visual quality, cultural heritage) will be addressed through planning and communication, as well as project review processes. Review processes provide opportunities for public input.

*Same as strategy 2.3 in the Mining section.*

*See the Recreation General Resource Management and Recreation Polygon Specific (RMZ) sections for objectives relating to industrial activities (e.g., mineral exploration and development) in recreation Resource Management Zones (RMZs).*

3.3) Conduct exploration and mining access development and restoration practices in a way that maintains long-term biological values in resource management zones (RMZs) with objectives for fish, water and wildlife (including the Ecosystem Management - NDT 4 RMZ).

Intent:

- i) To foster sound integrated resource management practices for mineral exploration and development access in fish, water, and wildlife resource management zones, defined in this plan.
- ii) To integrate LRMP objectives and strategies into mineral exploration and development access decision making in order to fulfil the goals of guaranteed access, mitigated impacts, and balanced consideration of benefits and costs.

3.4) When an environmentally sensitive area has been identified through a Mines Act permit ("Notice of Work and Reclamation") application referral, an access management strategy will be developed to address environmental values.

Intent:

- i) The purpose of the access management strategy is to avoid impacts to the environmentally sensitive area while enabling mineral exploration access.
- ii) Examples of environmentally sensitive areas include wildlife habitat features (as defined in this plan in the Wildlife general resource management section, strategy 1.10) and wetlands.
- iii) Examples of access management strategies include:
  - an on-site inspection of the proposed access route prior to construction;
  - inspection of the proposed access route by a MELP official;
  - routing the road access around the sensitive area; or,
  - control of non-mining use of the access road.
- iv) The planning tools identified below should be considered in developing an access management strategy:
  - map, or otherwise inventory, ecosystem attributes defined in this plan that are to be incorporated into site-specific or project-specific

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access planning (examples of ecosystem attributes include den sites, nests, and plant communities);

- identify appropriate measures to mitigate impacts to these attributes;
- construct, deactivate and rehabilitate accesses for short and long term mitigation of impacts;
- prepare access management plans for larger areas (e.g., zones, watersheds, landscape units or forest districts, as may be appropriate) to manage long term access for extractive and other resource uses;
- use enhanced referrals (within the context of standard project review and permit approval processes) to communicate with tenure holders, public interest groups, stakeholders, and organized (or registered) user groups.

## Access Planning and Assessment - Recreation

*An "access management strategy" can be described as measures to ensure that the integrity of "walk-in" status is maintained during and after industrial operations*

4) Maintain "walk-in" access status on all lakes consistent with the recommendations of the Okanagan Lakes Classification Project, September 12, 1997. (See Table 2, at the end of the Fish general resource management section, for the list of "walk-in" lakes.)

Intent:

- i) Not intended to apply to or restrict walking trail development.
- ii) To permit resource use and development activities in such a way as to support the "walk-in" experience.

4.1) Prior to development occurring within two kilometres of a "walk-in" lake, develop an "access management strategy" that incorporates a 500 metre to 1500 metre wide "walk-in" buffer around the lake.

Intent:

- i) To be developed by the appropriate government agencies with stakeholder involvement.
- ii) Strategy development should be carried out as expeditiously as practical to avoid delays to resource use and development activities.
- iii) Strategy development may incorporate shortcuts to accommodate urgent forest health activities as long as the "walk-in" condition is promptly restored.
- iv) The width of the "walk-in" buffer should be dependent on site conditions such as terrain, existing values, appropriate locations for roads that access other areas, maintenance of existing access, ease of road deactivation, and best location for access controls.

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4.2) Manage road and trail development within the “walk-in” buffer to maintain the “walk-in” condition.

Intent:

- i) Industrial development should not result in permanent motorized access.
- ii) Where industrial development provides temporary motorized access, the “walk-in” condition should be promptly restored after activities cease.

## Access Development and Use - Noxious Weed Invasion

5) Minimize or reduce the impacts of noxious weeds or weed species of concern due to road development and use as well as off-road use.

5.1) Re-vegetate with an appropriate seed mix as soon as practicable following soil disturbance.

Intent:

- i) The person who causes the soil disturbance should carry out re-vegetation.
- ii) For those roads and structures constructed, modified or deactivated under the FPC, the current re-vegetation requirements under Section 15 of the Forest Road Regulations for inactive borrow pits, waste areas, road cuts, fill slopes and other disturbed areas within the clearing width that will support vegetation are considered adequate.
- iii) All seed must be minimum “Common #1 Forage” quality with regards to allowable weed content. When obtaining forage seed, consideration should also be given to using identified seed lots of known origin to further restrict or eliminate noxious weed and weeds of management concern introductions.
- iv) Whenever practical, stockpiled topsoil should be re-spread before reseeding.

5.2) Avoid the spread of noxious weeds and weed species of concern resulting from off-road use of Crown lands.

Intent:

- i) Encourage self-regulation, including education, communication and signage by user groups.
- ii) Special emphasis on grasslands, but includes other lands as well.
- iii) Encourage rehabilitation of disturbed sites.

5.3) Minimize, where practicable, the amount of road development in NDT4. Where roads are necessary, mitigate such development by reducing the amount of soil disturbance to that which is absolutely necessary.

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## Access Development and Use - NDT4

6) Reduce disturbance and degradation to NDT4a and b resulting from access.

Intent:

- i) This objective recognizes that there are areas within grassland ecosystems that have been identified as summer motorized intensive use areas (RMZs) – i.e., this objective would not affect activities within these RMZs provided they are consistent with the Summer Motorized Recreational Use – Land Stewardship Principles (see Appendix V).
- ii) This objective is in place to determine/resolve potential issues relative to these sensitive ecosystems.
- iii) Licensed resource users may be excluded from these provisions; however, regulatory agencies should include provisions in operational planning so as to minimize the impacts of those activities.
- iv) It is recognized that mineral exploration involving mechanical disturbance will continue to be managed according to the Mineral Exploration Code. Low impact methods of motorized or mechanical access and exploration, and prompt re-vegetation of disturbances, are commonly encouraged practices.
- v) Does not include existing trails – e.g., game trails, cattle trails, motorcycle trails, etc., but recognizes that these may be identified as ecological problem areas.

6.1) Where access related concerns are identified on grasslands, develop and implement access strategies to address those concerns.

Intent:

- i) Reduce access to grasslands in general.
- ii) Concerns at the local level are to be worked out, wherever possible, at the local level using the framework outlined in objective 7.

6.2) Do not encourage mechanized or motorized use on grasslands.

Intent:

- i) This is not intended to be a blanket exclusion to these types of uses on grasslands. When government agencies are approached regarding expansion of areas for intensive summer motorized use, grassland ecosystems should not be considered unless concerns over environmental and other impacts are adequately addressed.

6.3) Avoid indiscriminate off road and off trail use in grasslands.

Intent:

- i) To be accomplished through “self regulation”, and a public education campaign.
- ii) This strategy may be superceded by strategy 6.1 if legitimate concerns arise.

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6.4) Winter motorized recreation should only occur on sufficiently deep snowpacks so that disturbance to soils and/or vegetation does not occur.

6.5) Where practical, deactivate and rehabilitate roads and trails that are no longer required.

Intent:

- i) Recognises that there are numerous non-status roads and trails that will require “outside” funding sources.
- ii) Where user groups are known they will be notified; otherwise, standard notification notices (e.g., newspaper notifications) will be used
- iii) Allow for road use through areas to accommodate legitimate use in specified areas, including areas of use such as roads into pit area parking, emergency accesses, etc.
- iv) This would be undertaken on a “where practicable” basis when outside funding can be obtained.

## Framework for Local Access Planning

*To supplement existing forest development planning, there is a need to deal with access related issues or conflicts on a more localized, geographic basis. These areas could include wildlife habitats (e.g., caribou), intensive recreation use areas (e.g., South Slopes near Kelowna) or sensitive areas (e.g., alpine)*

7) Utilize local planning forums to develop access strategies to resolve site-specific issues or conflicts.

7.1) Local forums will be guided by the following principles:

Intent:

i) The intent is not to duplicate existing processes, nor is it to conduct intensive planning exercises, but rather to engage in interest based problem solving exercises that are issue driven and geographic in nature. LRMP suggested priorities, where more detailed planning is required, are located below.

a) Involvement of all stakeholders with agreement through consensus.

b) Invitation of interested parties having local specialized knowledge.

c) Opportunities for contribution from the broader public spectrum.

d) Inclusion versus exclusion, with preference towards integration.

e) Compliance encouraged through public information and education initiatives.

f) Restrictions may occur on some areas, but legislative tools such as Section 105 of the FPC or Section 111(b) of the Wildlife Act should only be used as a last resort and only after full public consultation.

g) Recognition of existing tenures and rights of access, including the use of appropriate tools (e.g., snow machines, ATVs, etc.).

h) Proponents (organized groups) of access controls or access

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development that requires controls should participate in the maintenance of the access controls and/or compliance support.

i) Road tenure holders will determine the method of access encumbrance.

j) Access control structures may be recommended by a local planning forum, or may be required in order to comply with a RMZ strategy. The following are the default responsibilities for the purchase, installation, management, maintenance and repair of such a structure, and the responsibilities for road inspection and maintenance for any associated road. It is acknowledged that alternate arrangements for these responsibilities may be agreed to, including the voluntary assumption of some or all responsibilities by a government agency. "Road proponent" generally refers to a road permittee or road use permittee:

- Where the need for an access control structure is identified prior to the approval of a road construction plan, the road construction proponent will be responsible for the cost of the structure and installation. If a structure is damaged to the point where repair or replacement is needed (other than lock replacement), all parties will work together to get the work done. It is recognized that any costs will be subject to the availability of funding.
- Proponents will be responsible for minor maintenance of access control structures, and for ensuring that designated gates are locked up at posted times. That responsibility will continue until the road has been discharged under Section 64 of the Forest Practices Code of BC Act. Proponents will not be responsible for other access structure management, such as conducting searches for vehicles behind gates prior to lock up.
- If a local planning forum recommends to keep a road open after the road permittee has proposed to permanently deactivate it, then the costs for management, maintenance and repairs of the structure, along with the costs of road maintenance and road inspection, will be shared between the parties who want to continue to use the road and the parties wanting to control access. The exception is where access control is required by a RMZ strategy, in which case the party wanting to continue to use the road will be responsible for all costs.
- If a local planning forum recommends an access control structure on an existing road, the cost of the structure and/or installation, management, maintenance and repairs will be the responsibility of the party requesting the controls.
- If a road proponent (road permittee/road use permittee) voluntarily installs an access control structure and there are no specifically identified responsibilities, that road proponent will be deemed responsible for the cost of the structure and installation, as well as subsequent management, maintenance and repair costs until they propose to permanently deactivate the road.



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- Keys for any gates will be given to the road proponent, MoF, and MELP. Any other parties wishing to obtain a key must obtain it from the applicable ministry.

k) Where the intent of an access encumbrance is to restrict the use of the road by four wheel drive vehicles, the responsibility will be met by taking reasonable measures while conducting semi-permanent or permanent deactivation or by installing gates.

Intent:

i) This strategy applies after a decision has been made on the need for this type of access encumbrance.

7.2) Consistent with Section 111(b) of the Wildlife Act, MELP can make regulations regarding access management (i.e., prohibit, restrict or allow access).

Intent:

i) To be included in the "tool kit" for managing access.

ii) To be applied to address wildlife management issues or habitat protection issues.

iii) Not intended to prohibit tenured activities.

iv) Requires consultation with local stakeholders and resource agencies, preferably through an access management planning process.

v) Prior to using this "tool", alternate access management options are to be considered.

vi) This strategy should be revisited if legislation is passed granting MELP authority to implement access controls under Section 105 of the Forest Practices Code of BC Act.

### Summer-Motorized Recreation Use

See Appendix V for principles and opportunities to help guide future planning forums with respect to managing summer-motorized use (ATVs) on Crown land.

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## List of Access Issues or Areas of Concern Where Access Planning Should Take Place.

- |   |   |
|---|---|
| <b>Salmon Arm Forest District</b>       | <ol style="list-style-type: none"><li>1) Grizzly bear/caribou overlaps</li><li>2) Grizzly bear and community watersheds if identified need exists</li><li>3) Bull trout/salmon watersheds</li><li>4) Deer winter ranges</li><li>5) Moose winter ranges</li><li>6) Sheep/mountain goat habitat</li><li>7) Alpine</li></ol> |
| <b>Vernon Forest District</b>           | <ol style="list-style-type: none"><li>1) Grizzly bear/caribou habitat</li><li>2) Alpine/goat habitat</li><li>3) Grasslands/"xh" subzones/deer winter ranges</li><li>4) Bull trout</li><li>5) Moose winter ranges</li><li>6) Community watersheds if identified need exists</li></ol>                                      |
| <b>Penticton Forest District</b>        | <ol style="list-style-type: none"><li>1) "xh" subzones</li><li>2) Grasslands/sheep habitat</li><li>3) Deer winter range</li><li>4) Community watersheds if identified need exists /Pennask Creek watershed</li><li>5) Alpine/goat habitat</li><li>6) Moose winter range</li></ol>   |
| <b>Local Access Management Planning</b> | <ul style="list-style-type: none"><li>• To be undertaken within forest district boundaries</li><li>• Planning areas to be landscape units</li><li>• Focus planning on issue areas</li><li>• To be undertaken by LRMP priorities</li><li>• Minimize the number of planning initiatives</li></ul>                           |



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## Part 7

In this section:

- Direction for government agencies during the period after the Table has reached agreement, and before the plan is approved by cabinet.
- How government agencies and resource users will adapt to the new management direction spelled out in this plan.

## Transition

### Introduction

There is a need to provide government and resource users time to adapt to the new management direction spelled out in this plan. To ensure continuity of operational plan activity, the following “phase in” or transition provisions will be followed.

### Issues

The main issue with regard to transition is how quickly industrial proponents will adjust their development plans to be consistent with any new direction under the plan. With regard to the forest industry, the Forest Practices Code provides protection to forest licensees where they have invested time and resources in planning harvesting and road construction activities and those plans have been approved as part of a forest development plan (FDP). Forest development plans may be approved for one or two year periods.

Protection is provided under Section 22 of the Operational Planning Regulation and applies to those cutblocks and roads that already have cutting permits and road permits, as well as those cutblocks and roads that have been approved as Category “A” with all assessments shown as complete. Typically a licensee may have protection on cutblocks that cumulatively add up to two to four years of their Allowable Annual Cut. In addition there is no restriction on when those cutblocks may be harvested or roads constructed.

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## Forest, Range and Recreation, including Operational Planning

The purpose of the following is to describe how the transition to full implementation would take place. This includes how district managers would implement the LRMP during the period after Table agreement has been reached and before Cabinet approves the plan, as well as the transition to full implementation.

1) The 2002 forest development plan (FDP) submissions (normally submitted in the spring) will be consistent with the entire LRMP (i.e., in addition to the higher level plan). Silviculture Prescriptions (SPs) submitted after April 1, 2001 will be consistent with the LRMP management direction on riparian areas and coarse woody debris (i.e., in addition to direction in the FDP).

Intent:

i) It is expected that all one or two year approved forest development plans will be consistent with the higher level plan (HLP) by December 31, 2002.

Note:

- The Forest Practices Code (FPC) specifies that SPs need only be consistent with the currently approved FDP; thus compliance with some parts of the LRMP in newly prepared SPs would be voluntary until the FDP changes (i.e., when resubmitted upon expiry of the current FDP). There is no expectation that existing SPs will be revised. The only exception may be SPs that have been submitted but not yet approved and may need to be revised in order to be consistent with the FDP as described under points 2 and 6.
- Most FDPs have one or two year approval terms.
- Cutblocks and roads with issued cutting permits and road permits or Category "A" status with all assessments shown as complete in an approved FDP are protected. They are not required to be changed to be consistent with the LRMP (when Table approved) or the HLP (when declared). In addition, there is no restriction on when those cutblocks may be harvested or roads constructed.

2) For lands outside of the recommended protected areas, approved existing Category A cutblocks and roads remain protected under Section 21 of the Operational Planning Regulation (OPR). Upon declaration of the HLP, for approved Category A cutblocks and roads, where permits have not been issued or assessments were not shown as complete in the FDP, the SDM may require an amendment if they are inconsistent with the HLP (see FPC Section 10(1)(d)). Refer to FPC General Bulletin number 25 for more details.

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3) For lands outside of the recommended protected areas, any cutblocks or roads for which cutting permits or road permits have already been issued or that have been included as part of an approved forest development plan with the assessments required by sections 16, 17 and 37, OPR (for cutting permits), or sections 4 and 5, Forest Road Regulation (for roads), remain in effect or approved as the case may be. The HLP does not override these approvals (Section 22, OPR). Refer to FPC General Bulletin number 25 for more details.

4) No new development proposals will be considered within recommended protected areas (PAs) unless they are consistent with LRMP direction.

5) Any existing approved cutblocks or roads (i.e., Category A or better) in recommended protected areas that originated from areas of interest (Aol s) or "study areas" (SAs), remain approved if they are for forest health or salvage, are consistent with the "Interim Development Guidelines For 'Goal 1' Protected Areas Strategy Candidates", May 30, 1996, and have been referred to the LRMP Table previously.

6) Any existing approved cutblocks and roads (Category A or better) in recommended PAs originating from Table initiatives and Goal 2 PAs remain approved if cutting permits/road permits have been issued or the approved FDP indicates that OPR Section 16, 17 and 37 assessments were shown as complete. Approval for other Category A cutblocks and roads in the recommended PAs is reversed by this plan, and no new development proposals will be entertained.

7) For those portions of protected area candidates that are not recommended as protected areas, forest management can resume (i.e., the "Interim Development Guidelines For 'Goal 1' Protected Area Strategy Candidates" no longer apply) for those candidates designated as "areas of interest" upon ratification of the recommendations package, and for those candidates designated as "study areas" upon approval of the recommendations package by Cabinet.

8) Following ratification of the recommendations package, any forest health activities proposed within the recommended protected areas must be consistent with LRMP management direction for forest health.

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## Land Act and Water Act Tenures

The purpose of the following is to describe how the BC Assets and Land Corporation (BCAL) and Ministry of Environment, Lands and Parks would implement the LRMP during the period after Table agreement has been reached and before the plan is approved by cabinet.

1) Existing tenures will be honoured. However, the tenuring agency may change from BCAL or the Ministry of Environment, Lands and Park to BC Parks as appropriate.

2) No new tenure applications or changes to existing tenures will be accepted in areas that are recommended as protected areas by the Table. All applications for new tenures will be directed to BC Parks, who will deal with them in manner consistent with the direction set out in the LRMP.

3) In all areas outside of protected areas that have been recommended by the Table, including those portions of protected area proposals that were not part of the protected area package recommended by the Table, normal tenure application and referral procedures will apply.

4) No new tenures will be issued in parks without a public consultation process, and not until an "Interim Management Statement" or "Management Plan" is in place. This does not apply to replacement tenures to cover existing (i.e., grandparented) uses.

## Mineral and Placer Act Tenures

The purpose of the following is to describe how the Ministry of Energy and Mines (MEM) would implement the LRMP during the period after Table agreement has been reached and before the plan is approved by cabinet.

1) Once the Table recommends a package of protected areas, MEM will establish no staking reserves (NSRs) over these areas as quickly as possible to preclude the establishment of new tenures. In the case of Anstey-Hunakwa, which is presently covered by a NSR, the no staking reserve boundary will be amended as appropriate to reflect the new boundary that has been agreed to for the protected area.

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## Compensation Issues

The following compensation issues have been identified through an initial review by the forest industry. Noted that this is not an exhaustive list and a more detailed review is required.

- 1) Anstey - Hunakwa protected area - compensation for Timber Licenses
- 2) Snowy protected area - compensation for past planning activities.
- 3) Upper Seymour River protected area - compensation for existing approved cutting permit and associated access and planning costs.

## Miscellaneous

More detailed review of Goal 1 and Goal 2 protected areas is required to identify any access concerns.





## Part 8

In this section:

- Policy advice on the following topics:
  - Access
  - Agriculture
  - Community/Crown Interface
  - Ecosystem Management - Forests
  - Energy
  - Fish
  - Guide-Outfitting (Licensed)
  - Heritage Resources
  - Land and Soils
  - Mining
  - Protected Areas
  - Range
  - Recreation
  - Timber and Silviculture
  - Transportation
  - Trapping
  - Water
  - Wildlife

## Advice to the Provincial Government

**General Description** The material contained in this section was identified through both Table and working group (subcommittee) discussions, and can best be described as “policy advice” to the provincial government. Rather than leaving these “policy” issues in each of the various sections of the recommendations package, they have been collectively located here.

This material was reviewed by the Table to determine whether or not there was Table support on each item. Material that is not underlined is supported as a recommendation from the Table. The items that are underlined are those which individual Table members have put forward that do not have the support of the entire Table.

**Purpose** The material in this section is considered as advice to the provincial government. Should the provincial government choose to review any of the policy issues identified here, it is hoped that they will consider this material as appropriate in their review.

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## Source

n/a

## Policy Advice Item

1) The provincial government will use the best scientific information available where contradictions or ambiguities exist in the forgoing pages.

2) The Table recommends that the province commit to providing the necessary level of technical and financial support to ensure the achievement of the Okanagan - Shuswap LRMP.

3) Conduct research into methods for the successful cultivation and propagation of native plants and grass.

## Access

1) Amend the Forest Practices Code of B.C. Act to regulate non-status roads and assign planning, assessment and deactivation responsibilities.

2) Enact ATV legislation to provide the necessary enforcement tools to regulate off-road use.

Intent:

i) To provide the tools for enforcement agencies to deal with destruction of wildlife habitat, and in particular, riparian areas and grasslands.

3) It is essential that government provides clarity around the issue of defining "legal liability" as it relates to roads and access management. This will guide all future operational planning and the levels of expenditure.

4) Establish an enabling protocol based on verified levels of road use to transfer roads between agencies.

5) Amend the Forest Practices Code to exempt licensed tenure holders (e.g., trapper, guide-outfitters, and commercial recreation operators) from the prohibition on using snowmobiles on plowed roads.

6) That MELP also be allowed to use Section 105 of the Forest Practices Code to address wildlife/access related concerns.

7) Provide funding for addressing identified public safety hazards on resource roads.

8) That road deactivations involving ditches be visibly flagged with visible marking.

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## Agriculture

1) That a compensation program be developed to either assist farmers and ranchers to use non-lethal forms of wildlife control (e.g., fencing), and/or to compensate them for damage to their crops. The purpose is to address economic costs to farmers and ranchers associated with damage to crops from wildlife or efforts they undertake to prevent such losses, and the destruction of wildlife that may result from their control efforts.

2) Encourage an economically healthy, efficient and world competitive agricultural industry in BC.

3) Promote the long-term management of land and water resources for sustainable agriculture.

4) Recognize the need for water and use funding programs such as the Agriculture Land Development Agreement (ALDA) to assist in developing irrigation works that are efficient, economically viable, and address environmental concerns.

5) Work with communities of interest to create an environment in which working farms can succeed.

6) Enhance public knowledge of the environmental, tourism, and other benefits provided by the agriculture industry.

## Community/Crown Interface RMZ

1) Evaluate the usefulness of consensus-based decision making and budgeting to improve cooperation between and among provincial agencies, local governments and public groups. Use the Community/Crown Interface forums (see strategy 2.2 in the Community/Crown Interface RMZ section) and other LRMP forums as pilot projects.

## Ecosystem Management - Forests

1) Review the application of the "M" value in silvicultural surveys to make sure that the number of well-spaced trees on an opening is recognized.

## Energy

1) Encourage regulatory agencies to hold public consultation as early as practicable in new energy development projects.

2) Provide adequate opportunities for public input to any plans that may negatively impact any user group or the environment.

3) Incorporate conditions to address maintenance and deactivation of roads and trails accessing roads on utility rights of way. These should be consistent with the management standards for adjoining roads and trails.

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## Fish

1) Undertake research on activities that impact stream temperatures and their impact on fish.

2) All levels of government that work with private landowners should be encouraging the use of stream riparian buffers where riparian integrity is compromised.

3) Maintain stream temperature conditions considered necessary to sustain and protect fish and fish habitat.

### Intent

i) To use the best current knowledge.

ii) The pursuant strategies may be best managed at a watershed, or a sub-drainage level.

iii) Applies to both Crown and private land.

iv) It is intended that this would apply to private land through voluntary stewardship agreements, in a co-operative manner with private landowners, etc.

v) Direct solar radiation on streams is the primary factor influencing temperature changes in the stream and buffer strips can be effective in preventing stream temperature increases

vi) As a rule of thumb, streams flowing through the IDF, ICH, PP and the BG biogeoclimatic zones are susceptible to rapid temperature changes as the result of vegetation removal, however streams originating in the MS of ESSF are also influenced by shading and may require site specific retention.

vii) Avoid practices that create cumulative temperature increases that eventually produce high downstream temperatures.

viii) Maximum preferred temperatures for salmon (and kokanee)\* are: migration <14 C; spawning <12 C; incubation <11 C; and, rearing <13 C

Maximum preferred temperatures for rainbow trout are: migration <20 C; spawning <16 C; incubation <11 C; and, rearing <20 C

ix) Temperature limits of some stocks may vary but the limits above are generally accepted as a reasonable guide.

x) Temperatures above 21 degrees C are fatal

xii) Buffer widths and retention levels will vary due to a variety of conditions, including existing temperatures, size of stream, etc.

xiii) The most likely life stage to be impacted by temperatures depends on the species present in the stream:

- Chum, pink, sockeye and kokanee- migrants, spawners and early portion of incubations.

- Chinook and coho - potentially all phases except majority of incubation.

Rainbow trout - incubation and rearing.

xiv) The stream temperatures identified are the mean daily temperatures.

xv) Where there is more than one species of fish within a stream, management should be directed to the species with the most conservative limits. For example if we have bull trout and kokanee in the same system we should be

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maintaining temperatures suitable to bull trout. Where Landscape Unit Planning is occurring, these plans will specify the target fish species.  
\*species specific data can be found in "A review of Habitat Capacity for Salmon Spawning and Rearing", a BC Resource Inventory Committee document prepared by David A. Levy and Tim L. Slaney (July 93) and Summary of Water Quality for Salmonid Hatcheries" by Sigma Environmental Consultants LTD, 1983 Revised Ed, prep for Department of Fisheries Oceans, Vancouver.  
xvi) This objective applies to streams with temperatures approaching or exceeding the maximum preferred temperatures for migration, spawning, incubation or rearing. Strategies need to be more rigorously applied as the temperature approaches the maximum preferred temperature. Addressing potential temperature increases early on when cheaper opportunities exist is preferred. This would also assist in avoiding cumulative temperature impacts much further downstream.  
xvii) Laboratory data is lacking for bull trout however the following identifies key components of research that is happening in the US and Canada.  
- A maximum weekly average temperature (MWAT) below 10 degrees C should be a target for bull trout streams. MWAT is defined as the warmest seven-day average of daily water temperatures recorded during a given year or study period. FRBC funding should be considered to determine MWAT on bull trout systems.  
- Rainbow trout, in a bull trout watershed appear to dominate in streams with temperatures above MWAT of 11 or 12 degrees. Bull trout actively seek out colder water as temperatures increase and avoid temperatures exceeding 17C.  
xviii) The intent of the strategies pursuant to this objective is not for them to be incremental protection to the direction provided the Riparian Management section (assuming completion and agreement). These are only intended to guide the location of where the riparian protection is applied.

4) Plan development activities along streams such that stream water temperatures should not increase as a result of operations to the point that they would impact fish and fish habitat.

### Intent

- i) Apply the riparian buffers to maximize natural shade on all fish streams and those tributary streams, which may increase fish stream temperatures. (This is not intended to override other riparian protection objectives.)
- ii) Encourage proponents and other parties to collect information on stream temperatures for consideration in the planning process.
- iii) The results of ongoing research initiatives should be incorporated into development planning.
- iv) It is recognized that private land activities can significantly impact stream temperatures, and that natural conditions (i.e.; in grasslands) may result in high temperatures. There is no intent to reverse such impacts through other resource management but there is an expectation that conditions will not be exacerbated.
- v) Potential temperature impacts to fish streams as well as S4 non-fish, S5

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and S6 stream, which are directly tributary to fish streams, should be addressed in pre-development planning.

vi) The intent is to have a prescribing forester prepare prescriptions that specifically address temperature objectives and strategies for fish streams.

## Guide-Outfitting

1) In establishing any permit fees, rents, costs, or restrictions, the government should consider the economical viability of the tenure and/or industry.

Intent:

i) An example of the intent is that should a guide-outfitting tenure be included in a park, the tenure holder will be exempt from then having to get another permit from BC Parks for his or her tenure.

2) Administration of all guide-outfitting activities to be the responsibility of the BC Environment, Wildlife Branch only.

Intent:

i) The guide-outfitting industry is looking for a "one window" or "one stop shopping" approach to dealing with government.

ii) Maintain viability of industry by making it easier to deal with government.

## Heritage Resources

1) Inventory historic features and seek heritage designation under the Heritage Conservation Act.

2) Develop a protocol agreement between MELP and MSBTC regarding the management of cultural heritage sites, similar to the one that exists between MoF and MSBTC.

## Land and Soils

1) More research is needed to identify appropriate levels of disturbance related to site preparation.

2) De-stumping as a strategy to address root rot should be reviewed at the provincial level to determine the appropriateness of this strategy due to the high costs to government of carrying it out.

## Mining

1) Where tenures cannot be operated, maintained or are negatively impacted, provide the appropriate mitigation or compensation.

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2) Ensure a stable fiscal and regulatory regime that supports mineral exploration and development. Examples of how to accomplish this include:

- establishing clear and consistent policy direction in government that mining is an allowable land use in the province;
- a review of regulations affecting mining in order to remove redundancy and foster industry innovation and best management practices;
- a review of profit and non-profit taxes, fees and royalties to ensure a fair balance between economic rents (returns to the province) and industry profitability; and,
- a review of hydro, water and worker compensation rates for mining (recognizing conservation efforts and low accident rates).

3) Improve administrative efficiency in the permitting process for exploration and development. Continue to improve the "one window", single agency permit review and approval process for mineral exploration projects using the Ministry of Energy and Mines as the preferred single agency.

4) Use a share of the revenues derived to the province from the mineral industry to create financial incentives for exploration and development (e.g., establishes a Mineral Renewal Plan or Fund).

5) Use a share of the revenues derived to the province from the mineral industry for geoscience research and development.

6) Enhance opportunities for tenured placer mining. Examples of how to accomplish this include:

- Expedite staking and permitting in land not currently designated as placer claim or placer lease areas.
- The Ministry of Energy and Mines, in consultation with DFO and MELP, as well as the placer mining industry and recreational placer mining groups should review placer potential areas, identify opportunities for commercial expansion, and recommend new areas suitable for designation as placer claim or placer lease areas.

7) Enforce existing policies and regulations covering the rehabilitation of mineral exploration and development activities.

8) Encourage regulatory agencies to hold public consultation as early as practicable in new mining development projects (this should include advanced exploration projects).

9) Ensure better co-ordination between MoF and MoTH regarding the development and rehabilitation of aggregate pits on Crown land.



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10) Provide compensation for all mineral tenure adversely affected by Cabinet-approved LRMP resource management zones, objectives and strategies, in particular, the creation of new protected areas.

11) Provide mineral tenure owners more compensation alternatives than those contained in the Mining Rights Compensation Regulation under the Mining Rights Amendment Act. Alternatives might include the following (this list is not exhaustive):

a) Use the terms and conditions the government of Alberta provided tenure holders when the government created new protected areas. In Alberta, tenure holders had the option to:

i) cash out by accepting cash payment from government for all past direct costs related to the tenure plus up to 10% indirect overhead costs all compounded at Treasury Department T-bill rates to the settlement date; or

ii) continue to pay rent or taxes to government on the tenure and remain the recorded holder, but become encumbered by the new rules and regulations pertaining to the zoning.

If tenure holders accepted (a) then they had a ten year right-of-first-refusal to repurchase the tenure on the same terms it was sold to government, should zoning change within that period.

b) Exchange affected tenure for Crown-owned tenure elsewhere in the province.

c) Convert tenure owned elsewhere in the province to a Crown Granted mineral claim, mining lease, or other form of long term tenure.

d) Waive recording fees for all new claims staked (up to the number of claims forfeited).

e) Credit all exploration expenditures on the affected tenure to the free miner's Portable Assessment Credit (PAC) account for use on mineral properties elsewhere in the province.

f) Negotiate an alternative "cash and land" or "cash and rights" compensation package, the components of which would be proposed by the tenure owner.

g) Exchange mineral tenure for other, non-mineral Crown assets, as may be proposed by the tenure owner.

Suggested scope of application:

- Compensation should be offered to all tenure holders whose claims are adversely affected by the creation of a new protected area or

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resource management zone.

- For a new protected area, compensation should be offered for mineral tenures that are adjacent to it (e.g., within 10 kilometres), as well as those that are partially or wholly within it.
- The choice of compensation alternative should be at the discretion of the affected tenure holder, rather than Cabinet, the Minister (or Ministry) of Mines, or the LRMP Table.

Suggested terms and conditions:

- Tenure holders would have to identify the tenures that they consider are adversely affected by the new protected area.
- Tenure holders would have to transfer to the province all surface and subsurface rights inherent in the tenure for which compensation was sought.
- In the case of compensation for tenure within a resource management zone, tenure holders would not be able to relocate tenures over the same ground for a period of ten (10) years after the compensation settlement date, or else reimburse the amount compensated.

12) Should government decide to exclude mineral tenures from any of the protected areas, this could cause a considerable loss of hectares designated as park. (Approximately 3% of the park area overlaps existing mineral tenures.) As a result there are two outstanding concerns: 1) decreasing park hectares; and, 2) loss of ecological values (e.g., red- and blue-listed species habitat). To address these concerns government should undertake the following: 1) to purchase or transfer equivalent lands to park as they come available; or, 2) create a management plan for the excluded areas which would provide protection for the ecological values the park was intended to protect.

13) Allow subterranean access to mineral resources beneath parks accessed from outside the park, where the resource is accessible without damage to surface values in the park. [Proposed by the Chambers of Commerce.]

14) Allow surface mining within parks where this can be achieved without permanent damage to sensitive values in the park (e.g., rare species, fish, wildlife, recreation, etc.). [Proposed by the Chambers of Commerce.]

15) Allow recreational rock hounding, fossil collecting and gold panning in parks. [Proposed by the Chambers of Commerce.]

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## Protected Areas

*Also see the Mining, Range and Trapping portions of this section for items related to mining, grazing and trapping in protected areas.*

1) Guidelines for establishing boundaries with GPS are to be developed prior to approval of development adjacent to protected areas within six months. One of the issues these guidelines should address is the need/requirement to establish and/or survey 'legal boundaries' prior to forest development activity and other resource development activity taking place adjacent to protected area boundaries.

2) Use existing recreation wording recreation wording in the Park Act or add wording to help deal with motorized interests within parks. To create ATV park designations within the Park Act. May need a new act legislated.

3) The provincial government should ensure that all timber that is infected with insect or disease within provincial parks (and specifically in the proposed Pennask park) is salvaged in a timely manner to prevent the spread of the infestations into adjacent non park lands, and to realize the economic benefits from the harvesting. In addition timber that has been blown down within parks should also be salvaged to prevent an insect infestation from developing and again to provide an economic return to the community.

## Range

1) Proponents are responsible for fencing new highways and roads, and Crown land alienation proposals, etc. Allowances should also be made to ensure that the fence is maintained over time.

2) Fencing, including ongoing maintenance, is to be a condition of any new subdivision approvals that adjoin Crown or privately owned range, and the fence is to be located on the property that is being subdivided.

3) Develop a plan to increase the level of use of indigenous species by encouraging the development of a local indigenous plant industry, thereby increasing the availability of indigenous plant sources.

4) Encourage integrated and coordinated resource management planning at the local level.

5) Encourage the monitoring of Range Use Plans by MoF and MELP for effectiveness.

6) That the province consistently separates the responsibilities for developing Range Use Plans and for enforcing them, or introduces compensating controls.

7) Encourage an efficient and world competitive livestock industry in BC.

8) Government should more aggressively address the need for, and the coordination of, weed control activities (e.g., increasing funding for the weed control program).

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9) Need to recognize the continued need for coordination of noxious weed control efforts with other agencies and organizations (e.g., local governments).

10) Re-establish a Range Improvement Fund within the Ministry of Forests for grass seeding programs and range developments. This is intended to be incremental to existing funding sources and programs.

11) Government, in cooperation with ranchers, industry and other stakeholders is to provide sufficient forage to maintain and enhance AUMs and wildlife grazing.

## *Grazing use in protected areas.*

12) It is recognized that as per the Park Amendment Act, the number of animal unit months (AUMs) is not to be increased beyond that which existed when the protected area was established. A concern is that this artificially limits management flexibility, and that not being able to increase AUMs could be detrimental to achieving the objectives for the park. Consequently, it was suggested that consideration could be given to increasing the level of AUMs within a protected area above that which existed at the time the protected area was designated. Any increases in this regard would be with the understanding that the additional AUMs do not adversely impact the values the protected area was intended to protect (e.g., red- and blue-listed species), and it is consistent with the protected area management plan. Examples of situations where this could occur are as follows:

- i) If it enables the establishment of an ungrazed area(s); or,
- ii) If through a prescribed burn, wildfire, ecosystem restoration or rehabilitation activities, improved range management practices, etc., and as a by-product of these activities range condition improves and forage availability increases. Any rehabilitation activities would be to improve the ecosystem, and not to increase AUMs.

If there are legislative or policy changes in the future that would facilitate increasing AUMs in protected areas, this policy change should be followed in this plan area in a manner consistent with the conditions outlined above.

## **Recreation - General Management**

- 1) With respect to public recreational use, identify measures to mitigate liability for tenure holders, private landowners and user groups providing services to the public. The intent is to lessen or eliminate risk so that public opportunities or services can be provided
- 2) That the province gathers information on the impacts of recreation on drinking water sources, as a basis for future policy development.
- 3) Develop legislation to prohibit "mud bogging".

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4) It is recommended that a joint agency (BCAL, MoTH, and MoF) review procedure be established to address right of way access location concerns originating from subdivision proposals. (Rationale: It is generally MoTH policy to require provision of access to Crown land beyond/through a new subdivision. It is currently their position that it is not MoTH's or the developer's responsibility to undertake the necessary field investigation and design work to best meet the needs of Crown access beyond. It is generally left to the discretion of the developer as to where the right of way corridor is established, and consequently it may not be located in the best position to facilitate construction.)

5) Funding for recreational access will be a new funding pressure (adding to the ongoing harvesting needs).

6) Create a process that enables organized user groups to implement identification and registration of ATVs and allocate any licensing fees back into managing and developing the recreational resources.

Intent:

i) To gather knowledge and experience in managing motorized use on a self-controlling basis.

ii) This is not intended to limit extension of any user managed registration requirements outside these areas.

iii) It is recognised that the words "registration" and "identification" may not have the same meaning as under the Motor Vehicle (All Terrain) Act.

## Recreation - Regionally Significant Trail Corridor RMZ

1) There needs to be a review of the right of way status to the trailheads. An agency needs to be identified as responsible for acquiring dedicated r/w to legally permit public access. (McDougall Rim, Powers Creek, Brent Mountain, Lacoma Lake potentially have alienation.)

## Timber and Silviculture

1) Ensure that the continuations of natural genetic production on site and biological generative processes are not harmed by harvesting of seed and plant matter.

- Seed collectors can take up to a maximum of 10 % of the seed of each plant per year
- Seed collection areas to not overlap for each plant species.
- Collection of plant parts must not exceed more than 10 % of either blossoms, leaves or twigs.
- Collection of mosses, lichens, etc. must not exceed 10 % of the original plant community on each site
- Collection of mushrooms will not exceed 10 % of a species
- Plants will not be dug up, except for medicinal plants essential for health and personal use.

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2) Ensure a viable, intact forest community by maintaining and using only plants that are indigenous to each particular site.

- Natural regeneration will be the method of choice for re-establishing vegetation after timber harvesting, at least five years will be allowed until replanting with trees from eco-type seed be used
- All trees for replanting will be produced from seed taken from the replanted sites (eco-type seed)
- Exotic and hybrid trees (e.g., genetically improved, superior provenance's, and resistant material for forest health) will be limited to less than 1 % of the plan area and each site will be identified with a sign that there are genetically altered or exotic species.

3) The Chief forester should consider that if any subsequent AAC increase are warranted (i.e., TSR III) that the increase should be shared on a proportional basis with other interests (i.e., wildlife values).

4) Encourage the decision making process for awarding woodlots to consider future community expansion and infrastructure needs.

Intent:

ii) BCAL and other appropriate agencies should be consulted to identify any potential conflicts with long-term land use plans prior to awarding a woodlot license.

iii) Although woodlot licenses are intended to be long term, area-based, timber production tenures, it is recognized that they can usually be moved to another location at some time in the future should higher land use objectives be identified (e.g. community expansion and infrastructure needs, wildlife habitat).

5) Promote the utilization of the merchantable components of harvested stands. The utilization of hemlock volumes in stands 140 years and greater will be optional and be considered as a volume exclusion in the Timber Supply Review.

Intent:

To allow for the optional utilization decadent hemlock volumes and exempt them from both cut control and waste assessment. This will also allow for hemlock logs and trees to be available for retention and coarse woody debris.

6) Government should create and provide at its offices an information pamphlet on sound environmental harvesting practices for mushrooms and other plant species of interest to wildcrafters.

## Transportation

1) Ensure transportation plans include criteria that address environmental and other values.

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2) When making land use decisions, consider the need for access to, through and/or beyond Crown lands.

3) Ensure transportation planning is coordinated with other land use and resource management processes.

## Trapping

1) Consult with licensed user, and consider viability of trapping industry, prior to making decisions that impact the available land base.

2) If a reduction or impact is considered, the following is needed:

- a consultation process
- consideration given to viability of trapping interests.
- maintenance of existing tenures.
- compensation where necessary

3) Recognizing that forest road and harvesting activities may harm registered trap line improvements or assets, and subsequently create unavoidable financial hardship on individual trappers, it is suggested that:

- The Ministry of Forests conduct an internal policy review to make provisions to recognize costs associated with providing reasonable rehabilitation measures and/or compensation relating to direct impacts to trap line improvements.
- The Ministry of Forests encourages forest licensees to work with representatives of registered trappers to develop fair and consistent practices with respect to rehabilitation and compensation.
  - An example of rehabilitation could be re-establishing a trail to a number of sets.
  - An example of compensation could be replacing destroyed trap and settings.
  - An example of compensation may be investigating the impact that current practices have on the animal populations.

4) In establishing any permit fees, rents, costs, or restrictions, the government should consider the economical viability of the tenure and/or industry.

Intent:

i) An example of the intent is that should a trap line be included in a park, that the tenure holder be exempt from then having to get another permit from BC Parks for his or her trap line.

5) Administration of all trapping activities to be the responsibility of the BC Environment, Wildlife Branch only.

Intent:

i) Trapping sector is looking for a "one window" or "one stop shopping" approach to dealing with government.

ii) Maintain viability of industry by making it easier to deal with government.

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The Ministry of Environment, Lands and Parks acknowledge trapping, and the requirements it has, as an acceptable activity within parks.

## Water - General Management

1) Create or amend existing legislation (e.g., Water Act) to recognize and protect instream flows and the groundwater resource for fish and fish habitat.

2) Create or amend existing legislation (e.g., Water Act) to approve and recognize Water Management Plans when making water allocation decisions.

3) Encourage the provincial government to enact legislation to regulate the use of, and to protect the ground water resource. This legislation should be in concert with the Water Act of BC to recognize the interaction between surface and ground water.

4) Ecological considerations must receive the same attention as social and economic considerations in water management.

5) Require all community water purveyors, Water User Communities, holders of licenses for industrial (d) purpose, and holders of licenses for domestic purpose greater than 2500 gallons per day, to install and maintain appropriate water treatment (disinfection) works.

- Require all existing community water systems using surface sources to disinfect.
- Require all new surface source water systems to have a 3-log removal for giardia, and all new surface sources with known sources of contamination to have a 4-log removal for giardia.
- Require all community water systems to have emergency plans in place.

6) Promote the use of treated wastewater.

7) Do not allow bulk export of water or large-scale inter-basin diversions of water.

Intent:

- i) Confirm the ownership of surface water and ground water in the province.
- ii) Prohibit the bulk removal of water to locations outside the province.
- iii) Maintain existing bulk water removal rights, within clearly defined limits.
- iv) Prohibit large-scale diversions between major watersheds (e.g., Fraser and Columbia watersheds).

8) Explore pricing mechanisms to promote water conservation in commercial, irrigation, and domestic water licenses.

9) Require provincial government agencies to implement appropriate setbacks for all developments based on a 200-year flood elevation.



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10) Encourage local, provincial, and federal governments to prepare and update Emergency Preparedness Plans to protect life, infrastructure, and property during floods, debris torrents, land slides, and other natural disasters.

11) Respect existing approved community foreshore plans when considering land and resource developments along/within aquatic lands.

12) Manage and regulate recreational activities on water to prevent bank erosion and to protect fish and wildlife habitat.

13) All mechanical equipment working in streams, lakes and wetlands must be clean and well maintained and encourage the use of biodegradable hydraulic fluids.

14) Maintain the Watershed Restoration Program as a priority program of FRBC in the plan area.

15) The objectives and strategies for riparian management should be achieved through the development of stewardship/partnership agreements with private landowners.

16) Initiate new legislation to provide aquifer information from current well drilling and groundwater development activities by obligating water well drillers to submit well drill logs in an acceptable format.

Intent:

i) To collect information already available to provide information for groundwater management.

17) Initiate legislation to require wells to be drilled, tested, and closed to a standard such as The Code Of Practice, 1994, which was created in conjunction with the BC Well Drillers Association (now BC Ground Water Association) and to certify water well drillers in the province.

Intent:

i) To provide suitable standards and ensure proper certification of drillers for provision and protection of the groundwater resource.

18) Initiate legislation to require reporting of groundwater use (e.g., registration of wells without necessarily licensing) in critical aquifer areas.

Intent:

i) Information on groundwater use would assist in assessing and resolving water use conflicts, in development of resource management plans, and in detailed aquifer mapping and assessments in important groundwater areas.

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19) Initiate actions to integrate management of water resources by linking databases in ministries and agencies having information on ground and surface water quantity and quality.

Intent:

- i) To coordinate activities already being carried out and data collected to provide a common pool of information for improved inter and intra agency water resource management decisions. (e.g., Ministry of Health's community water supply database [WSACS], the MELP's water well [WELL] and water quality [EMS] databases).
- ii) To better utilize the information currently collected to minimize data costs.

20) Begin detailed hydrogeologic mapping and assessment of critical aquifers in the LRMP area, including mapping groundwater flow directions, estimating the amount of flow, identifying location of sensitive recharge/discharge areas, characterizing background water quality, and identifying areas of surface water-groundwater conflicts.

Intent:

- i) To obtain detailed understanding of critical aquifers and provide this information to support resource management and protection planning, growth strategy planning, land use zoning and water allocation planning.

21) Work with local governments to help them preserve groundwater resources through the provision of human and financial resources.

22) Ensure on-going milfoil and weed management along the lakes, which balance the needs of tourists and recreational users with environmental considerations.

23) Water Managers should identify in their databases water licenses from spring fed sources.

24) That resource strategies be implemented and monitored on a watershed basis. (implementation)

Intent:

- i) The basic management unit to manage water issues is at the watershed level. The intent is to integrate a watershed with the IWAP process and Landscape Unit planning scale. The intent is not to manage at a smaller side drainage scale.
- ii) Resource management should occur at the watershed/sub-basin level as appropriate.

25) That the province expands the range provisions of the Forest Practices Code to more effectively address risk to water quality from parasites.

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26) The province should develop a provincial policy on natural hazard risk assessment for forestry development.

27) Recommend that local governments (municipalities and regional districts) protect their municipal groundwater supply sources by delineating capture zones (recharge areas) to their community wells (and springs) and developing well (or spring) protection plans<sup>1</sup> to manage land uses which impact these aquifers. Land use activities in the well capture zone areas can then be effectively managed in regional growth planning, zoning and land use plans.

Intent:

i) To protect the quantity and quality of this vulnerable and valuable resource by providing for infiltration over a dispersed area; limiting increases in impermeable areas; and, preventing groundwater pollution by directing groundwater polluting activities away from recharge areas of community wells. The well protection plan will guide land use zoning and land use activities under existing planning and regulatory processes.

28) Protect the quantity and quality of water in vulnerable aquifer areas shown on maps "x" (Aquifer Vulnerability and Aquifer Demand) from incompatible development, and use/activities.

Intent:

i) To sensitively manage land and resources on the recharge area.  
ii) To work with local governments to manage land use and resource extraction.  
iii) Includes the recharge area.  
iv) To protect the quantity and quality of this vulnerable and valuable resource by providing for infiltration over a dispersed area; limiting increases in impermeable areas; and, preventing groundwater pollution by directing groundwater polluting activities away from recharge areas of community wells. Forest practices would not normally affect ground water, however fuel storage sites, maintenance yards, and parking lots may.  
v) Incompatible development is defined as any type of development that would likely result in negative impacts to a specified resource value.

29) Promote land use compatible with maintaining the quality and quantity of ground water in both provincial and local government activities.

Intent:

i) To work with local governments to manage land use and resource extraction compatible with the objective.  
ii) To incorporate this objective into lower level land use plans.  
iii) To protect the quantity and quality of this valuable and vulnerable resource by providing for infiltration over a dispersed area and preventing groundwater pollution by directing potentially polluting activities away from recharge areas.  
iv) To be carried out by MELP - Water Management.

<sup>1</sup>A *Well Protection Toolkit* is being prepared by the Ministry of Environment, Lands and Parks and Ministry of Health to assist communities/water purveyors on how to delineate capture zones and develop well protection plans for community wells.

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30) Aquifer protection plans should be developed for all aquifers that are highly vulnerable (aquifers coloured red in the vulnerability maps), especially for those aquifers that are also moderately to heavily used or have documented health related concerns. Well protection plans should be developed for community wells in highly vulnerable aquifers.

Intent:

i) This will include identifying recharge areas and land use activities that may be incompatible with maintaining the quality and quantity of the aquifer. Forest practices would not normally affect ground water, however fuel storage sites, maintenance yards, and parking lots may.

ii) MELP (Groundwater section) would do this.

iii) Include known and specific problems: the aquifers at Kalamalka Lake, in the area southeast of Armstrong, at Tug-ul-nuit Lake-Osoyoos Lake, and at Tug-ul-nuit Lake to Vaseux Lake (aquifers in the Kelowna area is currently being mapped and classified).

31) Sustained capacity should be estimated for all aquifers that are heavily used.

32) Potential and documented areas of surface water-groundwater conflicts should be identified and strategies developed in those areas to resolve such conflicts.

Intent:

i) This might be done by comparing the aquifer Level Of Use map with the Water Allocation map.

33) Observation wells should be established in critical aquifers in the LRMP area to monitor baseline groundwater conditions, starting with all IA aquifers. Observation wells can be established in partnership between the provincial government and regional districts and municipalities and communities.

Intent:

i) Ensure monitoring of the most important aquifers in the LRMP area to detect any degradation that may be occurring.

34) Promote public education about the importance of the groundwater resource and need to protect it by establishing roadside displays, sending brochures to residents, promoting shows on groundwater in the local cable channel (e.g., air the recently completed "www.groundwater.protection" video).

Intent:

i) Raise awareness about the local groundwater resource.

35) Ensure on-going milfoil and weed management in partnership with the provincial government along the lakes, which balance the needs of tourists and recreational users with environmental considerations.

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## Water - Community Watersheds

1) Encourage coordinated water use (instream and consumptive) between water purveyors.

2) Utilize the Auditor General of BC's report "Protecting Drinking Water Sources" to develop future policy (e.g., a lead agency is needed to ensure drinking water interests are represented in government decisions, and to improve accountability).

3) Encourage coordinated water use (instream and consumptive) between water purveyors.

4) Utilize the Auditor General of B.C.'s report "Protecting Drinking Water Sources" as a tool for management.

5) A lead agency is needed to ensure drinking water interests are represented in government decisions, and to improve accountability.

## Wildlife

1) Consult with local stakeholders concerning hunting regulations.

2) Incorporate wildlife requirements into lower level strategic and operational planning exercises.

3) Recognize the following as "wildlife habitat features" as described in the FPC Operational Planning Regulations:

- i) Red and blue listed plant and plant community locations.
- ii) Sedentary features of red and blue listed wildlife such as dens, nests, hibernacula, etc.
- iii) Historic red listed species feature locations, including nests, dens, etc.
- iv) Conservation Data Centre (CDC) "record trees".
- v) Currently used raptor (birds of prey) nests.
- vi) Mountain goat and bighorn sheep natal areas.
- vii) Bighorn sheep ram rutting areas.

4) Establish wildlife objectives during Phase 1 of landscape unit planning.

5) Harvesting of grizzly bears is a permitted use and the amount and location of the harvest will be determined by the best biological information available with priority for the conservation of grizzly bears. (implementation)

Intent:

i) Any polygons where the management of grizzly bears occurs are to be considered harvest zones for grizzly bears. The management and harvest of grizzly bears is to be based on the best available information with an emphasis on continuing research and where stakeholders and local biologists determine the location and amount of harvest to take place.

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6) Develop appropriate flying restrictions to ensure caribou are not disturbed during critical early winter and late winter periods (i.e., the restriction would apply only to these habitats, and only during the period in which these habitats are used by caribou).



## Part 9

### In this section:

- Advice to local governments on the following topics:
  - Air Quality Protection
  - Community/Crown Interface
  - Fish and Aquatic Habitat
  - Mining
  - Range
  - Water
  - Wildlife

## Advice to Local Government

**General Description** This document lists those items that were identified during the LRMP discussions that are more appropriately described as advice to local government. These generally take the form of recommendations on how local governments are to integrate the values or issues the Table identified into local government planning initiatives, or how they would like to see activities on private land managed through local government planning and zoning.

This material was reviewed by the Table to determine whether or not there was Table support on each item. Material that is not underlined is supported as a recommendation from the Table. The items that are underlined are those which individual Table members have put forward that do not have the support of the entire Table.

**Purpose** The purpose of this material is to summarize the items identified by the Table that essentially fall under the jurisdiction of local governments. This section of the document is intended to provide an easy and quick reference for both the process participants, as well as local governments when they review the recommendations package.

The material contained in this section was identified through both Table and working group (subcommittee) discussions on the various resources within the plan area. Rather than leaving these types of issues in each of the various sections of the Table's recommendations package, they have all been located here. The identification of what material belonged here rather than in the recommendations package itself was made by the Process Support Team as part of its review of draft #1 of the recommendations package.



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The material in this section is considered as advice to local government.

## Source

## Advice

n/a

1) Consider the use of structured and facilitated round table process in all those stakeholder meetings where integration is a major purpose of the meeting.

## Air Quality Protection

1) As necessary, local governments should participate in air shed planning with other strategic and local air quality management processes (e.g., CORD Growth Management Strategy).

2) Air pollution management strategies should be linked to Growth Management Strategies within the Okanagan - Shuswap LRMP plan area.

## Community/Crown Interface

1) Local Governments are encouraged to recognize and model their land use decisions using objectives and strategies of the LRMP, including riparian area strategies, and strategies for the identification and protection of rare plant and wildlife species.

2) Local governments are encouraged to participate as partners in technical advisory groups such as RENEW (Ecosystem Recovery) and the Sensitive Ecosystems and Inventory Group, so that improvements within crown resource management practices are applied within adjacent private and community owned lands.

3) Local governments will be encouraged to develop community plans where they do not exist.

4) Encourage the value of biological assets as desired by the LRMP are recognized in local government initiatives.

5) Where environmental issues transcend the private/Crown boundary, local governments are encouraged to incorporate LRMP objectives and strategies in their plans.

6) Local governments are encouraged to continue to work with each other, the provincial government, and other groups to effect containment and control of priority noxious and other "management concern" weed species.

## Fish and Aquatic Habitat - General Management

1) All levels of government that work with private landowners should be encouraging the use of stream riparian buffers where riparian integrity is compromised.

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2) Incorporate fish habitat requirements into local community plans, and bylaws to protect urban streams, riparian corridors, and foreshore habitat.

Intent:

i) Examples include protection of leave strips, controlling soil erosion and sedimentation, stormwater management, controlling the rate of run-off, limiting impervious surface area in urban watersheds to maintain hydrologic stability, and wastewater management. Other tools available to local government include tree protection bylaws, soil removal bylaws (prohibit fill), and drainage bylaws.

3) Restore channel stability in streams where assessments (e.g., IWAP) indicate a concern, or where there are known problems.

Intent:

i) To restore channel stability.

ii) Applies to both Crown and private land.

iii) It is intended that this would apply to private land through voluntary stewardship agreements, in a cooperative manner with private landowners, etc.

iv) Rehabilitation of stream channels should be considered in a watershed context.

v) Accelerate natural recovery (see glossary for definition).

4) Maintain stream temperature conditions considered necessary to sustain and protect fish and fish habitat.

Intent

i) To use the best current knowledge.

ii) The pursuant strategies may be best managed at a watershed, or a sub-drainage level.

iii) Applies to both Crown and private land.

iv) It is intended that this would apply to private land through voluntary stewardship agreements, in a co-operative manner with private landowners, etc.

v) Direct solar radiation on streams is the primary factor influencing temperature changes in the stream and buffer strips can be effective in preventing stream temperature increases

vi) As a rule of thumb, streams flowing through the IDF, ICH, PP and the BG biogeoclimatic zones are susceptible to rapid temperature changes as the result of vegetation removal, however streams originating in the MS of ESSF are also influenced by shading and may require site specific retention.

vii) Avoid practices that create cumulative temperature increases that eventually produce high downstream temperatures.

viii) Maximum preferred temperatures for salmon (and kokanee)\* are: migration <14 C; spawning <12 C; incubation <11 C; and, rearing <13 C

Maximum preferred temperatures for rainbow trout are: migration <20 C; spawning <16 C; incubation <11 C; and, rearing <20 C

ix) Temperature limits of some stocks may vary but the limits above are

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generally accepted as a reasonable guide.

x) Temperatures above 21 degrees C are fatal

xii) Buffer widths and retention levels will vary due to a variety of conditions, including existing temperatures, size of stream, etc.

xiii) The most likely life stage to be impacted by temperatures depends on the species present in the stream:

- Chum, pink, sockeye and kokanee- migrants, spawners and early portion of incubations.

- Chinook and coho - potentially all phases except majority of incubation.

Rainbow trout - incubation and rearing.

xiv) The stream temperatures identified are the mean daily temperatures.

xv) Where there is more than one species of fish within a stream, management should be directed to the species with the most conservative limits. For example if we have bull trout and kokanee in the same system we should be maintaining temperatures suitable to bull trout. Where Landscape Unit Planning is occurring, these plans will specify the target fish species.

\*species specific data can be found in "A review of Habitat Capacity for Salmon Spawning and Rearing , a BC Resource Inventory Committee document prepared by David A. Levy and Tim L. Slaney (July 93) and Summary of Water Quality for Salmonid Hatcheries" by Sigma Environmental Consultants LTD, 1983 Revised Ed, prep for Department of Fisheries Oceans, Vancouver.

xvi) This objective applies to streams with temperatures approaching or exceeding the maximum preferred temperatures for migration, spawning, incubation or rearing. Strategies need to be more rigorously applied as the temperature approaches the maximum preferred temperature. Addressing potential temperature increases early on when cheaper opportunities exist is preferred. This would also assist in avoiding cumulative temperature impacts much further downstream.

xvii) Laboratory data is lacking for bull trout; however, the following identifies key components of research that is happening in the US and Canada.

- A maximum weekly average temperature (MWAT) below 10 degrees C should be a target for bull trout streams. MWAT is defined as the warmest seven-day average of daily water temperatures recorded during a given year or study period. FRBC funding should be considered to determine MWAT on bull trout systems.

- Rainbow trout, in a bull trout watershed appear dominant in streams with temperatures above MWAT of 11 or 12 degrees. Bull trout actively seek out colder water as temperatures increase and avoid temperatures exceeding 17C.

xviii) The intent of the strategies pursuant to this objective is not for them to have incremental protection to the direction provided the Riparian Management section (assuming completion and agreement). These are only intended to guide the location of where the riparian protection is applied.

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5) Plan development activities along streams, such that stream water temperatures should not increase as a result of operations to the point that they would impact fish and fish habitat.

Intent

i) Apply the riparian buffers to maximize natural shade on all fish streams and those tributary streams, which may increase fish stream temperatures. (This is not intended to override other riparian protection objectives.)

ii) Encourage proponents and other parties to collect information on stream temperatures for consideration in the planning process.

iii) The results of ongoing research initiatives should be incorporated into development planning.

iv) It is recognized that private land activities can significantly impact stream temperatures, and that natural conditions (i.e.; in grasslands) may result in high temperatures. There is no intent to reverse such impacts through other resource management but there is an expectation that conditions will not be exacerbated.

v) Potential temperature impacts to fish streams as well as S4 non fish, S5 and S6 stream which are directly tributary to fish streams should be addressed in pre-development planning.

vi) The intent is to have a prescribing forester prepare prescriptions that specifically address temperature objectives and strategies for fish streams.

6) Require a "development permit area" of sufficient width above the high water mark for areas with OCPs.

Intent:

i) This to be administered by local governments.

ii) This applies to private land.

7) Rehabilitate and stabilize streambanks that have been impacted by urban development, and resource development activities such as agriculture, timber harvesting, mining, etc.

Intent:

i) To rehabilitate and stabilize stream banks through the Watershed Restoration Program, the Fish Renewal BC program, and other similar programs.

ii) It is intended that this would apply to private land through voluntary stewardship agreements, in a cooperative manner with private landowners, etc.

8) All levels of government, local licensed resource users, and/or the public groups are encouraged to develop and implement rehabilitation plans where needed.

Intent:

i) Some of the other tools that could be used to accomplish this include re-vegetating disturbed sites, livestock fencing, etc.

ii) The use of bioengineering techniques should be used to stabilize streambanks rather than riprap.

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## Fish and Aquatic Habitat - Large Lake Shoreline

1) The sentiment of the working group was that this zone includes all water below the natural boundary (at high water), foreshore, as well as the riparian zone above the natural boundary where the adjacent upland is Crown land.

2) Avoid, wherever practicable, development within a 15 to 30 metre wide strip upslope of the high water mark (natural boundary).

### Intent

i) Proposals within the setback must be assessed or planned by a qualified professional, who can also propose mitigation or compensation measures as appropriate to alleviate potential impacts and/or compensate for any loss in capacity of habitat to produce fish or other riparian values.

3) Minimize the development of structures below the high water mark.

i) An example of how to do this would be to discourage the development of numerous private boat launches (which only a small number of people may use) in favour of a few public launches (which would be used by many). Fewer boat launches would reduce the amount of shoreline that is covered with concrete slabs, which adversely impacts cover availability and invertebrate production. If boat launches are approved, two strips of concrete should be used rather than slabs.

4) Future structures to be open to currents and wave action so as not to impede littoral draft.

5) Restrict the use of sand/silt traps, windrowing, and rock groins in order to allow for continued littoral drift.

6) Restrict removal of material and vegetation from the foreshore in order to maintain natural foreshore substrates.

### Intent:

i) "Substrates" include gravel, cobble and boulders).

ii) To maintain natural substrates for more diverse invertebrate production.

iii) Does not include weeds, milfoil, or "washed up" vegetation.

7) Restrict dumping of sand in areas characterized by gravel beach in order to maintain natural foreshore substrates and vegetation.

8) Restrict infilling of lakeshores.

### Intent:

i) To avoid the loss of shoreline habitat.

ii) To provide guidance to those issuing permits. This activity is okay if a permit has been issued.

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9) Water intakes to be installed in at least three- (3) m of water, measured at low water.

Intent:

- i) To avoid disturbing substrates, as this makes them susceptible to colonization by invasive weeds. The weeds then need to be managed; thus, creating further problems.
- ii) To minimize interactions with fish, or impacts to spawning habitat.

10) Use directional drilling or augering when installing waterlines in spawning areas.

Intent:

- i) To avoid disturbing substrates, as this makes them susceptible to colonization by invasive weeds. The weeds then need to be managed; thus, creating further problems.

11) Prevent the removal of naturally generated large organic debris (LOD).

Intent:

- i) To maintain recruitment rate of LOD, and allow it to contribute to nutrient cycling, shoreline stabilization, and the provision of cover habitat.

12) Avoid, wherever practicable, development within a 15 to 30 metre wide strip upslope of the high water mark (natural boundary).

Intent

- i) Proposals within the setback must be assessed or planned by a qualified professional, who can also propose mitigation or compensation measures as appropriate to alleviate potential impacts and/or compensate for any loss in capacity of habitat to produce fish or other riparian values.

13) LRMP fish objectives and strategies should be incorporated into other planning initiatives, including those administered by lower level governments.

Intent:

- i) The intent is to manage proactively - i.e., identify fisheries management zones and reserve zones prior to development; guide development along the lakeshore to avoid sensitive fish habitats and minimize cumulative impacts as opposed to reacting project by project.

14) Inventory and classify habitats relative to their importance and sensitivity.

Intent:

- i) The intent of 13 and 14 is to develop more specific foreshore guidelines for developments along the lake shoreline based on habitat sensitivity and type of development to minimize cumulative impacts. This would be used to establish fisheries management and reserve zone boundaries in association with local government land use planning processes (example - 15 m setback zoning exists on south shore of Shuswap Lake).

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15) Develop management prescriptions and setback requirements based on the results from 13.

## Mining

1) Encourage local governments to consider aggregate resources and long term aggregate requirements, before zoning land within their municipal and electoral area boundaries in a way that unnecessarily precludes aggregate extraction.

Intent:

i) To promote recognition and prudent use of this resource.

ii) Recognizes that aggregate pits and quarries are legally considered "resource extraction" and not "land use".

## Range

1) Fencing is to be a condition of any new subdivision approvals that adjoin Crown or privately owned range, and the fence is to be located on the property that is being subdivided. The requirement for fencing should be added to the property title.

## Water - General Management

1) Ensure that the limits of water supply are incorporated in all growth management strategies.

2) Encourage local governments to work with each other, the provincial government, the Okanagan Basin Water Board and similar boards, to develop strategic plans which address waste discharge to the air, land and water.

Intent:

i) Have an over-arching strategic plan for waste management (utilize an integrated approach between local and provincial governments), i.e., regardless of where the waste originates, it ultimately ends up on the crown resources of water, land and air.

3) Encourage local governments to develop and implement Flood Plain Management Plans to regulate development on private lands, to encourage relocation of existing developments and/or construct works to protect them in unsafe areas.

4) Encourage local government to implement appropriate setbacks for all developments based on a 200-year flood elevation.

5) Identify and establish floodways and greenways in settlement areas to reduce the risk and impact of flooding and erosion; implement in cooperation with other planning processes, wherever possible.

6) Encourage local governments to prepare and update Emergency Preparedness Plans to protect life, infrastructure, and property during floods, debris torrents, landslides, and other natural disasters.

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7) Manage and regulate recreational activities on water to prevent bank erosion and to protect fish and wildlife habitat.

8) Recommend that local governments (municipalities and regional districts) protect their municipal groundwater supply sources by delineating capture zones (recharge areas) to their community wells (and springs) and developing well (or spring) protection plans<sup>1</sup> to manage land uses which impact these aquifers. Land use activities in the well capture zone areas can then be effectively managed in regional growth planning, zoning and land use plans.

Intent:

i) To protect the quantity and quality of this vulnerable and valuable resource by providing for infiltration over a dispersed area; limiting increases in impermeable areas; and, preventing groundwater pollution by directing groundwater polluting activities away from recharge areas of community wells. The well protection plan will guide land use zoning and land use activities under existing planning and regulatory processes.

9) Protect the quantity and quality of water in vulnerable aquifer areas shown on the "Aquifer Vulnerability" and "Aquifer Demand" maps (referenced in the Water GMZ section) from incompatible development, and use/activities.

Intent:

i) To sensitively manage land and resources on the recharge area.  
ii) To work with local governments to manage land use and resource extraction.  
iii) Includes the recharge area.  
iv) To protect the quantity and quality of this vulnerable and valuable resource by providing for infiltration over a dispersed area; limiting increases in impermeable areas; and, preventing groundwater pollution by directing groundwater polluting activities away from recharge areas of community wells. Forest practices would not normally affect ground water; however, fuel storage sites, maintenance yards, and parking lots may.  
v) Incompatible development is defined as any type of development that would likely result in negative impacts to a specified resource value.

10) Promote land use compatible with maintaining the quality and quantity of ground water in both provincial and local government activities.

Intent:

i) To work with local governments to manage land use and resource extraction compatible with the objective.  
ii) To incorporate this objective into lower level land use plans.  
iii) To protect the quantity and quality of this valuable and vulnerable resource by providing for infiltration over a dispersed area and preventing groundwater pollution by directing potentially polluting activities away from recharge areas.  
iv) To be carried out by MELP - Water Management.

<sup>1</sup>A *Well Protection Toolkit* is being prepared by the Ministry of Environment, Lands and Parks and Ministry of Health to assist communities/water purveyors on how to delineate capture zones and develop well protection plans for community wells.



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11) Aquifer protection plans should be developed for all aquifers that are highly vulnerable (aquifers coloured red in the vulnerability maps in the Water section – Part 3), especially for those aquifers that are also moderately to heavily used or have documented health related concerns. Well protection plans should be developed for community wells in highly vulnerable aquifers.

Intent:

i) This will include identifying recharge areas and land use activities that may be incompatible with maintaining the quality and quantity of the aquifer. Forest practices would not normally affect ground water, however fuel storage sites, maintenance yards, and parking lots may.

ii) MELP (Groundwater section) would do this.

iii) Include known and specific problems: the aquifers at Kalamalka Lake, in the area southeast of Armstrong, at Tug-ul-nuit Lake-Osoyoos Lake, and at Tug-ul-nuit Lake to Vaseux Lake (aquifers in the Kelowna area is currently being mapped and classified).

12) Sustained capacity should be estimated for all aquifers that are heavily used.

13) Potential and documented areas of surface water-groundwater conflicts should be identified and strategies developed in those areas to resolve such conflicts.

Intent:

i) This might be done by comparing the aquifer Level Of Use map with the Water Allocation map.

14) Observation wells should be established in critical aquifers in the LRMP area to monitor baseline groundwater conditions, starting with all IA aquifers. Observation wells can be established in partnership between the provincial government and regional districts and municipalities and communities.

Intent:

i) Ensure monitoring of the most important aquifers in the LRMP area to detect any degradation that may be occurring.

15) Promote public education about the importance of the groundwater resource and need to protect it by establishing roadside displays, sending brochures to residents, promoting shows on groundwater in the local cable channel (e.g., air the recently completed "www.groundwater.protection" video).

Intent:

i) Raise awareness about the local groundwater resource.

16) Recommend that local governments develop minimum standards for developers to prove up groundwater supplies.

Intent:

i) To ensure a more reliable estimate of the groundwater supply to protect the property owners' investment.

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17) Ensure on-going milfoil and weed management along the lakes, which balance the needs of tourists and recreational users with environmental considerations.

## Wildlife

1) Incorporate wildlife requirements into lower level strategic and operational planning exercises.

2) Consider the needs and characteristics of wildlife when developing settlement plans by having MELP share information with local government planners regarding wildlife habitat needs and characteristics.

3) Encourage adoption of wildlife habitat needs in official community plans (OCPs).

4) Incorporate objectives and strategies for rare elements into local government planning initiatives (e.g. OCP, Growth Management Strategies, etc.).

5) Reduce bear - human conflicts in the interface of forest and settlement lands by:

- fostering community stewardship and public education initiatives;
- installing bear proof fencing around solid waste disposal sites (the fencing is to be provided by whoever is operating the site);
- working with MELP and other provincial agencies as needed in identifying areas where there may be need to develop regulations and/or implement protection orders to reduce unnatural food attractants in and adjacent to residential areas (e.g., the storage and placement of household garbage, disposal of unpicked fruit, improper composting, etc.); and,
- working with school, park and subdivision officials to assess and to deal with potential wildlife conflicts, and to design for safety when placing school sites adjacent to "greenbelts".



## Part 10

In this section:

- Direction for future amendments to this plan.
- Provisions for variances from the management direction spelled out in this plan.
- How agreements for inter-agency protocols for referrals, approvals, etc., identified in this plan, will be dealt with by government.

## Variances, Amendments, and Approvals

### Introduction

A major purpose of strategic land use plans is to create a framework of agreement among stakeholders which will provide a reasonable period (~10 years) of land and resource management certainty and stability. LRMP policy calls for a full review and necessary amendment of the entire plan some eight years after original approval. During this term, however, to remain relevant as circumstances change, the plan must be open to evolution and tuning. It must also be capable of responding to significant new issues, should they arise. Reasons for such plan changes include:

- emergence of new information on resource values;
- emergence of unanticipated problems;
- opportunities for greater efficiencies;
- emergence of new and better ways of achieving intended objectives;
- clarifying relationships between the strategic plan and lower level plans; or,
- evaluation in a strategic context of recommendations for changes in the strategic plan arising from lower level planning processes, compliance with new legislation or regulations, or with significant new land and resource management strategies or provincial initiatives. (Noted that there has to be agreement on changing the plan based on policy changes. It's understood that legislated changes will take effect regardless.)

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This section provides direction for future amendments to this plan, outlines the provisions for variances from the management direction spelled out in this plan, and covers the issue of how agreements for inter-agency protocols for referrals, approvals, etc., identified in this plan will be dealt with by government.

The intent of the plan is that if the strategies are followed one has met the objective. Where this is any question about the interpretation of a given objective, implementation and compliance with the associated strategies will be deemed compliance with the objective.

## Variances

Plan objectives are intended to define the desired end state for management, while strategies represent the planning table's best advice as to how the end state can be achieved based on current information and understanding. However, site specific situations may arise where the strategies recommended in the LRMP may not be appropriate, or where there may be a better alternative to achieve the objective. This could include alternatives to facilitate improvements, innovation and efficiencies in management practices. The LRMP contains Cabinet approved direction for management; however, only those portions of the plan that are included as part of the higher level plan (HLP) are legally binding. Where strategies have been included in higher level plan objectives, on those limited occasions where such divergence may be warranted, managers may still diverge from the strategies in the plan by means of formal variances. [Note: The ability to vary from the HLP has to be confirmed.]

More specifically, development proponents and approving agencies may vary from the detailed portion of the HLP:

- the variance is consistent with the overall general intent of the objective; and,
- a rationale for the variance is provided and it demonstrates an equal or higher level of consideration for social, economic and environmental impacts; and,
- A qualified, registered professional, as defined in the Forest Practices Code, submits the applicable portion of the plan, prescription or assessment that contains the variance.

The approval of variances will rest with the statutory decision-maker (SDM), and be acceptable to the Designated Environment Official (DEO) where environmental values are at risk.

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Where a pattern of variances emerges to address similar types of site-specific circumstances, consideration should be given to amending the plan to incorporate the management practices described in the variance. The proposed amendment will be handled consistent with the direction for minor or unscheduled major amendments as appropriate.

A table that outlines some of the differences between variances, plan updates (minor amendments) and major (unscheduled) amendments can be found following the Approvals subsection.

## Amendments

It is recognized that plans are not static, and that provisions should be made that allow for amendments to the plan. Some of the reasons for these changes include:

- The Okanagan - Shuswap LRMP (OSLRMP) was developed using the best inventory and technical information that was available. Over time new or improved inventory information on resource values may become available, and it may be necessary to revise the OSLRMP to reflect this new information.
- As experience is gained implementing the objectives and strategies identified in the plan, it's possible that problems may arise that were not anticipated when the plan was developed. Therefore, revisions to the plan may be necessary to address these problems.
- Government agencies review plans, prescriptions, and assessments on an ongoing basis in an effort to find greater efficiencies and reduce red tape, yet still meet the original requirements for management standards. Many of these plans, prescriptions, and assessments are referenced in this plan, and as these evolve the plan may need to be revised accordingly.
- New management practices may be developed that differ from the strategies identified in the OSLRMP, yet they still achieve the intended objective. Although these circumstances are addressed to some extent in the "Variances" subsection (see above), it may be desirable to revise the plan to incorporate these new management practices.
- Suggestions by lower level planning processes, government agencies, resources users, the Implementation and Monitoring Committee (IMC), etc.
- The plan is to be reviewed every ten years, and revisions may result from this process.

To balance stability with flexibility, the IMC will review all proposed plan amendments and assign them to one of the three categories detailed below. In making such assignments, the IMC will seek the advice of the Implementation and Monitoring Committee, or the original plan participant bodies in the absence of an Implementation and Monitoring Committee.

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## A. Minor Amendments (Plan Updates)

Minor amendments or plan updates are any minor changes to the plan that would not have the effect of altering the overall balance of the originally negotiated agreement reflected in the approved LRMP. Minor changes include:

- revision of wording to clarify intent or correct errors in the original plan document;
- revised priorities for lower level plans, watershed assessments, and other actions identified in the plan;
- small changes to the boundaries of resource management zones (up to 5% of the RMZ area, but not to exceed 500 hectares);
- refinements to objectives and strategies - i.e., clarifying or interpreting management direction, or the adding new strategies that provide alternative management direction yet still achieve the existing objectives in the plan); or,
- changes required to make the plan conform with provincial laws, regulations or policies, where these do not alter the balance of the original plan agreement.

## B. Unscheduled Major Amendments

A major amendment is a significant change to the plan:

- that would have the effect of altering the overall balance of the originally negotiated agreement reflected in the approved LRMP; and,
- that, for reasons of overriding provincial necessity or other compelling causes, must be considered before the scheduled term of the plan is complete.

Unscheduled major amendments may include:

- large changes to the boundaries of resource management zones boundaries (500 hectares or more, or exceeding 5% of the RMZ area, whichever is the greater amount);
- major revisions to the objectives, strategies or targets set out in the plan - i.e., additions or deletions; or,
- changes required to make the plan conform with provincial laws, regulations strategies or policies (including new strategic initiatives such as the Grizzly Bear Strategy, the Identified Wildlife Management Strategy, etc.), where these would impact the original balance of the plan agreement.

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The intent is to have as much discretion for approving major amendments retained at the local level through the I AMC. The exceptions to this would be changes to material that is part of the higher level plan (HLP) component of the OSLRMP, or the addition of new objectives and/or strategies that differ from the "social choice" negotiated in the LRMP. In both of these situations the changes would have to be approved by Cabinet.

The Implementation and Monitoring Committee (I MC) will be advised of all proposed major amendments. The recommendations and comments from the I MC will be considered by the Interagency Management Committee (I AMC) or Cabinet when these two bodies are approving major amendments.

All approved major amendments will be documented and circulated to public interest groups, tenure holders, the proponent of the change, etc. as appropriate.

In the interests of protecting plan stability, every effort should be made to hold issues for consideration until the scheduled review rather than opening the plan for major amendment during its term.

## **C. Scheduled Amendments**

A scheduled amendment will involve the review of the entire plan, and include a detailed examination of significant revisions. The process to amend the plan will begin approximately eight years after the plan is approved. The I AMC (or its successor) will establish the terms of reference for this amendment and review process, consistent with existing legislation, regulations and policies. The public will be involved in this process.

## **D. Amendment Process**

1) The public or any Implementation and Monitoring Committee member (government or non-government) introduces a proposal for a plan amendment directly to a meeting of the Implementation and Monitoring Committee.

2) The Implementation and Monitoring Committee considers the proposal and forwards recommendations to the I AMC as to the appropriate category for the amendment and how it should be acted upon. (Making recommendations on minor and major amendments is one of the primary responsibilities of the Implementation and Monitoring Committee.) These recommendations are recorded in the annual Monitoring Report. Only minor amendments and unscheduled major amendments will be acted upon before the scheduled amendment at the end of the eight-year term of the plan.



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## 3.1) Minor Amendments (Plan Updates):

- After considering the recommendations of the Implementation and Monitoring Committee, the IAMC accepts, modifies or rejects the plan update proposal.

## 3.2) Unscheduled Major Amendments:

- The IAMC establishes the schedule and terms of reference for the unscheduled amendment process, consistent with existing legislation, regulations and policies.
- Comments and recommendations from the Implementation and Monitoring Committee will be addressed by the IAMC and/or by Cabinet in deciding on the amendment proposal.
- The process will tend to be tailored to resolve the specific issue(s) in the simplest, most efficient manner, with consideration for where the plan is in its 8 - 10 year term.
- A social, environmental and economic impact assessment will accompany any major amendment process. The appropriate scale or complexity of this assessment will be determined by the IAMC based upon needs and resources.
- The public will be involved in the process.

## 3.3) Scheduled Major Amendments

- The IAMC establishes the schedule and terms of reference for the scheduled review and amendment process, consistent with existing legislation, regulations and policies.
- Comments and recommendations from the Implementation and Monitoring Committee will be addressed by the IAMC and/or by Cabinet in deciding on proposed amendments.
- A social, environmental and economic impact assessment will accompany the scheduled major amendment process.
- The public will be involved in the process.

4) If a minor amendment to the plan necessitates a variance in the resource management zones or objectives under a higher level plan order, the variance may be authorized jointly by the Regional Manager, MoF, and the Regional Director, MELP, where such authority has been delegated by the Ministers under Section 3(4) of the Forest Practices Code Act.

- If HLP variance authority has not been Delegated by the Ministers, or if the plan amendment involves the establishment of new HLP objectives or the cancellation of existing HLP objectives, the original HLP order can only be amended by the Ministers.
- An approved plan amendment which affects an HLP order can only be implemented after the HLP order has been varied or amended by the appropriate authorities.

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- 5) The decision on the plan update proposal will be recorded in the annual Monitoring Report. If approved, plan amendments and HLP variances or amendments will be documented and circulated to management agencies, public interest groups, tenure holders, the proponent of the change, etc., as appropriate.

## Approvals

In some instances the Okanagan - Shuswap LRMP includes provisions for the development of agreements between different agencies regarding the management of resources covered by this plan.

Government agencies are to prepare memorandums of agreement or other suitable agreements to cover any recommended interagency procedures for referrals and approvals of plans, prescriptions, assessments and actions (e.g., joint sign-off) in this LRMP. These procedures should be designed to be as efficient as practicable. The development of these agreements is only intended to cover protocols specified in the LRMP, including the higher level plan (HLP). It is not intended to conflict with any statutory requirements or authorities.

These interagency procedures for referrals and approvals of plans, prescriptions, assessments and actions are also to be periodically reviewed. When improvements to efficiency and reductions in red tape are identified, these procedures should be adjusted as appropriate.



## Part 11

In this section:

- Provisions for implementation of the LRMP.
- Provisions for monitoring of the LRMP.
- How to amend the LRMP.

## Implementation and Monitoring Direction

### Introduction

The Okanagan - Shuswap Land and Resource Management Plan (LRMP) was approved on January 18, 2001. This document is a framework to guide implementation and monitoring to ensure that the objectives and strategies of this strategic plan are achieved.

The LRMP identifies objectives, strategies and indicators for both "general resource management" (i.e., the entire plan area), as well as polygon specific "resource management zones" (RMZs).

Objectives outline the broad intent for land use and resource management, and strategies provide direction about what needs to be done to achieve the objectives. Intent statements are also included to clarify the objective or strategy. By implementing the strategy or strategies pursuant to a particular objective it is assumed that the objective has been met. Indicators provide a means of measuring progress towards achievement of the objectives.

Provincial government agencies, unless otherwise stated (e.g., licensees, permittees, proponents, etc.), are responsible for implementing the strategies and projects, as required, contained in the LRMP. The role of agencies is to implement projects that are within their mandate and to carry out compliance measures in accordance with their legislative responsibility.

As part of the implementation process, an Okanagan - Shuswap LRMP Implementation and Monitoring Committee (IMC) will be established to provide advice on activities relating to plan implementation and effectiveness monitoring on an ongoing basis.

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In addition, where there is sufficient interest, statutory decision-makers (i.e. Designated Environment Officials and District Managers) are requested to provide an opportunity to form District Advisory Committees. These committees are to provide multi-sector opportunity for interest based input to the statutory decision makers (SDMs) at the local level on Crown land management issues (see diagram 1).

## Issues

The success of plan implementation is somewhat dependent on the availability of resources from government. Throughout the plan development, government representatives have identified gaps between the amount of resources available and those being requested.

The Table recommends that the province commit to providing the necessary level of technical and financial support to ensure the achievement of the Okanagan - Shuswap LRMP.

Government agencies need to integrate the implementation of this plan with other priorities for resource allocation. This could involve re-prioritization of existing resources or identification of implementation items where lack of funding or resources could affect the ability to implement. It is anticipated that part of the implementation monitoring will be a prioritization of all identified implementation items.

Many Table representatives are concerned with the idea that an LRMP monitoring group would be struck after the plan is approved. The main area of concern is that such a committee would make changes to the plan without the full understanding of all original contributors. A section identifying clearly what is required to amend the plan is included in the text (refer to Part 10 – Variances, Amendments and Approvals).

Other concerns identified by some Table representatives include: the fact that their sector may not be able to afford the time to participate in an LRMP monitoring committee, and/or their sector may be required to participate in work on issues that are not applicable to their sector's geographic location in the plan area.

## Goals

The goal for this section of the plan is timely and effective implementation of the Okanagan - Shuswap LRMP.

## Monitoring Direction

The monitoring process will evaluate progress on the implementation of projects and compliance activities identified in the LRMP Implementation Plan, and will also evaluate the effectiveness of the Implementation Plan in meeting the goals and desired outcomes of the LRMP (see diagram 1). The monitoring process will include the following components:

- an Implementation and Monitoring Committee
- compliance activities

# Okanagan - Shuswap LRMP Approved Plan

- an annual agency implementation report that consists of two parts:
  - an implementation assessment and monitoring report
  - an effectiveness assessment and monitoring report

## **LRMP Implementation and Monitoring**

### Purpose:

The purpose of the Implementation and Monitoring Committee (IMC) is to aid in implementation of the LRMP through the monitoring of implementation commitments, and the measurement of effectiveness of objectives and strategies.

### Participation:

The LRMP Implementation and Monitoring Committee will consist of members from the public, local and provincial governments, environment and resource organizations, and industry. First Nation's representation will be sought for the group. There should be a balanced representation of economic, social (including recreation) and environmental interests.

### Roles:

- Developing a monitoring framework.
- Review agency implementation and effectiveness monitoring reports.
- Make recommendations to the Interagency Management Committee (IMC) on the results of the implementation and effectiveness monitoring process.
- Review and make recommendations to the IMC on proposed amendments to the plan. Amendments to substantive wording around objectives and strategies need to ensure balance and review by sectors that will potentially be affected.
- Make recommendations on interpretation of LRMP objectives and strategies.
- Provide input and advice to Statutory Decision Makers on the implementation of the LRMP.

A public process through a monitoring group will be initiated to monitor implementation and effectiveness of the LRMP. This includes reviewing monitoring reports along with making recommendations to the Interagency Management Committee (IMC). The LRMP Implementation and Monitoring Committee will meet on a regular basis (minimum annually), and may meet more frequently in the earlier stages of implementation to review progress and provide advice on specific issues or projects. The local District Advisory Committees, or any other individuals or groups, may make recommendations to the LRMP Implementation and Monitoring Committee on implementation and monitoring issues.

# Okanagan - Shuswap LRMP Approved Plan

## **Agency Monitoring Report**

An agency produced report that summarizes the results of the implementation and effectiveness assessment will be prepared each fiscal year. The report will include a progress update on each of the projects identified in the "project work plan", a review of compliance activities and an evaluation of overall effectiveness of implementation activities in achieving LRMP goals and desired outcomes. The agency monitoring report will identify any problems or changes required to the LRMP and will make recommendations for improvement to the LRMP Implementation and Monitoring Committee for review. Both agency and Implementation and Monitoring Committee recommendations will be reviewed by the IAMC.

## **Part 1 - Implementation Monitoring**

An implementation monitoring report will be prepared at the end of each year by each agency. The report will include a summary for each active project outlining work completed over the year and indicating whether performance targets have been met.

The report will also indicate the extent to which compliance activities have been effective in achieving the desired intent of LRMP strategies. Many of the strategies in the LRMP will be addressed through ongoing compliance activities by the respective agencies carried out as ongoing requirements under their mandates and legislation. Responsible ministries will report annually as to the level of compliance, and will disclose any issues with respect to non-compliance. Ministries could include Agriculture, Food and Fisheries; Energy and Mines; Environment Lands and Parks; Forests; Small Business, Tourism and Culture; Transportation and Highways.

In addition to reviewing past project and compliance activities, the monitoring report will also outline project and compliance priorities for the following year. The report will also disclose any instances or issues raised by the public that relates to non-compliance.

Each agency monitoring report will be reviewed first by the LRMP Implementation and Monitoring Committee then by the Interagency Management Committee to determine whether project and compliance targets have been met and to review implementation priorities for the following year. Copies of this report will be provided to the Implementation and Monitoring Committee in advance of its meetings.

The LRMP Implementation and Monitoring Committee may provide a summary monitoring report for submission to IAMC.

# Okanagan - Shuswap LRMP Approved Plan

## Part 2 - Effectiveness Assessment

In addition to reviewing progress on individual projects and compliance activities, the monitoring process will also evaluate the effectiveness of implementation in terms of achieving the goals and desired outcomes of the Okanagan - Shuswap LRMP. Effectiveness will be measured against a set of LRMP performance indicators and against ongoing social and economic trends for the Okanagan, Similkameen and Shuswap regions.

Indicators will be developed for each of the desired outcomes identified in the LRMP. The indicators used in the Base Case will serve as a starting point. The Implementation and Monitoring Committee will undertake further refinement of the list of indicators. An example of a desired outcome (an objective) and indicators for range is as follows:

Resource	Objective and/or Strategy	Indicator
Grasslands	Minimize loss of naturally occurring grasslands.	Natural grassland area, amount of tree encroachment and/or ingrowth

## Implementation Direction

Provincial government agencies will be responsible for the implementation of the Okanagan - Shuswap LRMP. The implementation process will include the following elements:

- Higher level plan (HLP)
- Linkage to other planning process
- Linkage to First Nations
- LRMP Implementation Plan
  - Project work plans

### Higher Level Plan

Components of this plan will be declared by Cabinet as a "higher level plan" (HLP). This designation indicates that those sections are recognized in legislation as such and provide legally binding guidance to lower level plan content.

This section will include statements as to the role and implications of this LRMP as a higher level plan, indicate the HLP component in the LRMP document (will be in bold font or noted in some other fashion), and indicate what is not considered to be a higher level plan.

### Linkage to Other Planning Process

Objectives in the LRMP will guide Crown land lower level strategic and operational plan content. These plans must be consistent with the LRMP. Examples of lower level strategic plans include local resource use plans (LRUPs), coordinated access management plans (CAMPs), and landscape unit plans (LUPs). Examples of other strategic plans include growth management strategies, and the Okanagan Valley Transportation Plan. Examples of lower



# Okanagan - Shuswap LRMP Approved Plan

level operational plans would be forest development plans (FDPs), range use plans (RUPs), and park management plans.

Public and stakeholder involvement in strategic and lower level operational plans is encouraged. The Implementation and Monitoring Committee may make recommendations in general to increase the efficacy of this involvement.

## **Linkage to First Nations:**

The nature of First Nation's participation in the implementation and monitoring process has not yet been defined. However, the Little Shuswap Indian Band has expressed interest in being represented on the LRMP Implementation and Monitoring Committee.

## **LRMP Implementation Plan**

An LRMP Implementation Plan will be completed by the LRMP Implementation and Monitoring Committee as a first step in the process. The Implementation Plan will outline desired outcomes and effectiveness indicators for each of the resource management categories identified in the document.

The Implementation Plan will list relevant strategies in the Okanagan - Shuswap LRMP, identify the lead agency and indicate whether the strategies will be carried out as specific projects or ongoing compliance activities.

This plan will be produced by the appropriate government agencies. This plan will be reviewed and endorsed by the Implementation and Monitoring Committee.

## **Project Work Plans**

Project work plans will be developed, by the applicable ministries, on an annual basis. These plans will identify the priority projects for the forthcoming year, along with the lead agency, completion dates and expected outcomes for each project. Project work plans will be developed with input from the Implementation and Monitoring Committee, and reviewed at the end of each year to determine whether targets have been achieved. Action items with respect to protected areas will also form a component of the project work plans.

Ministries could include: Agriculture, Food and Fisheries; Energy and Mines; Environment Lands and Parks; Forests; Small Business, Tourism and Culture; Transportation and Highways.

## **District Advisory Committees**

Statutory decision-makers (i.e.; Designated Environment Officials and District Managers) are encouraged to form District Advisory Committees that would be made up of representatives of stakeholders and sectors. Their purpose would be to provide multi-sector opportunity for input to the Statutory Decision-Makers (SDM) at the local level.

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The intent of the District Advisory Committees is to give multi stakeholders access to the SDM (or delegate) in a similar manner to licensees having access to the SDM through District Steering Committees meetings. Topics can cover a wide range of issues related to Crown land management planning.

## **Further Terms of Reference for the Implementation and Monitoring Group:**

### **Group Structure:**

The LRMP Implementation and Monitoring Committee will consist of members from the public, local and provincial governments, environment and resource organizations, and industry. First Nation's representation will be sought for the group. (As of June 25th, the Little Shuswap Band had expressed an interest in being represented.) There should be a balanced representation of economic, social (including recreation) and environmental interests.

The membership of the Implementation and Monitoring Committee will represent most geographic regions of the LRMP area.

Member candidates on the group will be required to demonstrate that they represent a constituency.

In order to maintain continuity, it is anticipated that the make up of the Implementation and Monitoring Committee will be similar to that of the LRMP Table. Every effort will be made to ensure that the same sectors are represented, and that there is continuity in representation on behalf of the sectors.

### **Group Decision Making:**

Decisions will be made by consensus. Discussions will be interest based, and facilitated by a mutually agreeable neutral person where available.

### **Group Dispute Resolution:**

Where consensus cannot be achieved, and the issue is significant, the areas of disagreement will be documented and forwarded to the Interagency Management Committee for decision.

### **Provincial Government Role in the Group:**

Provincial government agencies will be represented and provide advisory support to the group involved in implementation and monitoring. The Interagency Support Team, which participated in the development of the LRMP, will continue to participate through the implementation and monitoring phases. Their role will be the same as that identified in the ground rules for the LRMP process.

The provincial government will supply meeting rooms.

# Okanagan - Shuswap LRMP Approved Plan

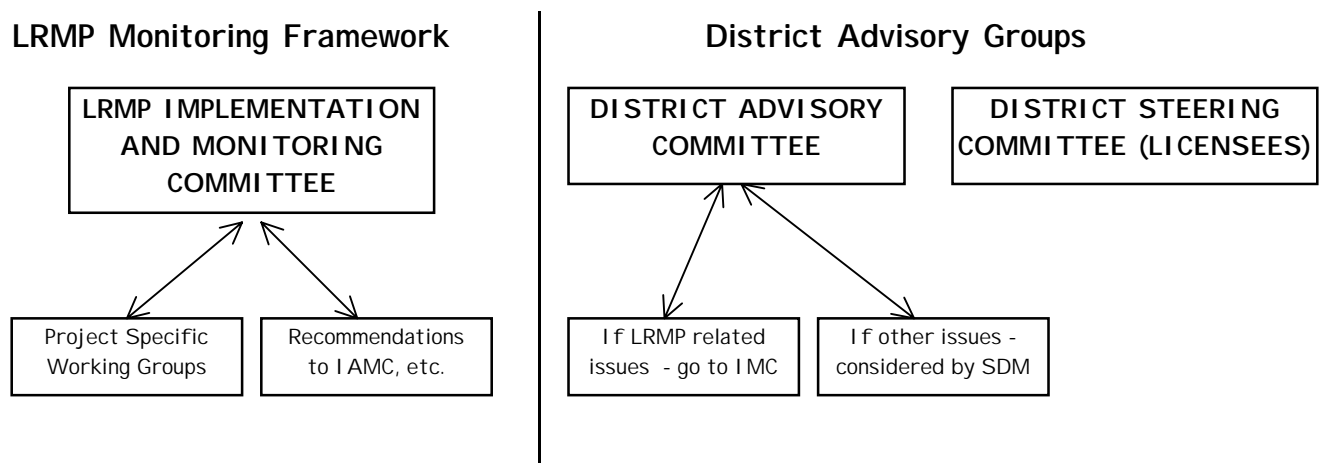
## Provincial Government Funding Support for the Group:

Funding support for meetings, non-government participant travel, accommodations, and facilitation will be subject to available resources.

Provincial government participants will offer transportation to non-government participants when possible.

Provincial government agencies will provide copies of government publications to non-government participants at no cost where the copying is within normal production numbers for the applicable office.

Diagram 1: LRMP Monitoring Framework and District Advisory Groups



The Implementation and Monitoring Committee "project specific working groups" would deal with things like coordinating further work and research on mule deer winter range.

The recommendations the Implementation and Monitoring Committee would provide to the Interagency Management Committee (IAMC) would be clarification of management direction in the plan, direction on amendments, etc.

The District Advisory Committee identifies the LRMP-related issues. These issues would be brought forward through the appropriate representative on the Implementation and Monitoring Committee - e.g., the sector or stakeholder group with the concern in the District Advisory Committee would be expected to also bring it forward to the Implementation and Monitoring Committee.

Okanagan - Shuswap LRMP  
Appendices



## Appendix I

In this appendix:

- The terms of reference for the Okanagan - Shuswap LRMP process.

## Okanagan - Shuswap LRMP Terms of Reference



*A Component of British  
Columbia's Land Use Strategy*

Okanagan / Shuswap Land and Resource  
Management Plan

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## Terms of Reference

October 1996







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## Workplan

### Table Ground Rules

- Introduction
- Scope
- Participation
  - Table Conduct
  - Meeting Procedures
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  - New or Temporary Representation
  - Withdrawal From the Table
- Structure of LRMP Negotiations
  - Definition of Consensus
  - Process For Resolving Non-consensus Items
  - Forming and Function of Subcommittees
  - Use of Caucuses
  - Collection and Dissemination of Information
- Timetable and Duration
- Scheduling, Agendas and Meeting Notes
- External Communication
- Reaching Agreement

## Executive Summary

The terms of reference for the Okanagan - Shuswap Land and Resource Management Plan are comprised of:

1. Government Framework and Objectives;
2. Workplan;
3. Table Ground Rules.

The Government Framework and Objectives has been discussed and confirmed by the Okanagan - Shuswap LRMP Table members. The workplan and ground rules may be changed periodically by consensus of the Planning Table to reflect additional needs and new circumstances.

### **1. Government Framework and Objectives:**

The Government Framework and Objectives outlines consistent provincial direction for initiating a Land and Resource Management Plan (LRMP) in terms of:

- the planning area;
- social, environment and economic objectives;
- public participation and consultation;
- the decision-making and approval processes.

The Government Framework and Objectives also provides information on the design, development, approval and implementation of the plan, as well as the technical and administrative framework which has been established by government to support the LRMP Table.

### **2. Workplan**

The Workplan provides a detailed schedule for the timely completion of the major tasks and products involved in producing a LRMP for consideration by government. These task and products address the need to:

- design an efficient LRMP process;
- develop and agree on all maps and information products;
- build an agreement;
- write and approve the plan;
- implement and monitor the final plan.

### **3. Ground Rules**

The Ground Rules, which were developed by the Planning Table, detail how the Table will conduct its business, and include:

- scope of the plan;
- conduct of Table members;
- representation at the Table;
- the definition of "consensus" and the resolution of non-consensus items;
- the use of subcommittees;
- timetable and duration for completing the plan;
- agendas and meeting notes;
- external communication.

# Okanagan - Shuswap Land and Resource Management Plan

## Government Framework and Objectives

### 1. Introduction

These terms of reference outline consistent, provincial direction for initiating a Land and Resource Management Plan (LRMP). Details on the process and function of the LRMP Table will be documented in a set of ground rules for process and development. These ground rules will be developed and agreed upon by the LRMP Table and will serve as a guide in the preparation of the LRMP.

The purpose of the LRMP is to provide strategic land and resource management direction for activities occurring on Crown land within the planning area. The approved LRMP will guide landscape unit planning and operational plans under the Forest Practices code (FPC). The planning process will be guided by the principles outlined in *Land and Resource Management Planning: A Statement of Principles and Process* prepared by the Integrated Resource Planning Committee.

### 2. Plan Content

The final plan will consist of a report and maps which document resource management zones (RMZs) and associated objectives and strategies for Crown lands and resources (including aquatic areas). It will also recommend landscape unit boundaries and biodiversity emphasis options and direction for objective setting at a specified schedule within the planning area.

When approved by Cabinet, the plan is considered to be a "higher level plan," as defined by the Forest Practices Code of British Columbia Act and regulations. As such, any lower level planning must be consistent with the land use zone designation objectives and strategies described in the plan. The plan will also contain a strategy to manage economic impacts of land use zone designations in order to help maintain and enhance community stability and vitality.

All land use and resource management objectives within the plan area are subject to existing legislation and regulations for managing Crown land and resources.

Once the plan is approved, a follow-up committee will be formed to monitor implementation of the plan and to assist the regional Interagency Management Committee with writing an annual monitoring report. This report will state how the objectives and strategies outlined in the LRMP are being met through agency specific resource management activities, landscape level planning processes and resource development plans or permits. The follow-up committee will include balanced representation from the LRMP Table.

The label given to a RMZ, plus its associated objectives and strategies, represents government and society's priorities for the use and management of the planning area. LRMP participants can use any combination of the six broad zoning labels, documented in the Appendix to illustrate the general management regime for the area.

### 3.1 Planning Area

The LRMP will cover approximately 2.17 million hectares of crown land and aquatic areas within the Okanagan Timber Supply Area (TSA), which encompasses the Penticton, Salmon Arm and Vernon forest districts. Comparable strategic plans already cover the adjacent Clearwater and Kamloops forest districts

(Kamloops LRMP) on the northwest and the Revelstoke, Arrow Lakes and Grand Forks forest districts (Kootenay – Boundary CORE) Land Use Plan on the east.

### **3.2 Consistency with Adjacent Planning Areas**

Three significant watersheds (the Salmon, upper Nicola and Similkameen) are shared with the Merritt TSA. The planning process will reflect the important principles of watershed integrity and cross-boundary community interests in the following ways:

- Stakeholders and First Nations with interests spanning drainages cut by the plan boundary will be consulted and may be represented within the appropriate emphasis groups at the LRMP Table to ensure a complete watershed perspective.
- If information is lacking or a lack of consensus exists about a complete watershed perspective, Table recommendations on portions of watersheds shared with the Merritt TSA shall be applied only on an interim basis until an LRMP is completed for the Merritt TSA portion of the watersheds.
- When representatives of complete watersheds cut by the plan boundary are involved in Table recommendations, the Okanagan - Shuswap LRMP Table may draft recommendations for coordinating certain management approaches within the Merritt TSA portions of the watersheds. These recommendations may then be applied through the IAMC until coordinated planning is completed for the Merritt TSA.
- FPC Landscape Unit Plans (based on watersheds) will be closely coordinated where they cross-administrative boundaries. Final LRMP recommendations may include proposals for adjusting administrative or land use planning boundaries.

A map of the planning area and watersheds shared with adjacent TSAs is attached in the Appendix.

## **4. Provincial Goals and Objectives**

### **Goals:**

Develop a strategic level land use plan for Crown land and resources, including aquatic areas, which:

- ensures that land and resources are managed for long term sustainability;
- displays a commitment to short and long term community stability, while balancing environmental, social and economic interests;
- is consistent with the general principles of "Sustainable Environment," "Economy" and "Social Sustainability" as contained in the *Land Use Charter*;
- meets the requirements of a higher level plan to ensure effective implementation of the Forest Practices Code;
- has broad and durable public support;
- is affordable and practical.

### **Specific Objectives:**

#### **Economic Objectives:**

- identify lands suitable for inclusion in the Forest Land Reserve;

- promote stability, diversification and enhancement of employment opportunities within communities and across the plan area;
- develop a strategy to provide economic opportunities which promote community stability, including a proposal of measures and transition programs designed to ensure that the program can achieve no net job loss as a consequence of the Land Use Plan.

#### **Environmental Objectives:**

- achieve Goals 1 and 2 of the Protected Areas Strategy within provincial and regional targets;
- guide land and water resource management to maintain or enhance the integrity and quality of the ecosystem, including protecting, conserving and where possible restoring biological and physical diversity;
- identify strategies to sensitively manage the unique and fragile ecosystems within the plan area;
- provide strategic advice for management of watersheds and critical water resources.

#### **Social Objectives:**

- recognize the Agricultural Land Reserve;
- ensure appropriate linkage of the LRMP to growth strategy initiatives, including transportation plans;
- accommodate First Nations' interest without prejudice to future treaty settlements;
- meet projected needs of the population for water and urban, recreation and transportation lands;
- distribute plan benefits and impacts equitably across the plan area;
- promote protection of heritage and cultural values;
- recommend visually sensitive areas within an RMZ for implementation under the Forest Practices Code.

### **5. Specific Okanagan - Shuswap LRMP Objectives**

To achieve these provincial objectives the planning process will:

- recommend a Land and Resource Management plan, developed through shared decision making, for Crown land and resources within the plan area;
- provide public participants, emphasis groups, licensed users, local governments, government agencies and First Nations with a forum and process for shared decision making which will promote co-operation and understanding and develop problem-solving working relationships amongst equal partners;
- based on the best ecological, physical and social-economic information available, identify issues, develop and evaluate alternatives and recommend strategies for sustainability and integrated resource management which will include the balancing / offsetting of potential impacts as a result of special RMZs;
- establish goals, objectives and strategies for managing the land and resources within the planning area;
- recommend landscape unit boundaries and biodiversity emphasis options;
- within the constraints of funding, information and participants' time, develop the plan by July 1997.



## 6. Public Participation and Planning Organization

The LRMP planning process should reflect the needs of all interested parties, which include the general public, emphasis groups, First nations, local governments and government agencies. A diagram of the planning organization is found in the Appendix.

### 6.1 The LRMP Table

For the Okanagan - Shuswap LRMP there will be one LRMP table. The LRMP Table can be comprised of representatives of a sector or emphasis group, organization, licensed users, First Nations, local governments and government agencies.

Emphasis groups are comprised of organizations and people with similar views and concerns. The emphasis group provides a forum for discussing issues and concerns prior to bringing them to the LRMP Table. The role of the LRMP Table is to make recommendations to government on a strategic land use plan for Crown land and resources, including aquatic areas.

### 6.2 First Nations

Participation by First Nations in the planning process will be encouraged in order to recognize and incorporate their interest and views into the LRMP, including:

- **Traditional use:**  
Information on First Nations' traditional uses of land and resources and the interests and values and sites that are associated with these uses will be important considerations in the development of land use designations and management objectives.
- **Contemporary use:**  
Information on current First Nation land use practices and interests will be valuable information for the Table to consider in developing a land use plan that balances a full range of economic, social and environmental interests.
- **Cultural perspectives on stewardship of the land:**  
The LRMP Table is an appropriate forum for recognizing and considering a variety of perspectives on land stewardship, as well as for fostering understanding, respect and possible consensus.

Separate terms of reference for First Nations participation in the LRMP may be developed to recognize their particular government to government role in the process. The LRMP Table will be consulted during the development of any terms of reference.

### 6.3 Local Government

Participation by local government in the planning process will be encouraged to ensure recognition and incorporation of local government concerns, including growth management issues, and to provide for linkage between growth management initiatives and the LRMP process. This may include special opportunities for elected officials, which will be documented in a terms of reference for local government participation. The LRMP Table will be consulted during the development of Terms of Reference.

## **6.4 Process Support Team (PST)**

The PST will be responsible for supporting the Okanagan - Shuswap LRMP process. This includes assisting to facilitate emphasis group or sector meetings and scheduling for all Table meetings, preparation of agendas and minutes, ensuring internal and external communication needs are met and coordinating the data, information and analysis needs of the LRMP Table. A list of PST members is located in the Appendix.

## **6.5 Interagency Support Team (IST)**

The IST is comprised of technical staff from government agencies with land or resource management responsibilities. The role of the IST is to provide the technical support and information to the LRMP Table. A list of IST members is located in the Appendix.

## **6.6 Interagency Management Committee (IAMC)**

The IAMC is comprised of senior regional managers of government agencies with land or resource management or economic development responsibilities.

The role of the IAMC with respect to the LRMP is to:

- prioritize LRMP activities within the Kamloops Forest Region;
- recommend a LRMP boundary to government;
- recommend approval of the Terms of Reference to the Assistant Deputy Ministers' (ADMs) Committee;
- provide assistance to the LRMP table for training, facilitation, mediation;
- apply administrative tools to keep land use options open over protected areas candidates, with due consideration for short term economic factors and rights of tenure holders;
- be available, if requested by the LRMP table, to attempt to resolve issues when an impasse is reached; and,
- provide recommendations and / or options to the ADMs' Committee (see Section 9: Approval Process);
- ensure adequate resources are allocated in each ministry to facilitate plan completion and implementation.

## **7. Public Information / Consultation**

The LRMP table will utilize public information and consultation methods to inform people of ongoing progress in the planning process and to solicit their comments on work produced.

### **8.1 Consensus**

Decisions will be made based on consensus, using principles of accommodation, co-operation and negotiation.

## 8.2 Dispute Resolution

If consensus cannot be reached, a dispute resolution mechanism acceptable to the LRMP Table will be followed. If consensus cannot be achieved by following the dispute resolution mechanism, then the IAMC will make a recommendation to government for final decision.

## 9. Approval Process

The plan will be submitted once the following criteria have been met:

- the LRMP Table has reached consensus on land use zone designations, resource management zones, and associated objectives and strategies for Crown land and resources (including aquatic areas) within the plan area, and on recommendations for landscape unit boundaries and biodiversity emphasis options – all outlined in a consensus report; or the LRMP Table has agreed to the content of an options report; and,
- the LRMP has developed a strategy to provide economic opportunities which promote community stability;
- the plan has met the LRMP principles as determined by the Land Use Co-ordination Office (LUCO);
- the LRMP Table has recommended a structure and role for a follow-up committee.

The IAMC reviews the recommended consensus or option report, and where there is disagreement with the recommendations, will attempt to resolve differences with the LRMP Table. Following efforts to resolve disagreements, the IAMC appends its comments and recommendations to the LRMP Table's agreement and forwards all appropriate material to the Assistant Deputy Ministers (ADMs) of participating government ministries. The ADMs will review the report and comments, append their recommendations and forward the report and all relevant material to the appropriate Cabinet Ministers for approval.

Final approval of the Okanagan - Shuswap LRMP will be granted by Cabinet, or, on its behalf, the Minister responsible for Energy and Minerals, the Minister of Environment, Lands and Parks, and the Minister of forests. Other ministers may be asked to approve the plan if their ministries are significantly affected. If the IAMC or ADMs do not agree with the recommendations of the LRMP Table, the LRMP Table must consider their concerns and recommendations before a final recommendation is forwarded to Cabinet.

## 10. Planning Sequence

### *Phases and Steps*

#### **Design:**

Contact public shareholders;

Select public participation approach and provide training;

Prepare interest statements and goals.

#### **Development**

##### **Build a "Toolkit"**

develop base case

confirm map products and resource information;

confirm zone designations

##### **Build an Agreement**

examine compatible land use

establish RMZs, define landscape units and assign biodiversity emphasis

develop scenarios

analyze impacts

#### **Approval**

Submit consensus report or option report for Cabinet approval.

#### **Implementation**

When approved, the plan will be implemented by provincial agencies.

#### **Follow-up / Monitoring**

### *Planning Products*

**Government Framework and Objectives, Ground Rules and Work Plan.**

**Interest Matrix;  
Goal and Vision Statements**

**Base Case Report.**

**Map Overlays and Information Matrix**

**Land Use Compatibility Matrix**

**Map of RMZs With Objectives**

**Draft Land Use**

**Final Plan**



### Resource Management Zone Categories

#### 1. Settlement

- currently used or proposed for settlement use by an Official Community Plan, Crown Land Plan or LRMP
- primarily planned and managed by local government under the *Municipal Act*
- may include lands currently used for agriculture, water supply and forestry

#### 2. Agriculture

- lands in the Agricultural Land Reserve and other lands, including foreshore and water source and storage areas, currently used or proposed by an LRMP for use for food production activities

#### 3. Enhanced Development

- those areas identified, on the basis of suitability, for intensive development of resources such as timber, minerals, petroleum and areas with destination resort potential
- resource development activities are subject to all provincial regulations (e.g., the *Forest Practices Code of British Columbia Act*)
- guidelines for managing other resource values will be applied in a way that recognizes the resource development priority of the zone
- investments in resource development and enhancement are encouraged

#### 4. General Management

- these areas are to be managed for a wide array of resource values and permissible uses
- guidelines for non-extractive resource values may modify resource development activities
- investments in resource development and enhancement are encouraged where these do not conflict with other management objectives

#### 5. Special Management

- these are areas for which the conservation of one or more resource values, such as habitat, recreation, scenery and community watersheds, are a priority
- resource development activities may be subject not only to provincial regulations and guidelines, but also to more comprehensive resource conservation strategies

#### 6. Protection

- areas protected for their natural, cultural heritage and/or recreational values as defined by the Protected Areas Strategy

## Appendix

### Okanagan - Shuswap LRMP IST - PST - IAMC Relationships

The Kamloops Interagency Management Committee (IAMC) is responsible for the delivery of land use planning (Land and Resource Management Plans) in the Thompson - Okanagan region. (Note: more detailed information on the role of IAMC can be found in Section 6.6 of Government Framework and Objectives.

The Process Support Team (PST) coordinates and administers the Okanagan - Shuswap LRMP process on behalf of the IAMC. The PST reports directly to the IAMC through the Process Coordinator.

A number of resource and economic agencies participate in the LRMP. Staff from these agencies belong to the Interagency Support Team (IST), with many of them also serving as agency representatives at the LRMP Planning Table and/or providing technical support to the process. IST members continue to have their agency responsibility of informing line management (and therefore their IAMC member) of technical and policy issues that may be of concern to their agency.

The PST and IST work together to ensure that relevant information is available to support the discussions at the Planning Table and to ensure a corporate approach is brought by government to the process.

### Interagency Support Team - Terms of Reference

#### Membership:

The Interagency support Team (IST) consists of technical and professional staff of provincial resource and economic agencies as well as the Federal Department of Fisheries and Oceans.

The members of the IST are:

Dave Whiting, Chair

Phil Whitfield, IAMC Coordinator

Dave Jones, BC Environment, Wildlife

Mike Watkins, BC Environment, Water Management

Grant Furness, BC Environment, Wildlife

Tom Freeman, Transportation and Highways

Lidia Jaremovic, DFO

Doug Glaum, Small Business, Tourism and Culture, Archaeology Branch

Francesca Wheler, Small Business, Tourism and Culture, Tourism Division

Shelley Murphy, Employment and Investment

Jim Britton, Employment and Investment, Energy and Minerals Division

John Meeson, BC Parks

Ken McAra, Agriculture, Fisheries and Food

Rick Smith, Ministry of Forests

Paul Knowles, Ministry of Forests

Bob Tomich, Forest Renewal BC

## **Role**

Interagency Support Team members serve as agency representatives at the LRMP planning table. In this capacity, IST members bring specific technical and professional expertise to the planning process, inform the table of agency mandates and policies, and provide advice to the Process Support Team.

IST members support the planning process at the Table, in working groups or subcommittees, and within emphasis groups or sectors by:

- providing technical expertise;
- bringing professional judgement;
- supplying pertinent information;
- discussing the implications of choices;
- bringing agency interests to the table reflected in policies, procedures and mandates;
- undertaking resource and economic analyses in conjunction with the Data Management Team;
- defining strategic and operational criteria;
- fully participating at building consensus at the table, but not do anything to intentionally impede consensus.

## **Function**

IST members continue to have their agency responsibility of informing line management (and therefore their Interagency Management Committee member) of technical and policy issues that may be of concern to their agency.

The IST meets with the Process Support Team prior to Planning Table meetings, to ensure that all relevant information is available to support the discussions at the planning table, to brief one another on the nature of information assembled, and to ensure a corporate approach is brought by government to the agenda. It is expected that IST members will be present at Table meetings in response to agenda items to be discussed, thereby providing continuity to the process.

## **Process Support Team - Terms of Reference**

### **Membership**

The Process Support Team (PST) consists of technical and professional staff from the Ministry of Forests and the Ministry of Environment, Lands and Parks.

The members of the PST are:

Steve Carr, Process Coordinator

Ross Porcheron, Data Management Coordinator

Paul Birzins, Special Projects

Craig Bush, Communications and Administration Coordinator

Chris Bull, Facilitator

Dave Whiting, Intergovernmental Coordinator

Dave Tudhope, Sector Coordinator



## **Role**

The role of the PST is to support the Okanagan - Shuswap LRMP process. This includes the coordination of efficient emphasis group/sector and Table organization, organization, organizing and scheduling all Table meetings, preparation of meeting agendas and summaries, providing logistical support to emphasis groups/sectors and working groups/subcommittees, consulting with Table representatives on work being undertaken by the Table, ensuring external and internal communication needs are met, and coordinating the data, information and analysis needs of the LRMP Table.

## **Function**

The PST reports directly to the Interagency Management Committee (I AMC). PST members have no line agency responsibilities – i.e. they are not agency representatives.

Collectively, the members of the PST perform the following functions:

- provide overall coordination of the Okanagan - Shuswap LRMP process;
- coordinate facilitation services needed to support the Table;
- provide liaison with the Interagency Management Committee;
- coordinate sector/emphasis group. Local government and First Nations participation in the LRMP;
- coordinate data/information requirements and socio-economic and environmental analysis;
- coordinate and/or prepare all written products for the LRMP Table (e.g. meeting agendas and summaries, newsletters, reports, table documents, etc.);
- oversee administration of the LRMP process (e.g. organize meetings, etc.).

The PST meets with the Interagency Support Team prior to Planning Table meetings to ensure that all relevant information is available to support the discussion at the planning table, to brief one another on the nature of information assembled, and to ensure a corporate approach is brought by government to the agenda. Members of the PST may also contact table representatives between meetings to ensure the LRMP process operates effectively and efficiently.



## Appendix II

In this appendix:

- The public and government individuals that participated in the LRMP process.

## Okanagan - Shuswap LRMP List of Participants



# Okanagan - Shuswap LRMP Approved Plan

<b>Non-Government Participants</b>	
<b>Organization</b>	<b>Representative(s)</b>
Aggregate Producers Association of BC**	Murray Sasges Vickie Barron
BC Cattlemen's Association	Len Bawtree Mark Quaedvlieg
BC Wildlife Federation	Ron Taylor Phil Hallinan Cliff Norris Jim Campbell
Chambers of Commerce	Bryan St. George
Environmental (Central Okanagan)	Lloyd Manchester (Canadian EarthCare Society) Joe Klein Don Guild
Environmental (North Okanagan)	Erin Nelson Barb Westerman
Environmental (Shuswap)	Jim Cooperman (Shuswap Environmental Action Society) Dennis Roberts
Environmental (South Okanagan - Similkameen)	Clive Johnson
Federation of BC Naturalists	Harold King Harry Nielsen
Guide Outfitters of BC	Marc Hubbard Clarence Schneider
Interior Logging Association	Gordon Rowland
Interior Value Added Wood Association**	Marc Sourisseau Dave Karran
IWA Canada	Ben Landis Kim Pollock
Mining Association of BC*	Mike Poulson Myron Sawiuk
Okanagan - Shuswap Mineral Exploration Group*	Bob Yorke-Hardy Dennis Delisle Joe Falkoski Steve Barnick
Public Recreation (Central Okanagan)	Pat Whiteway Isabel Pritchard
Public Recreation (Non-Motorized)	Ken Campbell George McFeeters
Public Recreation (North Okanagan - Shuswap)	Connie Harris
Public Recreation (South Okanagan - Similkameen)	Juergen Hansen Don Sloan

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Public Recreation (Summer Motorized)	Terry Burke Ron Irnie
Salmon River Watershed Roundtable	Neils Christiansen Dennis LaPierre (became CSRD rep., December 1999)
Share the Okanagan	Judy Johnston Tom Kuntz
Shuswap Lakes Tourism Association	Gary Hazell Duncan Myers
Shuswap-Okanagan Forestry Association	Bob Helfrich Don Couch Nick Arkle
Thompson - Okanagan Tourism Association	Allison McNeill
Trapping	Simon Goldfinch Bob Gibbard
Vernon Placer Miners' Association*	Merv Lewis
Water Supply Association of BC	Mike Mercer Renee Clark

\* Denotes groups who withdrew from the process in January 1999.

\*\* Denotes groups that stopped attending meetings in early 1999, but never officially withdrew from the process.

<b>Local Government Participants</b>	
<b>Organization</b>	<b>Representative(s)</b>
Columbia Shuswap Regional District	Simon de Boer (until Nov. 1999) Dennis LaPierre (after Nov. 1999)
Regional District of Central Okanagan	Tracy Corbett (until late 1998) Bill Vos (as of late 1998) Steve Gormley
Regional District of North Okanagan	Rob Smailes
Regional District of Okanagan Similkameen	Gordon Hahn (until Nov. 1999) Roger Mayer (after Nov. 1999)

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<b>Provincial and Federal Government Participants</b>	
<b>Agency</b>	<b>Representative(s)</b>
BC Environment	Grant Furness Dave Jones Mike Watkins Bill Michael
BC Lands/BC Assets and Land Corp.	Ernie Maynard
BC Parks	John Meeson
Department of Fisheries and Oceans <sup>#</sup>	Lidia Jaremovic
Ministry of Agriculture and Food	Ken McAra
Ministry of Energy and Mines	Jim Britton
Ministry of Forests	Rick Smith Paul Knowles Andrea Sissons
Ministry of Small Business, Tourism and Culture	Rob Gowan Francesca Wheler
Ministry of Transportation and Highways	Tom Freeman

<sup>#</sup> Denotes agency which withdrew from the process in March 1999.





## Appendix III

In this appendix:

- Words and terms requiring definition.

## Okanagan - Shuswap LRMP Glossary of Terms



# Okanagan - Shuswap LRMP Approved Plan

## Words and Terms Requiring Definitions

### General Description

This document lists those words and terms identified to date that require definition so that everyone has a common understanding of what they mean.

### Purpose:

The purpose of this material is to provide Table with a starting point for discussions on this issue. The words and terms included in this list have been identified by the Table as requiring definitions so everyone has a clear and common understanding of what they mean. This list is not intended to be exhaustive, nor necessarily complete. Consequently, additions can be made as required by the Table.

Please note that some definitions may have and/or require universal application, and some may be dependent upon the strategy.

### Prepared By:

This document was prepared by the PST.

### Status:

This product is provided for information purposes only, and will be used to assist Table and Working Group discussions.

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### Note:

Those definitions described as "MoF Definition" were extracted from the Ministry Internet Site:  
<http://www.for.gov.bc.ca/PAB/PUBLCTNS/GLOSSARY/GLOSSARY.HTM>

Those definitions described as "Guidebook Definition" were extracted from the *Biodiversity Guidebook* of September 1995

Those definitions described as "Writing Guide Definition" were extracted from a 1998 Discussion Draft titled *A Guide to Writing Effective Resource Management Plans* prepared by the Ministry of Forests in co-operation with the Land Use Co-ordination Office and the Ministry of Environment, Lands and Parks. (Note: Some terms in this draft did not make it into the final version of this document. However, the definitions from this draft were retained.)

Those definitions described as "PST suggested" were developed by the PST as a starting point for further discussion. Some were extracted from working group or table discussions.

Others were provided by participants in the process, either as individuals, on behalf of a particular agency, or by groups such as subcommittees.

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<b>4x4/4wd/4 wheel drive accessible</b>	Wildlife WG: by 4wd we are referring to a pick up truck or jeep, not a 4wd or AWD car.
<b>Acceptable</b>	RAS: "means satisfactory or adequate. "Acceptable to the DEO" does not necessarily mean that something must be signed off by the DEO. Acceptability could be established in a MOU; guidelines; verbal discussions; informal understanding, etc."
<b>Access</b>	LRMP definition: entry to Crown land (definition does not specify the means of access).  MEM suggested: physical entry into an area by whatever means appropriate to accomplish a given task or activity.
<b>Access management plan</b>	RAS: "Any plan covering the construction, alteration or management of access structures that provides for public input and is approved by an appropriate government agency. The Forest Development Plan is a type of access management plan that covers road construction, maintenance and deactivation related to forest practices."
<b>Address</b>	GF: to apply oneself to a task or problem.
<b>Allow</b>	Writing Guide definition: to permit; to make possible.
<b>Applicable higher level plan</b>	Statute (Forest Statute Amendment Act, 1998): an objective for a resource management zone that specifies that the objective applies to special use permits (i.e., for the construction of an access to a Mineral Tenure Act or Coal Act tenure under the Mining Rights Amendment Act).  As of March 2000, the only "applicable higher level plan" is the Muskwa-Kechika Management Plan, which is defined as such by the Muskwa-Kechika Management Area Act.
<b>Appropriate</b>	Dictionary: belonging, peculiar (to); suitable, proper (to, for).
<b>Aquatic ecosystem</b>	MELP: any body of water, such as a stream, lake or wetland, and all organisms and non-living components within it, functioning as a system.
<b>Aquatic habitat</b>	MELP: areas below the high water mark of streams, lakes and wetlands, including the surface material (e.g., sands, silts, cobbles, boulders, and large organic debris), and vegetation.

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<b>Arable</b>	Dictionary: "fit for plowing or tillage", "capable of being farmed productively"
<b>Arable Crown land</b>	MAF: any land that is Crown-owned that is capable of being farmed productively.
<b>Attribute</b>	PST suggested: Describes what an objective or a strategy is intended to address and what we are trying to manage for (similar to an indicator). It should be measurable (with current methodology), relevant to the LRMP Base Case Profile, and practical (reasonable chance of measurement). Example: "secure birthing areas".
<b>Avoid</b>	RAS: "means to refrain from or prevent the occurrence of. There is no explicit test of reasonableness or cost. Most things involving forest practices can be avoided if enough money is spent, but it may not be reasonable."
<b>Avoid where practicable</b>	RAS: "to avoid where it is feasible; however, it may not be convenient or the most cost effective option." Allows for consideration of convenience and cost efficiency - i.e., may be accomplished by applying normal business practices.
<b>Avoid where practical</b>	RAS: to avoid where it makes sense; where a reasonable person would refrain from doing something, and where there is a suitable alternative.
<b>Base case profile</b>	PST: provides a snapshot description of the socio-economic and environmental conditions that exist in the plan area, which can then be used as the basis for assessing the implications of the plan recommendations.
<b>Blue-listed species</b>	MELP: includes any indigenous species or subspecies (taxa) considered to be Vulnerable in British Columbia. Vulnerable taxa are of special concern because of characteristics that make them particularly sensitive to human activities or natural events. Blue-listed taxa are at risk, but are not Extirpated, Endangered or Threatened.
<b>Biodiversity</b>	MoF definition: "the diversity of plants, animals, and other living organisms in all their forms and levels of organization, including genes, species, ecosystems, and the evolutionary and functional processes that link them"
<b>Certainty</b>	Dictionary: "freedom from doubt", "a well established fact" Example: "Provide more certainty in the sand and gravel permitting process..."

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## Compensate

Dictionary: "to make up for or offset; counterbalance", "to provide with or act as a substitute", "to make payment or reparation to reimburse"

Writing Guide Definition: "to neutralize the affect of; to make an approximate and usually counterbalancing payment (syn. offset)"

## Connectivity

Dictionary: "serving or tending to connect", "something that connects"

Writing Guide Definition: "a qualitative term describing the degree to which late-successional ecosystems are linked to form an interconnected network. The degree of interconnectedness and the characteristics of the links vary in natural landscapes based on topography and natural disturbance regime. Breakage of these links results in fragmentation"

Comment: A WG suggested that it includes seasonal and elevation aspects

## Consensus

LRMP Terms of Reference definition:

There were two definitions identified for consensus. One was a working definition to be used prior to the completion of the entire plan (see "a", below). A second definition was developed which applied to the final plan (see "b", below).

- a) "All Table representatives are willing to accept the decision or support the outcome in order to allow the process to proceed."  
This means that general acceptance will be reached on issues and products, or portions thereof, as the Table addresses them, with the understanding that it is part of an overall package or final plan. When initial agreement is achieved, it is understood that some table members will have to take agreement back to their emphasis groups (constituencies) or higher decision making authority for ratification.
- b) "Interests have been met sufficiently that all Table representatives are prepared to sign off on the final plan.  
When initial agreement is achieved, it is understood that some representatives will have to take the agreement back to their sectors, constituencies or higher decision making authority for ratification.

JH: "complete and voluntary agreement among people."

## Consensus process

JH: "a structured thinking process that is designed to help people reach consensus on contentious issues in a minimum of time."

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## Conservation

Fish WG: The planned management of human activities that might affect fish habitats to prevent destruction and subsequent loss of fisheries benefits.

GF: the process or means of achieving recovery of viable populations

MoF definition: management of the human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations. It includes the preservation, maintenance, sustainable utilization, restoration and enhancement of the environment.

MELP definition: the protection, maintenance and rehabilitation of wildlife and their habitat to ensure ecosystem sustainability and biodiversity.

## Conserve

Writing Guide definition: to keep in a safe or sound state; to avoid wasteful or destructive use of.

## Consider

Dictionary: "to think about seriously", "to regard as", "to take into account: bear in mind", "to show consideration for"

Writing Guide definition: "to think about with care or sound state (syn study, weigh, reflect)"

## Constituency

Dictionary: "body of voters who elect a representative member; area so represented; body of customers, supporters, etc."

JH: not necessarily a legally defined commercial, recreational or governmental organization, but any group of organized or unorganized people who have some kind of a common mind set that does not even have to be oriented toward extractive land use (e.g., bird watchers).

## Corridor

MELP: a defined tract of land through, usually linear, through which a species must travel to reach habitat suitable for reproduction and other life sustaining needs.

MoF definition: a band of vegetation, usually older forest, which serves to connect distinct patches on the landscape. Corridors are part of the Forest Ecosystem Network (FEN) and by providing connectivity permit the movement of plant and animal species between what would otherwise be isolated patches.

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<b>Critical wildlife habitat</b>	MoF definition: " part or all of a specific place occupied by a wildlife species or a population of such species and recognized as being essential for the maintenance of the population."
<b>Designated placer lands</b>	Statute (Mineral Tenure Act): mineral lands that are designated by the Chief Gold Commissioner for the purpose of placer claim staking or for the issuance of placer leases. Examples: designated placer claim areas; designated placer lease areas.
<b>Designated use areas</b>	Statute (Land Act): A designation under Section 17 of the Land Act that allows for an area of Crown land to be designated for a particular use or for the conservation of natural or heritage resources. The land is withdrawn from Land Act disposition (sale, leasing, licensing, permitting) under that Act unless the intended land use is compatible with the intent of the designated use. An example would be the Controlled Recreation Area that is associated with the ski run area at a Downhill Ski Development.
<b>Development</b>	<p>Dictionary: "the act of making some area of land or water more profitable, productive, or useful.</p> <p>MoF definition: the advancement of the management and use of natural resources to satisfy human needs and improve the quality of human life. For development to be sustainable it must take account of social and ecological factors, as well as economic ones, of the living and non-living resource base, and of the long-term and short-term advantages and disadvantages of alternative actions.</p>
<b>Ecosystem</b>	MoF definition: "a functional unit consisting of all the living organisms (plants, animals, and microbes) in a given area, and all the non-living physical and chemical factors of their environment, linked together through nutrient cycling and energy flow. An ecosystem can be of any size-a log, pond, field, forest, or the earth's biosphere-but it always functions as a whole unit. Ecosystems are commonly described according to the major type of vegetation, for example, forest ecosystem, old-growth ecosystem, or range ecosystem."
<b>Ecosystem function and processes</b>	MELP: the ability of a particular ecosystem to undertake the activities, and provide opportunities, necessary to facilitate the functions and processes associated with it.
<b>Ecosystem management</b>	NDT4 WG (GF): a strategy or plan to manage ecosystems to provide for all associated organisms, as opposed to a strategy or plan for managing individual species.



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<b>Energy resources</b>	MEM suggested: energy resources include both renewable (hydroelectricity, wind, solar, geothermal and biomass) and non-renewable resources (petroleum, natural gas, coal, peat uranium), together with the infrastructure (pipelines; transmission lines) to deliver the energy resource to the end-user.
<b>Enhance</b>	Dictionary: to make greater, more attractive, more valuable" Example: upgrading existing recreation trails or identifying new ones.
<b>Evolved channel capacity</b>	<p>MELP: ECC addresses the issue of maintaining stability of a stream channel's bed and banks, particularly with regard to timing and volume of peak flow. A stream channel as part of the watershed drainage system responds to the dominant conditions occurring within that watershed. The type and form of channel created and its capacity for conveying peak flows generally evolves into a relatively stable state in response to these dominant conditions.</p> <p>When these conditions are exceeded by exceptional natural events or by the additional hydrologic impacts of land use developments, the stability thresholds (or capacity for absorbing additional hydraulic stresses) can be exceeded and the streambed and banks begin to be eroded.</p>
<b>Exploration access</b>	Statute (Mineral Exploration Code): an exploration trail, excavated trail or temporary access road, including any associated structure which is required to accommodate the safe operation of equipment. (See the Mineral Exploration Code for design criteria.) An "exploration trail" is a minimal-impact access intended for the movements of mechanical equipment, typically small drill rigs. An "excavated trail" is a more substantial access route to facilitate the movement of equipment normally used in advanced exploration projects, but excludes haulage trucks. A "temporary access road" provides for access to or on tenures by mechanized equipment, including haulage trucks.
<b>Facilitation</b>	JH: "the art of helping groups of people to talk to each other while staying out of the substantive discussion."
<b>Fish habitat</b>	Statute (Fisheries Act): "The spawning grounds, nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes."
<b>Forage</b>	MoF definition: "grasses, herbs and small shrubs that can be used as feed for livestock or wildlife"

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<b>Forest cover retention</b>	MoF/MELP: (unless stated otherwise) percentage of mature basal area that is to be retained on site, and is to be applied at the cutblock or treatment unit level. An example of an exception to this would be riparian retention in the "management zone", which can be applied to a stream length and not within the cutblock or treatment unit.
<b>Four wheel drive accessible</b>	Wildlife WG: by 4wd we are referring to a pick up truck or jeep, not a 4wd or AWD car.
<b>Geological resources</b>	MEM suggested: all geological materials on or below the surface, excluding groundwater. Synonyms: mineral resources, subsurface resources. Includes, for example: earth, soil, marl, ash, clay, sand, gravel, riprap, rock, stone, talus, limestone, marble, gypsum, slate, fossils, gemstones, metallic minerals, non-metallic minerals, precious metals (e.g., gold, silver, platinum), base metals (e.g., copper, molybdenum, lead, zinc, uranium), pet, coal, coal bed methane, petroleum, oil, oil shale, bitumen, natural gas, and geothermal resources.
<b>Grasslands</b>	AS: The following BEC subzone site series are considered grasslands: BGxh1 1, 2 and 3; BGxh2 1, 2, 5 and 6; BGxw 1, 2, 4, 6 and 7; PPxh1 3; PPxh2 2 and 5; IDFxh1a 91, 92, 93, 94, 95, 96 and 97; IDFdk1a 91, 92 and 93; IDFdm1 2; MSxk 3 and 4; and, ESSFxc 3 and 4.
<b>Guide</b>	MELP: A person, who is compensated, that accompanies and assists another person to hunt wildlife.
<b>HADD, or harmful alteration, disruption or destruction of fish habitat</b>	DFO: "any change in fish habitat that reduces its capacity to support one or more life processes of fish".
<b>Hazard</b>	MoF definition: "a state that may result in an undesired event, the cause of risk. Hazard can apply to the probability of tree mortality or damage by an insect or disease and also represents material or fuel that will ignite and burn."
<b>Healthy ecosystem</b>	Dictionary: (healthy) "having good health; conducive to good health"

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## High use domestic watershed

DR: A high use domestic watershed is defined as the drainage area above the downstream point of diversion on a stream which is:

i) Not classified as a community watershed under the Forest Practices Code of BC Act.

ii) Usually not more than 50 km<sup>2</sup> in drainage area.

iii) Have six or more active water licenses. They will have an average drainage area of 100 hectares or less per license upstream of the intake as identified in Appendix X and shown on the domestic watershed map.

Class 1 - Watersheds associated with springs and very small creeks, which do not have clearly defined drainage or catchment areas. Less than 500 ha (5 km<sup>2</sup>).

Class 2 - Small Watersheds having drainage areas definable on existing topographic maps and are greater than 500 ha (5 km<sup>2</sup>) to 1000 ha (10 km<sup>2</sup>).

Class 3 - Watersheds having drainage areas greater than 1000 ha (10 km<sup>2</sup>) to 5,000 ha (50 km<sup>2</sup>).

## higher priority

Dictionary: (priority) "precedence, esp. established by order of urgency or importance", "something that merits prior attention", "a recognized right of precedence". Example: "A higher priority be given to water quality management for..."

## IWAP (Interior Watershed Assessment Procedure)

MELP: a tool to assist forest managers understand the type and extent of current water related problems that exist in a watershed, and to recognize the possible hydrological implications of forestry related development in that watershed.

## judicious

Dictionary: "sensible, prudent; sound in discernment and judgment"

## limit

Dictionary: confine within limits, set bounds to; restrict to; serve as limit to.

## livestock

MoF: "as defined in the Range Act and Silviculture Planning Regulations means animals of the genus Bos, horses, mules, asses, sheep and goats, but does not include wildlife designated under the Wildlife Act, exotic game animals, buffalo, swine or poultry but does include llamas."

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<b>"M" factor</b>	<p>RAS: is a number derived from the target (tree) stocking standard used to place an upper limit on the number of trees that can be counted in a silvicultural stocking survey. The main purpose of the value is to avoid averaging of densely stocked clumps with insufficiently stocked areas. The "M" value is compatible with variable density and reduced density stocking objectives.</p>
<b>main haul road</b>	<p>PK: "The principal or primary logging road in a network of logging roads. The secondary and tertiary all feed into the main haul road which is consequently built to a higher standard and is usually designed as a permanent access road."</p>
<b>maintain</b>	<p>Dictionary: "to carry on; continue", "to support by providing means of existence", "to keep in a certain state"</p> <p>Writing Guide Definition: "to keep in an existing state; to preserve form failure or decline; to cause to continue"</p>
<b>maintain and/or enhance</b>	<p>LRMP: Use the combination of the definitions for "maintain" and "enhance".</p>
<b>manage</b>	<p>Dictionary: "to exert control over", "direct of control the use over", "to arrange or contrive", "to carry on, to get along"</p> <p>Writing Guide Definition: "to treat with care; to alter by manipulation; to gain influence with or maintain control over"</p> <p>Example: "Manage impact of recreational use on ecological integrity"</p>
<b>manage land on an ecosystem basis</b>	<p>See "ecosystem management"</p>
<b>mineral industry</b>	<p>MEM suggested: individuals, consultants, and companies involved in any aspect of mining. Examples: Free Miners, prospectors, geologists, engineers, labourers, and tradespeople.</p>
<b>mineral lands</b>	<p>Statute (Mineral Tenure Act): lands in which minerals or placer minerals or the right to explore for, develop and produce minerals or placer minerals is vested in or reserved to the government.</p>
<b>mineral reserve</b>	<p>Statute (Mineral Tenure Act): areas where, by regulations, the minister may prohibit claim staking or allow it, subject to conditions. Synonym: no-staking reserve (NSR).</p>

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<b>minimize</b>	<p>Dictionary: "to reduce to the smallest possible amount, size, extent or degree."</p> <p>Writing Guide Definition: "to reduce to least quantity assignable, admissible, or possible"</p> <p>There is no explicit test of reasonableness or cost. Most things involving forest practices can be reduced to almost zero if enough money is spent, but it may not be reasonable.</p> <p>Wildlife WG: minimize does not mean precludes.</p>
<b>minimize where practicable</b>	<p>RAS: "to reduce to the smallest amount where it is feasible. However, it may not be convenient or the most cost effective option."</p>
<b>minimize where practical</b>	<p>RAS: to reduce to the smallest amount where it is reasonable, convenient and cost efficient. Allows for consideration of convenience and cost efficiency – i.e., may be accomplished by applying normal business practices.</p>
<b>mining</b>	<p>MEM suggested: all activities ordinarily involved in the process of finding and producing geological resources. Includes: tenure acquisition; reconnaissance and mineral property exploration; drilling; trenching; property development; bulk sampling; mine development; environmental baseline studies; engineering studies; construction; processing; transportation; infrastructure development; mine operation; care and maintenance; closure; reclamation; abandonment; environmental monitoring and management as well as the financing of these activities. Includes exploration work as well as underground mines, open pit mines, quarries, gravel pits, and placer workings, seasonal and year-round operations.</p>
<b>mitigate</b>	<p>Dictionary: "to make or become less severe or intense"</p> <p>Writing Guide Definition: "to cause to become less harsh or hostile; to make less. severe or painful"</p>
<b>mitigation</b>	<p>Writing Guide Definition: "resource management practices targeted at improving the compatibility between resource uses. Mitigation strategies include avoid, minimize, rectify, reduce or compensate for the impact of one resource on another"</p>
<b>mosaic of seral stages</b>	<p>MELP: the spatial arrangement of the stages of ecological succession of vegetation communities (early, mature and late); may be planned through management activities (such as grazing or timber harvest), or occur through natural disturbances events (such as fire, avalanche or windthrow).</p>

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<b>multiple accounts analysis (MAA)</b>	PST: an assessment of the implications on socio-economic and environmental values resulting from the LRMP recommendations. These changes are assessed on the basis of various "accounts" (e.g., employment in the forest industry, ecosystem representation in protected areas, wildlife habitat, government revenue, etc.), and are measured against the "base case profile".
<b>natural</b>	Dictionary: "conforming to the usual or ordinary course of nature", "free from pretension or artificiality" Examples: "'natural setting", "naturally appearing"
<b>natural disturbance regime</b>	MELP: the expected type, frequency, intensity and pattern of disturbance associated with a given ecosystem.
<b>natural range</b>	WG suggestion: "including current and former range"
<b>natural recovery processes</b>	MELP: the expected rate and type of recovery from a disturbance with no human intervention.
<b>non-status road</b>	RAS: "an existing road on Crown land that is not covered by any form of tenure."
<b>non-timber harvesting land base (NTHLB)</b>	PST: any land that is not considered part of the productive, operable land base.
<b>no-staking reserve (NSR)</b>	See "mineral reserve"
<b>not sufficiently restocked (NSR)</b>	MoF definition: productive forest land that has been denuded and has failed, partially or completely, to regenerate either naturally or by planting or seeding to the specified or desired free growing standards for the site.
<b>noxious weed</b>	MoF definition: "any weed so designated by the Weed Control Regulations and identified on a regional district noxious weed control list"
<b>objective</b>	PST: Describes what needs to be achieved to address a particular value or to address a specific interest. It should be described in general terms, and in a manner that the intent is understood.  Writing Guide definition: a concise measurable statement of a desirable future condition for a resource or resource use which is attainable through management action. Example: "Maintain the natural diversity of plant and animal life."

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<b>obstacle planting</b>	AS: Planting beside rocks, stumps, etc. and off of cow trails. Picking planting sites to discourage trampling damage.
<b>open road</b>	WG: road that is 4x4 accessible
<b>optimize</b>	Dictionary: "to improve or develop as far a possible", "to make the most effective use of"
<b>outfitter</b>	MELP: A person, who is compensated, that provides services to another person for the purposes of an outdoor recreational experience (does not include hunting).
<b>permanent range</b>	Andrea: areas that produce substantial forage throughout most or all successional stages.
<b>possible</b>	RAS: "means within the limits of ability, capacity, or realization. There is no explicit test of reasonableness or cost. If a task can somehow be carried out, or it is possible to secure the resources to do it, then it is possible. E.g., for winter logging, deactivating a road as soon as possible after harvesting would mean deactivating it on the day following cessation of harvesting activities, even if it required the use of a D-8 cat with ripper to break through the frost."
<b>potential natural community (PNC)</b>	Biodiversity Guidebook definition: "the plant community that would be established if succession were allowed to be completed without further human interference"
<b>practicable</b>	RAS: means feasible or capable of being done or put into practice with the available means. Reasonableness is a factor, but not an overriding factor as it would be with "practical". "As soon as practicable" does not mean that each second needs to be accounted for, but there is an expectation that any delay is a reasonably prompt time given all the circumstances. E.g., for winter logging, deactivating a road as soon as practicable after harvesting would mean as soon as the frost is out of the ground and conditions are suitable to do an adequate job. If a large machine needs to be brought in, it would be acceptable to wait for the road bans to be lifted, but the timing should not be delayed for the convenience of fitting into other plans. See "possible".

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## **practical**

RAS: means a normal or common practice, incorporating an element of discretion. There is also an explicit test of reasonableness, convenience and cost. "Where practical" means where something can and would normally be carried out; e.g., for winter logging, deactivating a road as soon as practical after harvesting would mean within the first field season and as soon as the work can be fit into existing plans. There is also an expectation of cost efficiency, which would allow some delay until field conditions are well suited to the work to be carried out, (e.g., dry) and a machine is working in the general area, or if not, the work can otherwise be fit into the normal schedule of tasks. See "possible".

## **precautionary principle**

Wildlife WG: where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for failing to implement appropriate, cost effective environmental measures.

UNCED Rio Declaration, 1992: where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

MELP: where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid, or minimize, such a threat.

## **proper functioning condition (PFC)**

DFO/MELP: Riparian/wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve flood-water retention and ground water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration and temperature necessary for fish production, waterfowl breeding and other uses; and support greater biodiversity.

Context: managing ecosystems or riparian areas.

## **protect**

Dictionary: "to keep from harm, attack, or injury"

Writing Guide definition: "to keep safe, defend or guard"

Note: Term applied outside of protected areas.



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<b>protection</b>	Fish WG or DFO: Prescribing guidelines and conditions, and enforcing laws for the purpose of preventing the harmful alteration destruction or disruption of fish habitat.
<b>range reference areas</b>	AS: Permanent installations designed to monitor the impact of livestock, wildlife and other disturbances on rangelands throughout British Columbia. These areas consist of fenced exclosures combined with permanent vegetation monitoring plots but may also include abandoned grazing areas and sites that have never been grazed.
<b>rare biological or physical features</b>	MELP: very uncommon features that are present on the landscape; examples include rare wildlife, plants, vegetation associations, and rock formations.
<b>rare element</b>	Conservation Data Center (CDC): They use this term to collectively describe one or more of the following: Red or Blue-listed (rare) plants, plant communities, or vertebrates.  WG suggestion: "rare wildlife, plant or community"
<b>rare forested ecosystem</b>	MELP: a forested ecosystem that comprises less than 2% of a landscape unit and is not common in adjacent landscape units.
<b>rare grassland ecosystems</b>	MELP: These are identified on MELP's " <u>Rarity Analysis Map</u> ", and are those grassland ecosystems that comprise less than 2% of a landscape unit, and are not common in adjacent landscape units". This is the FPC definition.
<b>rare plant communities</b>	MELP: These are Red or Blue-listed plant communities. In most instances they are identified by the site series, within a BEC subzone variant.
<b>reasonable</b>	Dictionary: "governed in accordance with reason or sound thinking", "within the bounds of common sense:", "not extreme or excessive: FAIR" Example: "to undertake reasonable efforts to"
<b>recreational placer activities</b>	MEM suggested: untenured placer mining using hand tools only (pick, shovel and gold pan).

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<b>red-listed species</b>	MELP: Includes any indigenous species or subspecies (taxa) considered to be Extirpated, Endangered, or Threatened in British Columbia. Extirpated taxa no longer exist in the wild in British Columbia, but do occur elsewhere. Endangered taxa are facing imminent extirpation or extinction. Threatened taxa are likely to become endangered if limiting factors are not reversed. Red-listed taxa include those that have been, or are being, evaluated for these designations.
<b>rehabilitation</b>	MoF definition: measures undertaken to remedy environmental damage done to the land.
<b>reserves from application</b>	Statute (Land Act): A designation established under the Land Act (Sections 15 and 16), that allows land to be reserved from disposition (sale, leasing, licensing, and permitting) under that Act. The reserve designation is commonly used to maintain public options for current and future land use. Some examples would be for preservation of wildlife habitat (if the major threat was land alienation), or to maintain Crown aggregate resources for the Crown's future use.
<b>restore or restoration</b>	Dictionary: "to bring back into existence or use", "to bring back to an original state"  MoF definition: "the return of an ecosystem or habitat to its original community structure, natural complement of species and natural functions. DFO definition: The treatment of fish habitat that has been altered, disrupted or degraded for the purpose of increasing its capability to sustain a productive fisheries resource.
<b>riparian</b>	MoF definition: "An area of land adjacent to a stream, river, lake or wetland that contains vegetation that, due to the presence of water, is distinctly different from the vegetation of adjacent upland areas."
<b>risk</b>	MoF definition: "the probability of an undesirable event occurring within a specified period of time. With regard to insect populations, risk involves components to evaluate the likelihood of an outbreak, the likelihood of trees being attacked (susceptibility) or the likelihood of trees being damaged (vulnerability). In fire prevention, risk involves those things or events that cause fires to start (including the physical igniting agents and people)."
<b>rockhounding</b>	MEM: searching for and collecting rocks, minerals and fossils using hand tools only; a hobby.

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<b>round table</b>	JH: "a public forum that has a format which favours a structured thinking process leading to true consensus"
<b>sensitive (resource) area</b>	MoF definition: an identifiable geographic unit of the forest land base that requires a specific combination of forest practices to adequately protect important resource values.
<b>sensitive cultural and heritage features</b>	MoF definition for cultural heritage resource: "An object, a site or the location of a traditional societal practice that is of historical, cultural or archaeological significance to the province, a community or an aboriginal people. Cultural heritage resources include archaeological sites, structural features, heritage landscape features and traditional use sites
<b>smoke sensitive areas</b>	MELP: Areas where there is poor air quality due to one or more factors, causing significant negative health and/or environmental impacts. Some factors impacting air quality are local atmospheric conditions (inversions), local topographic conditions, open burning, backyard burning, agricultural and forestry slash burning, road dust, automobile emissions, permitted industrial emissions, and chemical reactions.
<b>special features</b>	MELP: relates to habitat features of rare elements. Special features are provided on a species-specific basis in the R&B Guidelines document.
<b>species at risk</b>	MoF definition:  a) any wildlife species that, in the opinion of the Deputy Minister of Environment, Lands and Parks, or a person authorized by that deputy minister, is threatened, endangered, sensitive or vulnerable,  b) any threatened and endangered plants or plant communities identified by the Deputy Minister of Environment, Lands and Parks, or any person authorized by that deputy minister, as requiring protection and  c) regionally important wildlife as determined by the Deputy Minister of Environment, Lands and Parks or a person authorized by that deputy minister.
<b>stakeholder</b>	PST suggested: any individual or group with an interest in a particular area or issue; does not imply that they have to have a tenured interest.

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## **strategy**

PST: Describes how an objective can be achieved “on the ground”. It should be easily understood (by everyone), practical and doable (reasonable chance of success), and consistent with current legislation (e.g., FPC).

Example: “Avoid new access in lambing grounds and in areas where sheep concentrate.”

Writing Guide definition: a means of achieving a resource objective.

## **sustainable**

Dictionary: “to keep in existence; maintain”

MoF definition: “A state or process that can be maintained indefinitely. The principles of sustainability integrate three closely interlined elements—the environment, the economy and the social system—into a system that can be maintained in a healthy state indefinitely.”

## **timber harvesting land base (THLB)**

MoF: productive, operable land base.

MoF definition: the portion of the total area of a management unit considered contributing to, and being available for, long-term timber supply. The harvesting land base is defined by reducing the total land base according to specified management assumptions.

## **Total Chance planning**

MoF definition: early planning over an entire development area for the best overall realization of all objectives identified by broader planning.

## **Total Resource planning**

MoF definition: a plan for long-term forest management over an entire area, such as a watershed. The plan identifies known resource values, capabilities and sensitivities; confirms or refines management objectives for those values; and establishes detailed management guidelines by which to achieve those objectives on the ground.

## **tourism infrastructure**

RG: built features such as trails, airports, lodges, hotels, marinas, etc., which are used by tourists.

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<b>traditional use</b>	<p>Traditional Use Study Program Guidelines, December 1996: "any geographically defined site (on land or water) used traditionally by one or more groups of people for some type of activity. These sites may lack the physical evidence of human-made artifacts or structures, yet maintain cultural significance to a living community of people." This definition is further refined by "'Traditional' in this context refers to those beliefs, customs, and practices pertaining to land use of a living community of people that have been passed down through the generations."</p> <p>Traditional use, as commonly used in the provincial government refers to aboriginal activities, and the use of this term in this LRMP is consistent with this usage.</p>
<b>transitory range</b>	<p>AS: areas that eventually succeed to closed canopy forest providing forage only during a brief period following stand initiating fires or timber harvesting.</p>
<b>unregulated harvest (of wildlife)</b>	<p>MELP: includes all wildlife purposefully killed that is not regulated by BC Hunting Regulations.</p>
<b>wetland</b>	<p>MELP: Land having a prolonged high water table, or covered with shallow water, or inundated frequently enough to develop and support plants specially adapted to growth in wet conditions. This vegetation is distinct enough to be in strong contrast to vegetation on adjacent upland areas.</p> <p>MoF definition: a swamp, marsh or other similar area that supports natural vegetation that is distinct from adjacent upland areas.</p>
<b>where practical</b>	<p>Dictionary: (practical) "capable of being used or put into affect: useful", "designed to serve a useful purpose", "having or displaying good judgment: sensible"</p> <p>RAS: allows for consideration of convenience and cost efficiency - i.e., may be accomplished by applying normal business practices.</p>
<b>wild fish stocks or populations</b>	<p>WG suggestion: "Indigenous and non-native but are naturally occurring" (e.g. transplanted brook trout which are reproducing and maintaining a population)</p> <p>DFO: a local population comprised of naturally spawning and rearing wild salmon.</p>

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## **wildcrafting**

PST and EN: the gathering of plant material from its native 'wild' environment.

## **wildlife**

FPC Act definition:

(a) a vertebrate that is a mammal, bird, reptile or amphibian prescribed as wildlife under the Wildlife Act,

(b) a fish, including

(i) any vertebrate of the order Petromyzoniformes (lampreys) or class Osteichthyes (bony fishes), or

(ii) any invertebrate of the class Crustacea (crustaceans) or class Mollusca (molluscs) from or in the non-tidal waters of the British Columbia, and

(c) an invertebrate or plant listed by the Minister of Environment, Lands and Parks as an endangered, a threatened or a vulnerable species, and includes the eggs and juvenile stages of these vertebrates, invertebrates and plants.

Appendix I V



Okanagan - Shuswap LRMP  
Consensus Building Processes and Bibliography





# Okanagan - Shuswap LRMP Approved Plan

## At a Glance:

### "Process" Theories and Jargon Translated

#### Communication

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##### Subjective Interpretation.

The communication process is a gamble. A person will never know if what he or she wishes to express is actually being heard. "Whatever we decide to notice blinds us to the other possibilities. In directing our attention to certain things, we lose awareness of everything else" (Wheatley & Kellner-Rogers, 1996). People also filter information through their own frames of reference. "We try to figure people out, to explain their motives, their behaviour, based on our own motives and behaviour" (Covey, 1989). Factual information also falls into this same subjective interpretation. Even "scientists hesitate to speak of their latest theory as fact, merely as the best explanation developed to that point" (Covey, 1990). We need to recognize that "any certainty we ever have is, at best, a hypothesis about the world. No matter how compelling it may be, no matter how fond we are of 'our idea,' it is always subject to test and improvement" (Senge, 1990). In order to counter the human tendency to filter and search for information that only confirms our pre-existing beliefs, we need to approach communication in a different manner.

##### Interests vs. Positions

Interest-based negotiations can help resolve conflicts by moving communication away from the typical adversarial process that is structured around the goal of convincing other people to see our point of view, into a co-operative process that is built around uncovering new insights. "In positional negotiation, the parties often perceive themselves as adversaries. Negotiators are usually quick to demand the ideal outcomes they seek" (CORE, 1995b) and those ideal outcomes are stated as their positions. Underneath these position, or pre-conceived ideal outcomes, lie people's true interests. It is also important to realize that everyone has multiple interests (Fisher et al., 1981). "In interest-based negotiation, the parties assume that their interests are interdependent and that mutually beneficial outcomes are possible" (CORE, 1995b).

##### Shared Decision-making

Shared decision-making can result in decisions that are more thorough because they have included more people, and have therefore incorporated more perspectives and information. Conversely, without meaningful public participation the resulting public alienation from the decision-making process threatens the ability to reach balanced and enduring land use decisions. "This alienation is often expressed in widespread public cynicism about government effectiveness and fairness, and dissatisfaction with the actions and decisions of government" (CORE, 1995a).

Shared decision-making processes, such as LRMPs, provide a forum in which citizens participate meaningfully in government decisions in which they have a significant interest. At the same time, "government has a legitimate expectation that citizens who take part in participatory processes will do so in good faith and with the public interest as well as their own interest in mind" (CORE, 1995b). "The public's demand for greater control must be balanced with the decision-makers' requirements for accountability and efficiency" (Kriese, 1996).

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People need to be involved. The product and process will suffer without their involvement because effective participation can significantly enhance the quality, creativity, and acceptance of the processes and outcomes (Cormick et al., 1996). Public involvement is not a tool that, on its own can end controversy. However, the controversy may be lessened compared with not using it.

## Consensus vs. Majority-vote:

Voting systems divide people into the winning majority and the losing minority. By comparison, consensus reflects mutually agreeable solutions that meet all participants' interests. The Dispute Resolution Group of the B.C. Round Table on the Environment and the Economy defines consensus as *general agreement* or acceptance of decisions by participants in the consensus process. Good will, co-operation, communication and a strong commitment to reaching a decision are required for a successful consensus process. Consensus does not necessarily mean total concurrence on every aspect of a decision. Participants must be willing to *live with* or accept the overall decision package. Consensus processes occur in a context where resource managers are required to make decisions within time and financial constraints. (adapted from the LRMP Policies and Principles)

## Caucusing

Caucusing is a specific conflict resolution technique. Caucusing provides a time in which members of a larger group can remove themselves from the full group in order to clarify or gain understanding of the issue. Mediated caucusing generally involves the mediator communicating with people from both sides of an issue and it is important that there is equal opportunity for both sides of an issue to have access to the mediator. Members of a group can also caucus among themselves without a mediator.

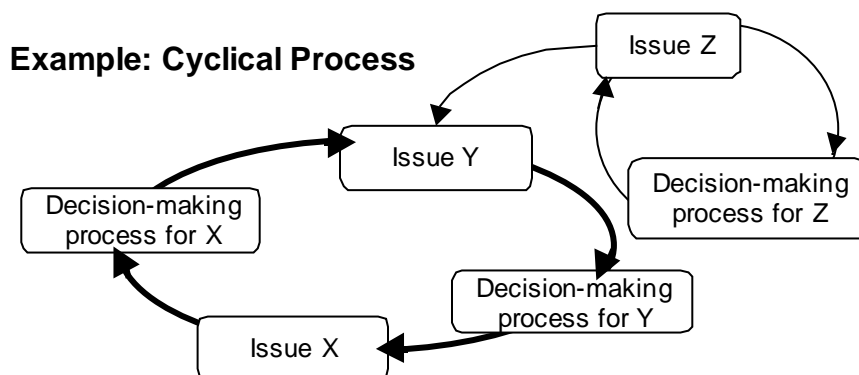
## Neutrality

Neutrality can generally be described as being objective and fair. To be neutral, a person needs to be open-minded and not go into an issue with the end-result already in place. All ideas and participants must be treated equally. It is also not enough to just be neutral and fair; a person also needs to be *perceived* as neutral and fair. (Davis, 2000) This may seem harsh but people "see the world from their own personal vantage point, and they frequently confuse their perceptions with reality" (Fisher et al., 1981).

## Example LRMP Process Structure:

There are generally nine steps to developing an LRMP. These steps include; preliminary organization; plan initiation; information assembly; scenario development, building agreement; approval; implementation; monitoring and review; and amendment.

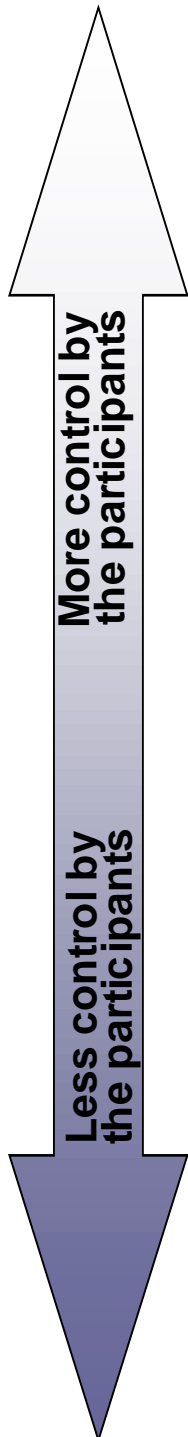
It is important to note that complex issues often require an iterative approach to problem solving. Efforts need to be made to deal with one question or issue at a time, but in application, this linear model is often cyclical with co-dependent variables.



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## Dispute Prevention and Dispute Resolution Processes

Definitions adapted from the Justice Institute of BC provide a useful starting-point for discussions on dispute prevention and resolution. To combat the subjective-interpretation described above, it there needs to be shared-meaning for the terms among the participants. No definition is "the right definition", but group understanding of the expectations around the terms that are used in a specific process is important.



**Informal discussion:** This is unassisted, face-to-face discussion.

**Negotiation:** Negotiation is generally described as unassisted face-to-face discussion aimed at resolving conflicts.

**Facilitation:** Facilitation is typically assisted face-to-face discussion. Facilitation behaviours are aimed at improving processes and individual or group functioning. The facilitator fosters open communication through active dialogue and active listening. He or she guides the communication towards common goals and agreements. The value of a facilitator is that they can put a wide range of participants at ease, help structure group activities, permit venting, negotiate solutions and help a group move towards consensus. *Facilitation is not necessarily a form of conflict resolution*, it is a way of improving communication.

**Mediation:** Mediation is generally defined as assisted face-to-face discussion aimed at resolving conflicts. Mediation is an informal, yet structured, method of conflict resolution that involves the intervention of one or more impartial persons to assist parties to identify issues of conflict between them. Through mediated discussion, greater understanding between the parties is built with the goal of reaching an amicable resolution of the substantive issues in dispute. Mediators are impartial and unbiased intervenors with no powers to enforce a settlement. Mediation processes promote self-responsibility with goals of consensual agreement building through meeting the needs and interests of the participants.

**Conciliation:** Conciliation is known as assisted, but separate, discussion. It is a third party intervention in which the parties in dispute are seen separately by the mediator, with the intention of establishing a basis for productive conflict resolution. (This differs from caucusing.)

**Administrative Decision:** In an administrative decision, a third party makes the decision using an informal process. This process is generally effective at deciding specific issues but they are much less effective at resolving differences in fundamental values.

**Arbitration:** Under arbitration, a third party makes the decision using a formal process and direct input from participants. The arbitrator can make binding or non-binding decisions. Arbitration can be effective at deciding specific issues but they are much less effective at resolving differences in fundamental values.

**Litigation:** In litigation, a third party makes the decision using a formal process that incorporates less direct input from the participants. Litigated decisions are binding.

**Legislation:** Through legislation, a third party makes a political decision using a formal process and indirect input from participants. Legislated decisions are binding.

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## Additional Thoughts - Advice from the Trenches

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*(Note: the following is a public opinion piece. It does not represent official government policy.)*

### Summary of *Negotiating by Consensus*

Conflicts arise when people have different opinions on how to resolve a controversial issue. The best start for solving any conflict is to give all stakeholders a chance to participate in the discussions and to look for common ground. Hearing the full range of opinions helps everybody move away from preconceived positions. This is precisely why we need structured round tables.

The round table process described in this write-up is highly flexible and allows the stakeholders to choose their own committee format. The format can be any kind of an existing or new public forum, working group, regulatory body, board or government agency. They all serve one of two related purposes: to resolve a specific conflict or to develop a new policy, plan, strategy, law or regulation.

The structured and facilitated forum allows people to listen to each other in an effort to find common ground and to develop creative options. In fact, it leaves them no other choice but to put their cards on the table and to work together!

**To convert a normal majority-based (and therefore adversarial!) committee into a round table is quite easy. All it takes is a) replacing the chairperson with a neutral facilitator, and b) replacing the majority voting process with a series of six consensus-building steps.**

Once a group has made these two changes, the facilitator asks the participants to use common sense. He or she challenges the group to go through six dialogue steps (vision; agenda; analysis; options brainstorming; options evaluation; decision) that allow everybody to analyze the conflict in depth and to put all possible options on the table. Consensus has to be reached after each of the six steps! This stepwise thinking and planning process allows people to explore the conflict in depth, to deal with major issues first, to leave sectarian positions and old squabbles behind and to discover their common interest.

Once the options are on the table, the participants can compare them and evaluate them informally or through a technical impact study. In either case, the participants can figure out for themselves how the proposed options affect their individual interest and those of their community.

If the original conflict has an environmental component, the common ground usually consists of the principles of sustainable development. Once stakeholders realize that sustainable development requires the integration of environmental, social and economic factors, they will find it easy to develop coherent options for resolving their conflicts and for developing their plans or strategies.

For a detailed description of how to resolve your conflicts or how to design your own round table, drop The Green Group a line at: [commonsproject@vip.net](mailto:commonsproject@vip.net).



## Appendix V

In this appendix:

- Principles that are intended to build cooperation amongst users of Crown land, and promote the integration of activities, while protecting sensitive or important values.

### Okanagan - Shuswap LRMP Summer Motorized Recreational Use: Principles and Opportunities for Land Stewardship and Shared Use





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## **It is understood that:**

*These understandings will provide the basis for future discussions.*

- Summer motorized use is a legitimate recreational pursuit on Crown lands and has a long history of both organized and unorganized use in the plan area.
- In some situations, motorized recreation should be restricted to maintain the character of areas that are particularly sensitive or important to other forms of recreation.
- There are many users that are not associated with organized groups and these users may be uneducated or not supportive of these principles.
- Even the best of intentions are subject to errors or misunderstandings and these "mistakes" will be used as a basis for improvement.
- The concept of "integrated use" applies to a large land base and does not mean all uses everywhere.

## **Land Stewardship Principles**

*These principles recognize the need to look after our resources.*

- Our sensitive ecosystems and our rare and endangered species require a level of protection.
- Much of the land has resilience to mechanized impacts, and some areas cannot tolerate any.
- Some areas cannot withstand impacts of mechanized use and restrictions may be appropriate.
- Each of us has an onus to promote good stewardship of the land.

## **Shared Use Principles**

*These principles recognize the need work cooperatively and proactively.*

- Discussions and planning will be inclusive of groups representing recreation and resource users.
- Past differences will be considered "history" and will not obstruct future discussions.
- Interest groups will be brought together expeditiously after problems are identified
- Local planning will attempt to focus on strategies that are inclusive of motorized uses.
- Ideas and recommendations will be developed by consensus.
- Each of us has an onus to work cooperatively and diligently towards shared land use.

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## Opportunities

*This list is a "tool kit of opportunities that may assist local planners in resolving some of the local issues relating to summer motorized activities.*

- Support the establishment of user group organizations.
- Encourage user groups, individually or collectively, to assume a stewardship role in the areas of facility and use management.
- Encourage local communication forums and the building of agreements amongst stakeholders.
- Educate constituents and the public on these principles.
- Promote strategies that encourage support and compliance through information and education.
- Look for opportunities to promote, or focus, summer motorized recreational use on specific areas.
- During planning, consult with all groups having an interest in the area.
- Utilize signs, maps, brochures and other means to communicate strategies.
- Consider voluntary separation of use where other options are not practical.
- Use regulatory tools where other "voluntary" measures have not been successful.

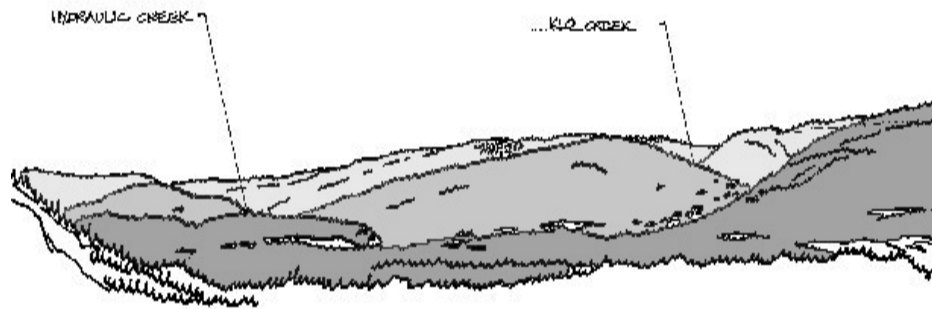
Appendix VI



Okanagan - Shuswap LRMP  
Visual Quality Guidelines



## VISUAL QUALITY GUIDELINES.



Note :

- Italics indicates new item
- Underline indicates still under discussion
- Bold indicates agreement at working group level

**Dec.20, 1999**

Based on "OSLRMgl13baccepted.doc".



# **Introduction.**





# **OKANAGAN/SHUSWAP LRMP: Visual Quality Guidelines.**

## **Introduction.**

The purpose of these guidelines is to outline visual landscape management practices for resource management activities within the Okanagan/Shuswap. They apply to all Crown land, forested as well as non-forested (e.g. grasslands, alpine areas, wetlands). Although they focus primarily on forest development activities (i.e., logging), they are also applicable, with appropriate adaptations, to such activities as the construction of utility corridors, roads and highways, recreation and tourism facilities, urban developments, and mining. Details on how these Guidelines apply to forest development activities are found in the body of this text. Details on how they might be adapted to non-forest development activities are found in Appendix C.

These guidelines rely heavily on landscape design principles and practices in order to maintain publicly acceptable levels of visual quality. Inherent in the process of landscape design is an understanding that social, environmental, economic, and aesthetic considerations must all be brought together in order to create a successful design. The cutblock with poor visual design, which is highly profitable to harvest, is just as unsuccessful as the cutblock with good visual design, which is not feasible to log.

The guidelines are intended to allow for the great variety of landscape conditions, viewing situations, and social contexts which occur. Wherever the guidelines are quantified with numbers, these should be used as targets rather than absolute values. The intent is to work toward achieving the percentages listed in the "Harvest percent for VQOs" matrix with the understanding that variations may be required on a site-specific basis. Factors which may influence the choice of numbers within each range include Visual Absorption Capability (VAC), viewing conditions (distance, angle, etc.), existing alterations, and public feedback. The expectation is that these guidelines will be followed in order to achieve VQOs. The bottom-line when designing and carrying out forest operations is to meet the spirit and intent of the VQOs i.e. design to objectives, not to rules.

The Okanagan/Shuswap LRMP area has been classified into 3 visual landscape management zones, based on relative visual importance and type of use:

**Zone 1:**

- high visual importance
- **manage as Scenic Areas with Established Visual Quality Objectives under the FPC** (see Appendix A)
- specific guidelines apply relating to landscape design, scale of alteration, silvicultural systems, roads, greenup, public information and input

**Zone 2:**

- moderate visual importance
- **manage as visually sensitive areas (not scenic areas) without VQOs**
- general guidelines apply relating to landscape design principles
- Visual Impact Assessments are not required.
- Focus is on landscape design principles

**Zone 3:**

- moderate visual importance
- manage with primary focus on foreground management from trails and other dispersed use areas
- *This zone is defined on Map xxx*



The following table summarizes the legal requirements and guidelines for activities within each visual zone:

Table 1: Visual Zone Management Requirements.

<b>Legal Requirements</b>	<b>Zone 1</b>	<b>Zone 2</b>	<b>Zone 3</b>
Scenic Areas (FPC)	X		
Established VQOs (FPC)	X		
VIA requirement (FPC)	X		
Public review requirement (FPC)	X		
<b>Guidelines Application</b>	<b>Zone 1</b>	<b>Zone 2</b>	<b>Zone 3</b>
Natural design of shapes and patterns	X	X	X
Design guidelines	X	X	
Silvicultural systems guidelines	X		
Roads/Soil Disturbance Guidelines	X		
Greenup guidelines	X		
Scale of alteration guidelines	X		
Foreground management guidelines	X		X

x = applies to the zone

## Integration of Visual Quality Guidelines and Lake Classification Guidelines

The Visual Quality Guidelines will provide visual landscape management direction for both travel corridors and lakes. When dealing with A, B, and C (quality or wilderness only) classified lakes the VQOs will be managed according to the zone 1 guidelines (i.e. established VQOs), while C (general), D, and E class lakes will be managed according to visual design principles as outlined for zone 2 (see Appendix B).

Where no visual landscape inventory has been completed for a zone 1 lake, the 200 m. lakeshore management zone and 10 m. Riparian Reserve Zone will be managed according to the current lake classification VQO until such time as a landscape inventory is completed by MoF.

The lake classification guidebook will only provide direction for managing for values other than visuals ( i.e. fish, water, etc. ) N.B. The Lakes Classification Guidebook and its relationship with the visual quality guidelines is still under discussion.

### Public Information and Interpretation:

“There is no room for lack of commitment to honestly seeking public views and taking public advice into account in forest resource management decisions.”  
-Public Involvement Handbook, 1981



Scenic, natural-appearing landscapes are found throughout the Okanagan/Shuswap area. They contribute to our quality of life and our economy by providing natural settings within which people live, work, travel, and recreate.

The appearance and quality of our management activities on the landscape gives a strong message to people about the respect and care we have for the natural environment. These visual images, supplemented by verbal and written information, can help to give the public a better understanding of various resource management activities.

Following is a flowchart for visual quality linking LRMP to operational plans:

Table 2: Flowchart Linking Visual Management to Planning Levels.

Planning Level	Plan Products	Public Involvement	Visual Assessments
<b>Strategic: LRMP</b>	<ul style="list-style-type: none"> <li>objectives</li> <li>strategies</li> <li>visual quality guidelines</li> </ul>	Developing objectives, strategies, and guidelines for visual management Zoning scenic areas and establishing VQOs (public plays a key role at this point)	Visual management requirements identified by establishing VQOs consistent with FPC
	<ul style="list-style-type: none"> <li>Scenic areas identified and zoned</li> <li>VQOs established</li> </ul>		
<b>Strategic: Landscape Unit</b>	<ul style="list-style-type: none"> <li>strategies</li> <li>guidelines</li> <li>total resource plans/harvest designs</li> </ul>	Developing detailed strategies, guidelines, and long range harvest designs for specific visual areas	Visual management requirements incorporated through total resource plans and designs
<b>Operational: FDP</b>	<b>Gate A cutblock approval:</b> <ul style="list-style-type: none"> <li>scenic areas identified</li> <li>need for VIA identified</li> </ul>	Public has opportunity to review FDPs (OPR Sec.27) General visual quality concerns may be identified) VIA's not available at this point.	Preliminary visual assessment completed by applying LRMP guidelines and matrix.
	<ul style="list-style-type: none"> <li>basic block shape, silviculture system, and harvest method defined</li> <li>LRMP matrix applied (in plan view)</li> </ul>		
<b>Operational: SP</b>	<b>SP approval:</b> <ul style="list-style-type: none"> <li>Completed VIA which demonstrates that proposal is consistent with established VQOs</li> <li>Statement that SP is consistent with VIA</li> </ul>	District Manager may request VIA for review (OPR Sec.37) District Manager may make VIA available for public review (OPR Sec.47)	Visual Impact Assessment completed using design principles and perspective simulations to show how VQO will be achieved.

Public involvement and input relating to visual quality occurs in a number of ways, and will continue to occur as required under the Forest Practices Code. For example, in higher level planning, public input is required in setting resource management objectives (including visuals). In operational planning, opportunity for public input is required as part of Forest Development Plans. Furthermore, Visual Impact Assessments (VIA's), which are required as part of Silviculture Prescriptions, should be made available to a member of the public or a public organization for review upon request to the District Manager.

Also, landscape unit planning will occur on a prioritized basis over the LRMP area. These watershed level plans will take direction from the LRMP and will involve public input and review. Where expressed visual concerns are high, or are combined with other resource concerns, this may influence the priority for carrying out landscape unit planning and the level of public involvement required.

In addition to the above-legislated requirements, a proactive approach should be taken to public involvement and interpretation of significant resource management activities in scenic areas.

Examples include:

- installing information signs along a highway corridor to describe harvest activities relating to control of insects or disease.
- holding public information meetings in small communities when harvesting is being planned on visible slopes nearby.
- providing brochures which show forestry activities that are designed in harmony with the natural landscape.

Processes for providing information and enabling input are varied and will need to be tailored to each individual situation.

## **Visual Zone Update Procedures.**

- Following approval of visual zones and objectives within Okanagan-Shuswap LRMP, periodic visual inventory updates will occur which will require revisions to the visual zones defined through the LRMP.
- These updates are required either to map areas that have not yet been completed or to update areas based on changing factors such as landscape characteristics, viewing conditions, or social factors.
- A process is needed to incorporate these periodic updates into the LRMP-approved zones.
- The Forest Practices Code currently enables District Managers to make Scenic Areas known and establish Visual Quality Objectives (VQOs). FPC Bulletin No.16 describes in detail the use of DM authority with respect to Scenic Areas and VQOs and highlights the need for appropriate public input and consultation.
- The LRMP supports the continuation of this process, with the following additions:
- Known Scenic Areas and established VQOs relate directly to LRMP Zone 1 so current FPC authority covers these areas. In addition, the LRMP recommends that updates/changes to Zones 2 and 3 be coordinated by the DM through a similar process (updates to all zones could be coordinated in one process).
- Where **minor** updates to visual zones are proposed, the DM may make known the updated Scenic Areas and establish the VQOs for Zone 1 areas, and/or approve changes to Zone 2 or 3 areas, and subsequently inform the LRMP Monitoring and Implementation Committee of these changes.
- Where **significant** updates to visual zones are proposed, the DM will solicit an appropriate level of public input and analyze the effects of the updates/changes on management of other resource values. He will then bring recommended updates to the LRMP Monitoring and Implementation Committee for their review. After considering the public input, the Committee's review, and any other relevant information, he will make known the updated Scenic Areas and establish the VQOs for Zone 1 areas and/or approve changes to Zone 2 and 3 areas.

## **Monitoring Visual Quality:**

Monitoring of the technical aspects of visual landscape management will occur as part of Ministry of Forests mandate; these include:

- accuracy of visual simulations in predicting visual impacts of harvesting
- achievement of VQOs
- success of various forest practices in maintaining visual quality

All of the above items would be monitored by the MOF.

In addition to the above, the LRMP Monitoring Committee will:

- review mapping issues identified during the LRMP process which require field checking, updating, or completion as part of the implementation plan
- review appropriateness of VQOs given new or changing information, use patterns, and perceptions make any recommendations for changes to the Visual Quality Guidelines package (to be managed through the I Team).

For more information refer to the Monitoring section of the plan.

## **Zone 1 Guidelines.**

### **Scenic Areas with Visual Quality Objectives**





## Zone 1 Guidelines.

These visually sensitive areas have been mapped according to the Ministry of Forests' visual landscape inventory procedures and standards. Within these areas the main focus is on meeting the definition and intent of the Visual Quality Objectives (VQOs). VQOs represent levels of publicly acceptable visual alteration. These areas will be declared **Scenic Areas with Established VQOs** under the Forest Practices Code, and managed consistent with the provisions of the Code and the recommendations of the LRMP. Visual Impact Assessments (VIA's) are generally required in Zone 1 (See Appendix A for exceptions).

### Landscape Design:

Landscape design is "...a process that involves working with the visual features, patterns, and forces of nature to guide changes to the landscape which optimize aesthetic, economic, ecological, social objectives and safety."

-Visual Landscape Design Training Manual, 1994



- All developments in scenic areas will receive some basic design consideration, regardless of the target Visual Quality Objective (VQO) or the Existing Visual Condition (EVC).
- Developments should be designed with future passes/entries in mind to ensure that both VQOs and wood removal can be maintained over the long term.
- Cutblock shapes will be irregular and borrow from naturally occurring line, form, colour, and texture to the extent possible. Visual force lines should also be used where appropriate to guide shapes and patterns of openings (Visual Landscape Design Training Manual, 1994).
- Cutblock sizes should be varied, consistent with the scale of natural openings, vegetation patterns (changes in vegetation types, forest types, tree species, height classes, etc.), and landform features.
- Leave trees, leave patches, deciduous vegetation, and understory trees should be included into cutblock design, where appropriate. These elements are increasingly common due to Code requirements, and can be used successfully to achieve visual as well as other resource objectives.
- **Visual rehabilitation should be considered where past visual impacts can be improved through redesign, revegetation, or other measures.**
- Foreground views (e.g. along roadsides, lakeshores, campsites, trails, etc.) should be carefully managed so that alterations are smaller in scale, soil disturbances and logging slash are minimized,
- Foreground screening (e.g. along roadsides, lakeshores, etc.) should be carefully managed, with consideration given to any views, which may be created as a result of management or removal. For example, past harvesting on distant slopes may become visible as a result of harvesting near a roadside. As another example, scenic views of an interesting feature may be created through careful harvesting along a roadside.

### Silvicultural Systems:

A silvicultural system is "...the cycle of activities which control the establishment, growth, composition, and quality of forest vegetation to meet a full range of forest resource objectives."

-Silvicultural Systems Workbook, 1992

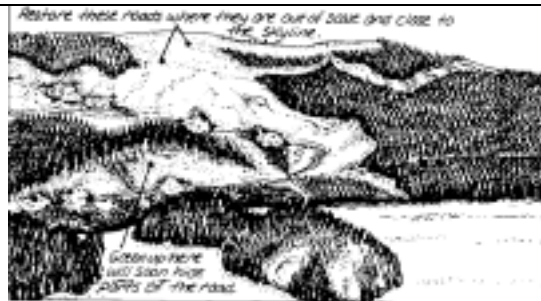


Silvicultural systems help to achieve various resource management objectives by translating these objectives into stand structural goals. The goal of silviculture is to manage forests for wildlife habitat, water quality, timber production, avalanche protection, aesthetics, or various combinations of uses.

- Silvicultural systems are chosen to achieve a balance of resource management objectives (e.g. visual, riparian, biodiversity, timber), within biological, technical, economic, and social limitations. However, in Zone 1 visual quality is a critical factor in choice of silvicultural system.
- The Harvest Percent for VQOs matrix outlines options for applying different silvicultural systems.
- Careful consideration should be given to future visual and harvest implications of various silvicultural systems (e.g. a partial cut in lodgepole pine may meet visual objectives in the short term but will eventually result in a clearcut).
- Silvicultural systems, which retain at least 40% basal area, do not have a size limitation. However, landscape design principles apply to **all** partial harvest areas managed under an even-aged silvicultural system.


### Roads and Soil Disturbances:

“With a little forethought and planning, and by following some reasonable guidelines during layout and construction, the visual impacts of logging roads can be greatly reduced. Many of the mitigating measures for reducing visual impacts are also sound procedures from the standpoint of soil management and land stewardship.”  
 -Proceedings of the 10<sup>th</sup> B.C. Soil Science Workshop, Feb. 1986



- Roads and other soil disturbances have the potential to create severe and long-lasting visual impacts, unless they are carefully designed, constructed, and maintained.
- Roads should be located to take advantage of favourable terrain and vegetative screening (e.g. constant grades and straight alignments may not always be desirable).
- The visibility of mid-slope roads should be minimized by staggering cutblock locations and placing roads in less visible parts of cutblocks (e.g. bottom edge).
- Road right-of-way clearing should vary with the terrain but be as narrow as possible where visible in scenic areas.
- The visual impact of cut and fill slopes should be minimized by using end-hauling, controlled blasting, cribbing, or other techniques.
- Colour contrast of roads can be reduced by grass seeding cut and fill slopes removing roadside slash, and encouraging quick-growing vegetation along the right-of-way.
- Landings should be located to minimize visibility and kept as small as possible.
- Landing edges on steep, visible slopes should be avoided where possible. Where they cannot be avoided, they should be visually rehabilitated.
- The construction of bladed skid roads, backspar trails, and fireguards on steep, visible slopes should be minimized.
- Borrow pits should be located away from visible areas and utilize existing vegetation for screening where possible.

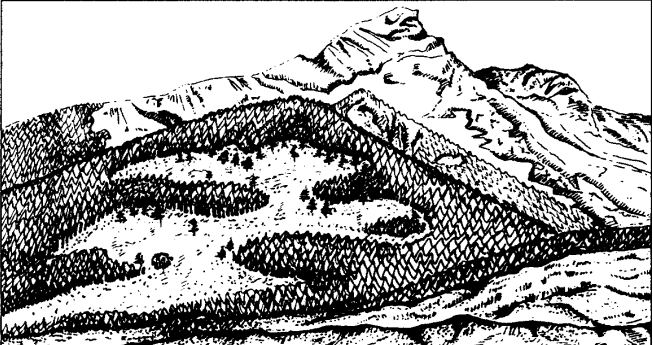
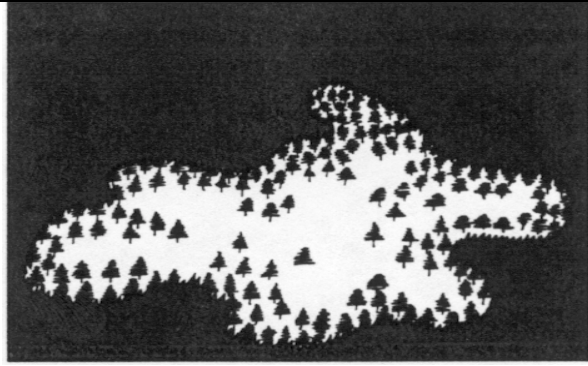
## Visual Greenup:

<p>Visual greenup is "...the stage at which a stand of reforested trees is seen by the public as a newly established forest rather than a logged area." -Visually Effective Green-up Study, 1994</p>	
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Visual greenup is dependent on a wide range of biological, viewing, and social factors. Visual greenup occurs as a new forest grows and covers views of stumps, slash, soil and other site disturbances. Visual greenup may be achieved at varying tree heights above ground, see the Harvest Percent For VQOs table for examples.

- Techniques such as prompt planting, use of larger planting stock, use of fast-growing species (including deciduous species, where appropriate), higher stocking densities, and fertilization can help to accelerate visual greenup in scenic areas.
- Visual greenup may take longer on steeper slopes, in areas with patchy or low stocking, in areas viewed close up, or where adjacent stands are taller.
- Visual greenup may take a shorter time on gentle slopes, in areas with dense stocking, in areas viewed from a distance, or where adjacent stands are shorter.
- Visual greenup during winter will be evaluated the same as summer greenup as long as landscape design principles have been adhered to. This recognizes that although snow can highlight logging activities during winter they may still appear as natural features if they are well designed. Design openings to be natural appearing and minimize soil disturbance to allow visual greenup to occur more quickly.
- Silvicultural treatments such as mechanical site preparation, prescribed burning, brushing and weeding, spacing, and thinning should be designed and carried out in visually sensitive areas with an intent to minimize visual impacts.

## Leave Patches and Screens:

	
<p>Leave patches and fingers can help to reduce the perceived scale of opening.</p>	<p>Feathering (leaving scattered trees can soften the harshness of opening edges.</p>

Where leave patches and screens are used as a tool for managing visual quality:

- Leave patches, screens and buffers normally should be considered temporary in nature, to assist in visual greenup and adjacency. Where leave patches and screens are considered permanent (to remain throughout the rotation) some low-impact harvesting should be anticipated to maintain the health of the stand.
- Leave patches should be variable in size and shape for a more natural appearance.
- Leave patches should be placed in key areas, for example to screen portions of roads, landings or other soil disturbance.

- Screens and buffers should be of sufficient size and width to be managed as units in themselves. Screens, which are too thin to be either visually effective or windfirm, or which contain too small a volume to be economically viable, should be avoided.
- Screen length should be broken at **irregular** intervals to create visual variety, even if this opens up some views of harvesting in behind.
- Screen width should be varied, following natural features and terrain breaks where possible.
- Use overlapping screens as an effective way to minimize views into a harvest unit.

### **Forest Edge Management.**

Many people travel and recreate on roads and around lakes, rivers, and other water bodies. The immediate forest edge, which forms the foreground view in these areas, receives concentrated use and has an important influence on the publics' perceptions of the forest landscape. Forest management activities should be consistent with the established VQOs.

### **Forest Edge Management Along Lakeshores:**

Lakes in the Okanagan/Shuswap are classified according to the **Lake Classification and Lakeshore Management Guidebook: Kamloops Forest Region**, September, 1996. The Visual Quality Guidelines cover visual management around lakes, while the Lake Classification and Lakeshore Management Guidebook cover management of other resource values. While visual quality guidelines apply to the general viewshed surrounding the lakes, the forest edge along the lakeshore itself requires specific attention due to its foreground location and sensitivity.

The following table applies to the maximum percent of shoreline and maximum length of opening allowed within each VQO along the immediate shoreline of a lake.

Table 3: Allowable Percent and Opening Length to the Edge of the Riparian Reserve Zone Along Lakes.

Silvicultural System	Preservation		Retention		Partial Retention		Modification	
	Max. % along RRZ	Max. Opening Length	Max. % along RRZ	Max. Opening Length	Max. % along RRZ	Max. Opening Length	Max. % along RRZ	Max. Opening Length
Single Tree and Group Selection <sup>5</sup>	15-20% (>66% pre-harvest ba)	N/A	30% (>66% pre-harvest ba)	N/A	50% (>66% pre-harvest ba)	N/A	70% (>66% pre-harvest ba)	N/A
Patch Cuts <b>6</b> 0.1 - 1.0 ha			*	75 m	*	150 m	*	300 m
Clearcuts 1.1 - 5.0 ha			*	75 m	*	150 m	*	300 m
Clearcuts with Reserves <b>7</b> 5.1 - 10.0 ha			*	75 m	*	150 m	*	300 m
Clearcuts 5.1 - 10.0 ha					*	150 m	*	300 m
Clearcuts with Reserves <b>7</b> 10.1 - 20 ha					*	150 m	*	300 m
Clearcuts 10.1 - 40.0 ha							*	300 m

Notes:

- This table is still under discussion.
- This table applies to managing for visuals only. Other resource values will be guided by the Lake Classification and Lakeshore Management Guidebook.
- Total percent harvesting allowed within the VQO polygon is guided by Table xxx.
- \* Maximum percent shoreline information requires further study. Once this work has been done, it will be reviewed by the Implementation and Monitoring Committee and incorporated into the Guidelines.
- The total % harvesting along the RRZ will be governed by the Visual Impact Assessment.






## **Forest Edge Management Along Roads:**

- This applies to Zone 1 highways and roads listed in Appendix B.
- Access from roads, which lead to harvest blocks, should curve as soon as possible, where safety is not an issue, to avoid straight sight lines into the harvesting.
- Right-of-way slash should not be visible within the right-of-way.
- cut and fill slopes, where possible, should be contoured and seeded with an appropriate seed mix within the immediate foreground. of roads.
- Right-of-way vegetation (young trees, deciduous trees, shrubs, and ground cover) should be retained between harvest blocks and the road for visual interest, while keeping in mind safety factors.
- Locate landings and borrow pits away from the immediate roadside, preferably where trees or terrain will screen it, and minimize ground disturbance. Landings and borrow pits in full view should be contoured and seeded after their intended life.
- Selection and shelterwood blocks do not need screens or leave patches, but the immediate foreground. from the road should retain at least 50% of pre-harvest basal area consisting of mainly larger diameter trees.
- Patch cuts less than 1 ha should be used to open up views of interesting roadside features (rock outcrops, specimen trees, water bodies), and to frame more distant views.
- Clearcuts and seed tree cuts greater than 1 ha along a road should be screened or contain temporary reserve patches or clumps, until visual greenup occurs, to reduce the apparent scale. Openings in these foreground areas generally should not exceed 5 ha.
- Openings on the uphill or downhill side of roads may be larger if terrain and/or vegetation cause it to be partially or totally screened.
- Openings along roads should be irregular in size and spacing to create visual interest.
- Openings along roads should be planned on both sides, if feasible, to create visual interest.
- Plant fast growing species (including deciduous), large stock, and/or target-plus-10% stocking to encourage rapid greenup within the immediate foreground. from roads.
- Planting lines should run approximately parallel to roads to avoid a linear effect.
- Consider the visual effects of stand tending treatments, along roadsides.

## Visual Quality Objectives (VQOs):

Within Zone 1 the focus is on meeting Visual Quality Objectives (VQOs) which have been established. VQOs are targets representing publicly acceptable levels of visible man-made change to the characteristic landscape as follows:

Table 4: Visual Quality Objective Definitions.

<p><b>Preservation:</b></p>	<p><b>Changes are not visible</b> in the characteristic landscape. Small-scale activities may be present but not visible.</p>	
<p><b>Retention:</b></p>	<p><b>Changes are not visually evident</b> in the characteristic landscape. They may be visible but are not recognized as man-made alterations.</p>	
<p><b>Partial Retention:</b></p>	<p><b>Changes are visible but subordinate</b> in scale to the characteristic landscape. They repeat natural line, form, colour, and texture to such an extent that they appear similar to natural occurrences.</p>	
<p><b>Modification:</b></p>	<p><b>Changes are visible and dominant</b> in scale to the characteristic landscape, but borrow from natural line, form, colour, and texture to the extent that many of their visual characteristics are similar to natural occurrences.</p>	
<p><b>Maximum Modification:</b></p>	<p><b>Changes are highly visible and out of scale</b> and do not appear similar to natural occurrences except when viewed as background.</p>	

## Procedures for Applying Harvest Percent, Reserve Area and Greenup Guidelines:

Blending activities with the natural landscape is accomplished through the application of landscape design principles. This includes manipulation of not only line, form, and pattern, but also scale of alteration (harvest percent), colour and texture (greenup, reserve trees, soil disturbance, etc.). This section focuses on manipulation of scale, colour and texture and must be applied in conjunction with the preceding guidelines which deal with landscape design of line, form, pattern, and other elements.

Many factors influence the appropriate scale of harvesting and height of visual greenup needed to meet VQOs. The following tables incorporate four of the most significant factors - silvicultural system, Visual Absorption Capability, Viewing Distance, and forest health. **It must be emphasized that flexibility is required in applying the tables since every situation is unique in its combination of site-specific factors.**

Three steps are involved in applying the tables:

1. **Determine the initial range for harvest percent and visual greenup:** On the Harvest Percent for VQOs table, use the VQO and proposed silvicultural system to determine the appropriate harvest percent range, minimum reserve area, and visual greenup range.
2. **Fine-tune the range for harvest percent and visual greenup:** On the VAC/Viewing Distance table, use the combination of Visual Absorption and Viewing Distance to determine what part of the ranges for harvest percent and visual greenup to apply.
3. **Determine the harvest percent and visual greenup if there are forest health concerns:** If operating in stands where forest health is a concern, use the Forest Health tables to determine the appropriate harvest percent and visual greenup.

## Harvest Percent, Reserve Area, and Greenup Guidelines for VQOs:

The following table reflects the flexibility of managing to meet VQOs using a variety of silvicultural systems. The values shown in the table are ranges for harvest percent, reserve area, and visual greenup which vary for each silvicultural system based on Visual Absorption Capability (VAC), Viewing Distance (VD) and other viewing conditions, and forest health considerations.

Table 5: **HARVEST PERCENT FOR VQO'S IN PLAN VIEW:**

Silvicultural System	Preservation			Retention			Partial Retention			Modification		
	Harvest % <b>1</b>	Reserve Area <b>2</b>	Greenup <b>3</b>	Harvest % <b>1</b>	Reserve Area <b>2</b>	Greenup <b>3</b>	Harvest % <b>1</b>	Reserve Area <b>3</b>	Greenup <b>3</b>	Harvest % <b>1</b>	Reserve Area <b>3</b>	Greenup <b>3</b>
Single Tree And Group Selection <sup>5</sup>	100	>66% basal area <b>4</b>	N/A	100	>66% basal area	N/A	100	>66%	N/A	100	>66%	N/A
Shelterwood <b>8</b>	100	>85% ba/vol.		80	>70% ba/vol.		65	>40% ba/vol.		50	>20% ba/vol.	
Patch Cuts <b>6</b> 0.1 - 1.0 ha	5-10	N/A	3-5	10 - 25	N/A	3-5	15-30	N/A	3-5	25 - 35	N/A	3 - 5
Clearcuts 1.1 - 5.0 ha				10 - 20	N/A	3 - 5	15 - 25	N/A	3 - 5	25 - 35	N/A	3 - 5



Silvicultural	Preservation			Retention			Partial Retention			Modification		
Clearcuts with Reserves 7 5.1 - 10.0 ha				5-15	5-10%	3 - 5	10-25	5-10%	3 - 5	20-30	5+%	3 - 5
Clearcuts 5.1 - 10.0 ha							10-20	N/A	3 - 5	20-30	N/A	3 - 5
Clearcuts with Reserves 7 10.1 - 20 ha							10 - 20	5-10%	3 - 5	20 - 30	5+%	3 - 5
Clearcuts 10.1 - 40.0 ha										15-25	N/A	3 - 5

\*Shading indicates silvicultural systems, which are not normally permitted for a given VQO. Any variance from the table must be accompanied by a rationale statement, e.g. salvage harvesting resulting from natural disturbances such as fire, insects, disease, or blowdown.

**1 Harvest percent** refers to the allowable range in **plan view** of visible area harvested in a Visual Landscape Unit as defined from a key viewpoint.

**2 Reserve Area** refers to the minimum required **area** or pre-harvest **basal area** or volume (percent) remaining in the cutblock.

**3 Greenup** refers to the tree height necessary to meet visual greenup requirements.

**4 Basal area** (BA) refers to percent remaining in m<sup>2</sup>.

**5 Single tree & group selection** is intended as a three or more entry system with minimum 20 years between entries.

**6 Patch cuts** are defined by the OPR as a silvicultural system that creates openings less than one ha in size and is designed to manage each opening as an even-aged stand.

**7 Clearcuts with reserves** are defined by the OPR as a variation of clearcutting in which trees are retained, either uniformly or in small groups, for purposes other than regeneration. The Ministry of Forests further clarifies that the reserve trees must comprise at least 5% of the **area** or pre-harvest **basal area** to be classed as clearcuts with reserves.

**8 Shelterwood cuts** are defined as a silvicultural system in which trees are removed in a series of cuts designed to achieve a new, even-aged stand under the shelter of remaining trees.

**Notes:**

- This table is designed with the intent to maintain long-term visual quality over multiple passes and entries.
- This table must be accompanied by application of landscape design principles and forest practices, which minimize visible site disturbances. Large biodiversity blocks allowed under Section 11 of the OPR, which exceed the percentages in this matrix, must still use landscape design principles, reserve patches, and other measures to maintain visual quality.
- Clearcut systems do not preclude leaving residual trees, which can further reduce visual impacts.
- Seedtree cuts are treated as clearcuts for the purpose of evaluating visual quality.
- Visual Absorption Capability (VAC) is the ability of a landscape to absorb visible changes based on physical attributes such as slope, vegetation pattern diversity, terrain complexity, soil colour, aspect, etc. The higher the VAC, the greater the scale of harvesting possible and the shorter the visual greenup height needed.
- Visual greenup will generally range from 3 to 5 m., but may exceed this height if required to meet VQOs.
- Where the slope is greater than 50% with either low VAC or foreground viewing then manage to a 6m Visually Effective Green-up (VEG) and plant to target-plus-10% stocking.
- VAC, forest health and level of public concern as identified and agreed to by the LRMP Monitoring Committee may influence appropriate position within each range.
- In the interest of good landscape design and rehabilitation of existing views, the values in the Harvest Percent matrix may be exceeded on a site-specific basis.

**Visual Absorption Capability/Viewing Distance:**

Visual Absorption Capability (VAC) and Viewing Distance (VD) are used to fine-tune the harvest percent and greenup ranges listed in the Harvest Percent table. The following table indicates what part of the range applies, based on VAC and VD.

Table 6: Visual Absorption Capability and Viewing Distance

Viewing Distance	Visual Absorption Capability		
	Low	Moderate	High
<b>Foreground (0 to 1 km)</b>	lower third	lower third	middle third
<b>Midground (1 to 8 km)</b>	lower third	middle third	higher third
<b>Background (&gt;8 km)</b>	middle third	higher third	higher third

Following is an example applied to Partial Retention where small clearcuts 1.1 to 5.0 ha are proposed:

Harvest Percent for Partial Retention using Clearcuts 1.1 to 5.0 ha: (range is 15-25%)		
15 - 20%	17.5 - 22.5%	20 - 25%
low end	middle	high end

## Forest Health Concerns:

When managing viewscapes, there may be significant portions of the area made up of stands susceptible to insect and disease attack. The extended time period required to achieve a reasonable distribution of age classes may increase the risk of a major attack and subsequent impact upon visual quality. In order to deal proactively with these forest health concerns, harvesting and development may be required beyond the levels specified in the Harvest Percent for VQOs table. At this time, stands susceptible to both mountain pine beetle and spruce bark beetle have been identified as requiring this proactive approach. The intent in these areas is still to meet VQOs, but using a slightly different strategy.

Susceptible stands are defined at a broad scale using Appendix 6 of the **Establishment to Free Growing Guidebook**, Kamloops Forest Region, April, 1995. Stands identified as having HIGH expected relative pest occurrence, based on biogeoclimatic subzone and leading species, are considered susceptible.

Within these susceptible stands, priority for development is assigned based on hazard rating criteria similar to those outlined in the **Bark Beetle Management Guidebook**, October, 1995. Criteria for mountain pine beetle include age, diameter, density, and location/elevation. Generally, stands with pine leading older than 80 years will be targeted. Criteria for spruce beetle include species composition, age, diameter, and site quality. Generally, stands with spruce leading older than 140 years will be targeted.

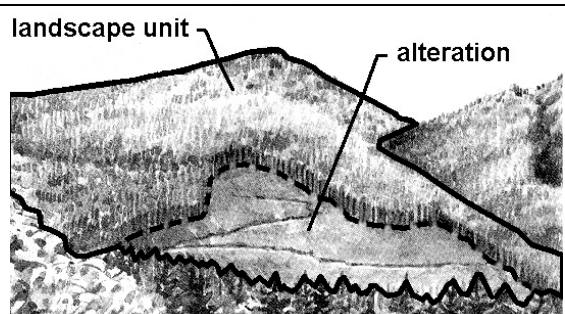
### Strategies:

1. Prioritize areas for harvesting within broadly defined susceptible stands. Susceptible stands should occupy at least 50% of a viewshed, lakeshore, or highway corridor in order to be considered.
2. Develop an integrated visual design (i.e. a total chance plan for maintaining visual quality) for all susceptible stands. Landscape design principles will apply to all road and cutblock development.
3. All susceptible stands should be adjacent to developed roads within a 10-year period. Some initial harvesting will be expected to offset road development costs.
4. Cutblock size, percent alteration ranges, and visual greenup requirements by VQO should be followed, but may be exceeded where necessary. Specifically, up to 20% removal of Retention and Partial Retention VQOs (all VAC categories) with 5 metre visual greenup will be allowed.
5. Harvested areas should be considered a high priority for prompt reforestation.
6. Replanting in visual areas should focus on managing for a **variety** of ecologically acceptable species.

## Visual Impact Assessments (VIA's):

"A Visual Impact Assessment provides maps, photographs, and perspective views of the visual effects of a proposed activity, and indicates whether a particular Visual Quality Objective will be achieved."

-Visual Impact Assessment Guidebook, 1995



Visual Impact Assessments (VIA's) are required in Zone 1. The *Visual Impact Assessment Guidebook* (Min. of Forests, April, 1995) provides an overview of why, when, and how to prepare VIA's. In addition, the *Visual Impact Assessment Guidelines*, (Kamloops Forest Region, May, 1998) provide detailed guidance regarding procedures and standards for preparing VIA's.

VIA's are carried out during the time period after the cutblock is approved in the FDP and before the SP is approved. It would be common to carry out a VIA for several cutblocks which have been approved within the same general area.

The following is a list of minimum information to include in a VIA:

- topographic map showing visual landscape inventory and VQO information, existing roads and harvesting (not yet visually greened up), and proposed roads and harvesting
- colour photographs from key viewpoints
- simulations of the proposed activity (photograph with hand-drawn overlay, digital terrain model, digitally retouched photograph, etc.) from key viewpoints
- photography data form

• VIA summary form, including additional considerations which may relate to public input

N.B. The actual amount and detail of information required in a VIA is influenced by the sensitivity/VQO of the area, the silvicultural/harvesting system proposed, and a number of other factors.

The VIA contains information which describes the expected level of visual impact of a proposed development. Three criteria are used to evaluate the VIA to determine whether the proposal will meet the VQO:

- **Design:** Does the proposal exhibit elements of good landscape design? For example, do boundaries follow natural feature, edges, or patterns, is there variety in size, shape, and distribution of openings, are visual force lines being followed? (See Landscape Design section)
- **Scale:** For **clearcut systems**, how much of the proposal is visible in perspective view, in comparison to the visual unit on which it is located? This is generally estimated as the amount of visible ground, but in close viewing situations it may include the treed edges of openings and rights-of-way. (see section below). For **partial cut systems**, how much colour and texture contrast will be created through partial tree removal? This is generally estimated as the percentage of pre-harvest basal area or volume removed. (see Table 5)
- **Definition:** Does the overall proposal meet the definition and intent of the VQO? (See VQO section)

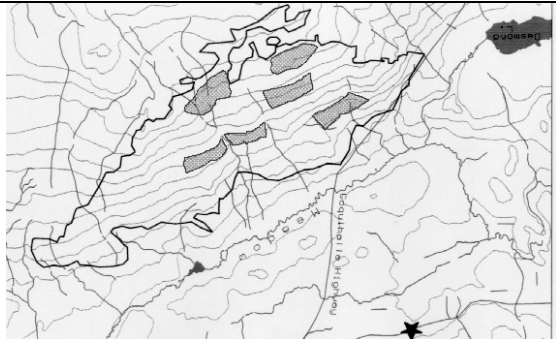
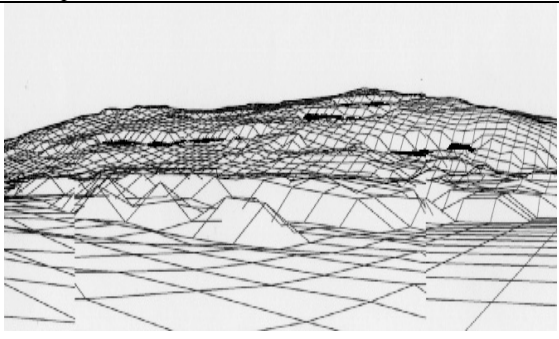
Scale of proposed activities is an important consideration in meeting a given Visual Quality Objective. In general, the larger the scale of alteration, the less natural/more managed a landscape appears. Scale of alteration, or harvest percent, can be applied to both Forest Development Plans (FDP's) and VIA's:

1. When preparing/reviewing FDP's the **plan view** numbers on the Harvest Percent for VQOs matrix should be applied to visual landscape units where harvesting is proposed. This will indicate generally whether the proposed harvesting is at an appropriate scale to meet the VQO. The intent of using these numbers is to meet VQOs, however the VIA will be used to fine-tune the proposal to ensure that VQOs are met when viewed in perspective.
2. When preparing/reviewing VIA's the **perspective view** numbers on the table below should be applied to the photographs, DTM's, or other perspective simulations as an estimate of the scale of alteration within a visual unit seen in perspective view. This will indicate more specifically whether the proposed harvesting is designed and scaled appropriately to meet the VQO from a particular viewpoint. Please note that the numbers on the table below apply only to **clearcut, clearcut with reserves, and seedtree openings**
3. For information on applying perspective numbers when using other silvicultural systems the district landscape specialist should be consulted.

Table 7: Percent Alteration (Perspective View) for Clearcuts with Reserves and Seedtree Cuts.

Visual Quality Objective	Percent Alteration in perspective view
Preservation	0
Retention	0-2
Partial Retention	2-7
Modification	7-18
Maximum Modification	18-30

Table 8: Examples of Proposed Harvesting in Plan View and Perspective View.

Visual Landscape Unit and proposed harvesting: Plan View	Visual Landscape Unit and proposed harvesting: Perspective View
	



## **Zone 2 Guidelines.**

### **“Visually Sensitive Areas”**





## Zone 2 Guidelines.

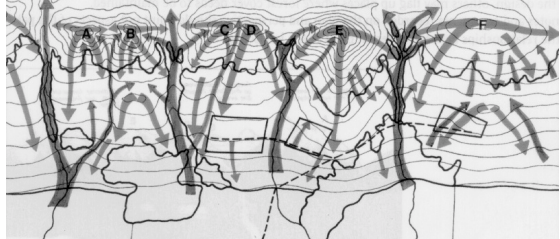
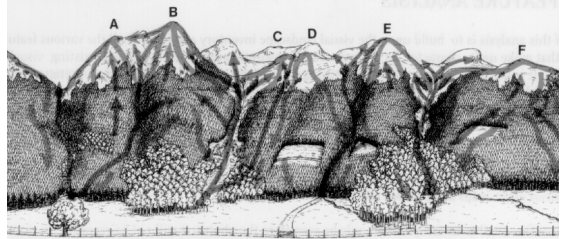
These visually sensitive areas have been mapped according to the Ministry of Forests' visual landscape inventory standards. Zone 2 areas are not Scenic Areas as defined under the Forest Practices Code and they do not have established VQOs. Within these areas the main focus is on designing and implementing resource management activities which blend with the natural landscape. These areas will be managed consistent with the recommendations of the LRMP. Visual Impact Assessments (VIA's) are not required in Zone 2. Cutblock design may be checked using visual force analysis.

### Landscape Design:

Landscape design is a process of organizing and managing the forest landscape consistent with natural features, patterns, and processes while taking into account utility, efficiency, aesthetics, forest health and economics, with a focus on the shape and size of activity. The following principles are part of the landscape design process. All or some may be applied, depending on the site-specific situation.

- Landscape design principles are applied so that alterations may dominate the characteristic landscape but must borrow from natural line and form to such an extent and on such a scale that they are comparable to natural occurrences. In areas where future harvest patterns are strongly influenced by previous harvesting, opportunities to create natural-appearing patterns may be somewhat limited.
- Cutblock shapes should be irregular and follow natural features and characteristics to the extent possible. Visual force lines should also be used where appropriate to guide shapes and patterns of openings.

Table 9: Visual Force Lines in Plan View and Perspective View.

Visual Force Lines in Plan View:	Visual Force Lines in Perspective View:
	

- Cutblock sizes should be varied, consistent with the scale of natural openings, vegetation patterns, and landform features.
- Where applicable leave trees, leave patches, deciduous vegetation, and understory trees maybe factored into cutblock design. These structural elements are increasingly common due to Code requirements, and can be used successfully to achieve visual as well as other resource objectives.
- Visual rehabilitation may be considered to improve past visual impacts through redesign, revegetation, or other measures.
- Foreground views (e.g. along roadsides, lakeshores, campsites, trails, etc.) should be carefully managed so that alterations are smaller in scale, soil disturbances and logging slash are minimized
- Foreground screening (e.g. along roadsides, lakeshores, etc.) should be carefully managed, with consideration given to any views, which may be created as a result of management or tree removal. For example, past harvesting on distant slopes may become visible as a result of

harvesting near a roadside. As another example, scenic views of an interesting feature may be created through careful harvesting along a roadside.

- Future visual and harvest implications of various silvicultural systems should be considered when choosing a particular system (e.g. a partial cut in lodgepole pine may meet visual objectives in the short term but will eventually result in a clearcut in order to regenerate the stand).
- Landscape design principles apply to partial harvest areas managed under an even-aged silvicultural system i.e. they should be designed just as clearcuts, and particularly where a final removal cut is planned.

### **Silvicultural Systems:**

Silvicultural systems help to achieve various resource management objectives by translating these objectives into stand structural goals. Silviculture has been used successfully for many years to manage forests for wildlife habitat, water quality, timber production, avalanche protection, aesthetics, or various combination of uses.

- Silvicultural systems should be chosen to achieve a balance of resource management objectives (e.g. visual, riparian, biodiversity, timber), within biological, technical, economic, and social limitations. In certain situations visual quality may be an important factor in choice of silvicultural system.

### **Roads and Soil Disturbances:**

- Roads can be located to take advantage of favourable terrain and vegetative screening in visual areas. Constant grades and straight alignments may not always be desirable.
- Road right-of-way clearing will vary with the terrain but should be as narrow as possible where visible in visual areas.
- The visible impact of cut and fill slopes may be minimized by using end-hauling, controlled blasting, cribbing, or other techniques.
- Colour contrast of roads may be reduced by grass seeding cut and fill slopes, removing roadside slash, and encouraging quick-growing vegetation along the right-of-way.
- Landings should generally be located to minimize visibility and kept as small as possible.
- Avoid construction of bladed skid roads and fireguards on steep, visible slopes over 35%.
- Minimize the visual impact of backspar trails.

## **Zone 3 Guidelines.**

### **“Dispersed Recreation”**



## **Zone 3 Guidelines.**

These areas include:

1. Regionally Significant Trails zone
2. Intensive recreation zone
3. Dispersed Tourism Use zone

Where visual management concerns are related to dispersed recreation use (such as horse back riding, hiking etc.) and are not necessarily related to specific viewpoints. The main concern in these areas is foreground management around specific trails and some vistas. While roads and harvesting will be present and visible in these areas, the following guidelines will help to reduce the impact of these activities on visual quality and recreation experiences, and in some cases enhance these experiences.

### **Landscape Design**

- Landscape design principles are applied so that alterations may dominate the characteristic landscape but must borrow from natural line and form to such an extent and on such a scale that they are comparable to natural occurrences. In areas where future harvest patterns are strongly influenced by previous harvesting, opportunities to create natural-appearing patterns may be somewhat limited.
- Cutblock shapes should be irregular and follow natural features and characteristics to the extent possible. Visual force lines should also be used where appropriate to guide shapes and patterns of openings.
- Cutblock sizes should be varied, consistent with the scale of natural openings, vegetation patterns, and landform features.
- Where applicable leave trees, leave patches, deciduous vegetation, and understorey trees maybe factored into cutblock design. These structural elements are increasingly common due to Code requirements, and can be used successfully to achieve visual as well as other resource objectives.

### **Use of screening**

- Use intermittent vegetation screening to filter views and break up the size of harvest openings.
- Retain individual trees or patches of trees (clear-cut with reserves) to increase visual variety and soften views of harvested areas.
- Retain understorey vegetation, where it exists, adjacent to trails.

### **View Enhancement**

- Use harvesting as an opportunity to create views of interesting features, either nearby or more distant. (Distant views may be a welcome contrast to the enclosed forest.)
- Forest edges can have a strong effect on foreground views. Cutblock edges should be irregular in shape and feathered, where possible, near use areas.
- Grass seed exposed soil on forest road cut and fill slopes to reduce colour contrast and erosion potential.

### **Timing/Location of harvesting**

- Encourage communication between recreation user groups and forest companies regarding harvest scheduling and safe use of access roads.
- Maintain or restore trail bed as soon as possible following harvesting where it goes through harvested areas.

### **Landings, Slash Piles and Borrow Pits**

- Avoid locating landings, slash piles and borrow pits immediately adjacent to *use areas*.
- Remove logging slash from the trail bed to maintain unobstructed access.

### **Green up**

- In foreground views, planting of fast growing tree species (including deciduous ) should be considered, to enhance green-up and provide future screening
- Plant large stock to shorten visual green-up period in foreground areas
- In areas with visible soil disturbance, seeding and/or tree planting should be utilized to reduce visual impact.

### **Interesting Features**

- Maintain integrity of interesting features such as waterfalls, rock outcrops etc. through careful harvesting practices.

**Appendix A:  
Forest Practices Code Requirements  
for Visual Quality.**







## **Forest Practices Code Requirements for Visual Quality.**

There are several sections of the Forest Practices Code (FPC), the Operational Planning Regulation (OPR), the Road Regulation (FRR), and the Woodlot License Regulation (WLR) which apply to visual landscape management in scenic areas. (Scenic areas are any areas which are included in a visual landscape inventory or which a planning process has identified as visually sensitive or scenic.) Full visual management requirements, including VIA's, apply to scenic areas where Visual Quality Objectives (VQOs) have been established (VQOs are established either through a higher level plan or by a district manager). More general requirements apply to scenic areas where VQOs may be recommended, but not yet established.

**In scenic areas where VQOs are not yet established,** VIA's are not required. However, the Forest Development Plan (FDP) must include information on known scenic areas (OPR, Sec.18). The FDP must also specify measures that will be carried out to protect forest (including scenic) resources (FPC, Sec.10). In addition, the district manager may request additional information to ensure that the forest (including scenic) resources are adequately managed and conserved (FPC, Sec.41).

**In scenic areas with established VQOs** a Visual Impact Assessment (VIA) is required (FPC, Sec.17; OPR, Sec.37; FRR, Sec.4) in addition to the above general requirements. The VIA must be carried out and made available, upon request, to the district manager before a silviculture prescription (SP) or road layout and design may be approved. The SP or road layout and design must also contain a statement that it is consistent with the results or recommendations of the VIA (OPR, Sec.38; FRR, Sec.6). The VIA may be made available for public review and comment when required by a District Manager.

Situations where VIA's are not required, unless requested by a district manager, include minor salvage, expedited major salvage, and emergency harvesting operations (OPR, Sec.37). Woodlot licensees are not required to conduct VIAs, but must demonstrate to the District Manager how their proposed operations will achieve the VQOs (WLR, Sec.12).

### **Visual Impact Assessment Process.**

VIA's are carried out during the time period after the cutblock is approved in the FDP and before the SP is approved. It would be common to carry out a VIA for several cutblocks which have been approved within the same general area.

The following process describes how visual management requirements typically could be met during operational planning:

1. Licensees identify in their FDP roads and cutblocks within scenic areas which require VIA's.
2. Ministry staff reviews FDP and suggests appropriate VIA content for identified roads and cutblocks (if different from VIA Guidelines). Ministry staff may also identify VIA's which they wish to review prior to SP approval.
3. Licensees confirm viewpoint locations and VIA content prior to completing VIA.
4. Licensees complete VIA (prior to submission of SP) which is consistent with the established VQOs, and submit to Ministry for review if requested.
5. Licensees submit SP, which is consistent with VIA results and recommendations.
6. Ministry approves SP and monitors results.



**Appendix B:  
Visual Landscape Management Zone  
Criteria.**



**OKANAGAN/SHUSWAP LRMP:  
Visual Landscape Management Zone Criteria.**

Table 10: Criteria for Establishing Visual Zones.

<b>Zone:</b>	<b>Zone 1 (Known Scenic Areas with Established VQOs)</b>	<b>Zone 2 (Known Scenic Areas without VQOs)</b>	<b>Zone 3 (Visually Sensitive Recreation and Tourism Areas)</b>
<b>Criteria:</b>	<ul style="list-style-type: none"> <li>• all settlements</li> <li>• all major travel corridors</li> <li>• all large, lower-elevation recreational lakes</li> <li>• identified secondary public roads (noted in the following list)</li> <li>• all A and B classified upland lakes (exceptions noted in the following list)</li> <li>• C classified upland lakes with “quality” or “wilderness” designation, or with established public or commercial recreation facilities (exceptions noted in the following list)</li> <li>• identified FSR’s with significant recreational traffic leading to major parks, recreation features, or use areas of regional significance (noted in the following list)</li> </ul>	<ul style="list-style-type: none"> <li>• identified secondary public roads (noted in the following list)</li> <li>• C classified upland lakes with “general” designation and no established public or commercial recreation facilities (exceptions noted in the following list)</li> <li>• all D and E classified upland lakes</li> <li>• identified FSR’s with significant recreational traffic (noted in the following list)</li> </ul>	<ul style="list-style-type: none"> <li>• Regionally significant trail corridors</li> <li>• Intensive recreation use areas</li> <li>• Dispersed tourism use areas</li> </ul>
<b>Objectives:</b>	<ul style="list-style-type: none"> <li>• To maintain predominantly natural-appearing landscapes (the degree of naturalness to be consistent with established VQOs)</li> </ul>	<ul style="list-style-type: none"> <li>• To maintain diverse, managed forest landscapes whose activities follow natural features, characteristics and processes to the extent possible</li> </ul>	<ul style="list-style-type: none"> <li>• To maintain visual quality associated with recreation experiences along identified trails and in identified use areas.</li> </ul>

<b>Zone:</b>	<b>Zone 1 (Known Scenic Areas with Established VQOs)</b>	<b>Zone 2 (Known Scenic Areas without VQOs)</b>	<b>Zone 3 (Visually Sensitive Recreation and Tourism Areas)</b>
<b>Strategies</b>	<ul style="list-style-type: none"> <li>• Implement visual landscape management principles and practices as required under the FPC</li> <li>• Achieve established VQOs as required under the FPC</li> <li>• Prepare VIA's as required under the FPC (the content and standards will vary with visual sensitivity and viewing conditions)</li> <li>• Implement visual rehabilitation practices where necessary</li> </ul>	<ul style="list-style-type: none"> <li>• Implement landscape design principles which borrow from natural landscape features and characteristics</li> <li>• Implement a variety of silvicultural systems to achieve pattern and texture diversity</li> <li>• Implement practices which minimize greenup times</li> <li>• Implement foreground management practices along roads and lakeshores</li> </ul>	<ul style="list-style-type: none"> <li>• Implement landscape design principles, which can be applied in a viewpoint-independent manner, to borrow from natural features and characteristics of the landscape.</li> <li>• Implement foreground management guidelines, which recognize dispersed recreation uses along identified trails and use areas.</li> </ul>

**Notes:**

1. The Visual Quality Guidelines will provide visual landscape management direction for both travel corridors and lakes. When dealing with A, B and C (quality only) classified lakes the VQOs will be managed according to the zone 1 guidelines ( i.e. established VQOs ). C (general) D and E class lakes will be managed according to visual design principles as outlined for zone 2.  
Where no visual landscape inventory has been completed for a zone 1 lake, the 200-M lakeshore management zone will be managed according to the current lake classification VQO until such time as a landscape inventory is completed by MoF.  
The lake classification guidebook will only provide direction for managing for values other than visuals ( i.e. fish, water, etc. )
2. Areas visible from roads, trails, viewpoints and other forest lands which do not fall within the above zones (i.e. not within known scenic areas or established VQOs) are managed for visual quality as follows: Alterations may dominate the characteristic landscape but must borrow from natural line and form to such an extent and on such a scale that they are comparable to natural occurrences.

**List of Secondary Public Roads, Lakes, Forest Service Roads (FSR's), Trails, and Recreation/Tourism Areas in Visual Zones.**

<b>Zone:</b>	<b>Zone 1</b>	<b>Zone 2</b>	<b>Zone 3</b>
<b>Salmon Arm:</b>	<b>Identified Secondary Public Roads:</b> <ul style="list-style-type: none"> <li>• Salmon River Road</li> <li>• Enderby-Kingfisher Road</li> </ul>	<b>Identified Secondary Public Roads:</b> <ul style="list-style-type: none"> <li>• Chase-Falkland Road</li> <li>• Turtle Valley Road</li> <li>• Deep Creek Road</li> </ul>	<b>Regionally Significant Trails</b> <ul style="list-style-type: none"> <li>• <u>Mara Lookout Trail</u></li> </ul>
		<b>B classified uplands lakes which fall into Zone 2:</b> <ul style="list-style-type: none"> <li>• Lakes 437, 442, 447, 465, 467 (Lower Seymour AOI)</li> <li>• Chum (#1126) and Phillips (#3841) Lakes</li> </ul>	<b>Intensive Recreation/Tourism Areas</b> <ul style="list-style-type: none"> <li>• Larch Hills, Fly Hills, Hunters Range, Queest, Crowfoot, Lichen, Pukeashun, Mt. Grace, Jordan Range, Shuswap Range</li> </ul>
<b>Vernon:</b>	<b>Identified Secondary Public Roads:</b> <ul style="list-style-type: none"> <li>• Westside Road (Okanagan Lake)</li> <li>• Salmon River Road</li> <li>• Mabel Lake Road (up to Prov. Park)</li> <li>• Silver Star Road</li> </ul>	<b>Identified Secondary Public Roads:</b> <ul style="list-style-type: none"> <li>• Douglas Lake Road</li> <li>• Chase-Falkland Road</li> <li>• Paxton Valley Road</li> <li>• Trinity Valley Road</li> <li>• Beaver Lake Road (ends at Dee Lake)</li> <li>• Postill Lake Road</li> <li>• Echo Lake Road</li> </ul>	<b>Regionally Significant Trails</b> <ul style="list-style-type: none"> <li>• HBC Brigade Trail</li> </ul>
	<b>Additional C classified upland lakes in Zone 1:</b> <ul style="list-style-type: none"> <li>• Grizzly Swamp (#4298) (informal rec site)</li> <li>• Lost Lake (#2216) (Hwys rest stop)</li> <li>• Mau Lake (#4286)</li> <li>•</li> </ul>	<b>Additional C classified upland lakes in Zone 2:</b> <ul style="list-style-type: none"> <li>• Beaver Jack Lake (#1826)</li> <li>• Karen Meadows Lake (#4359)</li> <li>• Kuly Lake (#2081)</li> <li>• Margie Lake (#4358)</li> <li>• Silvernail Lake (#1561)</li> <li>• Russ Lake (#4353)</li> <li>• Sucker Lake (#2047)</li> </ul>	<b>Intensive Recreation/Tourism Areas</b> <ul style="list-style-type: none"> <li>• Aberdeen Plateau, Galloping Hills, Graystokes (north), Keefer Lake, Silver Star, Park Mtn, Monashee, Pinnacles and Vista Pass, Camels Hump, Sugar Loaf</li> </ul>
	<b>Identified FSR's:</b>	<b>Identified FSR's:</b> <ul style="list-style-type: none"> <li>• Sugar FSR (Sugar Lake to Greenbush Lk.)</li> <li>• Kettle FSR</li> <li>• Keefer FSR</li> </ul>	

<b>Zone:</b>	<b>Zone 1</b>	<b>Zone 2</b>	<b>Zone 3</b>
<b>Penticton:</b>	<b>Identified Secondary Public Roads:</b> <ul style="list-style-type: none"> <li>• Westside Road (Okanagan Lake)</li> <li>• Apex Mtn. Road (Green Mtn. Rd. to ski hill)</li> <li>• Green Mtn. Road (Penticton to Apex Mtn. Rd.)</li> <li>• Ashnola Road</li> <li>• Glenrosa Road</li> <li>• Twin Lakes Road</li> <li>• Big White Road</li> </ul>	<b>Identified Secondary Public Roads:</b> <ul style="list-style-type: none"> <li>• Brenda Mines Road</li> <li>• Trout Ck. Rd. (public road. 20)</li> <li>• Green Mtn. Rd. (Hwy 3A to Apex Mtn. Rd.)</li> <li>• Fairview-Cawston Rd.</li> <li>• Camp McKinney Road</li> <li>• Beaverdell (Carmi) Road (up to 201 Rd.)</li> <li>• Chute Lake Road (to Chute Lk.)</li> <li>• McCullough Road</li> <li>• Goudy Road</li> <li>• Philpot Road</li> <li>• Three Forks Road</li> <li>• Garnet Lake Road (Hwy 97 to Garnet Lake)</li> <li>• Fish Lake Road (Falder to Darke Lake)</li> </ul>	<b>Identified Regionally Significant Trails</b> <ul style="list-style-type: none"> <li>• KVR</li> <li>• Brent Mtn Trail</li> <li>• Centennial Trail</li> <li>• Crawford Trail</li> <li>• Okanagan High Rim/Highland Trail</li> <li>• Lacoma Trail</li> <li>• HBC Brigade Trail</li> <li>• 1913 Little White</li> <li>• Angel Springs</li> <li>• Mission Creek</li> </ul>
	<b>Additional C classified upland lakes in Zone 1:</b> <ul style="list-style-type: none"> <li>• Headwaters Lake 2</li> <li>• Headwaters Lake 4</li> </ul>	<b>Additional C classified upland lakes in Zone 2:</b> <ul style="list-style-type: none"> <li>• Sandberg Lake</li> <li>• Thirsk Lake</li> </ul>	<b>Intensive Recreation/Tourism Areas</b> <ul style="list-style-type: none"> <li>• South Slopes, McCulloch, Apex-Nickel Plate, Idabel, Graystokes, Nordic, Telemark, Inkaneep, Brenda Mine Rd, Summerland-Roddy Flat, Bear Creek, Sawmill Lake, Peachland</li> </ul>
	<b>Identified FSR's:</b> <ul style="list-style-type: none"> <li>• Ashnola FSR (adjacent to Cathedral Park)</li> </ul>	<b>Identified FSR's:</b> <ul style="list-style-type: none"> <li>• Sunset FSR</li> <li>• Brenda Lk. FSR</li> <li>• Peachland FSR</li> <li>• Trout Ck. FSR</li> <li>• Bear Ck. FSR</li> <li>• Jackpine Lk. FSR</li> <li>• Graystokes FSR</li> <li>• Philpot FSR</li> <li>• Greyback FSR</li> <li>• OK Falls FSR (201)</li> </ul>	

**Notes:**

1. All views from settlements, major travel corridors, and large, lower-elevation lakes are included in Zone 1 scenic areas.
2. Exceptions to C classified lakes criteria are influenced by level of recreation use, presence of cabins or other developments, fluctuations in water levels (reservoirs), and general quality of the recreation setting.
3. Secondary public roads and Forest Service Roads (FSR's) not identified are not currently considered part of the scenic area zones.

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# **Appendix C:**

**Guidelines for Visual Quality Management for Non-Forest Development Activities  
(e.g. urban developments, recreation and tourism facilities, highways, utility corridors,  
mineral exploration, mine development)**



The LRMP has recommended that visual landscape management practices be applied to development activities that are not regulated by the Forest Practices Code (e.g., urban development, the construction of recreation and tourism facilities, highways, utility corridors, mineral exploration, and mine development). Because the FPC does not regulate these activities, they cannot be legally required to meet its standards. Nevertheless, the goal of the LRMP is careful management of the area's visual resources. This appendix is intended to assist regulatory authorities to achieve this goal.

Visual resource management for non-forest development activities will be guided by the following principles:

- Development activities are allowed in all visual management zones and in all areas with identified visual quality objectives.
- These guidelines are not intended to fetter the right of statutory decision makers to make the decisions they are empowered to make by legislation or regulation (e.g., Land Act; Highways Act; Municipal Act; Mines Act; Mineral Tenure Act; Mining Rights Amendment Act; etc.).
- In case of inconsistencies between LRMP objectives, strategies or guidelines and legislation or regulations, the latter will prevail.
- Visual Quality Objectives can not, in themselves, block development activities.
- Development activities will be managed to achieve Visual Quality Objectives, wherever practical.
- Non-forest development activities are exempt from any legal requirement to conduct a Visual Impact Assessment (VIA).
- A Visual Impact Assessment (VIA) is, however, strongly encouraged as a tool to assist in evaluating impacts to visual resources. Other methods for assessing impacts are also available. The choice of method remains at the discretion of the appropriate statutory decision-maker.
- Ministry of Forests will assist regulatory agencies and developers in the planning, review, and approval of non-forest developments by providing information on visual resource management, digital maps of visual zones and VQO polygons, viewpoints used for evaluation, visual simulation recommendations, and other relevant data.

### Urban Developments:

- Encourage local governments to add provisions for visual resource management to Official Community Plans where appropriate (development permits are issued through OCPs).
- Encourage local governments to draft and implement slope development guidelines.
- Use trees, berms, or topographic features to screen landfills, waste treatment plants, and other urban infrastructure near major roads or highways.

### Utility Corridors (power lines, pipelines)

- Construct corridors in less visible areas.
- To the extent possible, place proposed utility corridors within the right-of-ways of future highway corridors to minimize extent of visual disturbance.
- Avoid traversing steep, highly visible slopes.
- Use topographic screens to hide corridors.
- Design new corridors to cross-existing major roads or highways at high angles.
- Clear future rights of way in a manner that ensures irregular boundaries (to decrease the linearity of corridors).
- Use shrubby vegetation to visually disrupt corridor linearity.
- Promptly revegetate access roads used for corridor construction.
- Use concepts in the Ministry of Forests "Visual Landscape Design Training Manual" in the construction of new corridors and the visual rehabilitation of existing ones.

## Roads and Highways

- Use concepts in the Ministry of Transportation and Highways “Manual of Aesthetic Design Practice” for evaluating and mitigating the visual impacts of new (and existing) roads.
- Promptly revegetate road cuts, fills and sidecasts.
- Use trees, berms or topographic features to screen near-highway gravel pits and quarries.
- Clear future right of ways in a manner that ensures irregular boundaries (to decrease linearity).
- Use concepts in the Visual Landscape Design Training Manual in the construction of new highways and the visual rehabilitation of existing ones.
- Use concepts in the Ministry of Transportation and Highways “Reclamation and Environmental Protection Handbook for Sand, Gravel and Quarry Operations in BC”.

## Recreation and Tourism Facilities

- Recreation and tourism developments and facilities have the potential to create visual impacts when viewed from other vantage points. Landscape design principles can be used to blend these developments and facilities into the surrounding landscape.
- Developers are encouraged to use existing approval processes (e.g. Environmental Impact Assessment process for large-scale developments and interagency referral process for small-scale projects) to incorporate visual resource management concerns into their proposals.

## Mineral Exploration and Mine Development

### Mineral Exploration

- The following activities are completely exempt from visual management practices, because they do not require permits or have tree cutting authorized by legislation:
  - general prospecting before staking or off existing tenures
  - claim staking (as authorized by the Mineral Tenure Act)
  - line cutting (as authorized by the Mineral Exploration Code)
  - exploration activities that do not require a Mines Act permit (see list in the Mineral Exploration Code)
- In Zone 1 polygons with “preservation”, “retention”, “partial retention”, and “modification” VQOs, which can be seen from established viewpoints, avoid single openings greater than 1, 10, 20 and 40 hectares respectively (e.g., for drill sites, bulk sample sites, exploration camps, temporary buildings).
- In Zone 1 polygons with “preservation” or “retention” VQOs, which can be seen from established viewpoints, keep multiple openings for drill sites to less than 0.5 ha each.
- In Zone 1, encourage exploration methods that have lower impacts on visual resources. For example, encourage drilling in lieu of trenching, or helicopter-supported operations in lieu of constructing new access roads.
- Avoid extensive trenching on steep, visually exposed hillsides.
- Avoid exploration accesses on steep, visually exposed hillsides.
- Promptly revegetate disturbances after completion of exploration.

## Mine Development

In the event that mine development appears likely, encourage regulatory agencies to consider the following measures to mitigate visual impacts:

- Incorporate visual resource management principles in mine review and approval processes (e.g. Mine Development Review Committee and Environmental Assessment Office processes).
- Use concepts in the “Visual Landscape Design Training Manual” to assist the layout of access roads, buildings, and mine workings (e.g., ore stockpiles, waste rock dumps, open pits).
- Use berms, trees and topographic features to screen mine workings and buildings.
- Use trees, berms or topographic features to screen near-highway gravel pits and rock quarries.
- Promptly revegetate disturbed areas.
- Use coloured cladding to blend buildings into the landscape.
- Temporarily reduce the VQO for the area until mining operations cease and the disturbed area is reclaimed.
- Use concepts in the Ministry of Transportation and Highways “Reclamation and Environmental Protection Handbook for Sand, Gravel and Quarry Operations in BC” for managing aesthetics.



# **Glossary.**





## Glossary.

**Clearcut:** A silvicultural system that removes the entire stand of trees in a single harvesting operation from an area that is 1 ha. or greater and at least 2 tree heights in width, and is designed to manage the area as an even-aged stand.

**Clearcut with Reserves:** A variation of clearcutting in which trees are retained either uniformly or in small groups, for purposes other than regeneration (OPR, sec.1). The Ministry of Forests also specifies that at least 5% of the area or pre-harvest basal must remain in standing timber for it to be classed as clearcut with reserves.

**Even-aged Stand:** A stand of trees consisting of one or two age classes.

**Existing Visual Condition:** A component of the visual landscape inventory that presents the level of man-made landscape alteration (caused by forestry, mining, roads, utilities, etc.) and expressed in terms of visual quality classes.

**Group Selection:** A silvicultural system that removes trees to create openings in a stand less than twice the height of mature trees in the stand, and is designed to manage the area as an uneven-aged stand.

**Landscape Design:** A process that involves working with the visual features, patterns, and forces of nature to guide changes to the landscape which optimize aesthetic, economic, ecological, and social objectives. (Refer to the Visual Landscape Design Training Manual, 1994, for further information.)

**Partial Cut:** A harvest method in which not all trees in the stand are harvested, and includes seed tree, shelterwood, single tree and group selection, and clearcutting with reserves.

**Patch Cut:** A silvicultural system that creates openings less than 1 ha. in size and is designed to manage each opening as a distinct even-aged opening.

**Plan View:** An area as seen on a map or aerial photograph. (Note: normally, some parts of the landscape that are seen in plan view are not seen in perspective view.)

**Perspective View:** An area as seen on a photograph or Digital Terrain Model. (Note: normally, some parts of the landscape that are seen in plan view are not seen in perspective view.)

**Scenic Area:** Any visually sensitive area or scenic landscape identified through a visual landscape inventory or planning process carried out or approved by the district manager (OPR, sec.1). To be considered “**known**”, the scenic areas must be either contained in a higher level plan, or otherwise made available by the district manager at least 4 months before the operational plan is submitted for approval. Forest development plans must identify known scenic areas (OPR, sec.18) and specify measures to protect forest resources (FPC, sec.10).

**Seed Tree:** A silvicultural system in which selected trees are left standing after the initial harvest to provide a seed source for natural regeneration.

**Shelterwood:** A silvicultural system in which trees are removed in a series of cuts designed to achieve a new even-aged stand under the shelter of remaining trees.

**Single Tree Selection:** A silvicultural system in which different age classes are created or maintained by the removal of individual trees of all size classes, uniformly throughout the stand.

**Viewing Distance:** Are divisions of a landscape being viewed according to distance from the viewer. The 3 distance zones are:

- **Foreground:** The limit of this zone is based upon distances at which details can be perceived. It is usually limited to areas within 0.4 to 0.8 km of the viewer, but may vary on a case-by-case basis. At this distance individual tree branches form texture.
- **Midground:** This zone extends from foreground zone to 5 to 8 km from the viewer. Texture is usually perceived as masses of trees in dense stands, however individual tree forms may be discernible in very open or sparse stands.
- **Background:** This zone extends from midground to infinity, although distances greater than 20 km are not usually mapped. Texture in stands of uniform tree cover is weak or not discernible, while in open stands texture is seen as groups or patterns of trees.

**Visual Absorption Capability:** The ability of a landscape to absorb physical alterations without affecting its inherent visual character. Factors, which influence VAC, include slope, vegetation patterns, soil/rock colour contrast, and regeneration potential.

**Visual Force Lines:** Visible edges and lines which the eye follows in order to gain an understanding of the structure of a landscape. Ridges and other convexities tend to lead the eye downward, while draws and other concavities tend to lead the eye upward in the landscape.

**Visual Greenup:** The stage at which a stand of reforested trees is perceived by the public as a newly established forest rather than a logged area. Once achieved, the adjacent stand is available for harvest.

**Visual Impact Assessment:** An assessment which describes the predicted quantity and quality of visual change of a proposed resource management activity on the landscape. It usually includes maps, photographs, and visual simulations showing the proposed activity as seen by the viewing public from key locations. A Visual Impact Assessment is required for proposed roads and harvesting in scenic areas with established VQOs.

**Visual Landscape Inventory:** The identification, classification, and recording of the location and quality of visual resources and values.

**Visual Landscape Management:** The identification, assessment, and management of visual resources and scenery within an integrated resource management context.

**Visual Landscape Unit:** A topographically distinct unit as shown on a landscape inventory map. It often represents more area than can be seen from a single viewpoint. It is delineated on the basis of both landform characteristics (ridges, draws, breaks-of-slope, etc.) and viewing characteristics (visibility from specified viewpoints, viewing distance, viewing angle, etc.).

**Visual Quality Objective:** A resource management objective **established by the district manager or contained in a higher level plan** that reflects the desired level of visual quality based on the physical characteristics and social concern for the area. (OPR, sec.1). Forest development plans must identify known scenic areas (OPR, sec.18) and specify measures to protect forest resources (FPC, sec.10). In addition, a Visual Impact Assessment must be carried out that demonstrates that the timber harvesting operations are consistent with the established VQOs before a silviculture prescription may be approved (OPR, sec.37 and 38).

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Appendix VII

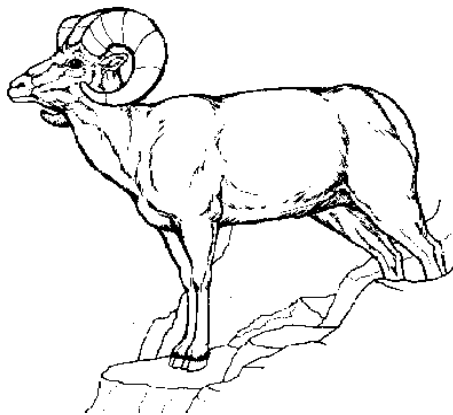


Okanagan - Shuswap LRMP  
Guidelines for Bighorn Sheep Habitat in the  
Okanagan - Shuswap LRMP





Guidelines for  
Bighorn Sheep (*Ovis canadensis*)  
Habitat in the  
Okanagan - Shuswap LRMP.





# Okanagan - Shuswap LRMP Approved Plan

## **Background:**

There are two sub-species of bighorn sheep in the OSLRMP, Rocky Mountain Bighorns (*Ovis canadensis canadensis*) and California Bighorns (*Ovis canadensis californiana*). California bighorns occupied the region following the retreat of glaciation. They are predominantly grazers. Once widely distributed in the OSLRMP grasslands, sheep are now fragmented into isolated populations. Both sub-species of sheep are "Blue-listed" by BC Environment, meaning they are "sensitive" or "vulnerable". Both sub-species of bighorn sheep are *Identified Wildlife*, listed under the "Identified Wildlife Management Strategy"<sup>1</sup> of the Forest Practices Code Act of BC.

Bighorn sheep have a strategy for survival. To minimize predator mortalities they occupy grasslands near rugged terrain with which they are exquisitely familiar. They are continuously aware of escape routes should a predator suddenly appear. Bighorn sheep are reluctant to forfeit that familiarity with their habitat. Thus, sheep are largely bound by 'range use traditions'. Once extirpated in an area sheep are typically slow to re-occupy that area even if it is still suitable and once highly productive for sheep. Isolated sheep populations are more vulnerable to extirpation than sheep with movement corridors between geographically separate population centers.

Sheep are a high profile species, for which there is a substantial public demand for uses such as wildlife viewing and hunting.

Forest and range management practices can have substantial impacts on bighorn sheep populations and habitats, and general management direction is provided through the Forest Practices Code (FPC) and the Identified Wildlife Management Strategy. Through the OSLRMP objectives and strategies relative to ungulates in general, and bighorn sheep in particular, have been prescribed. They address habitat needs, meeting public demand, maintaining cover, health of populations, carrying capacity, forage, movement corridors, special features, and access. The following guidelines provide a more detailed description of how to meet those objectives and strategies.

## **Guidelines:**

### **1. Seral Stage Distribution**

The majority of bighorn sheep habitat is located in ecosystems that historically had frequent stand-maintaining fires. Fires maintained the vegetative species composition, and influenced the structure and spatial distribution of forests and grasslands. Seral stages refer to the ecological succession of a plant community; that is the sequence of plant communities that occupy an area and replace one another over time. Bighorn sheep rely upon certain seral stages to meet forage and forest cover needs.

Recognizing that integrating bighorn sheep requirements with timber management or range management prescriptions is currently not well understood, the following are provided as interim guidance until such a time that research re-defines management prescriptions.

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## A) Forested Habitats:

- develop and implement forest harvest prescriptions that optimize suitability of logged stands for sheep forage and cover
- plan to maintain 15% in 'very dry, hot' biogeoclimatic sub-zones and 33% in all other biogeoclimatic sub-zones, of the forested area within identified sheep habitat in age class 6 or greater with high canopy closure for snow interception and thermal cover
- identify and map "*severe-winter habitats*"; (these are typically low elevation areas within which bighorn sheep are restricted during periods of deep snow accumulation or when freezing rain covers snow in a veneer of ice; *severe-winter habitat* represents a minor proportion of habitat used by bighorn sheep in normal winters)
- manage *severe-winter habitats* to age class 6 or greater with high canopy closure for snow/ice interception and thermal cover
- plan to maintain 30% of forested areas in early seral stage in identified sheep habitats for foraging (early seral conditions can be met in partially cut stands where at least 70% of natural stand volume has been removed)
- plan for an even temporal and spatial distribution of early and mature/old seral stage forests throughout identified sheep range
- plan for clearcut block size maximums of 10 ha in the IDF (Interior Douglas Fir), and 20 ha in other biogeoclimatic zones
- plan for prescribed fire, or other similar management activities, to maintain the geographic extent of historic grasslands, or 'open-grown' forests, where forest in-growth or forest encroachment has been identified as a concern.

## B) Grassland Habitats:

- in areas co-occupied by cattle, determine areas seasonally used by sheep
- determine in detail the specific seasonal forage needs of sheep in those areas
- determine in detail cattle grazing prescriptions that optimize<sup>1</sup> (abundance and quality) those seasonal forage needs of sheep
- in areas co-occupied by cattle, manage grasslands predominately to late seral, in a matrix including some mid- seral and some climax plant communities on identified sheep winter range. Vigorous, tall bunchgrass communities should predominate into winter
- on grasslands identified as lamb rearing range, and co-occupied by cattle, plan for early to mid seral plant communities (i.e. bunchgrass community with a higher forb content) in a healthy, vigorous state
- prevent conifer and shrub encroachment of grasslands by using management tools such as prescribed burning, cattle grazing, timber cutting, slashing and spacing on identified winter foraging habitats.

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## 2. Forage:

Bighorn sheep are primarily grazers, foraging on wheat grasses, blue grasses and fescues. However, other plants are also seasonally important foods for sheep. Douglas maple, saskatoon, Oregon grape, mock orange and antelope brush provide browse during particular seasons. Pasture sage is also an important forage species. In lamb rearing areas an abundance of succulent forbs and grasses are important for pregnant or lactating females. The following are provided, in addition to the grassland seral stage guidelines, to maintain high value foraging opportunities within sheep habitat.

- in identified sheep habitats assist in the maintenance of sheep forage quality and quantity through control of noxious weeds or other weeds that may have an adverse impact
- where possible, re-vegetate disturbed sites with palatable native plant species that occur at or near the disturbed site (i.e. "locally adapted")
- enhance quality and quantity of sheep forage by prescribed burning in specified sheep habitats
- discourage any bighorn sheep feeding practice that is not consistent with Wildlife Branch policy
- where practical and consistent with seral stage objectives for the plant community, use cattle to "condition" bighorn sheep winter foraging areas (i.e. perhaps short duration grazing in the spring to remove previous year's growth and provide more nutritious re-growth for winter sheep forage).

## 3. Movement Opportunities:

Maintaining movement opportunities for bighorn sheep is extremely important as they move annually between seasonal habitats. While bighorn sheep are typically slow to move into new areas or re-occupy former ranges, for the long term health of populations it is also important to maintain movement opportunities between disjunct populations to provide for the long term genetic interchange. Bighorn sheep are wary of predators and prefer open areas with suitable vegetative cover and escape terrain nearby. The following provides guidance to provide for movement opportunities between seasonal habitats, and, between disjunct populations. It is recognized that relationships between bighorn sheep movement patterns and habitats are currently not well understood. The following is to act as interim guidance until such a time that research indicates that changes are required.

### A) Within Sheep Populations:

- maintain, or restore, the structural and functional integrity of identified bighorn sheep movement corridors
- where movement corridors are not known, plan for forested corridors (50m to 100m in width) between seasonal habitat of sheep populations
- within forested corridors between seasonal ranges promote pruning, thinning, prescribed burns, spacing, etc. to improve site lines<sup>1</sup> for bighorn sheep
- within forested corridors promote selective logging to open sight lines for moving sheep (reduce predator cover)
- plan for low density (approx. 30% of current target stocking standards), large diameter stems (> 30 cm dbh) with high canopy closure within forested corridors

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<sup>1</sup> "Site line" is the distance sheep can see before the view is obstructed, for example by trees or shrubs. For sheep, long site lines are generally important for detecting approaching predators.

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- in areas co-occupied by cattle, plan range management fences such that they do not adversely impact sheep movement patterns (e.g. use drop fences where possible; drift fences should be highly visible - top rails are preferred; smooth wire is preferred to barbed wire fencing).

## B) Between Sheep Populations:

- where appropriate, plan for movement opportunities between disjunct sheep populations through implementation of the FPC *Biodiversity Guidebook* connectivity and seral stage distribution recommendations for forest management for NDT4 (natural disturbance type four)
- as access can disrupt bighorn sheep movement patterns, follow guidance in Section 5
- discourage alienation (sale, lease, etc.) of Crown land that has been identified as sheep movement corridor.

## 4. Special Features:

Bighorn sheep habitats include some or all of the following special features:

1. *winter ranges* - usually southerly aspect grasslands with interspersed forested areas, geographically situated so that snow accumulation is minimize (for example by precipitation shadow, solar sublimation, wind sweeping);
2. *severe-winter ranges* - typically low elevation, high canopy closure, mature and older coniferous stands which are used during periods of extreme snow accumulation or when snow becomes so "crusty" with ice that it inhibits movement on the normal winter range. During these ephemeral severe winter events energy conservation is more important than the energy-draining activity of searching for food. Without these refugia the security of a sheep population is at risk.
3. *mineral licks* - exposed mineral deposits (usually in clay banks) that provide essential nutrients during the spring and summer;
4. *lambing areas* - escape terrain adjacent to areas of early spring green-up with abundant succulent and nutritious food for pre-natal or lactating ewes;
5. *rutting areas* - where adult males (rams) compete to become the dominant ram for breeding purposes;
6. *hiding cover* - where sheep retreat when they perceive certain types of threat;
7. *loafing sites* - where sheep spend a substantial proportion of their time resting and digesting food; generally areas with the security of long site lines and close to escape terrain;
8. *thermal cover areas* - where sheep retreat to avoid wind chill and temperature extremes, including high temperatures of summer, and cold temperatures of winter.

While the details on the locations of some of these features are limited, they should be afforded special protection where identified.

- discourage sale, lease or other alienation of Crown land that has been identified as being a special feature for bighorn sheep.
- maintain sufficient forested buffers, where they exist, around special features. In most cases, buffers will be determined on a site-specific basis. As a general guideline, forested buffers would be 100m in width, or large enough to avoid displacement of sheep from that feature.

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- where mature or older forested buffers are maintained, they will be included as part of the seral stage allocation (described in Section 1).
- in some instances, special features can be protected through the use of seasonal restrictions (e.g. rutting areas, lambing areas, etc.). These will be applied on a site-specific basis.
- water developments and mineral supplements for livestock should be placed so that cattle use does not decrease suitability for bighorn sheep. Such developments should be approved in a *Range Use Plan*. Exact locations and potential impacts to sheep habitat suitability should be determined on a site-specific basis.

## 5. Access

Bighorn sheep are easily disturbed by human activities and to some degree by the presence of livestock. Roads and recreational activities can result in decreased habitat suitability, habitat abandonment (e.g. ewes require undisturbed sites for birthing), spread of noxious weeds, collision mortalities and illegal harvests. Minimizing access of all types, is an important aspect of maintaining bighorn sheep habitat. Bighorn sheep are vulnerable to a number of diseases, particularly those carried by domestic sheep and possibly other species of livestock, such as those of the Family Camillidae (llamas and alpacas). The following guidelines are to be used as interim guidance until research indicates alternative prescriptions.

- minimize the amount of permanent road development in sheep habitats
- in sheep habitats deactivate non-permanent roads soon after use
- avoid recreational access and development (such as rock climbing) particularly on or near lambing, rutting or wintering habitats
- avoid access roads and trails within a minimum of 500m of identified special features (Section 4)
- in areas co-occupied by cattle minimize use of motorized vehicles for monitoring cattle. Favour of non-mechanical means of monitoring cattle
- do not promote winter or summer mechanized vehicle recreation in bighorn sheep habitat; avoid summer mechanized vehicle use in grassland or alpine habitats
- avoid cattle use of special features when occupied by bighorn sheep where the presence of cattle may have a negative impact on sheep
- avoid domestic sheep, or use by other livestock (excluding cattle) within bighorn sheep habitats
- new road/trail development in bighorn sheep habitat should include strategies to minimize the potential for noxious weed expansion; regional or district weed control programs should consider bighorn sheep habitat as priority areas.

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## 6. Restoration:

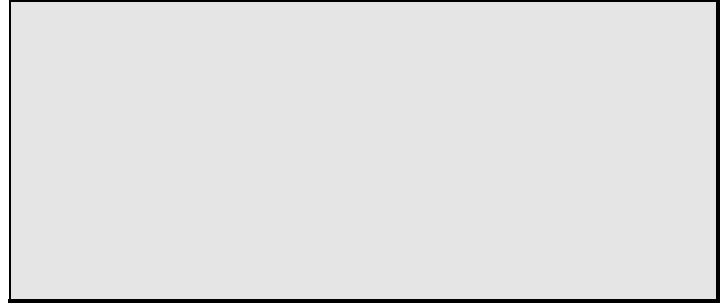
Bighorn sheep are in very high demand for viewing and hunting. They are absent from historically occupied ranges, primarily grasslands associated with rocky escape terrain. Bighorn sheep are currently below carrying capacity of these habitats formerly occupied by sheep. Bighorn sheep are "Blue-listed" partially because remaining populations are fragmented, making isolated populations more sensitive or vulnerable to extirpation.

To reduce the vulnerability of fragmented populations, plan to restore bighorn sheep to habitats once naturally occupied by bighorn sheep, where the habitat is still suitable to support sheep, and where conflicts created by the restoration are acceptable. 'Conflicts' include both conflicts with other land and resource users, and, conflicts with other wildlife that may have occupied the area since the extirpation of the bighorn sheep.

- promote natural re-occupation of vacant habitats by maintaining movement opportunities, as indicated in Section 3B
- in prescribed areas, generally where natural re-occupation would occur slowly, or not at all, explore prospects for translocation of bighorn sheep to restore sheep populations in vacant sheep habitats.



Appendix VIII



Okanagan - Shuswap LRMP  
Coordinated Access Management Planning  
(CAMP) "Principles"



# Okanagan - Shuswap LRMP Approved Plan

## Coordinated Access Management Plan (CAMP) "Principles"

The following "principles" are based on a BC Environment review of the Ministry of Forests (1989) publication, A Guide to Coordinated Access Management Planning.

- 1) CAMPs are to incorporate the advice of a broad spectrum of user groups (similar, but not limited to, to those groups who participated in the LRMP) in reaching access management decisions.
- 1) Organized forest users must assume some responsibility for successful resolution.
- 2) Roaded access may not be compatible with all forest uses and may be a detriment to some.
- 3) Road networks may need to change over time.
- 4) Access use decisions usually can not be reached on a road-by-road, ad-hoc basis, but be made in the context of a larger plan area to accommodate the full spectrum of user demands.
- 5) Scheduled review periods are required to address new information.
- 6) Requires a range of alternatives for physical closure, development of appropriate signs, and an agreement for enforcement.
- 7) Requires an information/education strategy for encouraging public awareness and acceptance of the plan.



## Appendix I X



## Okanagan - Shuswap LRMP Mule Deer Implementation and Research Strategy

This strategy will be developed as part of LRMP Implementation.



## Appendix X

In this appendix:

- A list of protected areas (provincial parks and ecological reserves) in the plan area that pre-date the Okanagan-Shuswap LRMP process.

## Okanagan - Shuswap LRMP Protected Areas that Pre-date the Okanagan - Shuswap LRMP Process





# Okanagan - Shuswap LRMP Approved Plan

## Protected Areas (Provincial Parks and Ecological Reserves) in the Plan Area That Pre-Date the Okanagan-Shuswap LRMP Process

Bear Creek Park	Lilly Pad Lake Ecological Reserve
Big White Ecological Reserve	Mabel Lake Park
Browne Lake Ecological Reserve	Mahoney Lake Ecological Reserve
Buck Hills Road Ecological Reserve	Mara Park
Campbell-Brown Ecological Reserve	Mara Meadows Ecological Reserve
Cathedral Park	Monashee Park
Christie Memorial Park	Mount Griffin Ecological Reserve
Cinnemousun Narrows Park	Nickel Plate Park
Cougar Canyon Ecological Reserve	Okanagan Falls Park
Darke Lake Park	Okanagan Lake park
Echo Lake Park	Okanagan Mountain Park
Ellison Park	Pennask Lake Park
Eneas Lakes Park	Shuswap Lake Park (Scotch Creek)
Field's Lease Ecological Reserve	Shuswap Lake Marine Park
Fintry Park	Silver Beach park
Haynes Lease Ecological Reserve	Silver Star Park
Haynes Point Park	Sun-Oka Beach Park
Herald Park	Sunnybrae Park
Inkaneep Park	Trout Creek Ecological Reserve
Kalamalka Lake Park	Upper Shuswap River Ecological Reserve
Kekuli Bay Park	Vance Creek Ecological Reserve
Keremeos Columns Park	Vaseux Lake Park
Kickininee Park	Victor Lake
Kingfisher Creek Ecological Reserve	Yard Creek Park



## Appendix XI



## Okanagan - Shuswap LRMP Implications of the LRMP

This appendix to be developed by the Implementation and Monitoring Committee.



## Appendix XII

In this appendix:

- List of desired outcomes and indicators.

## Okanagan Shuswap LRMP Desired Outcomes and Indicators



# Okanagan - Shuswap LRMP Approved Plan

## LRMP Desired Outcomes and Indicators

The Okanagan - Shuswap LRMP sets out a number of objectives and strategies to be achieved as part of its implementation. This section outlines the six goals of the LRMP and summarizes the objectives in terms of desired outcomes. Desired outcomes have been grouped into two categories - 'environment' and 'human activities' - to reflect the overall intent of the LRMP document. One or more indicators have been developed for or each desired outcome. These indicators will be used to measure the effectiveness of the LRMP in terms of meeting its stated goals and objectives.

### *LRMP DESIRED OUTCOMES FOR THE ENVIRONMENT*

EXAMPLE:

SECTION	DESIRED OUTCOMES	INDICATORS
<b>1. Soils:</b>	Productive soils with minimal soil disturbance.	<ul style="list-style-type: none"> <li>• Area of soil disturbance</li> <li>• Rate of soil erosion</li> </ul>
<b>2. Forests</b>	Healthy forest ecosystems with representation of natural attributes and forest dependent species.	<ul style="list-style-type: none"> <li>• Biogeoclimatic zone representation</li> </ul>
<b>3. Grasslands</b>	Healthy grassland ecosystems with representation of grassland dependent species.	<ul style="list-style-type: none"> <li>• Changes in grasslands ecosystems</li> </ul>
<b>4. Rangelands</b>	Sustainable & productive rangelands, with a natural mosaic of seral stages.	<ul style="list-style-type: none"> <li>• Changes in rangeland ecosystems</li> </ul>
<b>5. Riparian</b>	Properly functioning riparian systems.	<ul style="list-style-type: none"> <li>• Retention of riparian vegetation complex</li> </ul>
<b>6. Water</b>	Healthy aquatic ecosystems and stream-flow regimes.	<ul style="list-style-type: none"> <li>• Change in water quality</li> </ul>
<b>7. Ecosystems</b>	Healthy ecosystems with a diversity & abundance of native species & habitats.	<ul style="list-style-type: none"> <li>• Protected ecosystems</li> <li>• Habitat diversity</li> </ul>
<b>8. Wildlife</b>	A diversity & abundance of naturally occurring wildlife & their habitats.	<ul style="list-style-type: none"> <li>• Wildlife populations</li> <li>• Change in habitat</li> </ul>
<b>9. Fish</b>	A diversity and abundance of native fish populations & habitats.	<ul style="list-style-type: none"> <li>• Native fish populations</li> <li>• Change in habitat</li> </ul>
<b>10. Protected Areas</b>	Protection of representative examples of BC's natural diversity, recreational opportunities, cultural/heritage and special features.	<ul style="list-style-type: none"> <li>• Ecosystem representation</li> <li>• Completed mgmt. plans</li> </ul>

# Okanagan - Shuswap LRMP Approved Plan

SECTION	DESIRED OUTCOMES	INDICATORS
<b>Tourism</b>	A prosperous tourism industry offering high quality natural tourism experiences. A diverse range of tourism opportunities and uses across the landscape.	
<b>Agriculture</b>	A prosperous agriculture industry with access to Crown resources especially water and rangeland) to support development. Sustainable & productive agricultural and rangelands.	
<b>Minerals</b>	A prosperous mining industry with access to Crown land for exploration & development.	
<b>Timber</b>	A prosperous timber industry with a sustainable supply of timber and stable or increasing employment opportunities.	<ul style="list-style-type: none"> <li>• Change in AAC</li> <li>• Change in employment</li> </ul>
<b>Recreation</b>	A diverse range of recreation opportunities, values & uses across landscapes. Preservation and management of high quality recreation resources.	
<b>Visually Sensitive Areas.</b>	Landscape managed in accordance with visual quality objectives.	
<b>Cultural Heritage</b>	Establishment of provincially significant Heritage trails. Protection of important archeological sites.	
<b>Communities</b>	<p>Social and economic stability</p> <p>Healthy and prosperous communities.</p> <p>Stable or increasing employment.</p> <p>Clean drinking water and stable community water supply (domestic &amp; industrial)</p> <p>Minimal risks to lives &amp; property from flooding &amp; erosion.</p> <p>Access to Crown land for community &amp; industrial development, in accordance with Official Community Plans.</p> <p>Increased First Nations involvement in resource planning (e.g. Traditional Use Studies)</p>	
<b>Implementation</b>	<p>Effective achievement of the LRMP goals and desired outcomes.</p> <p>Effective implementation of LRMP strategies.</p> <p>Achievement of inventory and research priorities.</p>	



## Appendix XIII

In this appendix:

- List of LRMP strategies along with agencies responsible for completion.

## Okanagan Shuswap LRMP Strategies and Responsible Agencies



# Okanagan - Shuswap LRMP Approved Plan

## LRMP Strategies and Responsible Agencies

The Okanagan - Shuswap LRMP established a series of resource management zones. To ensure that the desired management intent is achieved in each of these zones, the LRMP also included specific resource management objectives and strategies. Resource management objectives describe the desired outcomes of the LRMP, while resource management strategies describe the actions required to achieve the outcomes.

Resource management objectives and strategies have not only been developed to achieve management intent in each of the resource management zones, but also to achieve desired outcomes throughout the entire plan area through activities such as local level planning, public education, research and economic transition.

The following table lists each of the resource management strategies contained in the Okanagan - Shuswap LRMP and indicates whether the strategy will be carried out as a specific project or as an ongoing compliance activity. The table also indicates the lead agency or agencies responsible for carrying out the strategy.

**Table: List of all the LRMP Strategies & Responsible Agency(s)**

EXAMPLE;

<b>2.1 General Resource Management</b>				
<b>2.1.1 Land Management Strategies</b>		<b>Project</b>	<b>Compliance</b>	<b>Agency</b>
1	Apply soil disturbance guidelines		✓	BCFS/MEM
2	Apply road construction and maintenance procedures		✓	BCFS/MEM
<b>2.1.2 Water Management Strategies</b>				
1	Restrict bulk water exports/interbasin diversions		✓	BCE
2	Conduct watershed assessments (See appendix 1)	✓		BCFS
<b>2.1.3 Ecosystem Management Strategies</b>				
1	Develop local level plans to maintain key habitat elements in each Landscape Unit.	✓		BCE/BCFS



## Appendix XIV

In this appendix:

- The specific report entitled "Interim Measures for Specified Rare Wildlife and Plant Communities within the Okanagan - Shuswap LRMP", as referred to within the LRMP document

Okanagan Shuswap LRMP

Interim Measures for Specified Rare Wildlife  
and Plant Communities within the Okanagan -  
Shuswap LRMP



**INTERIM MEASURES FOR  
SPECIFIED RARE WILDLIFE SPECIES  
AND PLANT COMMUNITIES  
WITHIN THE  
OKANAGAN - SHUSWAP LRMP**

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October 1997  
Revised May 1999**





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### **Introduction:**

The Ministry of Environment, Lands and Parks (MELP) has the primary responsibility for managing wildlife. This is exemplified in a Ministry Strategic Goal:

**“Protection, conservation and restoration of a full range of biological and physical diversity native to British Columbia”.**

The Wildlife Program has as its primary strategic goal:

**“Maintained diversity and abundance of native species and their habitats throughout British Columbia”.**

Key to that goal is maintaining species where there is a concern about viability. At a provincial level, the Wildlife Branch in conjunction with the Conservation Data Center (CDC) has assessed and categorized wildlife based on threats to maintaining populations and distribution. Wildlife considered to be threatened/endangered are referred to as **“Red-listed species”**; wildlife considered to be sensitive/vulnerable are referred to as **“Blue-listed species”**. Together, these are generally referred to as rare species.

The Forest Practices Code (FPC) recognized the importance of managing for the needs of rare species, and has increased the scope of the traditional wildlife definition to include certain rare plants and plant communities. However, it should be noted that:

- the management direction only applies to practices regulated by the FPC
- not all life requisites for these rare species are addressed (e.g. landscape level concerns, including movement opportunities; habitat supply over time; etc.)
- all of the rare species/communities found in the LRMP area are not be included in FPC Identified Wildlife Management Strategy, Volume 1.

This document has been prepared to provide management direction for specified rare species or communities (collectively referred to as ‘elements’ by the CDC). These “interim measures” are intended to compliment LRMP objectives and strategies relative to site specific occurrences of the rare elements. The specified species/communities include only those vertebrates and plant communities that were considered to be potentially impacted by land and resource management activities. In order for the rare elements to be included in this document, there also had to be a relative certainty with respect to habitat requirements and management strategies. Blue-listed plant communities and Red- and Blue-listed plants were not addressed. Mountain caribou, bighorn sheep and grizzly bear (all Blue-listed species) are addressed through LRMP objectives and strategies.

For each of the species or communities included in this document there is a description of the ecology, distribution, habitat requirements, and habitat management objectives and strategies - collectively this is defined as an “interim measure”. For the most part, “interim measures” are directed to a specific site where there is direct link to the element being there (e.g. for snakes - den site; for birds - nest site; for plant communities - the location and extent of the occurrence; etc.). These areas are referred to as wildlife conservation areas (WCAs), and include the attribute (e.g. nest) and a specified area around the attribute where there are specific restrictions on development and use in order to maintain the suitability of the site for a specified species . In some instances, the species can not be adequately protected by managing the immediate area. As a result, a general wildlife strategy (GWS) provides appropriate management direction for a larger area. Generally, resource use and development activities are not prohibited in either WCAs or GWSs. However, the management strategies outline inappropriate or incompatible uses, or levels of use, based on the habitat requirements of the species/community.

There are numerous technical terms in this document, as it is intended to be used to guide resource planning and development activities. The guidebooks developed for the FPC provide detailed information for most of the range and forestry terms (e.g. Biodiversity Guidebook, Silvicultural Systems Guidebook, Riparian Management Area Guidebook, Range Management Guidebook, etc.), and could be used as references.

This document has been revised since the release of the FPC Identified Wildlife Management Strategy (IWMS) in February 1999. In all cases where one species/community is located in both this document and the IWMS, the IWMS is to prevail. Certain species/communities are addressed in both documents because some development activities are administered under other legislation in addition to the FPC (e.g. road development, recreation, etc.), or to provide management direction that is additional to the FPC ‘general wildlife measures’.

**“AMERICAN” PEREGRINE FALCON:**  
*(Falcon peregrinus anatum)*

**RED-LISTED**

Ecology:

- one of two subspecies that inhabits B.C.; this continental falcon had historic population declines due to secondary poisoning
- considered to be a very rare to local breeder within the southern interior
- selects cliff ledge nest sites beside large rivers or productive wetlands
- presence of sufficient food sources (waterfowl, shorebirds, passerines) during breeding season are important
- diurnal hunter, attacking avian prey from above
- adjacent to nest sites, they require abundant prey that fly across large open areas
- in the interior, riparian areas are important for breeding
- most nesting occurs in cliffs; known to nest in abandoned eagle nests
- 7 occurrences (1996)

Distribution:

- has been recorded in all land based ecoprovinces
- biogeoclimatic units: BG, PP, IDF, ICH, ESSF and AT

Key Habitat Requirements:

- large rock outcrops and cliffs with horizontal ledges, with some form of cover
- most eyries located near tops of cliffs

Key Life Requisite:

- suitable nesting habitat and conditions

Habitat Management Objectives:

- provide a long term source of suitable nest sites within high and moderate capability habitats
- minimize disturbance adjacent to nest sites
- maintain foraging habitat within immediate vicinity of nests

Management Strategy:

- assess all cliff/rock outcrop or other potential habitat within high/moderate capability combinations of ecosections, BEC subzone/variants, and habitat classes
- establish a WCA (1 km radius) on nest sites, containing a 150 meter (radius) no activity buffer centered on the nest
- grazing is acceptable within the no activity buffer, however, livestock should be managed away from these areas
- restrict road building within 500 meters of nest sites
- all road construction within WCA should be avoided between March 15 and July 31
- pesticide use within WCAs will be regulated through the *Pesticide Control Act*
- do not establish recreation sites within WCA
- no alteration of nest sites
- other activities or variances, may be acceptable if they are consistent with the management objectives for this species and the objectives for the RMZ

**SWAINSON'S HAWK:**

**BLUE-LISTED**

*(Buteo swainsoni)*

Ecology:

- an uncommon migrant and summer visitant to central southern B.C.
- buteo hawk: soars and circles over open or semi-open areas in search of prey
- feeds on grasshoppers, small birds and small mammals
- nests in isolated trees, open forests or aspen groves near treeless uplands
- nests located near the tops of larger conifers, cottonwoods or aspen
- nests used on successive years
- breeding season extends from May to August
- known breeding sites are from 300 - 500 meters in elevation
- perches on large trees, snags, utility poles and fence posts
- 1 CDC record (1996)

Distribution:

- ecosections: Okanagan Range, South Okanagan Basin, North Okanagan Basin, North Thompson Uplands, South Thompson Uplands, Thompson Basin, North Okanagan Highlands and South Okanagan Highlands
- biogeoclimatic units: BG, PP, IDF and possibly ICH

Key Habitat Requirements:

- nests in mature and older, open-grown yellow pine and Douglas-fir, or mature cottonwoods and aspen
- prefers live stems over standing dead
- may nest at the edge of recent clearcuts in forested habitats
- feeds over open grasslands, or over yellow pine or Douglas-fir parklands

Key Life Requisite:

- suitable nesting habitat in close proximity to feeding areas

Habitat Management Objective:

- to protect nest sites, provide future opportunities for nest building, and ensure that grasslands are managed to a late seral/climax condition

Management Strategy:

- assess high/moderate capability habitats (based on combinations of ecosections, BEC subzone/variants, and habitat classes)
- establish a WCA, 1000 meter in radius, centered on nest sites
- within the WCA, establish a 150-radius core area where there should be no activity. Grazing is permitted as long as the core areas do not become cattle concentration areas and the seral target can be achieved.
- grasslands, within WCAs, should be managed to a late seral/climax condition
- WCAs should be included into landscape level connectivity corridors
- wildlife tree patches within WCA should be comprised of mature and older aspen cottonwood, yellow pine and/or Douglas-fir
- partial cutting of timber in WCAs is permitted (except in the core area), excluding the months of May to August
- restrict road development within 500 meters of nest sites
- no alteration of nest sites
- pesticide use to be regulated through the *Pesticide Control Act*
- do not establish recreation sites within WCAs
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this species, and the objectives for the RMZ



**FLAMMULATED OWL: BLUE-LISTED**

**(*Otus flammeolus*)**

Ecology:

- uncommon summer resident in the dry southern interior
- may be locally common
- arrives in mid-May and departs mid-September
- preferred sites are generally mid-slope, xeric, 10 -50 degree slope and broken topography
- highly nocturnal; foraging by air or on the ground, and by gleaning
- forages primarily on arthropods, other insects and, occasionally, small birds and mammals
- cavity nester, using large old ponderosa pine and Douglas-fir (and possibly aspen) snags
- dense thickets, near nest sites, provide roosting and cover opportunities
- breeding range occurs along drier upper edges of major valleys
- egg laying usually occurs during June
- home ranges (Colorado) varied from 8-24 ha per pair
- winters in Mexico and Central America
- 99 observations (1996); 61 CDC records (1996)

Distribution:

- breeds in the Thompson-Okanagan Plateau, generally between 610 and 1210 meters
- ecosections: North Okanagan Highlands, South Okanagan Highlands, North Thompson Uplands, South Thompson Uplands, Thompson Basin, South Okanagan Basin and North Okanagan Basin
- biogeoclimatic units: IDFxh, IDFdk, IDFdm, PPxh, and possibly drier sites within the ICHmk1 and ICHmw2

Key Habitat Requirements:

- mature or older Douglas-fir, ponderosa pine trees and snags (possibly aspen) for nesting sites
- regenerating thickets (approx. densities of 4000 stems per ha) for cover and roosting
- grasslands, for foraging, in close proximity to nesting sites

Key Life Requisite:

- nesting sites, in close proximity to other key habitats

Habitat Management Objectives:

- to provide adequate supplies of suitable nest sites at the stand and landscape level
- to protect known nesting areas from disturbance and habitat alteration
- to manage some high capability sites within the breeding range for long term recruitment

Management Strategy:

- assess potential habitats within the appropriate combinations of ecosections and biogeoclimatic units (described above)
- incorporate wildlife tree, connectivity and seral stage requirements into landscape level planning
- establish WCAs (approximately 4 ha) on all known nest locations throughout the breeding range
- minimize access within WCAs
- logging within WCAs permitted provided ponderosa pine are reserved from cutting, snags can be maintained and a mature seral stage can be met; unless WCAs are designated as wildlife tree patches
- employ a variety of silvicultural systems (outside of WCAs) in high capability habitats in landscape units where this species is present
- maintain connectivity (based on high suitability or capability habitats) between nest sites; small clearcuts and partial cutting are acceptable provided mature/old structural components are maintained throughout
- restrict firewood cutting within WCAs
- avoid thinning within 50 meters of a nest tree; maintain some thickets out to 100 meters from the nest site
- manage grasslands within WCAs to a late seral or climax condition
- no alteration of nest sites
- other activities or variances, may be acceptable provided they are consistent with the management objective for this species and the objectives for the RMZ

<b>MACFARLANE'S WESTERN SCREECH OWL:</b> <i>(Otus kennicottii macfarlanei)</i>	<b>BLUE-LISTED</b>
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Ecology:

- threatened by the loss of deciduous lower elevation forests
- non-migratory; known to breed only in Okanagan valley, but likely breeds in Thompson Basin
- occupies deciduous and mixed woodlands along streams and lake shores
- hunts along edges of open fields
- forages on arthropods, rodents, shrews, small birds, amphibians, worms and fish
- nesting occurs in open deciduous and coniferous forests, and riparian habitats
- secondary cavity user; dependent on natural cavities or those made by northern flicker or pileated woodpecker
- nest cavities have been found from 1.2 to 12.2 m above ground
- uses both deciduous and coniferous as nest trees
- perches and day roosts in deciduous; may also roost in tree cavities, cliff crevices, nest boxes and buildings
- 2 observations (1996)

Distribution:

- ecosections: South Okanagan Basin, North Okanagan Basin, North Okanagan Highlands, Okanagan Range, and possibly Thompson Basin
- biogeoclimatic units: BG, PP, IDFxh, IDFmw

Key Habitat Requirements:

- low elevation, riparian and flood plain, deciduous and mixed forest stands
- live or dead standing (decay class 2-6) deciduous and coniferous trees
- larger diameter (30 cm +) cottonwood, Douglas-fir, western red cedar and western hemlock
- connectivity between potential habitats

Key Life Requisite:

- mature and older low elevation riparian and flood plain mixed forests

Habitat Management Objective:

- to retain large diameter wildlife trees and green recruitment trees in mixed forest riparian areas

Management Strategy:

- assess high/moderate capability combinations of ecosection, biogeoclimatic units and habitat classes
- establish a WCA (approximately 1 ha centered on the nest site) on all nest sites
- establish a general wildlife strategy (GWS) on some high capability/suitability habitats
- maintain the structural and functional integrity of GWS areas, including managing for undisturbed forest patches (5-10 ha), and retaining individual large diameter cottonwood and aspen throughout
- small patch clearcuts and selective logging are acceptable in GWS areas
- where applicable, establish wildlife tree patches where the features (described above) are best met
- include GWS areas in connectivity corridors, where possible
- incorporate wildlife tree and connectivity requirements into landscape level planning
- no alteration of nest sites
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this species, and the objectives for the RMZ

**WILLIAMSON'S SAPSUCKER: BLUE-LISTED**

*(Sphyrapicus thyroideus thyroideus)*

Ecology:

- has a limited range with a sparse distribution
- population is unknown, but suspected to be on the decline due to logging related habitat loss
- it is a primary excavator, usually making a new hole each year
- it nests primarily in western larch, and Douglas-fir and ponderosa pine, and occasionally trembling aspen
- forages in live trees in open to semi-open forests
- drill vertical rows of holes in trees and returns to feed on the sap and glean insects
- arrive on breeding grounds by mid-April and most depart southward by mid-September
- winters from Arizona to central Mexico
- no local information on territory size, but in other areas the minimum breeding territory size is estimated at 4 ha per pair
- 26 occurrence records (1996)

Distribution:

- breeds in the Thompson-Okanagan Plateau, generally between 780 and 1300 meters
- ecosections: North Okanagan Highlands, South Okanagan Highlands, North Thompson Uplands, South Thompson Uplands, Thompson Basin, South Okanagan Basin and North Okanagan Basin
- biogeoclimatic units: IDF, PP, and MS subzones with appropriate attributes

Key Habitat Requirements:

- mature or older Douglas-fir, ponderosa pine and western larch trees
- open to semi-open stands with large diameter dead and decaying trees for cavity nesting (occasionally hardwood stands are used)
- dispersal ability between upland and riparian forests

Key Life Requisite:

- nesting and foraging habitat

Habitat Management Objectives:

- to provide adequate supplies of suitable live and dead trees for foraging and nesting within the breeding range
- to protect known nesting areas from disturbance and habitat alteration
- to manage some high capability sites within the breeding range for long term recruitment

Management Strategy:

- assess potential habitats within the appropriate combinations of ecosections and biogeoclimatic units (described above)
- establish WCAs on all known (current or historical use) nesting locations throughout the breeding range (described above)
- WCAs are to be no less than 4 ha, and include one recruitment site for every known site
- minimize access within WCAs; avoid road construction
- no logging within WCAs
- during logging activities within the breeding range, manage for large diameter larch and trembling aspen stems to maintain connectivity
- incorporate wildlife tree requirements into landscape level planning
- prescribed burns or silvicultural activities that could simulate fire succession may be prescribed to maintain the structural and functional integrity of key habitats
- no alteration of nest sites
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this species and the objectives for the RMZ

**GRASSHOPPER SPARROW: RED-LISTED**

*(Ammodramus savannarum)*

Ecology:

- occurs primarily on native grasslands or lightly grazed range lands
- breeding is largely restricted to the Okanagan and lower Similkameen valleys
- breeding sites may be semi-colonial; usually between 275 and 945 meters
- ground nester and feeder, foraging on seeds, forbs and insects
- nests in clumps of dense grass with last year's grass still standing
- winters from southern United States to Central America
- 11 occurrence records (1996)

Distribution:

- ecosections: South Okanagan Basin, North Okanagan Basin, Okanagan Ranges and South Thompson Uplands
- biogeoclimatic units: BGxh1, PPxh1a and IDFxh1a

Key Habitat Requirements:

- native grasslands or habitats closely approximating it
- short to middle height (20 - 60 cm) grass cover
- clumps of dense grass with previous year's growth still standing
- not found in heavily grazed sites, early seral stages, or recently disturbed areas
- small, scattered shrubs for singing posts

Key Life Requisite:

- suitable nesting habitat within natural grasslands

Habitat Management Objective:

- to provide a long term source of suitable nesting sites (dense clumps of grass) and habitats; and to avoid trampling of nests

Management Strategy:

- assess potential breeding sites within high/moderate capability combinations of ecosections, BEC subzone/variants and habitat classes
- establish WCAs (minimum size should be 10 ha) on known breeding sites, incorporating high capability habitat
- establish WCAs for recruitment areas and manage to appropriate conditions and seral stages (e.g. from mid-seral to late seral/climax)
- avoid grazing within WCAs from April to August, and only light grazing in autumn; tall grass from previous season provides best hiding and nesting cover
- avoid use of insecticides in WCAs
- avoid ATV use within WCAs
- provide a 200 meter buffer, from WCAs to any proposed development that would significantly alter the natural vegetative composition and structure
- no alteration of nest sites
- other activities, or variances, may be acceptable provided they are consistent with the management objective for this species and the objective for the RMZ



**SAGE THRASHER:**  
*(Oreoscoptes montanus)*

**RED-LISTED**

Ecology:

- a robin-sized member of the mockingbird family
- breeds in large tracts of big sagebrush (*Artemisia tridentata*)
- arrives in B.C. in May; departs late August to early September
- winters in southwestern U.S. and Mexico
- habitat selection appears to be proximity to historical nest sites
- seems to select pockets of big sturdy sagebrush for nesting, surrounded by open areas of perennial grasses and moderate sagebrush cover which are important for feeding
- best nesting sites have higher grass cover, lower rock cover and lower cattle feces cover
- links to population in Washington seem to be along valleys with bunchgrass habitat
- 169 observations (1996); 3 CDC records (1996)

Distribution:

- regularly breed in three locations in the south Okanagan and Similkameen valleys
- ecosections: South Okanagan Basin, Okanagan Range and South Thompson Uplands
- biogeoclimatic unit: BGxh1

Key Habitat Requirements:

- tall sturdy sagebrush (approximately 1m x 1m)
- moderate dispersion of sagebrush (approximately 16% cover)
- nest in sagebrush with greatest height (mean of 132 cm) and crown width (168 cm), with a full crown (i.e. no gaps)

Key Life Requisite:

- suitable nesting habitat

Habitat Management Objective:

- maintain appropriate big sagebrush nesting habitat
- increase suitability of appropriate habitats

Management Strategy:

- assess sagebrush habitats within appropriate combinations of ecosections and biogeoclimatic units
- establish WCAs (200 ha or larger) on all known breeding locations
- establish a “recovery” WCA in some high/moderate capability habitats with preference given to proximity to known nest sites and suitable sagebrush
- recovery WCAs to be about 100 ha, and at a 1:1 frequency ratio
- no road development in WCAs, unless no other practicable option exists
- protect large sagebrush from weed control operations
- maintain clumps of large (> 1m) sage
- restrict use of ATVs
- maintain a 250 meter buffer from WCA to future highway corridor, agricultural, mineral or urban development
- no alteration of nest sites
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for the species, and the objectives for the RMZ

**LONG-BILLED CURLEW:**

**BLUE-LISTED**

*(Numenius americanus)*

Ecology:

- small population size and restricted breeding distribution
- likely declining as a result of habitat loss through agricultural development, urbanization and forest encroachment
- nests in dry, open grasslands with low-profile vegetation, including severely grazed areas
- nests are shallow scrapes in the ground, usually beside an object such as a stone or pile of animal dung
- breeding season extends from late March through late July
- broods are moved to moister sites where forage is more readily available
- predators include coyote, badger, raven, magpie and gopher snakes
- breeding pairs return to traditional nesting sites year after year
- winters in coastal lowlands of southern U.S., Mexico and south to Venezuela
- appears in late March through April; departs after late July
- 36 observations (1996); 1 CDC record (1996)

Distribution:

- ecoregions: South Okanagan Basin, North Okanagan Basin, Okanagan Range, Thompson Basin, South Okanagan Highlands, North Okanagan Highlands, North Thompson Uplands and South Thompson Uplands
- biogeoclimatic units: BGxh, PPxh, IDFxh, IDFdm and ESSFxc

Key Habitat Requirements:

- large contiguous openings of native grassland
- low vegetation profile for nesting

Key Life Requisite:

- suitable nesting habitat

Habitat Management Objective:

- provide low profile vegetation for nesting
- minimize disturbance to nesting curlews

Management Strategy:

- assess grassland habitats within high/moderate capability combinations of ecosections, biogeoclimatic units and habitat classes
- establish WCAs on nesting sites (approx. 500 x 500 m)
- avoid road development in WCAs, minimize use on existing roads
- avoid cattle grazing in WCA during nesting period (mid-April to mid-June)
- avoid seeding to crested wheatgrass; areas previously seeded to crested wheatgrass should be grazed to maintain a low profile
- limit use of fire in WCAs
- discourage recreational activities within WCAs until after July
- restrict use of ATVs until after July
- maintain a 250 meter buffer from WCA to future highway corridor, agricultural, urban development, or other activities that would cause displacement
- no alteration of nest sites
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for the species, and the objectives for the RMZ

<b>WESTERN GREBE:</b> <i>(Aechmophorus occidentalis)</i>	<b>RED-LISTED</b>
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Ecology:

- a common migrant along the south coast of B.C. in the winter months
- only three regular breeding sites in B.C.
- breeds colonially in large freshwater marshes
- floating nests are constructed with and among emergent aquatic vegetation
- colony areas may extend over several hectares of marsh
- the breeding season extends from late April to late August
- fluctuating water levels can strand or flood nests
- threatened by power boat wakes, which can swamp nests
- human disturbance (eg. canoeing, fishing and swimming) can cause the birds to abandon their nests permanently or temporarily and thereby reduce nesting success

Distribution:

- within the LRMP planning area the western grebe nests only at Shuswap Lake at Salmon Arm and at the north arm of Okanagan Lake
- a former breeding site is known from Swan Lake (Vernon)
- ecosections: North Okanagan Basin, North Thompson Uplands
- biogeoclimatic zones: BG and IDF

Key Habitat Requirements:

- extensive freshwater marsh habitats on shallow low elevation lakes
- stable water levels with low levels of wave action and human disturbance
- abundance of forage species (small fish and invertebrates) in close proximity to nesting habitats

Key Life Requisites:

- management of water associated recreation activities near colony sites
- emergent and riparian vegetation, in and adjacent to, nest sites

Habitat Management Objectives:

- to minimize disturbance to breeding birds at all breeding locations
- to maintain structural integrity of nesting marshes

Management Strategy:

- establish WCAs on all breeding sites
- WCAs should extend a minimum 50 m beyond the colony boundary, on the shoreline adjacent to the nesting area
- WCAs for historic breeding sites should be considered as should habitat rehabilitation opportunities for such sites
- access control near the WCAs is recommended to limit disturbances associated with recreational activity
- recreational facilities should not be developed adjacent to the nesting areas, and no recreational activities should occur within the WCA during the nesting season
- protection from recreation, and the wave action associated with it, for the entire area used for nesting should occur, this would include 100 m wide strip of open water beyond the emergent vegetation
- sewage and agricultural and industrial runoff into wetlands should be managed to protect the aquatic ecosystems critical to the species survival
- no alteration of nest sites
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for the species, and the objectives for the RMZ

<b><u>BADGER:</u></b> <i>(Taxidea taxus)</i>	<b>RED-LISTED</b>
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Ecology:

- low reproductive capacity and habitat has been restricted by human activities
- susceptible to secondary poisoning, illegal harvest and road mortalities
- feeds primarily on ground squirrels, pocket gophers and marmots
- associated with grasslands and open ponderosa pine forests
- usually located between 400 and 1500 meters
- mating occurs between July and September
- 2 - 3 young are born between March and May; young disperse 6 - 8 weeks after birth searching for a home range
- home ranges are between 100 to 500 ha in summer; smaller in winter
- not a true hibernator, but frequently enters torpor
- in winter may use one den; in summer may use several dens
- 22 observations (1996)

Distribution:

- ecosections: South Okanagan Basin, North Okanagan Basin, Thompson Basin, South Okanagan Highlands, North Okanagan Highlands, South Thompson Uplands, North Thompson Uplands, and Okanagan Range
- biogeoclimatic units: BG, PP, IDF, ICHmk1, MSdc, MSxk, and MSdm

Key Habitat Requirements:

- associated with major prey species distributions
- suitable denning sites
- dispersal ability

Key Life Requisite:

- suitable home range with abundant prey base

Habitat Management Objective:

- to minimize disturbance at feeding sites and dens

Management Strategy:

- establish a general wildlife strategy (GWS) on high capability/suitability habitats
- manage grasslands within GWS areas with an objective for a native plant community in a healthy, vigorous condition; and minimize area being managed to an early seral stage
- assess all GWS areas for den sites prior to proceeding with development activities that would result in long-term change to the habitat (i.e. urban, corridor or agricultural development)
- develop a site specific mitigation strategy where conflicts arise
- avoid locating roads and landings inside GWM areas containing dens or prey colonies
- no road construction within 100 m of active den sites between April and June
- no rodenticide use in GWM areas
- minimize conifer encroachment in GWM areas
- no alteration of den sites
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this species, and the objectives for the RMZ



**GREAT BASIN POCKET MOUSE:**

**BLUE-LISTED**

*(Perognathus parvus)*

Ecology:

- populations are limited, likely due to habitat loss
- inhabits arid, sandy, short-grass communities; also uses shrub-steppe, and possibly ponderosa pine parklands
- there appears to be a strong association with antelope-brush (*Purshia tridentata*) communities
- utilize circular nest cavities within a burrow, and forage near burrow entrances
- dig permanent burrow systems (1 -2 m deep), with several entrances and tunnels
- feed on seeds, Russian thistle, pigweed, wild mustard, antelope-brush and invertebrates
- caches food for winter
- can survive long periods without water
- appear to be adaptable to a variety of range conditions (i.e. knapweed dominated poor condition sites through to sites in good condition)
- 31 observations (1996); 7 CDC records (1996)

Distribution:

- in B.C., has been found in Okanagan valley from U.S. border north to Vernon, and in the Similkameen valley from the U.S. border north to Keremeos
- not known from nearby similar habitats (e.g. Kettle and Thompson valleys)
- ecosections: South Okanagan Basin, North Okanagan Basin, Thompson Basin, South Okanagan Highlands, and possibly Okanagan Range
- biogeoclimatic units: BGxh and PPxh

Key Habitat Requirements:

- nesting and foraging habitat, and movement (dispersal) opportunities

Key Life Requisite:

- suitable burrowing habitat

Habitat Management Objectives:

- to maintain burrowing habitat, and connectivity within the range of this species
- to manage for a mosaic of grassland conditions

Management Strategy:

- apply a general wildlife strategy (GWS) over high suitability or capability habitats
- within all GWS areas, maintain soil structure and function (i.e. no removal, no irrigation, etc.)
- where it exists, maintain antelope-brush communities on GWS areas
- restrict use of rodenticides in GWS areas; pesticide use to be regulated through the *Pesticide Control Act*
- permanent alteration (eg. agricultural conversion, urban development, etc.) of GWS area will require further assessment to determine animal use, impacts and acceptability, and an outline of mitigative measures
- manage grasslands within GWS areas with an objective for a native plant community in a healthy, vigorous condition; and minimize area being managed to an early seral stage
- application of general seral stage targets for grasslands are appropriate if applied over the distribution of this species, however, concentration of early seres, or low-profile grass cover, in GWS areas should be avoided
- maintain connectivity within the distribution of this species by applying mid to late seral/climax targets to areas between GWS areas
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this species and the objectives for the RMZ

<b>WESTERN HARVEST MOUSE:</b> <i>(Reithrodontomys megalotis)</i>	<b>BLUE-LISTED</b>
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Ecology:

- associated with intermontane grasslands between 300 - 800 meters in elevation
- inhabits shrub-steppe communities, old fields and grassy areas bordering cultivated fields
- forages in grasslands, dry ravines, gullies, and deciduous groves of willow, rose and trembling aspen
- in summer, feeds on graminoids, forbs, fruit and invertebrates
- in fall, feeds primarily on seeds
- breeding occurs between April to October
- ground nest of are sheltered by vegetation; nests also found hanging in shrub branches
- population densities can range from 1 - 7 per ha
- 15 observations (1996); 13 CDC records (1995)

Distribution:

- in B.C., has been found in Okanagan valley from U.S. border north to Vernon, and in the Similkameen valley from the U.S. border north to Keremeos
- not known from nearby similar habitats (e.g. Kettle and Thompson valleys)
- ecosections: South Okanagan Basin, North Okanagan Basin, Okanagan Ranges, and South Okanagan Highlands
- biogeoclimatic units: BGxh, IDFxh and PPxh

Key Habitat Requirements:

- nesting and foraging habitat, and movement (dispersal) opportunities

Key Life Requisite:

- undisturbed edge habitats with tall grass and/or shrub cover within intermontane grasslands

Habitat Management Objectives:

- maintain natural grassland and edge habitats, and connectivity, within the range of this species

Management Strategy:

- apply a general wildlife strategy (GWS) over high capability/suitability habitats
- within all GWS areas, maintain edge habitats with high grass or shrub cover (i.e. restrict cattle use where grazing results in low-profile grass cover and restrict hay mowing); and restrict rodenticide use near edge habitats
- permanent alteration of GWS area (e.g. agricultural conversion) will require further assessment to determine animal use, impacts and acceptability, and an outline of mitigative measures
- manage grasslands within GWS areas with an objective for a native plant community in a healthy, vigorous condition; and minimize area being managed to an early seral stage
- maintain connectivity within the distribution of this species by applying late seral/climax targets to areas between, and adjacent to, wetlands, riparian areas or dry draws
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this species and the objectives for the RMZ

<b>NUTTALL'S COTTONTAIL:</b> <i>(Sylvilagus nuttalli)</i>	<b>BLUE-LISTED</b>
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Ecology:

- native yearlong resident of the Okanagan and Similkameen valleys; found nowhere else in Canada
- occur primarily in sagebrush steppe and agricultural lands in close proximity to rocky habitats; abundance decrease with increased distance from rocky habitats
- population estimate of 1 per 2 - 3 ha sagebrush habitat
- also occurs in antelope brush (*Purshia tridentata*) communities
- nest in abandoned burrows, natural crevices or thick brush
- summer diet consists of grasses, forbs and vegetables; juveniles require succulent forage
- winter diet consists of shrubs, bark and buds
- forage along trails and riparian areas close to cover
- home ranges are 1 - 4 ha, and may overlap
- occur from sea level to 700 meters in elevation
- 55 observations (1996)

Distribution:

- ecosections: Okanagan Range, South Okanagan Basin, North Okanagan Basin, and possibly South Okanagan Highlands
- biogeoclimatic units: BGxh, PPxh and possibly IDFxh

Key Habitat Requirements:

- ungrazed sagebrush habitat is preferred over over-grazed sites
- mature big sagebrush, with native forbs and grasses, is the preferred cover type
- thick brush, rock outcrops and talus slopes are important for escape cover and nesting
- riparian areas, including wetlands, lakes, streams, moisture receiving sites (dry draws), and late seral to climax grasslands are important for foraging and movement

Key Life Requisite:

- sagebrush/grassland habitats with dense cover (at least 30% sagebrush), in close proximity to rock outcrops and/or talus

Habitat Management Objective:

- maintain high capability/suitability sites that include both foraging and breeding habitats

Management Strategy:

- assess sagebrush steppe habitats, located near rock outcrops and/or talus, within high moderate capability combinations of ecosections, BEC subzone/variants, and habitat classes
- establish WCAs, approximately 200 meters in radius, centered on the rocky habitat
- WCAs are to be based on element occurrence data, established by the Conservation Data Center
- where there are several occurrence records for a similar area, a larger WCA may be established based on the specifics of the site
- maintain a 500 buffer between WCAs and development activities that would change the vegetative structure of the area (i.e. urban expansion, cultivated crop lands, mineral developments, etc.)
- manage cattle to maintain the integrity of the brush component of the community, while maintaining a healthy and vigorous native grass/forb cover
- no road construction within the WCA, unless there is no other practical option; existing roads should be assessed to determine if, or what level of, deactivation is required
- no removal of rocks, boulders or talus within the WCA
- no alteration of nest sites
- other activities, or variances, may be acceptable provided they are consistent with the management objectives of the species and the objectives for the RMZ

**FRINGED MYOTIS:**  
*(Myotis thysanodes)*

**BLUE-LISTED**

Ecology:

- relatively large bat with conspicuous fringe of small stiff hairs on the outer edge of the tail membrane
- recorded lifespan of 18 years
- roosting and winter hibernacula in B.C. remain unknown
- in B.C. associated with arid grassland and yellow pine and Douglas-fir forests
- roosts in crevices, caves, mine tunnels and buildings; have been found under loose bark of yellow pine snags
- fat storage suggests that this bat hibernates; has been found in caves in other parts of its range
- some evidence exists that this species migrates; however, it may only be for short distances to lower elevations or to more southern areas
- aerial insectivore foraging on flies, moths, and beetles; may also be a gleaner
- 71 observations (1996)

Distribution:

- ecosections: South Okanagan Basin, North Okanagan Basin, Thompson Basin, South Okanagan Highlands, North Okanagan Highlands, Okanagan Ranges, North Thompson Uplands, and South Thompson Uplands
- biogeoclimatic units: BG, PP and IDF

Key Habitat Requirements:

- associated with grassland or shrub habitats within 10 - 15 km of forested habitats
- some field data suggests higher activity in mature and older stands (Age Classes 5-9)
- uses rock crevices, caves, mine tunnels, buildings and wildlife trees for roosting
- forages in shrub-steppe, yellow pine or Douglas-fir parkland and over riparian habitats

Key Life Requisites:

- hibernacula sites, maternity colonies and roosting sites

Habitat Management Objectives:

- to protect known hibernacula sites, maternity colonies and roosting sites from disturbance and habitat alteration
- to provide movement opportunities and high quality foraging opportunities

Management Strategy:

- assess all caves, cliffs and rock outcrops within high/moderate capability combinations of ecosection, BEC subzone/variants, and habitat classes
- establish a 100 meter radius WCA, centered on hibernacula, maternity colonies or roosting sites
- include WCAs within forest ecosystem networks, where possible
- within WCA, retain at least 75% of trees (> 40 cm dbh), including 25 stems per ha of the largest diameter class
- avoid road construction within the WCA
- do not disturb rock outcrops, loose rocks and boulders or talus within the WCA
- restrict use of pesticides within WCA; avoid aerial spraying, use spot treatments
- no recreational, such as rock climbing and hang-gliding activities, adjacent to roosting sites
- no alteration of maternity colony sites, roosting areas or hibernacula
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this species and the objectives for the RMZ



<b>PALLID BAT:</b> <i>(Antrozous pallidus)</i>	<b>RED-LISTED</b>
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Ecology:

- relatively common throughout shrub-steppe habitats of western North America
- summer roosts consist of cliffs, talus slopes, rock outcroppings, tree cavities and buildings
- maternity colonies are small and adult males use solitary day roosts
- hunts by listening to noise created by prey
- diet consists primarily of wingless invertebrates, but may include mice and reptiles
- predators may include snakes, owls and mustelids
- foraging may occur up to 4 kilometers from roosts; may make repeated use of foraging areas
- foraging occurs over sparsely vegetated habitats
- not known whether over wintering occurs within summer range
- 37 observations (1996); 16 CDC records (1996)

Distribution:

- known only from the south Okanagan valley, south of Okanagan Falls
- ecosections: South Okanagan Basin; possibly North Okanagan Basin, Okanagan Range, South Okanagan Highlands and South Thompson Uplands
- biogeoclimatic units: BGxh, PPxh, and possibly IDFxh

Key Habitat Requirements:

- associated with cliffs, talus slopes and rock outcroppings
- grassland or shrub habitats in relatively close proximity to roosting habitats

Key Life Requisites:

- hibernacula may be the limiting factor, if they hibernate locally
- availability of summer roosts, if foraging areas are present

Habitat Management Objectives:

- to protect key habitat features associated with this species, including hibernacula if present locally
- to protect known roosting sites from disturbance and habitat alteration
- to provide movement opportunities, and high quality foraging opportunities

Management Strategy:

- assess all cliffs, talus slopes and rock outcrops within high/moderate capability combinations of ecosection, BEC subzone/variants, and habitat classes
- establish a 100 meter radius WCA, centered on roosting sites
- within the WCA restrict all activity, except grazing, between May and October; grazing is an acceptable practice, however, these area should not become cattle concentration areas
- include WCAs in forest ecosystem networks
- avoid road construction within the WCA
- do not disturb rock outcrops, loose rocks and boulders or talus within the WCA
- use of pesticides within WCA to be regulated through the *Pesticide Control Act*; avoid aerial spraying, use spot treatments
- no recreational activities, such as rock climbing and hang-gliding, within the WCA
- no alteration of nest sites
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this species, and the objectives for the RMZ

<b>SPOTTED BAT:</b> <i>(Euderma maculatum)</i>	<b>BLUE-LISTED</b>
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Ecology:

- medium sized bat with spotted pelage and immense pink ears
- occurs in dry interior valleys, including Okanagan and Similkameen
- not known whether it hibernates in B.C., or migrates south
- no winter records of this bat in B.C.; may hibernate in cliff crevices
- day roosts are located in steep cliffs
- aerial insectivore feeding primarily on moths
- forages at heights of 5 - 15 meters, mostly in yellow pine parklands, fields, marshes or riparian habitats
- in early summer they use the same commuting routes, feeding areas and day roosts for prolonged periods; uses forested habitats for commuting
- occurs between 300 and 900 meters above sea level, with most occurrences below 500 meters
- 174 observations (1996); 24 CDC records (1996)

Distribution:

- ecosections: South Okanagan Basin, North Okanagan Basin, Okanagan Range, and possibly South Okanagan Highlands and Thompson Basin
- biogeoclimatic units: BG, PP and IDFxh

Key Habitat Requirements:

- crevices in tall, steep cliffs for day roosting (and possibly hibernating)
- mature and older forested areas for commuting
- forages in yellow pine parkland, fields, marshes and riparian habitats

Key Life Requisites:

- hibernacula sites, maternity colonies and roosting sites

Habitat Management Objectives:

- to protect known hibernacula sites, maternity colonies and major roosting sites from disturbance and habitat alteration
- to provide movement opportunities between roosting and foraging areas

Management Strategy:

- assess all cliff within high/moderate capability combinations of ecosection, BEC subzone/variants, and habitat classes
- establish a 100 meter radius WCA, centered on hibernacula, maternity colonies or major roosting sites
- within the WCA, all activity (except grazing, however, these areas should not become cattle concentration areas) is prohibited
- where roosting sites have been identified and WCAs not established, avoid disturbance to structural features within immediate vicinity
- include WCAs within forest ecosystem networks, where possible
- retain at least 75% of trees (> 40 cm dbh), including 25 stems per ha of the largest diameter class within WCAs
- avoid road construction within the WCA
- do not disturb rock outcrops, loose rocks and boulders or talus within the WCA
- use of pesticides within WCA to be regulated through the *Pesticide Control Act*; avoid aerial spraying, use spot treatments
- prohibit recreational activities adjacent to roosting sites, such as rock climbing and hang-gliding
- no alteration of nest sites
- other activities, or variances, may be acceptable provided they are consistent with the management objective for this species, and the objective for the RMZ

<b>TOWNSEND'S BIG-EARED BAT:</b> <i>(Plecotus townsendii)</i>	<b>BLUE-LISTED</b>
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Ecology:

- average sized bat, distinguished by its large ears
- associated with arid grasslands of the dry interior of B.C.
- winter roosts (singly or colonial) in caves, old mines or buildings
- summer roost locations in B.C. have not been identified
- sensitive to disturbance; may abandon roost sites
- several winter locations identified; may travel from 10 to 65 km from summer habitat to hibernacula
- forages along waterways and forest edges
- feeds primarily on moths, lacewings, beetles and flies
- ranges from sea level to 1070 meters in elevation
- 82 observations (1996)

Distribution:

- ecosections: South Okanagan Basin, North Okanagan Basin, Thompson Basin, South Thompson Uplands, North Thompson Uplands, and possibly South Okanagan Highlands and North Okanagan Highlands
- biogeoclimatic units: BG, PP, IDF, and possibly ICH

Key Habitat Requirements:

- extensively uses caves, mine tunnels and buildings for roosting and hibernating
- treed linkage corridors between foraging and roosting sites for movement
- recent surveys indicate that open waterways in the dry interior are important for foraging

Key Life Requisites:

- hibernacula sites, maternity colonies and roosting sites

Management Objective:

- to protect known hibernacula sites, maternity colonies and roosting sites from disturbance and habitat alteration

Management Strategy:

- assess all caves, mine shafts and tunnels within high/moderate capability combinations of ecosection, BEC subzone/variants, and habitat classes
- establish a 100 meter radius WCA, centered on hibernacula, maternity colonies or roosting sites
- within the WCA, all activity is prohibited; grazing is an acceptable practice within the WCA, however, these areas should not become cattle concentration areas
- include WCAs within forest ecosystem networks, where possible
- retain at least 75% of trees (> 40 cm dbh), including 25 stems per ha of the largest diameter class
- avoid road construction within the WCA
- do not disturb rock outcrops, loose rocks and boulders or talus within the WCA
- use of pesticides within WCA to be regulated through the *Pesticide Control Act*; avoid aerial spraying, use spot treatments
- prohibit recreational activities adjacent to roosting sites, such as rock climbing and hang-gliding
- no alteration of hibernacula, maternity colony or roosting sites
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this species, and the objectives for the RMZ

<b>WESTERN SMALL-FOOTED MYOTIS:</b> <i>(Myotis ciliolabrum)</i>	<b>BLUE-LISTED</b>
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Ecology:

- smallest bat in B.C., occurring in dry interior valleys (Okanagan and Similkameen)
- hibernates (over winter) in caves and mine adits
- roosts in crevices of talus slopes, caves, rock outcrops and cliffs
- day roosts may be located under loose bark
- aerial insectivore, foraging on caddisflies, flies, moths and beetles
- forages along edges of cliffs, rock outcrops and riparian (rarely over open water)
- recorded between 300 and 850 meters above sea level
- four over-wintering records have been noted in B.C.
- 55 observations (1996); 2 CDC records (1996)

Distribution:

- ecosections: South Okanagan Basin, North Okanagan Basin, Thompson Basin and possibly Okanagan Range and South Okanagan Highlands
- biogeoclimatic units: BG, PP, and IDFxh

Key Habitat Requirements:

- uses (but not closely associated with) mature and old stands (Age Classes 5-9)
- crevices in talus slopes, caves, cliffs and rock outcrops for roosting
- uses man-made structures (such as mine adits and buildings) and caves for night roosts
- some evidence that roosting occurs under loose bark of decaying trees
- forages in sagebrush steppe, yellow pine parkland and over riparian habitats

Key Life Requisites:

- hibernacula sites, maternity colonies and roosting sites

Management Objective:

- to protect known hibernacula sites, maternity colonies and major roosting sites from disturbance and habitat alteration

Management Strategy:

- assess all cave, talus slope, cliff and rock outcrop within high/moderate capability combinations of ecoregion, BEC subzone/variants, and habitat classes
- establish a 100 meter radius WCA, centered on hibernacula, maternity colonies or major roosting sites
- within the WCA, establish a 15m radius buffer zone where all activity (except grazing, however, these areas should not become concentration areas) is prohibited
- where roosting sites have been identified and WCAs not established, avoid disturbance to structural features within immediate vicinity
- include WCAs within forest ecosystem networks, where possible
- retain at least 75% of trees (> 40 cm dbh), including 25 stems per ha of the largest diameter class
- avoid road construction within the WCA
- do not disturb rock outcrops, loose rocks and boulders or talus within the WCA
- use of pesticides within WCA to be regulated through the *Pesticide Control Act*; avoid aerial spraying, use spot treatments
- prohibit recreational activities adjacent to roosting sites, such as rock climbing and hang-gliding
- no alteration of hibernacula, maternity colonies or roosting sites
- other activities, or variances, may be acceptable provided they are consistent with the management objectives of this species, and the objectives for the RMZ



**GREAT BASIN GOPHER SNAKE:**  
*(Pituophis melanoleucus deserticola)*

**BLUE-LISTED**

Ecology:

- development activities (urban, agricultural and road) have adversely impacted this species
- in B.C. it is restricted to the grassland and shrub steppe habitats of the southern interior
- hibernates in dens (may be communal) from November to March
- emerge from hibernation in late March or early April, leaving den sites for summer foraging areas
- migrations are usually less than 200 meters, but may be up to several kilometers
- foraging, mating and egg laying in summer habitats (dry open or brushy areas close to riparian)
- feeds primarily on rodents which are killed by constriction
- nest sites (may be used in successive years) are often located in abandoned rodent burrows or talus
- nest sites are often communal
- eggs are laid at the end of June or early July, and young hatch in late summer
- return to den sites in October
- 148 observations (1996); 14 CDC records (1995)

Distribution:

- patchy distribution throughout the dry interior, and is locally abundant in low elevations of the Thompson, Okanagan and Similkameen valleys
- ecosections: South Okanagan Basin, North Okanagan Basin, Okanagan Ranges, South Okanagan Highlands, North Okanagan Highlands, South Thompson Uplands and Thompson Basin
- biogeoclimatic units: BGxh, IDFxh and PPxh

Key Habitat Requirements:

- rock outcrops and talus slopes (most denning sites are on southerly aspects)
- nest sites located on south facing slopes, but are more likely to be found in animal burrows than rocky habitats
- in the south Okanagan nests have been located near the crest of large sand banks

Key Life Requisite:

- denning, nesting and adjacent habitats

Habitat Management Objectives:

- minimize disturbance and mortality, particularly road mortality, near den and nest sites
- maintain important habitats

Management Strategy:

- assess talus and rock outcrop within high/moderate capability combinations of ecosections, BEC units and habitat classes
- establish WCA (approx. 1000 meter radius), based on topography and dispersal routes, over den and nest sites
- WCAs should be included in connectivity corridors, and managed to late seral/climax conditions
- other WCAs may be established where habitats are deemed important for the conservation of the species
- avoid road construction within WCAs
- necessary road construction to avoid period between April and October; location not to disrupt dispersal; roads to be deactivated after use
- existing roads may require mitigative measures, such as seasonal use restrictions or drift fences and under-road diversion culverts
- avoid disturbance to rock/talus within WCA
- hay cutting and burning, within WCAs, acceptable after snakes return to dens
- avoid cattle concentration in WCAs during spring (March/April) dispersal
- do not establish recreation sites within WCAs; limit use to foot on designated trails and restrict rock climbing
- provide a 1 km buffer between WCAs and future highway corridor, agricultural, or urban development
- no alteration of nest sites
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this species and the objectives for the RMZ

<b><u>NIGHT SNAKE:</u></b> <i>(Hypsiglena torquata)</i>	<b>RED-LISTED</b>
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Ecology:

- very few occurrences; potential habitats declining due to a variety of development activities
- a nocturnal snake that inhabits semi-arid habitats
- occurs up to 945 meters, with most occurring around 450 meters
- close association with rock outcrop and talus habitats
- denning likely occurs in rock fissures and talus slopes
- known to den communally with western rattlesnake
- denning occurs between October and May
- eggs are laid in June or July; range probably does not extend beyond 1 km of hibernacula
- summer foraging occurs within talus, rock outcrop or nearby riparian habitats and ravines
- venomous snake that preys on amphibians and other reptiles
- 9 observations (1996); 3 CDC records (1995)

Distribution:

- ecoregions: South Okanagan Basin, North Okanagan Basin, Okanagan Ranges, and possibly South Okanagan Highlands
- biogeoclimatic units: PPxh1 and BGxh1

Key Habitat Requirements:

- rock outcrops and adjacent talus slopes used for denning

Key Life Requisite:

- nest and den sites, and adjacent habitats

Habitat Management Objectives:

- minimize disturbance and mortality, particularly road mortality, near den sites
- maintain hibernacula and adjacent habitats

Management Strategy:

- assess talus and rock outcrop habitats within high/moderate capability combinations of ecosections, BEC units and habitat classes
- establish WCA (approx. 1000 meter radius) over den and nest sites based on topography and dispersal routes
- other WCAs may be established over areas considered to be important for the conservation of this species
- provide for connectivity by managing grassland networks and WCAs to late seral/climax conditions
- avoid road construction within WCAs; when necessary, roads should be placed away from key habitats and deactivated after use
- road construction, should be avoided between April and October; location not to disrupt dispersal
- existing roads may require mitigative measures, such as seasonal use restrictions or drift fences and under-road diversion culverts
- avoid disturbance to rock/talus within WCA
- do not establish recreation sites within WCAs; limit use to foot, on designated trails
- provide a 1 km buffer between den sites and future highway corridor, agricultural, mineral or urban development that would cause displacement
- no alteration of den sites
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this species and the objectives for the RMZ

**WESTERN YELLOW-BELLIED RACER:**  
*(Coluber mormon)*

**BLUE-LISTED**

Ecology:

- main threat is likely habitat loss due to human development
- occurs in low to mid elevation grassland/sparsely treed habitats
- dens (November to April) in rock outcrops or talus slopes
- may den communally with rattlesnakes, garter snakes or gopher snakes
- emerge from dens in March/April; disperse before mating in May
- significant use within 500 meters of den; reported to disperse up to 2 km from den
- nest sites usually on south facing slopes in talus or sand substrates, often in abandoned burrows
- return to dens in October
- dens often used on successive years, and may contain entire population during winter
- 111 observations (1996); 9 CDC records (1995)

Distribution:

- ecosections: South Okanagan Basin, South Okanagan Highlands, Okanagan Ranges, North Okanagan Basin, North Thompson Uplands, South Thompson Uplands and Thompson Basin
- biogeoclimatic units: IDFxh, BG and PP

Key Habitat Requirements:

- rock outcroppings and talus slopes used for basking, cover, nests and dens

Key Life Requisites:

- nest and hibernating (den) sites
- dispersal ability

Habitat Management Objectives:

- minimize disturbance and mortality, particularly road mortality, near den sites
- maintain key attributes: rock outcrops and talus

Management Strategy:

- assess cliff, talus and rock outcrop within high/moderate capability combinations of ecosections, BEC units and habitat classes
- establish WCA (approx. 1000 meter radius - 314 ha) based on topography and dispersal routes for communal den sites
- smaller WCAs may be acceptable for smaller isolated hibernacula, or other high use habitats
- manage grasslands to late seral/climax condition, and include WCAs into connectivity corridors, where possible
- avoid road construction within WCAs
- necessary road construction should only occur between November and March; location should not disrupt dispersal
- existing roads may require mitigative measures, such as seasonal use restrictions or drift fences and under-road diversion culverts
- avoid disturbance to rock/talus within WCA
- do not establish recreation sites within WCAs; limit use to designated trails
- provide a 1 km buffer between den sites and future highway corridor, agricultural, mineral or urban development
- no alteration of nest or den sites
- other activities, or variances, may be acceptable if they are consistent with the management objectives for this species and the objectives for the RMZ

**WESTERN RATTLESNAKE**  
*(Crotalus viridis)*

**BLUE-LISTED**

Ecology:

- venomous snake which feeds primarily on small birds and mammals
- patchy distribution in low elevation areas of the Okanagan and Similkameen valleys
- hibernates between September and April
- will den communally with other snakes; hibernacula may contain several hundred snakes
- hibernacula appear to be limited in numbers, and are used on long term basis (decades)
- foraging occurs away from hibernacula; known to disperse up to 2 km from hibernacula
- individual home ranges of up to 8 ha
- 160 observations; 37 CDC records (1995)

Distribution:

- ecosections: South Okanagan Basin, North Okanagan Basin, Thompson Basin, Okanagan Range and South Okanagan Highlands
- biogeoclimatic units: BG, PP and IDF

Key Habitat Requirements:

- rock outcrops and adjacent talus slopes used for denning
- dens usually on steep south facing slopes at moderate elevations
- gravid females use rock outcrops, talus and large bouldery areas during gestation

Key Life Requisite:

- hibernacula and adjacent habitats

Habitat Management Objectives:

- minimize disturbance and mortality, particularly road mortality, near den sites
- maintain hibernacula and adjacent habitats

Management Strategy:

- assess cliff, talus and rock outcrop within high/moderate capability combinations of ecosections, biogeoclimatic units and habitat classes
- establish WCA (approx. 1000 meter radius) based on topography and dispersal routes for communal den sites
- smaller WCAs may be permitted for smaller isolated hibernacula, or other high use habitats
- avoid road construction within WCAs
- necessary road construction to occur between November to March; location not to disrupt dispersal and deactivated after use
- existing roads may require mitigative measures, such as seasonal use restrictions or drift fences and under-road diversion culverts
- avoid disturbance to rock/talus within WCA
- logging, within WCAs, may occur from November to end of March
- hay cutting and burning, within WCAs, acceptable after snakes return to dens
- range management to avoid cattle concentrations in WCAs during spring (May/June) dispersal
- manage grasslands to a late seral/climax condition
- do not establish recreation sites within WCAs; limit use to foot on designated trails
- provide a 1 km buffer between den sites and future corridor, agricultural, mineral or urban development
- no alteration of den sites
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for the species, and the objectives for the RMZ



**RUBBER BOA:**  
***(Charina bottae)***

**BLUE-LISTED**

Ecology:

- widely distributed in southern part of province, in low densities
- occurs from sea level to 3050 meters in a variety habitats
- active between April and November, hibernates in communal dens
- disperse in spring to summer foraging areas
- forages in riparian areas, primarily on rodents
- secretive, occurring in rotting logs or under rocks and coarse woody debris
- mating occurs in late spring; live young born in fall
- 25 CDC occurrence records (1996)

Distribution:

- ecosections: South Okanagan Basin, North Okanagan Basin, North Okanagan Highlands, South Okanagan Highlands, Okanagan Ranges, Thompson Basin, South Thompson Uplands, North Thompson Uplands, and possibly all remaining ecosections within the plan area
- biogeoclimatic units: BGxh, PPxh, IDFxh, IDFdk, IDFdm, IDFmw, ICHmw, and ICHmk

Key Habitat Requirements:

- long term source of wildlife trees and coarse woody debris
- rock outcroppings, talus slopes and cliffs
- riparian

Key Life Requisites:

- hibernating sites
- dispersal ability

Habitat Management Objectives:

- minimize disturbance and mortality, particularly road mortality, near den sites
- maintain sufficient cover and structural attributes

Management Strategy:

- assess cliff, talus and rock outcrop within high/moderate capability combinations of ecosections, BEC units and habitat classes
- establish WCA (approx. 1000 meter radius) based on topography and dispersal routes for communal den sites
- smaller WCAs may be permitted for smaller isolated hibernacula, or other high use habitats
- avoid road construction within WCAs
- necessary road construction to occur between November to March; location not to disrupt dispersal
- existing roads may require mitigative measures, such as seasonal use restrictions or drift fences and under-road diversion culverts
- avoid disturbance to rock/talus within WCA
- provide for connectivity by managing grassland networks and WCAs to late seral/climax conditions
- do not establish recreation sites within WCAs; limit use to designated trail
- provide a 1 km buffer between den sites and future corridor, agricultural, urban development, or activities that would cause displacement
- no alteration of den sites
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this species and the objectives for the RMZ

**PAINTED TURTLE:**  
***(Chrysemys picta)***

**BLUE-LISTED**

Ecology:

- populations are suspected to be declining due to diminishing habitat, illegal harvest and road mortality
- an aquatic species that occupies mud bottomed freshwater ponds, lakes and streams
- hibernating, mating and foraging occur at these sites
- feeds on a variety of invertebrates, algae and moss; rarely on land
- breeding occurs during spring; nesting depends on climate, occurring in May or June
- nests are excavated in coarse soil on south facing slopes up to 200 m from breeding sites
- generally, young emerge from nests and make their way overland to water
- late summer hatches may remain in the nest until spring
- hibernation occurs on mud bottomed floor of aquatic habitats
- 49 observations (1996)

Distribution:

- occurs at lower elevations in the plan area
- ecosections: South Okanagan Basin, North Okanagan Basin, Okanagan Ranges, North Thompson Uplands, South Thompson Uplands and South Okanagan Highlands
- biogeoclimatic units: PPxh, IDFxh, IDFdk, ICHmk, ICHmw and BGxh

Key Habitat Requirements:

- hibernacula and nest sites
- abundant aquatic and riparian vegetation for feeding and cover
- floating or emergent logs and brush, and rocks for basking

Key Life Requisites:

- movement ability between hibernacula and nest sites
- suitable aquatic habitats

Habitat Management Objectives:

- minimize disturbance and mortality, particularly road mortality, near aquatic habitats
- maintain hibernacula and adjacent habitats, and connectivity between them

Management Strategy:

- assess key habitats within high/moderate capability combinations of ecosections, BEC units and habitat classes
- establish WCA (approx. 150 meter from the aquatic feature, or far enough to include both main habitats) over den and nest sites based on topography and dispersal routes
- manage WCAs with an objective for a native plant community in a healthy, vigorous condition; and minimize area being managed to an early seral stage
- avoid road construction within WCAs; when necessary, roads should be placed away from key habitats and deactivated after use; location not to disrupt dispersal
- logging, road construction and road use should be avoided between egg laying and when young emerge (will require site specific assessment)
- existing roads may require mitigative measures, such as seasonal use restrictions or drift fences and under-road diversion culverts
- restrict livestock access along shoreline to avoid soil compaction or adversely impacting vegetation; a narrow, fenced water site may be acceptable, but off-site watering is preferred
- cattle management to avoid cattle concentrations in WCAs during spring (March/April) dispersal
- restrict motorized recreation activities within WCA
- no alteration of nest sites
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for the species, and the objectives of the RMZ

**GREAT BASIN SPADEFOOT TOAD:**  
*(Scaphiopus intermontanus)*

**BLUE-LISTED**

Ecology:

- populations are scattered over the dry interior
- escape drying conditions within burrows in loose soil, under rocks and logs, or in abandoned burrows
- breeding sites observed between and 250 and 800 meters in elevation
- breeding occurs in the shallows of temporal or permanent water bodies
- a brief tadpole stage allows for leaving water bodies before they dry up
- post-metamorphic age classes feed on invertebrates in open yellow pine forests and sagebrush steppe
- upland habitats are usually deep soiled
- 87 occurrences (1996); 60 CDC records

Distribution:

- ecoregions: South Okanagan Basin, North Okanagan Basin, Okanagan Ranges, South Okanagan Highlands, South Thompson Uplands, North Thompson Uplands, and perhaps Shuswap Highlands
- biogeoclimatic units: BG, PP, IDF, and perhaps certain ICH subzones

Key Habitat Requirements:

- a variety of damp to wet habitats, including small lakes, wetlands, open water, and temporary pools and ditches
- upland habitats include open grasslands, sagebrush-steppe and open grown yellow pine forests

Key Life Requisites:

- temporary or permanent water for breeding, and movement ability to high capability upland habitats

Habitat Management Objectives:

- to manage existing breeding sites, high capability potential breeding sites, and adjacent upland habitats in suitable conditions
- to provide opportunities for landscape level movement

Management Strategy:

- assess potential breeding sites within high/moderate capability combinations of ecosections, BEC subzone/variants and habitat classes
- establish WCAs at known breeding sites, and high capability potential breeding sites, that include adjacent upland habitats (approx. 1000 meter radius)
- maintain connectivity based on riparian areas, between known and potential breeding sites
- manage WCAs with an objective for a native plant community in a healthy, vigorous condition; and minimize area being managed to an early seral stage
- manage grasslands and range lands to late-seral/climax conditions
- restrict cattle use within WCAs during spring breeding and movement to upland periods
- avoid using breeding sites as for stock watering; where possible, provide water developments away from WCA
- where cattle access to water is required, fence off breeding site to minimize riparian disturbance
- manage riparian areas and moisture receiving sites to no more than 5% cattle disturbance (trampling, compaction and loss of riparian vegetation)
- manage for natural levels of coarse woody debris
- avoid disturbance to rocks and boulders
- avoid road construction within WCAs; no road construction between breeding sites and upland habitats unless no other practical location exists (mitigative strategies will be required)
- existing or future roads may require mitigative measures, including seasonal (spring) restrictions, and the use drift fences and culverts
- restrict use of ATVs within WCAs
- other activities, or variances, may be acceptable provided they are consistent with the management objective for this species and the objective for the

<b><u>TIGER SALAMANDER</u></b> <i>(Ambystoma tigrinum)</i>	<b>RED-LISTED</b>
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Ecology:

- yearlong residents of the dry southern interior of B.C., inhabiting lakes and ponds (frequently alkali) and surrounding terrestrial habitats
- forage on land at night, or following spring/summer rains
- make use of abandoned burrows, rocks/boulders and coarse woody debris to escape summer heat
- adults migrate from terrestrial habitats to lakes and ponds for breeding
- larvae hatch and spend between 4 months and 3 years in aquatic habitats
- 97 observations (1996); 26 CDC records (1996)

Distribution:

- ecosections: South Okanagan Basin, North Okanagan Basin, Okanagan Range, and possibly South Okanagan Highlands
- biogeoclimatic units: BG, PP and IDF

Key Habitat Requirements:

- lakes or ponds with abundant vegetation for cover and invertebrate source
- permanent water bodies devoid of predatory fish
- abandoned burrows, coarse woody debris and other cool, moist sites for shelter

Key Life Requisite:

- breeding sites (lakes and ponds), and connectivity with adjacent terrestrial foraging habitats

Habitat Management Objective:

- protection from disturbance for breeding sites

Management Strategy:

- assess lake and pond habitat within high/moderate capability combinations of ecosection, BEC subzone/variants, and habitat classes
- establish WCAs (70 meter radius) on all breeding sites
- establish a recovery WCA on high or moderate capability/suitability habitats within close proximity to known breeding sites
- establish a management zone (approx. 1000 meter radius) centered on each WCA
- avoid cattle concentrations within WCAs
- manage WCAs with an objective for a native plant community in a healthy, vigorous condition; and minimize area being managed to an early seral stage
- restrict cattle use within WCA, a narrow fenced water access site is acceptable, but off-site watering is preferable
- no road construction within WCAs; avoid road construction within the management area
- manage for connectivity within and between WCAs, by managing grasslands to a late seral/climax condition
- prohibit use of biocides that will impact aquatic life or terrestrial prey within the management zone; pesticide use to be regulated through the *Pesticide Control Act*
- no use of ATVs within WCAs
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this species, and the objectives for the RMZ



## **RIPARIAN PLANT COMMUNITIES**

All of the riparian plant communities that follow (i.e. the next four communities) are Red-listed, and ranked as an S1 element by the British Columbia Conservation Foundation. This S1 ranking is defined as “critically imperiled” because of extreme rarity (5 or fewer known occurrences) or because of some factor(s) making it especially vulnerable to extirpation or extinction within the province.

<b><u>BLACK COTTONWOOD - WATER BIRCH:</u></b> <b><i>(Populus balsamifera trichocarpa - Betula occidentalis)</i></b>	<b>RED-LISTED</b>
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### Ecology:

- low elevation riparian forest of limited areal extent
- depleted due to land development and dyking of the southern Okanagan River
- upper canopy layer consists of black cottonwood
- shrub layer varies depending on biogeoclimatic zone: in Bunchgrass (BG) zones - water birch, Nootka rose and red-osier dogwood; and in Ponderosa Pine (PP) zones - water birch, other roses and snowberry
- herb layer dominated by star-flowered false Solomon’s seal
- occurs on gentle to flat topography of lower slope and toe positions
- found on imperfectly drained soils with water table less than 1 meter from surface
- parent materials are usually active fluvial

### Distribution:

- occurs on floodplains from Summerland to U.S. border, and east along Similkameen River to the Ashnola
- also found in Lillooet area
- ecosections: South Okanagan Basin, Okanagan Ranges, and South Thompson Uplands
- biogeoclimatic units: BGxh1/07

### Key Habitat Requirements:

- natural flood cycles
- limited competition with non-native plants
- maintenance of the soil structure and function
- restoration of cottonwood component

### Key Life Requisite:

- relief from anthropogenic disturbance

Management Objectives:

- restore/maintain the distribution, species composition, physical structure and ecological processes of this plant community throughout the planning area
- maintain/improve the condition of the known occurrences of this community that are presently in good/excellent condition
- allow the remaining Crown land occurrences of this community to succeed to their mature/old structural stages
- these rare ecosystems should be over-represented in landscape unit planning processes

Management Strategy:

- assess all black cottonwood stands within the appropriate combinations of ecosections and biogeoclimatic units (described above)
- within each assessment area determine the extent and distribution of this community
- establish WCAs on all good/excellent condition community locations
- establish recruitment WCAs on remaining communities
- WCAs should include the entire community occurrence and include a 250 meter buffer surrounding the community
- recruitment WCAs are to be based on sites that contain remnants of this community; sites that have the capability to succeed to this community; sites where the community is under-represented; sites that are adjacent to good condition occurrences of this community, or other Red-listed communities; and sites that could become part of FENs
- management may be required to encourage cottonwood regeneration
- limit opportunities for non-native invasive plants (eg. mineral soil exposure)
- no forest, silviculture or range activities are permitted within the WCA
- include WCAs into FENs where possible
- over-represent these areas during landscape level planning
- restrict the use of biocides within the WCA
- avoid activity in the WCAs that would adversely affect the vegetation, soils or hydrology of the community
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this community, and the objectives for the RMZ

<b><u>PONDEROSA PINE - BLACK COTTONWOOD - NOOTKA ROSE - POISON IVY:</u></b> <i>(Pinus ponderosa - Populus balsamifera ssp. trichocarpa - Rhus radicans)</i>	<b>RED-LISTED</b>
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Ecology:

- this community has a restricted distribution within a very small range
- channeling of waterways has destroyed much of the original habitat
- forested riparian community with open canopy dominated by black cottonwood, ponderosa pine and trembling aspen
- tall shrub layer consists mainly of chokecherry and Bebb's willow, both with low cover
- dense low shrub layer dominated by Nootka rose and poison ivy
- varied herb and grass layer
- occurs on coarse textured soils in valley bottoms, on flood plains or depressions
- soil moisture conditions vary from subhygric to hygric, and nutrient conditions vary from medium to rich
- 5 CDC records (1996)

Distribution:

- occurs at low elevations from Summerland to U.S. border, and east along Similkameen River to the Ashnola
- ecoregions: South Okanagan Basin and Okanagan Ranges
- biogeoclimatic units: BGxh1/06 and PPxh1/00

Key Ecosystem Sustaining Requirements:

- natural flood cycles
- limited competition with non-native plants
- maintenance of the soil structure and function

Key Life Requisite:

- relief from anthropogenic disturbance

Management Objectives:

- restore/maintain the distribution, species composition, physical structure and ecological processes of this plant community throughout the planning area
- maintain/improve the condition of the known occurrences of this community that are presently in good/excellent condition
- allow the remaining Crown land occurrences of this community to succeed to their mature/old structural stages

- these rare ecosystems should be over-represented in landscape unit planning processes

Management Strategy:

- assess all black cottonwood, aspen and ponderosa pine stands within the appropriate combinations of ecosections and biogeoclimatic units (described above)
- within each assessment area determine the extent and distribution of this community
- establish WCAs on all good/excellent condition community locations
- establish recruitment WCAs on remaining communities
- WCAs should include the entire community occurrence and include a 250 meter buffer surrounding the community
- recruitment WCAs are to be based on sites that contain remnants of this community; sites that have the capability to succeed to this community; sites where the community is under-represented; sites that are adjacent to good condition occurrences of this community, or other Red Listed communities; and sites that could become part of FENs
- management may be required to encourage cottonwood regeneration
- limit opportunities for invasive non-native plants (eg. mineral soil exposure)
- no recreational or access development are permitted within the WCA
- include WCAs into FENs where possible
- over-represent these areas during landscape level planning
- restrict the use of biocides within the WCA
- avoid activity in the WCAs that would adversely affect the vegetation, soils or hydrology of the community
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this community, and the objectives for the RMZ

<b>WATER BIRCH - RED-OSIER DOGWOOD:</b> <i>(Betula occidentalis - Cornus stolonifera)</i>	<b>RED-LISTED</b>
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Ecology:

- this floodplain community has a restricted distribution within a very small range
- much of the original area has been impacted by agricultural use and channeling of waterways
- dense cover of water birch, mountain alder, red-osier dogwood and poison ivy
- willows (*Salix* spp.) and Wood's rose and may be present with low cover
- herb layer generally contains star-flowered false Solomon's seal and stinging nettle
- bittersweet, one of a number of introduced species, may be present
- occupies active floodplains, with a high water table for part of the year
- soils are poorly drained gleysols, sites are subhygric to subhydric
- often found adjacent to the ponderosa pine - black cottonwood - poison ivy community

Distribution:

- only about 5% (40 ha) of this community known to occur on Crown land
- occurs at low elevations in the Okanagan valley from Summerland to U.S. border, and east along Similkameen River to the Ashnola
- ecosection: South Okanagan Basin
- biogeoclimatic units: BGxh1

Key Habitat Requirements:

- natural flood cycles
- limited competition with non-native plants
- maintenance of the soil structure and function

Key System Sustaining Requisite:

- relief from anthropogenic disturbance

Management Objectives:

- restore/maintain the distribution, species composition, physical structure and ecological processes of this plant community throughout the planning area
- maintain/improve the condition of the known occurrences of this community that are presently in good/excellent condition
- allow the remaining Crown land occurrences of this community to succeed to their mature/old structural stages
- these rare ecosystems should be over-represented in landscape unit planning processes

Management Strategy:

- assess all water birch/alder/red-osier communities within the appropriate ecosection and biogeoclimatic unit (described above)
- within each assessment area determine the extent and distribution of this community
- establish WCAs on all good/excellent condition community locations
- establish recruitment WCAs on remaining communities
- WCAs should include the entire community occurrence and include a 250 meter buffer surrounding the community
- recruitment WCAs are to be based on sites that contain remnants of this community; sites that have the capability to succeed to this community; sites where the community is under-represented; sites that are adjacent to good condition occurrences of this community, or other Red Listed communities; and sites that could become part of FENs
- limit opportunities for invasive non-native plants (eg. mineral soil exposure)
- no forest, silviculture or range activities are permitted within the WCA
- no recreational or access development are permitted within the WCA
- include WCAs into FENs where possible
- over-represent these areas during landscape level planning
- restrict the use of biocides within the WCA
- avoid activity in the WCAs that would adversely affect the vegetation, soils or hydrology of the community
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this community, and the objectives for the RMZ

<b>DOUGLAS-FIR - WATER BIRCH - DOUGLAS MAPLE:</b> <i>(Pseudotsuga menziesii - Betula occidentalis - Acer glabrum)</i>	<b>RED-LISTED</b>
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Ecology:

- a low elevation riparian community of limited areal extent
- land use practices have resulted in significant loss of habitat, and degradation of many of the remaining areas
- overstory dominated by Douglas-fir with a lesser cover of trembling aspen
- shrub layer dominated by snowberry, water birch and tall Oregon-grape with a lesser cover of Douglas maple and red-osier dogwood
- herb layer dominated by herbs such as violets and star-flowered false Solomon's seal
- occupies glaciofluvial terraces on flat valley bottoms pond edges and gullies with flat bottoms
- sites are hygric to subhygric, with a shallow water table
- soils are medium textured with a medium to very rich nutrient regime

Distribution:

- restricted to lower ponderosa pine biogeoclimatic zone (PP) of the Okanagan valley from south of Vernon to U.S. border and IDF1a gullies and pond edges
- ecosections: South Okanagan Basin and North Okanagan Basin
- biogeoclimatic unit: PPxh1/08

Key Habitat Requirements:

- natural flood cycles
- limited competition with non-native plants
- maintenance of the soil structure and function

Key Life Requisite:

- relief from anthropogenic disturbance

Management Objectives:

- restore/maintain the distribution, species composition, physical structure and ecological processes of this plant community throughout the planning area
- maintain/improve the condition of the known occurrences of this community that are presently in good/excellent condition
- allow the remaining Crown land occurrences of this community to succeed to their mature/old structural stages
- these rare ecosystems should be over-represented in landscape unit planning processes

Management Strategy:

- assess all Douglas-fir stands within the appropriate combinations of ecosections and biogeoclimatic units (described above)
- within each assessment area determine the extent and distribution of this community
- as a priority establish WCAs on all community locations along the Okanagan and Similkameen Rivers
- establish WCAs on all good/excellent condition community locations
- establish recruitment WCAs on remaining communities
- WCAs should include the entire community occurrence and include a 250 meter buffer surrounding the community
- recruitment WCAs are to be based on sites that contain remnants of this community; sites that have the capability to succeed to this community; sites where the community is under-represented; sites that are adjacent to good condition occurrences of this community, or other Red Listed communities; and sites that could become part of FENs
- limit opportunities that favour invasive non-native plants (eg. mineral soil exposure)
- no forest, silviculture or range activities are permitted within the WCA
- no recreational or access development are permitted within the WCA
- include WCAs into FENs where possible
- over-represent these areas during landscape level planning
- restrict the use of biocides within the WCA
- avoid activity in the WCAs that would adversely affect the vegetation, soils or hydrology of the community
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this community, and the objectives for the RMZ



<b>PONDEROSA PINE - SUMAC:</b> <i>(Pinus ponderosa - Rhus glabra)</i>	<b>RED-LISTED</b>
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Ecology:

- this forested community has limited geographical distribution, occurring only in specialized topographical situations
- characterized by a canopy layer of ponderosa pine
- shrub understory dominated by sumac
- shrub layer may also include antelope-brush, saskatoon, mock-orange, blue elderberry, choke cherry, poison ivy and Nootka rose
- herb layer contains low cover of needle-and-thread grass, *Selaginella* spp., bluebunch wheatgrass, and yarrow
- located on south aspects, coarse textured soils xeric to subxeric moisture regimes often on gently sloping toe positions, over fluvial fans and glaciofluvial terraces, may also occur at the toe or lateral edge of talus slopes

Distribution:

- occurs at low elevations in the Okanagan valley from Summerland to U.S. border, and east along Similkameen River to the Ashnola River
- ecosections: South Okanagan Basin, North Okanagan Basin and Okanagan Ranges
- biogeoclimatic unit: BGxh1

Key Habitat Requirements:

- limited competition with non-native plants
- maintenance of the soil structure and function
- natural fire disturbance regime

Key System Sustaining Requisite:

- relief from anthropogenic disturbance

Management Objectives:

- to maintain the current distribution, species composition, physical structure, and ecological processes of old forest occurrences
- to restore this community until a minimum of 19% is in an old structural stage (PNC climax ) and 51% is in mature/old structural stage
- these rare ecosystems should be over-represented in landscape unit planning processes

Management Strategy:

- assess all mature/old ponderosa pine stands within the appropriate ecosection and biogeoclimatic unit (described above)
- establish WCAs on all remaining old structural stage community occurrences
- recruitment WCAs are to be designated if there are insufficient areas to meet the 19% target
- recruitment WCAs are to be based on sites that can be expected to become healthy examples of this community; sites that could become part of a FEN; sites where the community is under-represented; sites that are adjacent to good condition occurrences of this community, or to other mature/old forested communities; (listed in order of priority)
- WCAs are to include a 250 meter buffer surrounding the community
- no timber, access, silviculture, range or recreation activities should be permitted within WCAs
- include WCAs into FENs where possible
- limit opportunities that favour invasive non-native plants (eg. mineral soil exposure)
- avoid activity in the WCAs that would adversely affect the vegetation, soils or hydrology of the community
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this community, and the objectives for the RMZ

<b>VASEY'S BIG SAGEBRUSH - PINEGRASS:</b> <i>(Artemisia tridentata vaseyana - Calamagrostis)</i>	<b>RED-LISTED</b>
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Ecology:

- historically had a sparse distribution over a limited range
- cattle grazing has impacted this community and climax examples have diminished
- shrub cover is Vasey's big sagebrush; herb layer dominated by pinegrass
- lower cover species include junegrass, arctic lupine, wild strawberry, and western meadowrue
- occurs over morainal and colluvial blankets, on warm aspects
- soil moisture is subxeric to submesic; nutrient regime is medium to very rich
- role of fire is not well known

Distribution:

- occurs at mid to high elevations (1450 - 2060 m) in the southern interior (steep warm slopes)
- known from Mt. Kobau , Ashnola, Enderby Cliffs, Apex-Green Mtn.
- ecosection: Okanagan Ranges
- biogeoclimatic units: ESSFxc/04 and MSxk/04

Key Habitat Requirements:

- limited competition with non-native plants
- maintenance of the soil structure and function
- natural fire disturbance regime

Key System Sustaining Requisite:

- relief from anthropogenic disturbance

Management Objectives:

- restore/maintain the distribution, species composition, physical structure and ecological processes of this plant community throughout the planning area
- maintain/improve the condition of the known occurrences of this community that are presently in good/excellent condition (PNC climax)
- to restore this community until a minimum of 30% is in a PNC climax condition and 60% in a PNC late seral condition.
- this rare ecosystem should be over-represented in landscape unit/range management planning processes

Management Strategy:

- assess potential grassland communities within the appropriate ecosections and biogeoclimatic units (described above) on Crown land
- within each assessment area determine the total amount of area that this community would occur in under natural conditions
- establish WCAs on all good/excellent condition community occurrences, up to the 30% target
- recruitment WCAs are to be designated if there are insufficient areas to meet the 30% target
- recruitment WCAs are to be based on sites that can be expected to mature into healthy examples of this community; sites that result in well distributed communities across tenures and landscape units; sites that could become part of a FEN; sites where the community is under-represented; sites that are adjacent to good condition occurrences of this community, or to mature/old forested communities; (listed in order of priority)
- WCAs should include the entire community occurrences and a 250 meter buffer surrounding the community
- no access or recreation activities should be permitted within the WCAs
- manage range activities within the WCAs, to meet the management objectives. The rate of improvement within WCAs that are grazed should be at least 75% of the rate of improvement of ungrazed areas.
- limit opportunities that favour invasive non-native plants (eg. mineral soil exposure)
- avoid activity in the WCAs that would adversely affect the vegetation, soils or hydrology of the community
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this community, and the objectives for the RMZ

**BIG SAGEBRUSH - BLUEBUNCH WHEATGRASS: RED-LISTED**  
***(Artemisia tridentata - Elymus spicatus)***

Ecology:

- a once relatively common grassland community that is now rare due to cattle grazing, agricultural activities such as orchards, grapes and forage crops and urban development
- low cover of big sagebrush, and may have a very low cover of pasture sage
- lichen crust is usually well developed and continuous between vascular plants
- early seral communities exist in the same site series, but vary significantly in species composition
- occurs on all but cool aspects, on flat to steep slopes. Crests may change to *Stipa*. Cover of sage and bluebunch wheatgrass will change with slope
- soils are fine to medium textured, with a xeric(these may go to *Stipa*) to mesic moisture regime
- nutrient regime is highly variable
- occurs on colluvial blankets and veneers, morainal blankets and on glaciolacustrine terraces

Distribution:

- the dominant community at low elevations (250 -500 m) along the Okanagan and Similkameen valleys, and some of the major tributaries
- ecosections: South Okanagan Basin, North Okanagan Basin, Okanagan Ranges and South Thompson Uplands
- biogeoclimatic unit: BGxh1/01 and BGxh2

Key Habitat Requirements:

- limited competition with non-native plants
- maintenance of the soil structure and function
- natural fire disturbance regime

Key System Sustaining Requisite:

- relief from anthropogenic disturbance

Management Objectives:

- restore/maintain the distribution, species composition, physical structure and ecological processes of this plant community throughout the planning area
- maintain/improve the condition of the known occurrences of this community that are presently in good/excellent condition (PNC climax)
- to restore this community until a minimum of 30% is in a PNC climax condition and 60% in a PNC late seral condition
- this rare ecosystem should be over-represented in landscape unit/range management planning processes

Management Strategy:

- assess potential grassland communities within the appropriate ecoregions and biogeoclimatic units (described above) on Crown land
- within each assessment area determine the total amount of area that this community would occur in under natural conditions
- establish WCAs on all good/excellent condition community occurrences, up to the 30% target
- recruitment WCAs are to be designated if there are insufficient areas to meet the 30% target
- recruitment WCAs are to be based on sites that can be expected to mature into healthy examples of this community; sites that result in well distributed communities across tenures and landscape units; sites that could become part of a FEN; sites where the community is under-represented; sites that are adjacent to good condition occurrences of this community, or to mature/old forested communities; (listed in order of priority)
- WCAs should include the entire community occurrences and a 250 meter buffer surrounding the community
- no access or recreation activities should be permitted within the WCAs
- manage range activities within the WCAs, to meet the management objectives. The rate of improvement within WCAs that are grazed should be at least 75% of the rate of improvement of ungrazed areas
- limit opportunities that favour invasive non-native plants (eg. mineral soil exposure)
- avoid activity in the WCAs that would adversely affect the vegetation, soils or hydrology of the community
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this community, and the objectives for the RMZ

<b>BIG SAGEBRUSH - BLUEBUNCH WHEATGRASS - BALSAMROOT:</b> <i>(Artemisia tridentata - Elymus spicatus)</i>	<b>RED-LISTED</b>
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Ecology:

- this shrub/grassland community was once common within a limited range; now rare due to cattle grazing and agricultural conversion
- dominated by big sagebrush and bluebunch wheatgrass. The sagebrush may become a minor component as bluebunch wheatgrass increases
- present with a low to high cover are bluebunch wheatgrass, arrow-leaved balsamroot, junegrass, Sandberg's bluegrass and common yarrow
- lemonweed, parsnip-flowered buckwheat and silky lupine have lower cover
- local variances are known within the range
- occurs on gentle to steep middle to upper slopes in lower grasslands
- parent materials include morainal blankets, morainal veneers and glaciofluvial terraces
- lichen crust is usually well developed
- early seral communities exist in the same site series, but vary significantly in species composition
- occurs on all aspects except north aspects, generally in a middle slope position where the slope is gentle
- soils are medium textured, with a xeric to mesic moisture regime
- nutrient regime is highly variable
- occurs on colluvial blankets and veneers, morainal blankets and on glaciolacustrine terraces

Distribution:

- occurs in the Okanagan Valley south from Vernon to the U.S. border, especially along the eastern shore of Okanagan lake
- also occurs at low elevation in the Monashee Mountains and the Fraser basin from Lillooet to Boston Bar
- ecosections: South Okanagan Basin, North Okanagan Basin and Thompson Basin
- biogeoclimatic unit: BGxh1, BGxh2

Key Habitat Requirements:

- limited competition with non-native plants
- maintenance of the soil structure and function
- natural fire disturbance regime

Key System Sustaining Requisite:

- relief from anthropogenic disturbance

Management Objectives:

- restore/maintain the distribution, species composition, physical structure and ecological processes of this plant community throughout the planning area
- maintain/improve the condition of the known occurrences of this community that are presently in good/excellent condition (PNC climax)
- to restore this community until a minimum of 30% is in a PNC climax condition and 60% in a PNC late seral condition.
- this rare ecosystem should be over-represented in landscape unit/range management planning processes

Management Strategy:

- assess potential grassland communities within the appropriate ecoregions and biogeoclimatic units (described above) on Crown land
- within each assessment area determine the total amount of area that this community would occur in under natural conditions
- establish WCAs on all good/excellent condition community occurrences, up to the 30% target
- recruitment WCAs are to be designated if there are insufficient areas to meet the 30% target
- recruitment WCAs are to be based on sites that can be expected to mature into healthy examples of this community; sites that result in well distributed communities across tenures and landscape units; sites that could become part of a FEN; sites where the community is under-represented; sites that are adjacent to good condition occurrences of this community, or to mature/old forested communities; (listed in order of priority)
- WCAs should include the entire community occurrences and a 250 meter buffer surrounding the community
- no access or recreation activities should be permitted within the WCAs
- manage range activities within the WCAs, to meet the management objectives. The rate of improvement within WCAs that are grazed should be at least 75% of the rate of improvement of ungrazed areas
- limit opportunities that favour invasive non-native plants (eg. mineral soil exposure)
- avoid activity in the WCAs that would adversely affect the vegetation, soils or hydrology of the community
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this community, and the objectives for the RMZ



**ROUGH FESCUE (*Festuca campestris*) PLANT COMMUNITY**

NOTE - this plant community has not been recognized by the CDC as a Red-listed community, however, regional range and wildlife specialists have included it due to its rarity.

Ecology:

- this community is dominated by rough fescue (*Festuca campestris*), with only small cover of other species that occur in the spaces between mature fescue plants and in rodent or other disturbances
- maintenance of the community is dependent on cool fires and/or light grazing. Left undisturbed litter accumulates to the detriment in health of individual plants and the whole community
- it is unlikely that this community can be maintained with spring grazing (even light) by livestock
- existing plant communities that occur on these sites as seral stages include:
  - Poa pratensis*/mixed forbs
  - Elymus spicatus*/*Koeleria macrantha*
  - Elymus spicatus*/*Artemisia tridentata* spp *tridentata*
  - Pseudotsuga menziesii*/*Calamagrostis rubescences* or *Elymus spicatus*
  - Pinus ponderosa* with either *Elymus spicatus* or a number of other increaser grasses.

Distribution:

- occurs in the Kamloops Forest Region on zonal sites from 700m to 1000m, on dryer/warmer sites to slightly higher elevation and on moister/cooler sites to 400m
- ecosections: South Okanagan Basin, North Okanagan Basin, South Okanagan Highlands, Okanagan Ranges, South Thompson Uplands, North Thompson Uplands, Thompson Basin, and perhaps others
- biogeoclimatic units: BGxh1 ??; BGxh2 06; BGxw1 04, on north slopes 06, 07; IDfDk1a 91, 92, 93; IDfDxh1a 91 through 98; IDfDxh2a 91, 93, 94 (these are for the Kamloops Region only)

Key Habitat Requirements:

- maintenance fires (frequency not known but probably between 10 and 40 years)
- lack of disturbance during spring

Management Objectives:

- restore/maintain the distribution, species composition, physical structure and ecological processes of this plant community throughout the planning area
- maintain/improve the condition of the known occurrences of this community that are presently in good/excellent condition (PNC climax)
- to restore this community until a minimum of 30% is in a PNC climax condition and 60% in a PNC late seral condition.
- this rare ecosystem should be over-represented in landscape unit and/or range management planning processes

Management Strategy:

- assess potential grassland communities within the appropriate ecoregions and biogeoclimatic units (described above) on Crown land
- within each assessment area determine the total amount of area that this community would occur in under natural conditions
- establish WCAs on all good/excellent condition community occurrences, up to a 30% target
- recruitment WCAs are to be designated if there are insufficient areas to meet the 30% target
- recruitment WCAs are to be based on sites that can be expected to mature into healthy examples of this community; sites that result in well distributed communities across tenures and landscape units; sites that could become part of a FEN; sites where the community is under-represented; sites that are adjacent to good condition occurrences of this community, or to mature/old forested communities; (listed in order of priority)
- WCAs should include the entire community occurrences and a 250 meter buffer surrounding the community
- no access or recreation activities should be permitted within the WCAs
- manage range activities within the WCAs, to meet the management objectives. The rate of improvement within WCAs that are grazed should be at least 75% of the rate of improvement of ungrazed areas
- establish grazing systems that will allow the maintenance or creation of the desired distribution of PNC climax and PNC late seral. This will usually be met by having an area fall grazed only. Grazing exclusion may be needed for spring grazed areas where PNC climax is desired
- avoid activity in the WCAs that would adversely affect the vegetation, soils or hydrology of the community
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this community, and the objectives for the RMZ

<b>BLUEBUNCH WHEATGRASS - JUNEGRASS:</b> <i>(Elymus spicatus - Koeleria macrantha)</i>	<b>RED-LISTED</b>
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Ecology:

- a once common climax grassland community, now rare due to grazing and, to a lesser extent, tree encroachment resulting from decades of fire suppression
- dominated by bluebunch wheatgrass, with a lower cover of junegrass
- Douglas-fir and ponderosa pine, at low cover, may occur in some site series
- pasture sage and yarrow are frequent but minor component in most subzones
- a well-developed lichen crust is characteristic
- this plant community may occur as early seral plant communities on other site series
- occupies a great variety of topographic, edaphic, climatic conditions

Distribution:

- occurs at 500-800 m in the Okanagan valley and along the southern Similkameen River valley; occurs sporadically throughout the remainder of the plan area
- ecosections: South Okanagan Basin, North Okanagan Basin, South Okanagan Highlands, Thompson Basin, South Thompson Uplands, North Thompson Uplands, North Okanagan Highlands and Okanagan Ranges
- partial list of biogeoclimatic units: upper portions of BGxh1, PPxh1, and perhaps others

Key Habitat Requirements:

- limited competition with non-native plants
- maintenance of the soil structure and function
- natural fire disturbance regime

Key System Sustaining Requisite:

- relief from anthropogenic disturbance

Management Objectives:

- restore/maintain the distribution, species composition, physical structure and ecological processes of this plant community throughout the planning area
- maintain/improve the condition of the known occurrences of this community that are presently in good/excellent condition (PNC climax)
- to restore this community until a minimum of 30% is in a PNC climax condition and 60% in a PNC late seral condition.
- this rare ecosystem should be over-represented in landscape unit and/or range management planning processes

Management Strategy:

- assess potential grassland communities within the appropriate ecosections and biogeoclimatic units (described above) on Crown land
- within each assessment area determine the total amount of area that this community would occur in under natural conditions
- establish WCAs on all good/excellent condition community occurrences, up to a 30% target
- recruitment WCAs are to be designated if there are insufficient areas to meet the 30% target
- recruitment WCAs are to be based on sites that can be expected to mature into healthy examples of this community; sites that result in well distributed communities across tenures and landscape units; sites that could become part of a FEN; sites where the community is under-represented; sites that are adjacent to good condition occurrences of this community, or to mature/old forested communities; (listed in order of priority)
- WCAs should include the entire community occurrences and a 250 meter buffer surrounding the community
- no access or recreation activities should be permitted within the WCAs
- manage range activities within the WCAs, to meet the management objectives. The rate of improvement within WCAs that are grazed should be at least 75% of the rate of improvement of ungrazed areas
- limit opportunities that favour invasive non-native plants (eg. mineral soil exposure)
- avoid activity in the WCAs that would adversely affect the vegetation, soils or hydrology of the community
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this community, and the objectives for the RMZ

<b>IDAHO FESCUE - BLUEBUNCH WHEATGRASS:</b> <i>(Festuca idahoensis - Elymus spicatus)</i>	<b>RED-LISTED</b>
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Ecology:

- a climax grassland community, with a small range that has been frequently been replaced by earlier seral communities because of livestock grazing
- tree encroachment resulting from decades of fire suppression have altered this community
- dominated by Idaho fescue and bluebunch wheatgrass, and a lesser cover of silky lupine
- often present are arrow-leaved balsamroot, junegrass, parsnip-flowered buckwheat and umber pusseytoes
- moss and lichen are present but with low cover
- develops on morainal, colluvial and glaciofluvial blankets
- generally found on gently sloping middle slopes with fine textured soils
- mesic to submesic moisture and a poor to rich nutrient regime
- early seral communities occupy the same site series and conditions, but native species cover is reduced by introduced species
- may be a seral community of rough fescue

Distribution:

- found sporadically throughout lower elevations of the plan area (mostly on private land)
- also known from the Princeton area
- ecosections: South Okanagan Highlands, North Okanagan Highlands, North Okanagan Basin, and perhaps others
- biogeoclimatic unit: IDFxh1a/91

Key Habitat Requirements:

- limited competition with non-native plants
- maintenance of the soil structure and function
- natural fire disturbance regime

Key System Sustaining Requisite:

- relief from anthropogenic disturbance

Management Objectives:

- restore/maintain the distribution, species composition, physical structure and ecological processes of this plant community throughout the planning area
- maintain/improve the condition of the known occurrences of this community that are presently in good/excellent condition (PNC climax)
- to restore this community until a minimum of 30% is in a PNC climax condition and 60% in a PNC late seral condition
- this rare ecosystem should be over-represented in landscape unit and/or range management planning processes

Management Strategy:

- assess potential grassland communities within the appropriate ecoregions and biogeoclimatic units (described above) on Crown land
- within each assessment area determine the total amount of area that this community would occur in under natural conditions
- establish WCAs on all good/excellent condition community occurrences, up to a 30% target
- recruitment WCAs are to be designated if there are insufficient areas to meet the 30% target
- recruitment WCAs are to be based on sites that can be expected to mature into healthy examples of this community; sites that result in well distributed communities across tenures and landscape units; sites that could become part of a FEN; sites where the community is under-represented; sites that are adjacent to good condition occurrences of this community, or to mature/old forested communities; (listed in order of priority)
- WCAs should include the entire community occurrences and a 250 meter buffer surrounding the community
- no access or recreation activities should be permitted within the WCAs
- manage range activities within the WCAs, to meet the management objectives. The rate of improvement within WCAs that are grazed should be at least 75% of the rate of improvement of ungrazed areas.
- limit opportunities that favour invasive non-native plants (eg. mineral soil exposure)
- avoid activity in the WCAs that would adversely affect the vegetation, soils or hydrology of the community
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this community, and the objectives for the RMZ

<b>ANTELOPE-BRUSH - BLUEBUNCH WHEATGRASS - NEEDLE-AND-THREAD GRASS:</b> ( <i>Purshia tridentata</i> - <i>Stipa comata</i> ) <b>RED-LISTED</b>
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Ecology:

- a globally rare community with a G2 ranking (Imperiled)
- has restricted range
- generally, occurrences are in an early to mid-seral stage; one known occurrence in a climax condition
- livestock grazing, urban development, recreational use and agricultural conversion have adversely impacted this community
- this shrub/grassland has a low cover of antelope-brush, sage-brush and rabbit-brush
- herb layer is dominated by bluebunch wheatgrass and Sandberg's bluegrass would be present
- a fragile moss and lichen cover
- occurs at lower elevations on warm aspects, from mid to lower slopes
- soils consist of rapidly drained coarse-textured materials from glaciofluvial deposits, usually capped with eolian sands
- sites are dry to very dry, often with drought conditions; poor to medium nutrient regime
- early seral communities are characterized by a greater cover of antelope brush, sand dropseed and red threeawn

Distribution:

- occupies low elevations at the southern end of the Okanagan valley, from Summerland to the U.S. border
- ecosections: South Okanagan Basin and Okanagan Ranges
- biogeoclimatic unit: BGxh1

Key Habitat Requirements:

- limited competition with non-native plants
- maintenance of the soil structure and function
- natural fire disturbance regime

Key System Sustaining Requisite:

- relief from anthropogenic disturbance

Management Objectives:

- restore/maintain the distribution, species composition, physical structure and ecological processes of this plant community throughout the planning area
- maintain/improve the condition of the known occurrences of this community that are presently in good/excellent condition (PNC climax)
- to restore this community until a minimum of 30% is in a PNC climax condition and 60% in a PNC late seral condition
- this rare ecosystem should be over-represented in landscape unit and/or range management planning processes

Management Strategy:

- assess potential grassland communities within the appropriate ecoregions and biogeoclimatic units (described above) on Crown land
- within each assessment area determine the total amount of area that this community would occur in under natural conditions
- establish WCAs on all good/excellent condition community occurrences, up to a 30% target
- recruitment WCAs are to be designated if there are insufficient areas to meet the 30% target
- recruitment WCAs are to be based on sites that can be expected to mature into healthy examples of this community; sites that result in well distributed communities across tenures and landscape units; sites that could become part of a FEN; sites where the community is under-represented; sites that are adjacent to good condition occurrences of this community, or to mature/old forested communities; (listed in order of priority)
- WCAs should include the entire community occurrences and a 250 meter buffer surrounding the community
- no access or recreation activities should be permitted within the WCAs
- manage range activities within the WCAs, to meet the management objectives. The rate of improvement within WCAs that are grazed should be at least 75% of the rate of improvement of ungrazed areas
- limit opportunities that favour invasive non-native plants (eg. mineral soil exposure)
- restrict any other activity in the WCAs that would adversely affect the vegetation, soils or hydrology of the community
- other activities, or variances, may be permitted provided they are consistent with the management objectives for this community, and the objectives for the RMZ



<b><u>SPREADING NEEDLEGRASS COMMUNITY:</u></b> <b><i>(Stipa richardsoni community)</i></b>	<b>RED-LISTED</b>
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Ecology:

- potentially always a rare climax grassland community that is now extremely rare due to extensive grazing and agricultural conversion
- replaced throughout most of its range by early seral communities
- tree encroachment resulting from decades of fire suppression have altered this community
- dominated by spreading needlegrass with a low cover of northern bedstraw, junegrass and Rocky Mountain fescue
- *Cladonia* lichens dominate the lichen layer
- in the IDFdk1a, this community occurs on gentle middle to upper slopes, and on crests
- parent materials are morainal veneers
- soils are medium to fine textured
- occurs on sub-mesic to mesic moisture regime, and very poor to medium nutrient regime

Distribution:

- in the plan area, known only to occur at lower elevations on the Douglas Plateau
- ecosection: South Thompson Uplands
- biogeoclimatic unit: IDFdk1a/93

Key Habitat Requirements:

- limited competition with non-native plants
- maintenance of the soil structure and function
- natural fire disturbance regime

Key System Sustaining Requisite:

- relief from anthropogenic disturbance

Management Objectives:

- restore/maintain the distribution, species composition, physical structure and ecological processes of this plant community throughout the planning area
- maintain/improve the condition of the known occurrences of this community that are presently in good/excellent condition (PNC climax)
- to restore this community until a minimum of 30% is in a PNC climax condition and 60% in a PNC late seral condition.
- this rare ecosystem should be over-represented in landscape unit and/or range management planning processes

Management Strategy:

- assess potential grassland communities within the appropriate ecosections and biogeoclimatic units (described above) on Crown land
- within each assessment area determine the total amount of area that this community would occur in under natural conditions
- establish WCAs on all good/excellent condition community occurrences, up to a 30% target
- recruitment WCAs are to be designated if there are insufficient areas to meet the 30% target
- recruitment WCAs are to be based on sites that can be expected to mature into healthy examples of this community; sites that result in well distributed communities across tenures and landscape units; sites that could become part of a FEN; sites where the community is under-represented; sites that are adjacent to good condition occurrences of this community, or to mature/old forested communities; (listed in order of priority)
- WCAs should include the entire community occurrences and a 250 meter buffer surrounding the community
- no access or recreation activities should be permitted within the WCAs
- manage range activities within the WCAs, to meet the management objectives. The rate of improvement within WCAs that are grazed should be at least 75% of the rate of improvement of ungrazed areas
- limit opportunities that favour invasive non-native plants (eg. mineral soil exposure)
- avoid activity in the WCAs that would adversely affect the vegetation, soils or hydrology of the community
- other activities, or variances, may be acceptable provided they are consistent with the management objectives for this community, and the objectives for the RMZ