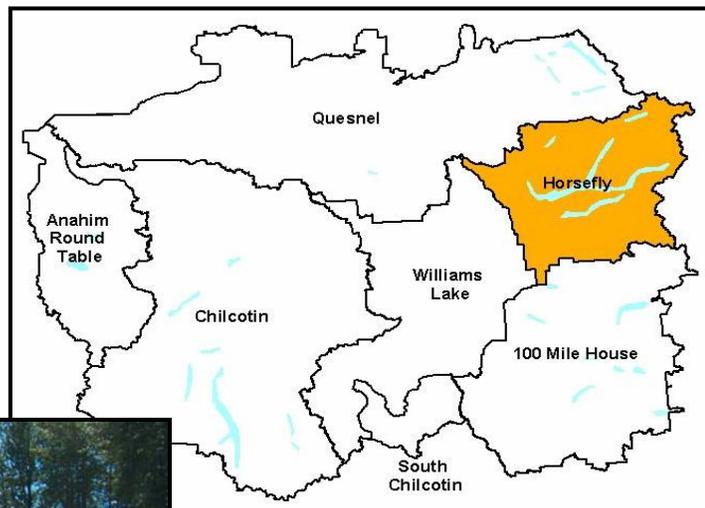


# Cariboo-Chilcotin Land-Use Plan

## Horsefly Sustainable Resource Management Plan

October 2005



# Horsefly Sustainable Resource Management Plan

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## **1 EXECUTIVE SUMMARY**

The Horsefly Sustainable Resource Management Plan (HSRMP) is one of seven plans covering the Cariboo-Chilcotin Region, including the previously endorsed South Chilcotin and Anahim Round Table plans. SRMPs are a spatial application of the Cariboo Chilcotin Land Use Plan (CCLUP) direction at the sub regional planning level. The Horsefly SRMP covers a gross area of 813,021 ha, with 547,435 ha being productive forest landbase. This plan area was formerly recognized as the Horsefly Forest District and now exists as the eastern portion of the Central Cariboo Forest District.

Many of the region's most productive forest lands occur in this area and the Horsefly-Quesnel drainages are renowned for their fisheries values. Red-listed mountain caribou also reside in the Cariboo Mountains.

There are 43 objectives in the plan to guide operational planners. Supporting strategies provide more detail regarding proposed practices for meeting objectives. Recommendations are also provided within the plan where planning advice was considered appropriate but not necessarily associated with a specific CCLUP requirement. First Nation, stakeholder, public, and multi-agency involvement was solicited to develop the objectives and to map specific values.

The twelve maps included within this document represent the strategic level spatial information used in analysis of values with the CCLUP targets. Analysis of the mapped products reveals that the SRMP objectives can be met within the regional timber targets.

## 2 INTRODUCTION

The Horsefly Sustainable Resource Management Plan (HSRMP) is one of seven SRMPs in the region. These plans are important elements of the *Cariboo-Chilcotin Land Use Plan (CCLUP)*<sup>1</sup> implementation. They provide the spatial reference and detailed objectives needed to implement the land use plan over the long term. The plan area covers that portion of the Central Cariboo Forest District formerly known as the Horsefly Forest District.

The SRMP is based on the 90-Day Implementation Process Final Report, released in 1995, which provided detailed area-based resource targets and strategies for timber, range, mining, fish, wildlife, biodiversity conservation, water management, tourism, recreation, agriculture and wildcraft/agro-forestry.

The CCLUP, including the 90-Day Implementation Report, was declared a higher level plan in 1996 under the *Forest Practices Code of British Columbia Act (FPC)*<sup>2</sup>. It was later amended in 1999<sup>3</sup>. As a higher level plan, the CCLUP guides application of the FPC and other resource management activities. In 1998 the *Integration Report*<sup>4</sup> was released. This policy report provided a strategic scenario which showed how all the targets could be achieved and served to further guide planning at the sub-regional level. Sub-regional planning began in 1996, to provide more detailed spatial representation of CCLUP values at the district level.

Legal objectives will be established based on the SRMPs. These objectives will complement other regulations declared under the *Forest and Range Practices Act (FRPA)*.

It should be noted that, in the interests of brevity, objectives provided by the CCLUP are not necessarily repeated in the HSRMP. Nevertheless, the CCLUP objectives still represent legal requirements that must be met as compliance with a higher level plan.

Within each section the text provides context for the objectives and strategies. References to the CCLUP are documented, and footnotes provide additional information. References to other documents are often paraphrased and brief. Readers should consult original documents where more comprehensive understanding is required.

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<sup>1</sup> Cariboo-Chilcotin Land-Use Plan 90-Day Implementation Process Final Report, February 15, 1995 (207 pages). Cariboo-Chilcotin Land-Use Plan Addendum to the Ninety-Day Implementation Process: Final Report, April 20, 1995 (6 pages).

<sup>2</sup> Order Declaring the Cariboo-Chilcotin Land-Use Plan to be a Higher Level Plan Pursuant to Section 1(1) of the *Forest Practices Code of British Columbia Act*, January 23, 1996 (2 pages).

<sup>3</sup> Order Varying the *Cariboo-Chilcotin Land-Use Plan 90-Day Implementation Process Final Report*, February 1995 Resource Management Zone Objectives Pursuant to Section 3(2) of the *Forest Practices Code of British Columbia Act*, June 22, 1999 (2 pages).

<sup>4</sup> Cariboo-Chilcotin Land-Use Plan Integration Report, April 6, 1998 (59 pages).

**The SRMP does not apply to private land or protected areas and the HSRMP conforms with the Province's two-zone approach to mineral resource management. Consistent with Section 14 of the *Mineral Tenure Act*, the objectives and strategies in this plan do not restrict or prohibit responsible mining exploration or development activities.**

The maps in the printed plan are for general information purposes only. Planners should contact the Integrated Land Management Bureau (ILMB) for appropriate scale maps and digital files for the purpose of operational planning.

### 3 ECONOMIC SECURITY

SRMPs are a key mechanism for increasing certainty with regard to land and resource use, which in turn is the foundation for economic investment. The objectives and strategies contained in Section 6 provide specific, area-based commitments to the resource-based industries that drive the economy of the Cariboo Region, and clear strategic management direction to statutory decision makers. Establishment of objectives for non-market resources such as biodiversity also allow the forest industry to more easily address forest certification needs and will greatly facilitate implementation of FRPA.

#### 3.1 Forest Industry

The timber access targets achieved in the HSRMP provide assurance that the forest industry will continue as a major economic driver in the Cariboo Region. The HSRMP is one of five sustainable resource management plan areas that contribute to the Williams Lake Timber Supply Area (TSA), which in turn is one of three TSAs in the region. The HSRMP area currently represents approximately 26 percent of the timber harvest within the Williams Lake TSA.

Between 1998 and 2000, the timber harvest in the entire Williams Lake TSA contributed about \$51 million in stumpage and rent payments annually to the provincial government. When other taxes on the forest industry are factored in, the contribution to provincial government revenues for the Williams Lake TSA as a whole is about \$103.13 million.<sup>5</sup>

While the Cariboo forest industry's manufacturing facilities are concentrated within the communities of Clinton, 100 Mile House, Williams Lake, Anahim Lake, and Quesnel, these facilities rely upon a fibre supply accessed across the entire Cariboo area. The forest industry within the Cariboo is diverse. Regional facilities include:

- 12 sawmills
- 4 plywood/veneer plants
- 1 oriented strand board plant
- 1 medium density fibreboard plant
- 2 pulp mills
- numerous value-added manufacturing facilities
- associated logging operations

Based on the Williams Lake Timber Supply Analysis Report (2001), the capital employed in these facilities totals \$946 million and a total of \$78 million in capital expenditures was made in maintaining and improving these facilities. These facilities produced 1,820 million foot board measure of structural lumber, 1.1 billion square feet of panel products and 500,000 tonnes of pulp. The production of these products required the consumption of 8,815,000 m<sup>3</sup> of logs. The accumulated sales value of

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<sup>5</sup> Williams Lake TSA Timber Supply Review – (TSA Analysis Report) – September 2001

lumber, panel, pulp, and value-added products amounted to \$1,530 million dollars. The total value of the logs used to create these products totalled \$505 million.

For the region as a whole, the forest industry provided 8,470 full time jobs in 2001. While the area covered within the HSRMP represents only a portion of the entire area included within the Cariboo-Chilcotin Land Use Plan, it nonetheless has made a significant contribution to the fibre supply required to maintain the industry here in the Cariboo. Over the last number of years, the average volume of timber removed annually from the HSRMP area has been one million cubic meters or approximately 12 percent of the total volume of timber utilized by the regional industry in 2001.

Although no large processing facilities are located within the HSRMP area, many local people are active in forestry. The continued viability of small communities like Horsefly and Likely is closely linked to maintenance of the regional forest industry.

Map 1 provides a spatial representation of the areas that contribute to meeting the regional timber access targets. The map includes conventional harvesting areas where the primary focus is timber management, modified harvesting areas, that support a range of values and uses, including harvesting, and no harvest areas.

The completed SRMPs are expected to accommodate the short term needs of the timber industry while ensuring appropriate levels of management for other values. Consistent with the Timber Supply Review II (TSR II) forecast, some reduction in the historic volume of timber harvested from the HSRMP area could result in the short term.

### **3.2 Mining**

The HSRMP ensures access to 100 percent of the plan area for mineral and aggregate exploration and potential development, excluding protected areas and Goal 2 areas. This is consistent with government's two-zone approach to mineral exploration and development. The comprehensive nature of the HSRMP objectives will assist the mineral sector in making informed choices. Mine development is addressed under the Environmental Assessment process. In general developed mines are a very small part of any strategic planning area; they are however an important economic driver for the province.

The HSRMP area is host to world-class deposits of copper, gold and fluorite as well as building materials essential to the economic development of the area such as aggregate and dimensional stone. Since 1965 over \$48 million dollars has been invested in exploration in the plan area. The construction of the Mount Polley mine was completed in the plan area in 1997 at a capital cost of \$115 million. The mine produced gold, copper and silver worth an estimated \$350 million as of September 2001. Mining activity at the Mount Polley mine was suspended but has resumed now that market conditions are again favourable. The reserves have an estimated gross metal value of over \$440 million. The historical Boss Mountain mine produced over \$140 million of molybdenum between 1965 and 1983. The dramatic Bullion Pit hydraulic placer mine produced at least \$55 million of placer gold (current prices) in its long period of

operation. It now forms part of the rich mining heritage of the Horsefly area. The Redgold property provided the aggregate for the new Vancouver Library giving the striking facade its pink tone. Other notable mining opportunities in the Horsefly SRMP area are:

- Spanish Mountain developed prospect – unclassified resource containing 52,628 ounces of gold (gross metal value of over \$21 million)
- Frasergold developed prospect – indicated resource of 714,840 ounces of gold (gross metal value of almost \$300 million)
- Woodjam developed prospect – unclassified resource containing 61,000 ounces of gold (gross metal value of over \$25 million)
- Lloyd-Nordik developed prospect – future contributor of ore grade feed to the Mount Polley mine
- Maybe developed prospect – unclassified resource of zinc and lead with a gross metal value of over \$20 million
- Eaglet developed prospect – indicated resource of 24 million tonnes of 11.5% fluorite
- Horsefly developed prospect – measured resource of 27,000,000 tonnes of silica
- Buxton Creek, Murder Gulch and Hobson’s Horsefly – modern day placer projects with documented gold resource.

All mining projects must pass through several stages of exploration and development, assessment and permitting, and coincide with favourable economic conditions for their successful exploitation to occur. As such, some of the prospects noted here might never advance or other prospects in the area may arise. Exploration continues in the area and new discoveries are being made every year.

### **3.3 Tourism and Recreation**

Tourism, which includes portions of several service sectors including accommodation, retail trade, and transportation, has demonstrated significant growth and investment in recent years. Within the Horsefly, Williams Lake, and Chilcotin SRMP areas, nearly 2,000 persons are employed in the tourism sector, catering to both tourist and business travellers. More than 500 businesses in the three SRMP areas service visitors’ needs, including outdoor recreation facilities, guided hunting and fishing, tours and attractions, retail and service businesses, food and beverage facilities, and accommodations.<sup>6</sup> Access to Crown land for the development of new tourism, commercial recreation, and backcountry opportunities and to provide for the expansion of existing operations is essential for the encouragement of economic development of the area.

#### **3.3.1 Recreation Corridors and Trails**

One tourism opportunity providing significant potential benefits for the study area is the continued development and management of an integrated, year-round, world class, multi-use trails system. The HSRMP addresses this potential by providing a recreation

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<sup>6</sup> Williams Lake TSA Timber Supply Review – (TSA Analysis Report) – September 2001

corridor and trail management objective to maintain viability of key trail corridors and managing visuals from identified viewpoints.

### **3.3.2 Gold Rush Snowmobile Trail**

At the Premier's Summit in May 1999 and a subsequent conference on economic development organized by the Cariboo Economic Action Forum in October 1999, snowmobiling was realized as a key recreation and tourism priority for the area. Since that time, considerable funding support has been provided through Forest Renewal BC and the Community Enterprise Program which accelerated the expansion of the trail network to approximately 700 kilometres in the Cariboo Region.

In 1999 the 100 Mile District Trails Foundation and the BC Snowmobile Federation (BCSF) requested assistance from the provincial government to develop a 463 km Gold Rush Snowmobile Trail (GRST) linking Clinton, 70 Mile House, 100 Mile House, Likely, and Wells, to promote the Cariboo as a winter destination for snowmobile touring.

Government agreed to pilot a portion of the trail in 2000, and in January 2003, a 170 km long section of trail from 70 Mile House to the outskirts of Horsefly was legally established.

The ILMB and the Ministries of Forests and Range, and Transportation continue to work together with the 100 Mile and District Snowmobile Club and the BCSF on realizing the full establishment of the GRST. This snowmobile trail, linking rural communities, has the potential to generate significant winter revenues for tourism operations in what has traditionally been their slow season.

### **3.3.3 Fishing**

The Horsefly River watershed provides some of the most important fish habitat in the Fraser River drainage. The fisheries resources are comprised in part by a unique race of trophy size rainbow trout, kokanee, a prolific race of sockeye salmon, chinook, and coho salmon. The rainbow trout, a biologically unique wild stock of body size probably second largest in the world, rely heavily on the Horsefly for spawning and juvenile rearing. It has been estimated that the Horsefly River produces 75 percent of the total rainbow trout production to Quesnel Lake<sup>7</sup>. The world renowned Quesnel Lake sport fishery, the second largest sport fishery in the region, is dependent on maintenance of the rainbow trout population.

The dominant cycle sockeye run in 1993 comprised 50.6 percent of Fraser River sockeye production, 36 percent of the total salmon catch for the province's coastal waters and yielded a catch worth 68 million dollars<sup>8</sup>. It is estimated that Horsefly fish stocks generate in excess of 30 million dollars of average annual revenue to the regional and provincial economy<sup>9</sup>.

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<sup>7</sup> Ministry of Environment, Lands and Parks (MELP) file data, 1990.

<sup>8</sup> Department of Fisheries and Oceans (DFO) file data.

<sup>9</sup> Ministry of Environment, Lands and Parks (MELP) file data, 1989 to 1993.

The recreational fishery is a key tourism development opportunity. The HSRMP supports both existing tourism operators and development opportunities through:

- Protection of habitat adjacent to identified critical fish habitat
- Establishment of Lake Management Objectives
- Identification of scenic areas in viewsheds surrounding existing operations
- Assessment of lakes to determine the potential for both recreational sales and commercial development.

### **3.4 Agriculture**

The beef industry represents 50 percent of the agriculture sector within the Cariboo Region, and accounts for 20 percent of the provincial beef cattle population. The value of the cattle marketed through the Williams Lake Stockyards is in excess of \$23.5 million annually. The SRMP recognizes the industry's need to enhance access to Crown land and water in support of agriculture economic development opportunities.

## 4 FIRST NATIONS

The province is committed to working with First Nations on a government-to-government basis without limiting aboriginal rights or treaty negotiations. This plan is not intended to nor is it to be interpreted to create, recognize, acknowledge, affirm, limit, or deny any aboriginal right, title, or interest. The province has a policy of sharing information and of offering First Nations opportunities to be involved in the planning process. The CCLUP encourages First Nations to play a direct role in the implementation of the plan.

The HSRMP area overlaps with the following seven Secwepemc and Carrier bands' asserted traditional territories: (i) Williams Lake Band, (ii) Soda Creek Band, (iii) Canim Lake Band, (iv) Lhtako First Nation, (v) Esketemc First Nation, (vi) North Thompson Band, and (vii) Lheidli T'enneh First Nation. There are no Indian Reserves in this area.

Williams Lake Band, Soda Creek Band, and Canim Lake Band are affiliated with the Northern Secwepemc te Qelmucw (NStQ) (Cariboo Tribal Council). Lhtako First Nation is affiliated with the Carrier-Chilcotin Tribal Council. North Thompson Band is affiliated with the Shuswap Nation Tribal Council. The Esketemc First Nation and Lheidli T'enneh First Nation have no tribal council affiliation.

The HSRMP planning team reviewed the Soda Creek, Canoe Creek, and Williams Lake Indian Bands' Traditional Use Studies, as well as an archaeological overview assessment, and a cultural heritage overview. There were many overlaps between plan objectives and First Nation objectives. Some further changes were also made to accommodate First Nations interests. Since the Traditional Use Studies have information sharing agreements and statements indicating the need for formal consultation, the content of the studies could not be reported.

The Cultural Heritage Overview of the Cariboo Forest Region (completed by Diana Alexander in 1997), and Archaeological Overview Assessment (AOA) (completed for the Horsefly Forest District in 1998) were reviewed. The Cultural Heritage Overview extensively covers, among other things, the historical patterns of band membership, subsistence, and settlement patterns and cultural practices of native groups in the area. This overview is a literature review and was not based on interviews with First Nations. The AOA defines areas of archaeological potential and lists all recorded archaeological sites.

Local First Nations were invited to contribute to the SRMP. The intention was to encourage government-to-government discussions, and to enable a mechanism to better include First Nations' knowledge and objectives in the Horsefly Sustainable Resource Management Plan. The First Nations objectives listed below in combination with other objectives in this SRMP address some of the interests expressed by First Nations in the Horsefly SRMP area.

Through discussion between NStQ and ILMB, NStQ recommended that further investigation and communication be considered for the following initial list of items when any kind of planning is done:

- Tenure review system: The need for protecting First Nations trapping areas and other First Nations interests when tenures are renewed. The suggestion was made for contacting the appropriate First Nations for an understanding of any workable protective measures. Also investigate how the tenure renewal system should address impacts on First Nations access to cultural heritage features and natural resources overall.
- Traditional Use Study (TUS) Information: Encourage transparent communication and development of TUS information to facilitate easy incorporation of existing as well as new TUS information with SRMPs so important First Nation values and interests are appropriately protected and addressed when possible.
- First Nations Traditional Knowledge (TK): To better understand and be able to incorporate First Nations TK in the management of natural values. An example of First Nations Traditional Knowledge is the use of fire as a management tool.
- Inventories: Allow for better First Nation review, input, and involvement in inventories completed or used by government.
- First Nations Land Use Plans: Make sure government is informed of existing First Nation Land Use Plans and Special Designated Areas such as the NStQ Wilderness Areas and that these areas are considered when Land Use planning. Note: There are six Wilderness Areas in the NStQ land use plan.
- Access Management: First Nations to be involved in access management planning.

First Nations have expressed an interest in maintaining trout and salmon populations, and have indicated that they prefer all cultural and heritage resources be pesticide-free.

**Objective 1      Manage industrial and commercial land development to prevent or mitigate physical damage to cultural and heritage features as identified by First Nations, consistent with the *Heritage Conservation Act*.**

**Table 1      Some Examples of First Nations Cultural and Heritage Features\***

Trails
Burial sites
Archaeological sites (artifacts, lithic scatter)
Battle sites
Occupation sites (campsites, pithouses)
Village sites
Quarries
Culturally modified trees (where some or all of the CMTs were modified before 1846)
Pictographs
Petroglyphs
Recreation sites
Cache pits, roasting pits

\*These are some cultural and heritage features. See Appendix C for additional examples.

**Objective 2**      **Maintain at least 40 percent of existing, mature birch within cutblocks in the areas of Beaver Valley, Polley, Lower Cariboo River, and Cariboo Lake Landscape Units.**

**Definition**      **Maintain (where applied to ecological values):** *To prevent decline from current condition, excluding naturally caused perturbations such as wildfire, insect infestations and extreme weather events.*

**Objective 3**      **Maintain First Nations' trails identified by government or First Nations, free of debris from industrial and commercial development.**

NStQ request that they be contacted for further information on the location of their cultural heritage trails and the preferred means of protection when development is proposed.

To continue to promote First Nations' access to their traditional cultural and heritage sites, it is expected they will be involved in any future access management planning.

**Recommendation**      Identify and attempt to address the concerns of First Nations in relation to access to identified cultural heritage sites when awarding Crown land tenures.

## 5 GOAL 2 PROTECTED AREAS

Under CCLUP, 17 large new “Goal 1” parks and other protected areas were established. In the Horsefly area these include the Cariboo Mountains and Cariboo River Provincial Parks. The new protected areas, combined with existing parks, total 11.75 percent of the Cariboo Region. As part of the government’s commitment to include 12 percent of the land base of the Cariboo Region in protected areas, the remaining 0.25 percent of the region (22,000 ha) was allocated for future designation as smaller “Goal 2” areas during sustainable resource management planning. The CCLUP (p. 23-24) specifies that sub-regional plans should identify which Goal 2 protected areas should be established. The CCLUP (p. 154) also states that small benchmark ecological reserves should be established as part of the 0.25 percent land target for Goal 2 protected areas, within those ecosections that are not well represented in the Protected Areas, for the purpose of future research, preserving biodiversity, and preserving portions of rare ecosystems. The overall objectives of Goal 2 protected areas are protection of special natural, cultural heritage, and recreational features, 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 recreational features. Once established as parks or other protected areas, approved Goal 2 protected areas will be managed by the Ministry of Environment (MOE) under the *Park Act* and other relevant Acts, through park management plans.

The CCLUP, (p. 35 to 39) protected areas management policies state that, except for placer tenures in Churn Creek (Williams Lake SRMP), mining tenures fully within protected areas will be extinguished. However activities such as recreation, cattle grazing, hunting, trapping, and backcountry tourism will continue to be allowed.

The regional Goal 2 allocation of the HSRMP is approximately 1,626 ha. The interagency planning team evaluated and refined the 15 candidate areas, with a total area of nearly 7,000 ha, which were suggested by members of the public, the Regional Protected Areas Team, and other government agencies. The HSRMP has identified 11 areas totalling 1,805 ha, as summarized in Table 2 and shown on Map 2.

Candidate areas have been forwarded to the Cariboo Managers’ Committee (CMC) and Regional Resource Committee (RRC) for consideration. The CMC and RRC will forward to cabinet those Goal 2 proposals with which they agree. Cabinet will then decide whether to approve each proposal with the recommended status. Once the objective of 12 percent protected area has been achieved, the remaining proposed Goal 2 areas will be released for resource development.

**Table 2 Candidate Goal 2 Protected Areas Within the Horsefly SRMP Area**

<b>Area</b>	<b>Designation</b>	<b>Approximate Size (ha)</b>
Long Creek Mineral Lick	Protected Area	259
Beaver Valley / Rye Lake	Class “A” Provincial Park	371 in Horsefly Forest District (371 in Williams Lake Forest District)

Horsefly Sustainable Resource Management Plan

<b>Area</b>	<b>Designation</b>	<b>Approximate Size (ha)</b>
Cedar Point addition	Class "C" Provincial Park	6
<i>Quesnel Lake Park System (8 areas):</i>		
Bouldery Creek	Class "A" Provincial Park	85
Cariboo and Twain Islands	Class "A" Provincial Park	96
Faux Bay	Class "A" Provincial Park	71
Horsefly Bay	Class "A" Provincial Park	316
Peninsula Bay	Class "A" Provincial Park	86
Roaring River	Class "A" Provincial Park	423
Watt Creek	Class "A" Provincial Park	63
Welcome Point	Class "A" Provincial Park	29
<b>Total</b>		<b>1805</b>

## 6 RESOURCE MANAGEMENT

### 6.1 Timber Resource

#### 6.1.1 Timber Access

The CCLUP, including the amendment of June 22, 1999, provides long-term timber targets within the Special Resource Development Zone (SRDZ), the Enhanced Resource Development Zone (ERDZ), and the Integrated Resource Management Zone (IRMZ)<sup>10</sup>. The targets were expressed (p. 148-149) (a) as a percentage of the productive forest land base falling into conventional, modified, and no harvest categories, and (b) as access to specified percentages of the forest land base.

The *Integration Report* (p. 77) expressed these timber targets as equivalent excluded area (EEA) targets. The IAMC, responsible for implementing the CCLUP, further refined the timber targets in 2000 in a regional analysis<sup>11</sup> at both the CCLUP sub-unit level and the SRMP level. The timber access targets (equivalent excluded area) result from identifying (for each Resource Development or Management Zone) where timber harvesting will *not* be conducted or will be constrained due to other values. When calculating the EEA of modified harvest areas the principle of an extended rotation is used to meet specific non-timber management objectives. See Section 7, Analysis Methods and Results, for additional information on calculating equivalent excluded area.

#### 6.1.2 Short Term Timber Impacts

The CCLUP (p. 149) directed that, to create certainty, a Timber Availability Plan be developed to ensure short-term timber availability during the full implementation of the CCLUP. The 1996 20-Year Short Term Timber Availability analysis determined that with the implementation of the CCLUP, the 1996 regional harvest levels could be maintained for at least the next 20 years within the regional context. Regional short term availability has recently risen due to the extreme mortality caused by mountain pine beetle.

#### 6.1.3 Woodlot Licences and Community Forests

There are presently 16 Woodlot Licences in the HSRMP area, with a total gross area of 9,336 ha. They are located in the Beaver Valley, Lower Cariboo, Polley, Horsefly, and Likely Landscape Units, with the private land portion of one woodlot being in Black Creek Landscape Unit.

Woodlots contribute to meeting all CCLUP objectives. However, in recognition that woodlots are small area-based tenures, management for some non-timber resource values is focused outside woodlot boundaries. Permanent Old Growth Management Areas (OGMAs) are not placed within woodlots, although areas constrained for other reasons can contribute to meeting the old seral objectives. Management for mule deer winter range (MDWR) within woodlots is expected to be consistent with the CCLUP

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<sup>10</sup> There is no Integrated Resource Management Zone within the Horsefly Sustainable Resource Management Plan area.

<sup>11</sup> Letter from the Cariboo Mid-Coast Inter-Agency Management Committee, dated July 18, 2000 (3 pages).

Management Strategy for Mule Deer Winter Ranges in the Cariboo-Chilcotin. Part 1a: Management Plan for Shallow and Moderate Snowpack Zones (2002) and Part 1b: Management Plan for Transition and Deep Snowpack Zones (2005). Cariboo Forest Region Extension Note #25A<sup>12</sup> (applicable outside Horsefly in IDFdk3, IDdk4, and IDFxM), and individual management plans for each winter range.

A Community Forest was recently established near Likely. Permanent OGMAs can be located in a Community Forest Agreement area.

#### 6.1.4 Silviculture

The CCLUP does not specifically address post-harvest silviculture in most areas, although management for riparian areas, biodiversity, coarse woody debris, and specific wildlife species require consideration when developing site preparation, planting, vegetation management, and stand tending prescriptions. Generally silvicultural treatments would not be applied in no-harvest areas such as wildlife tree patches (WTPs) and OGMAs. Nevertheless, special attention is required to maintain the representative ecological characteristics if any silviculture work is deemed necessary in any of the following areas: OGMAs, riparian management areas, WTPs, wildlife habitat areas, ungulate winter ranges, wildlife features, critical fish habitat, rare ecosystems, and habitat for species at risk. Unless required for ecosystem restoration or protection of the area from serious pest damage, broadcast burning and broadcast application of pesticides should not occur within these areas.

All harvested areas treated for vegetation management should retain a component of non-crop trees and shrubs on the site for nesting and wildlife forage. Addressing First Nations' ethnobotany concerns should also be considered.

**Objective 4**      **During vegetation management activities, ensure high and medium value wildlife trees contributing to wildlife tree retention requirements are retained.**

Strategy 4.1      Use the criteria in Table 3, or a qualified wildlife/danger tree assessor to determine which trees are medium or high value. To ensure worker safety, use either no-work zones or assess each tree of concern, using a qualified wildlife tree assessor.

**Recommendation**      Where wildlife trees are identified for retention, free-to-grow requirements around the tree or within the no-work zone should be waived to avoid human activity within the fall zone of potential danger trees.

**Table 3      Wildlife Tree Characteristics<sup>13</sup>**

Wildlife Tree Value	Characteristics
<b>HIGH</b>	<ul style="list-style-type: none"> <li>Internal decay (heart rot or natural/excavated cavities present).</li> </ul>

<sup>12</sup> Structural Definitions for Management of Mule Deer Winter Range Habitat in the Interior Douglas-Fir Zone. Cariboo Forest Region Research Section Extension Note #25A. August 2000 (7 pp.).

<sup>13</sup> Provincial Wildlife Tree Policy and Management Recommendations, February, 2000 (14 pp.).

<b>Wildlife Tree Value</b>	<b>Characteristics</b>
A high-value wildlife tree has at least two of the characteristics listed in the adjacent column.	<ul style="list-style-type: none"> <li>• Crevices present (loose bark or cracks suitable for bats).</li> <li>• Large brooms present.</li> <li>• Active or recent wildlife use.</li> <li>• Current insect infestation.</li> <li>• Tree structure suitable for wildlife use (e.g., large nest, hunting perch, bear den, etc.).</li> <li>• Largest trees on site (height and/or diameter) and/or veterans.</li> <li>• Locally important wildlife tree species.</li> </ul>
<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>• Large, stable trees that will likely develop two or more of the above attributes for High.</li> </ul>
<b>LOW</b>	<ul style="list-style-type: none"> <li>• Trees not covered by High or Medium categories.</li> </ul>

Grizzly bears depend upon berry-producing shrubs for summer forage in the Cariboo Mountains. Harvesting can enhance berry production by opening up the forest canopy, but the increased shrub growth can create competition with newly established crop trees. It is important that silviculture activities designed to reduce brush competition also retain a significant component of naturally-occurring berry production for bears within each landscape unit where high or moderate grizzly bear use occurs.

**Objective 5**     **In areas of high and moderate grizzly bear habitat capability as shown on Map 3, manage silvicultural activities on cutblocks so as to retain as much existing natural berry production as possible.**

Strategy 5.1     Where broadcast application of herbicides is used, ensure 40 percent or more of the naturally occurring, berry-producing shrubs are retained within areas of high and moderate grizzly bear habitat capability.

## 6.2 Forest Health

Natural forest disturbance agents such as insect pests, tree diseases, windthrow and fire have a critical role in forest health and long-term forest productivity; however, they can also contribute to significant economic losses of timber. Forest disturbance agents contribute to diversity in forest structure, tree ages, and species composition. The disturbances create a landscape level mosaic of forest patches of various ages, densities, species composition and succession stages; at the stand level they create a complex mixture of living, dead, and damaged trees of various species. Ecosystem complexity is in large part created by such disturbances, and a wide range of natural forest resources depends on that complexity for their existence. The planning goal is therefore not the elimination of pests and disease, but their management to prevent major losses of timber.

**Objective 6      Manage infectious outbreaks of forest diseases and pests in accord with objectives for other resource values identified in the SRMP.**

Strategy 6.1      Management should be consistent with approved strategies at regional and provincial levels. For bark beetles, follow the strategies outlined in approved Biodiversity Conservation Committee (BCC) updates.

### 6.3 No-Harvest Areas

A number of values have been designated through CCLUP as no-harvest areas. In the Horsefly area, these include: OGMAs, caribou no-harvest areas, riparian reserves, critical fish habitat and lake management zones for class A lakes. In these areas, natural successional processes are left to occur without intervention unless large-scale threats from agents such as mountain pine beetle threaten to destroy the no-harvest area or the surrounding forest landscape. Industrial activities such as forest harvesting, including small-scale salvage are therefore precluded from such areas except under very specific circumstances.

**Definition      No-harvest area:** *No-harvest areas are parcels of land, other than parks and protected areas, designated to conserve special ecological and cultural values. Protection of those values is paramount and encompasses the maintenance of natural processes such as endemic levels of natural disturbance. Therefore, with the exception of mining, industrial development, including timber harvesting is permitted only under special circumstances as described in Objective 7. No-harvest areas include:*

1. *Old Growth Management Areas,*
2. *Caribou No-harvest Areas,*
3. *Riparian Reserves,*
4. *Critical Fisheries Habitat,*
5. *Lake Management Zone, Class A lakes, and*
6. *“Community Areas of Special Concern” within the Anahim Round Table Interest Area*

**Objective 7      Maintain *No-harvest areas* (see definition) by excluding industrial activities within their boundaries, with the following exceptions:**

- 1. Insect control essential to curtail severe damage to the no-harvest area or to other forest values at the landscape level,**
- 2. Salvage of dead timber (non-infectious) resulting from severe natural disturbance that has destroyed the ecological, wildlife, or cultural values for the area,**
- 3. Control of wildfire,**
- 4. Seed cone collection, provided trees are not felled,**
- 5. Road construction where there is no other practicable location**

available,  
**6. In riparian reserve zones, creating a corridor for full suspension yarding or guyline tiebacks, where there is no other practicable location available,**  
**7. Thinning to enhance old forest attributes within OGMA's inside Mule Deer Winter Range located within the shallow and moderate snowpack zones in accordance with the direction in "Management Strategy for Mule Deer Winter Ranges in the Cariboo-Chilcotin: Part 1a: Management Plan for Shallow and Moderate Snowpack Zones.",**  
**8. Ecological restoration activities approved by the ILMB or MOE statutory authorities consistent with the governing legislation,**  
**9. Exploration and development of minerals<sup>14</sup> and coal; exploration and development of placer mines in designated placer areas.**

- Strategy 7.1 Harvesting in no-harvest areas must be in accord with accepted procedures as approved by the CMC. These procedures include but are not limited to: BCC Updates 5, 6, 7, 8, 9, 10, and 11.
- Strategy 7.2 Harvesting proposals within the Community Areas of Special Concern should be discussed with the Anahim Round Table prior to approval.

#### 6.4 Landscape Level Biodiversity

Biodiversity is the diversity of plants, animals and other living organisms in all their forms and levels of organisation and includes the diversity of genes, species, and ecosystems as well as the evolutionary and functional processes that link them. The CCLUP Biodiversity Conservation Strategy<sup>15</sup> of 1996, including its updates, provides the direction for biodiversity conservation in the CCLUP area. Additional updates are anticipated in the future to address specific issues. The Biodiversity Conservation Strategy is based on the principles of the Biodiversity Guidebook<sup>16</sup>.

##### 6.4.1 Landscape Unit Boundaries

Landscape Units were prepared as part of the Regional Biodiversity Conservation Strategy for the Cariboo Region. These Landscape Units were further refined through the *Regional Landscape Unit Planning Strategy*<sup>17</sup> and through subsequent District initiatives.

**Objective 8 Manage for biodiversity in accord with the landscape unit boundaries and biodiversity emphasis as shown on Map 4.**

<sup>14</sup> Mineral as defined in the *Mineral Tenure Act*, RSBC, 1996, Chapter 292, Part 1(1).

<sup>15</sup> Biodiversity Conservation Strategy for the Cariboo-Chilcotin Land-Use Plan, July 1996 (183 pages).

<sup>16</sup> Forest Practices Code of British Columbia Biodiversity Guidebook. September 1995 (99 pages).

<sup>17</sup> Regional Landscape Unit Planning Strategy. June 30, 1999.

#### 6.4.2 Seral Stage Distribution

The CCLUP (p. 153) requires that landscape level biodiversity be maintained by meeting or exceeding mature+old (M+O) and old forest objectives by NDT-BEC sub-units within landscape units. The seral objectives are derived from the Biodiversity Guidebook as modified by the Biodiversity Conservation Strategy<sup>18</sup>.

Old forest is being managed as spatially delineated OGMA's but the mature portion of the M+O forest target is not spatially fixed over time. M+O stands are subject to attrition from natural disturbance over time so continual recruitment from mid-seral is necessary. Limiting the amount of early seral forest in a landscape is a useful tool in maintaining that mid-seral stand component.

Seral classes are currently defined by age consistent with the Biodiversity Guidebook and the Biodiversity Conservation Strategy. In some landscapes, very little old forest is currently present. As a result, mature forest is deemed to contribute to the old forest target, where that is all that is available. The hierarchy of contributing types is explained in the definition provided for old forest. The old forest requirement is deemed to have been met, consistent with this definition, where OGMA planning has been completed (see following section regarding OGMA's).

There has also been some work done regionally to develop an attribute-based definition for Douglas-fir in the Interior Douglas-fir (IDF) zone. The age-based definition may be replaced by an attribute-based definition of Fir in the IDF at such time as government deems it to be acceptable.

<b>Definition</b>	<p><b>Old Forest:</b> <i>For the purpose of meeting Objective 9, the following stands are deemed to contribute to meeting the old forest target in the order listed:</i></p> <ol style="list-style-type: none"><li><i>1. Old forest as described in Table 4, within permanent and transition old growth management areas, and no harvest areas,</i></li><li><i>2. Mature forest as described in Table 4 within permanent old growth management areas, and no harvest areas,</i></li><li><i>3. Mature forest as described in Table 4 within transition old growth management areas, and</i></li><li><i>4. Stands meeting attribute-based criteria for old forest should those criteria be developed and approved by the ILMB statutory authority for the Cariboo.</i></li></ol>
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<sup>18</sup> Biodiversity Guidebook p.9, 25, 35; Biodiversity Conservation Strategy p.40, Update #2.

**Table 4 Seral Stage Definitions Used for Seral Condition Analysis in the Cariboo-Chilcotin Region<sup>19</sup>**

NDT	Biogeoclimatic Zone	Seral stage		
		Early	Mature	Old
1	MH	<40	>120	>250
2	CWH	<40	>80	>250
2	SBS	<40	>100	>250
1 & 2	ICH	<40	>100	>250
3	ICH	<40	>100	>140
1 & 2	ESSF	<40	>120	>250
3	ESSF	<40	>120	>140
3	MS	<40	>100	>140
3	SBS	<40	>100	>140
3	SBPS	<40	>100	>140
4	BG (pine group)	<40	>100	>140
4	BG (fir group)	<40	>100	>250
4	IDF (pine group)	<40	>100	>140
4	IDF (fir group)	<40	>100	>250
5	ESSFxcp	<40	>120	>140

**Objective 9** Meet or exceed the targets for M+O forest, by biogeoclimatic subunit, as specified in Table 5 including:  
**1. Old growth management areas, and**  
**2. Replacement areas for severely damaged lodgepole pine stands that are salvage logged, as specified in Objective 10.**

**Table 5 Mature + old, Old, Interior Old Forest Representation Targets and Early Seral Forest Guidelines (% Biodiversity Forest Landbase\*)**

<b>Beaver Valley Landscape Unit – Low Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ICHwk2	165	>17	>13	≥3.25	n/a
2-ICHmk3	12,080	>15	>9	≥0.9	n/a
3-SBSdw1	30,383	>11	>11	≥1.1	n/a
3-SBSmh	2,793	>11	>11	≥1.1	n/a
3-SBSdw2	5,752	>11	>11	≥1.1	n/a
3-SBPSmk	3,699	>8	>7	≥0.7	n/a
<b>Black Creek Landscape Unit – Intermediate Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	2,854	>36	>19	≥9.5	<22
1-ESSFwk1	10,184	>36	>19	≥9.5	<22
1-ICHwk2	3,549	>34	>13	≥6.5	<30
2-ICHmk3	2,257	>31	>9	≥2.25	<36
3-SBSdw1	17,812	>23	>11	≥2.75	<54

<sup>19</sup> Biodiversity Conservation Strategy for the Cariboo-Chilcotin Land-Use Plan, July 1996 (183 pages).  
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3-SBSmc1	3,092	>23	>11	≥2.75	<54
3-SBPSmk	4,513	>17	>7	≥1.75	<66
<b>Cariboo Lake Landscape Unit – Low Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	6,007	>19	>19	≥4.75	n/a
1-ESSFwk1	15,192	>19	>19	≥4.75	n/a
1-ICHwk4	3,371	>17	>13	≥3.25	n/a
2-SBSwk1	2,997	>15	>9	≥0.9	n/a
<b>East Arm Landscape Unit – Intermediate Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	6,046	>36	>19	≥9.5	<22
1-ESSFwk1	9,383	>36	>19	≥9.5	<22
1-ICHwk1	93	>34	>13	≥6.5	<30
1-ICHwk2	10,847	>34	>13	≥6.5	<30
<b>Eastside Landscape Unit – Intermediate Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	6,405	>36	>19	≥9.5	<22
1-ESSFwk1	6,204	>36	>19	≥9.5	<22
1-ICHwk2	8,144	>34	>13	≥6.5	<30
<b>Horsefly Landscape Unit – Intermediate Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	3,266	>36	>19	≥9.5	<22
1-ESSFwk1	6,526	>36	>19	≥9.5	<22
1-ICHwk2	28,466	>34	>13	≥6.5	<30
2-ICHmk3	19,251	>31	>9	≥2.25	<36
3-SBSdw1	5004	>23	>11	≥2.75	<54
<b>Likely Landscape Unit – Low Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	865	>19	>19	≥4.75	n/a
1-ESSFwk1	4,323	>19	>19	≥4.75	n/a
1-ICHwk2	17,816	>17	>13	≥3.25	n/a
2-ICHmk3	1,518	>15	>9	≥0.9	n/a
<b>Little River Landscape Unit – Intermediate Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	9,198	>36	>19	≥9.5	<22
1-ESSFwk1	15,314	>36	>19	≥9.5	<22
1-ICHwk4	8,742	>34	>13	≥6.5	<30
<b>Lower Cariboo Landscape Unit – Low Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	5,820	>19	>19	≥4.75	n/a
1-ESSFwk1	10,586	>19	>19	≥4.75	n/a
1-ICHwk2	6,701	>17	>13	≥3.25	n/a
1-ICHwk4	2,633	>17	>13	≥3.25	n/a
2-ICHmk3	1,316	>15	>9	≥0.90	n/a
2-SBSwk1	8,039	>15	>9	≥0.9	n/a
3-SBSmw	4,513	>11	>11	≥1.1	n/a
<b>MacKay Landscape Unit – Low Biodiversity Emphasis</b>					

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Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	6,201	>19	>19	≥4.75	n/a
1-ESSFwk1	11,018	>19	>19	≥4.75	n/a
1-ICHwk2	1,465	>17	>13	≥3.25	n/a
<b>McKinley Landscape Unit – High Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	5076	>54	>28	≥14	<17
1-ESSFwk1	10,841	>54	>28	≥14	<17
1-ICHwk2	4,856	>51	>19	≥9.5	<23
2-ICHmk3	18,177	>46	>13	≥3.25	<27
3-SBSdw1	1714	>34	>16	≥4.0	<40
<b>McKusky Landscape Unit – Low Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	6,203	>19	>19	≥4.75	n/a
1-ESSFwk1	5,784	>19	>19	≥4.75	n/a
1-ICHwk2	8,516	>17	>13	≥3.25	n/a
<b>Mitchell Lake Landscape Unit – Intermediate Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	2,679	>36	>19	≥9.5	<22
1-ESSFwk1	4,628	>36	>19	≥9.5	<22
1-ICHwk2	7,081	>34	>13	≥6.5	<30
1-ICHwk4	118	>34	>13	≥6.5	<30
<b>Moffat Landscape Unit – Low Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	3,953	>19	>19	≥4.75	n/a
1-ESSFwk1	9,963	>19	>19	≥4.75	n/a
3-SBSdw1	1615	>11	>11	≥1.1	n/a
3-SBSdw2	95	>11	>11	≥1.1	n/a
3-SBSmc1	7,483	>11	>11	≥1.1	n/a
3-SBPSmk	31,132	>8	>7	≥0.7	n/a
<b>Niagara Landscape Unit – Intermediate Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	4,291	>36	>19	≥9.5	<22
1-ESSFwk1	5,066	>36	>19	≥9.5	<22
1-ICHwk2	5,660	>34	>13	≥6.5	<30
<b>Penfold Landscape Unit – Intermediate Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	2,477	>36	>19	≥9.5	<22
1-ESSFwk1	2,590	>36	>19	≥9.5	<22
1-ICHwk2	5,730	>34	>13	≥6.5	<30
<b>Polley Landscape Unit – High Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ICHwk2	2,509	>51	>19	≥9.5	<23
2-ICHmk3	24,029	>46	>13	≥3.25	<27
3-SBSdw1	9,690	>34	>16	≥4.0	<40
3-SBSmh	2,515	>34	>16	≥4.0	<40

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3-SBSmw	465	>34	>16	≥4.0	<40
<b>Wasko/Lynx Landscape Unit – Low Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	2,673	>19	>19	≥4.75	n/a
1-ESSFwk1	5,423	>19	>19	≥4.75	n/a
1-ICHwk2	10,724	>17	>13	≥3.25	n/a
<b>Westside Landscape Unit – Intermediate Biodiversity Emphasis</b>					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	7,631	>36	>19	≥9.5	<22
1-ESSFwk1	6,022	>36	>19	≥9.5	<22
1-ICHwk2	5,560	>34	>13	≥6.5	<30

\*The biodiversity land base represents the productive forest land area with the addition of parks and proposed Goal 2 areas.

\*\* Interior old expressed as % of biodiversity land base, calculated as the percentage of the Old Forest specified in the Biodiversity Guidebook, September 1995.

**Objective 10** Consistent with Objective 9 (2), in areas of *catastrophic mountain pine beetle damage*, during the period of salvage harvesting, manage any draw down of the M+O seral target by managing harvest and replacement of damaged stands outside OGMAs as follows:

1. Harvest in stands which meet all of the following criteria:
  - Located in natural disturbance types 2, 3 or 4,
  - Located within a mountain pine beetle salvage zone,
  - If within TFLs, stands have ≥ 50 percent pine by basal area;
  - If outside TFLs, stands have ≥ 70 percent pine by basal area;
  - Areas having high mortality caused by mountain pine beetle.
2. Replace harvested stands with the oldest available, *least risk* stands in the same landscape unit - biogeoclimatic subunit.

**Definition** Catastrophic mountain pine beetle damage: *regionally significant, severe mortality covering multiple landscape units as the result of mountain pine beetle attack of lodgepole pine.*

**Definition** Least risk stands: *refers to the priorities as listed in Table 6.*

**Table 6** Hierarchy of Stand Types Contributing to Recruitment of Mature Forest in LU-BEC Subunits Where Drawdowns Have Occurred

Priority	Stand Types	Age of stand (years) <sup>1</sup>		
		ESSF	CWH	Other BEC zones
1 (mature seral)	>30% non-pine;	>120	>80	>100
2 (mid seral)	>30% non-pine;	101-120	61-80	81-100
3		81-100		
4		61-80		

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5 (young seral)	Any stand type	41-60	41-60	41-60
6		21-40	21-40	21-40
7		0-20	0-20	0-20

<sup>1</sup>Within age classes recruitment stands near the upper age limit of the class are preferred.

Where forest conditions do not meet the minimum requirements for M+O, the required areas of the oldest available forest within that biogeoclimatic variant, or group of variants will be deemed to be recruitment area.

When assessing the condition of seral representation with targets in Table 5, amalgamate non-valley bottom BEC subunits <5000 ha. with adjacent subunits consistent with Table 7 and the procedures outlined in BCC Update #2. Valley-bottom sub-units identified in the Horsefly SRMP area currently include those in Table 8. (Definitions of the fir and pine groups are from the BCC update #3). Amalgamations are not required for the placement of OGMA's.

**Table 7 Amalgamation of Small NDT-BEC Subunits Used for Assessment of Seral Objectives in the HSRMP**

Landscape Unit	Natural Disturbance Type – Biogeoclimatic Variant Amalgamations
Beaver Valley	a) ICHwk2 + ICHmk3 b) SBPSmk + SBSdw2
Black Creek	a) ESSFwk1 + ESSFwc3 b) SBPSmk + SBSmc1
Cariboo Lake	SBSwk1 + ESSFwk1
East Arm	ICHwk1 + ICHwk2
Horsefly	ESSFwk1 + ESSFwc3
Likely	a) ESSFwk1 + ESSFwc3 b) ICHwk2 + ICHmk3
Lower Caribou	a) ICHwk4 + ICHwk2 + ICHmk3 b) SBSmw + SBSwk1
McKinley	SBSdw1 + ICHwk2 + ICHmk3
Mitchell Lake	a) ESSFwk1 + ESSFwc3 b) ICHwk2 + ICHwk4
Niagara	ESSFwk1 + ESSFwc3 (park)
Moffat	SBPSmk + SBSdw1 + SBSdw2
Penfold	ESSFwc3 + ESSFwk1
Polley	a) ICHwk2 + ICHmk3 b) SBSmh + SBSmw
Wasko/Lynx	ESSFwc3 + ESSFwk1

**Table 8 Designated Valley-Bottom Subunits in the HSRMP**

Landscape unit	NDT-BEC subunit	Area (ha)
Black Creek	NDT1-ICH (ICHwk)	3309
Black Creek	NDT2-ICH (ICHmk3)	3319
Cariboo Lake	NDT1-ICH (ICHwk)	3443

McKay	NDT1-ICH (ICHwk)	1549
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### 6.4.3 Old Growth Management Areas

Old forest objectives are achieved in the short and long term through a combination of permanent OGMAs, transition OGMAs, and no-harvest areas. There is an expected contribution to old forest from extended rotation areas such as retention and preservation visual areas managed over an extended rotation. The proportion of the visual area deemed to contribute to old was delineated as OGMAs inside the polygon to ensure management activities maintain the old growth characteristics. No-harvest areas that contribute to meeting the old forest objectives, but are not designated as OGMAs, include protected areas, caribou no-harvest areas, riparian reserve zones, critical fish habitat areas, Class A lake buffers, and a portion of wildlife tree patches. Permanent OGMAs were first designated in already constrained areas, and then placed in areas unconstrained for timber access using stand age, location, and patch size as primary criteria.

In biogeoclimatic subunits where there is insufficient old forest in the no-harvest areas, including the permanent OGMAs, to meet the short-term old forest objectives, transition OGMAs were designated. Transition OGMAs contain the available older forest to immediately meet the objectives. Where old forest is simply unavailable, mature forest was used according to the principles contained in the definition of old forest.

Grouping of biogeoclimatic variants was done according to the principles outlined in Update #2<sup>20</sup>. Where possible, OGMAs were placed in each biogeoclimatic variant to meet the old forest objectives for that variant even if that variant comprised a BEC subunit less than 5000 ha.

**Objective 11** Maintain the permanent old growth management areas as shown on Map 5, subject to the provisions set out in Objective 7 for no-harvest areas.

**Objective 12** Maintain permanent OGMAs by replacing any areas that are removed or harvested with suitable areas of equivalent size in the same landscape unit-biogeoclimatic subunit.

Strategy 12.1 Replacement areas for portions of OGMAs removed or salvage harvested must be approved by the ILMB statutory decision maker.

**Objective 13** Maintain the transition old growth management areas as shown on Map 5, subject to the provisions set out in Objective 7 for no-harvest areas, until recruitment areas in the permanent old growth management areas meet old forest condition, or at the end of the first *rotation*, whichever comes first.

<sup>20</sup> CCLUP Biodiversity Conservation Strategy Update #2.

**Definition** **Rotation (age):** *The base rotation ages are 80 years for pine and deciduous stands and 120 years for all other species. The rotation age represents the number of years required to harvest 100% of the productive forest in a given CCLUP zone (adapted from: CCLUP Integration Report, 1998).*

OGMAs are established to conserve ecological values. Consequently, the permitted activities within an OGMA are very limited, consistent with the activities specified under the no-harvest objective in Section 6.3. Some sanitation treatments to address forest health are permitted where there are compelling needs to mitigate spread of that pest to the rest of the landscape. Old forest target requirements are deemed to be met in OGMAs according to the definition provided for old forest. Seral targets for M+O must still be met for that LU-NDT/BEC subunit according to the occurrence of mature and old forest within and outside the OGMAs.

**Recommendation** Retain mature forest adjacent to old forest patches to increase the contribution of those patches to interior old forest targets, especially where interior forest condition is well below the targets listed in Table 5.

**Table 9 Interior Forest Specifications**

The minimum distance (meters) from the edge of a patch at which Interior Forest conditions occur.

Seral Stage of Forest Patch	Forest Age or Type of Adjacent Patch					
	Mature (> 120 years)	101-120 years	41-100 years	0-40 years	Non-Productive and Non-forested	Lakes and large (“double-line”) rivers and roads
Old	50	50	100	200	100	100
Mature	N/A	50	100	200	100	100

#### 6.4.4 Distribution of Cut and Leave Areas

The CCLUP (p. 153) identifies the need to plan for temporal distribution of cutblocks and a range of cutblock sizes (p. 180). The CCLUP specifies these topics will be addressed in the Biodiversity Conservation Strategy. To address this need, the strategy states that some blocks should be larger than the default 60 ha maximum cutblock size prescribed under the Operational Planning Regulation of the FPC and the Planning and Practices Regulation under FRPA. Furthermore, included in the principles for the establishment of large cutblocks is the retention of leave areas that will result, by the end of a rotation, in the appropriate range of patch sizes in all seral ages.

Temporal distribution of cutblocks is also addressed through seral stage objectives. Early seral objectives are not required to be met under CCLUP, but setting limitations on the amount of early forest in a landscape is important to ensure continuous recruitment of mid-seral forest and mature forest. If early seral forest is not limited at the LU/NDT-BEC subunit level, future deficits in mid-seral and in turn mature forest

classes may be created, thereby compromising the temporal distribution objective and the long term integration assumptions of an equilibrium forest condition.

It is critically important that larger patches of older forest be retained through time in each ecosystem. The CCLUP does not specify the number or size of retention patches. Table 10 provides some guidance with respect to size of retention patches. Small retention patches are expected to be plentiful due to harvest history and natural disturbance and are therefore not included as part of the management focus (see also Section 6.4.5).

<b>Recommendation</b>	Spatially locate M+O forest, excluding OGMA's, to meet biodiversity distribution according to the following needs in order of priority: <ol style="list-style-type: none"> <li>1. Rare plant communities as identified by government,</li> <li>2. M+O forest patches <math>\geq</math> the sizes listed in Table 10, and</li> <li>3. Ecosystem connectivity according to the principles listed in Table 11</li> </ol>
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**Table 10 Mature+Old Retention Patch Size Targets for the Horsefly SRMP**

NDT	BEC	Low Emphasis	Moderate Emphasis	High Emphasis
		M+O% >250 ha. target (% of M+O target)	M+O% >250 ha. target (% of M+O target)	M+O% >250 ha. target (% of M+O target)
1	ESSF	25	50	50
1	ICH	25	50	50
1	MH	25	50	50
2	CWH	10	25	25
2	ESSF	10	25	25
2	ICH	10	25	25
2	SBS	10	25	25
3	ESSF	10	25	25
3	MS	10	25	25
3	SBPS	10	25	25
3	SBS	10	25	25
3	ICH	10	25	25
4	IDF-Fir	25	50	50
4	IDF-PI	10	25	25

**6.4.5 Landscape Connectivity**

The CCLUP (p. 153, 180) also highlights the need to plan for landscape connectivity. "Connectivity" is a qualitative term describing the degree to which late-succession

ecosystems are linked to one another to form an interconnected network<sup>21</sup>. Management to reduce fragmentation and maintain connectivity should be guided by the type and degree of connectivity found in each natural disturbance type.

Some connectivity concerns have been addressed through location of OGMAs, riparian zones and other constrained areas. In addition, careful placement of available mature forest can also contribute to connectivity. Where mature and old forest are unavailable for maintaining connectivity, older immature forest will provide some (but not all) of the connectivity characteristics of mature forest. Management consistent with Table 10 will assure some landscape level connectivity is maintained. Where specific wildlife corridors are identified, they should also be managed for according to their identified management principles.

Table 11 shows the relative frequency with which connectivity characteristics of natural mature/old forest ecosystems occur for all biogeoclimatic sub-zones of each NDT.

**Table 11 Principles for Landscape Connectivity**

NDT	Connectivity Characteristics	Frequency of Occurrence		
1	Upland to upland Upland to stream Upland to wetland Cross-elevational Wetland complex Stream riparian Island remnants	High High High High Low to moderate High Low		
2	Upland to upland Upland to stream Upland to wetland Cross-elevational Wetland complex Stream riparian Island remnants	High Moderate Moderate High Low High Low		
3		SBPS, SBSdk / mk / mc3 / wk1 / dw	MSxv	All other sub-zones
	Upland to upland Upland to stream Upland to wetland Cross-elevational Wetland complex Stream riparian Island remnants	Low Low Low Low High Low High	Mod to high Mod to high Mod to high Low High Low Moderate	Low to mod. Low to mod. High Moderate Moderate High Moderate
4			IDFdk	All other sub-zones
	Upland to upland Upland to stream Upland to wetland Cross-elevational Wetland complex Stream riparian Island remnants		Mod to High Mod to High Mod to High Low High Low Moderate	High High High High Low to Mod High Low

<sup>21</sup> Biodiversity Guidebook, p. 4, 19-20, 26-27, 35-36, 46-48, 52, 53-59, 74.

NDT	Connectivity Characteristics	Frequency of Occurrence
5	All	Contiguous tracts of late seral to climax vegetation, with a few small early seral patches.

## 6.5 Stand Level Biodiversity

### 6.5.1 Rare Ecosystems

The CCLUP identifies the need for protection of rare ecosystems in the SRDZ (p. 180), and the need to maintain ecosystem function (p. 153). An ecosystem is a functional unit consisting of all living organisms in a given area and all the non-living physical and chemical factors of their environment, linked together through energy flow. An ecosystem can vary in size (e.g., a pond, a field, a forest, or the earth's biosphere). A rare ecosystem is defined as an ecosystem (site series or surrogate) that occupies less than two percent of a biogeoclimatic subzone within a Landscape Unit, is not common in an adjacent Landscape Unit, and is rare within the CCLUP area<sup>22</sup>.

Provincially rare ecosystems (provincially red and blue-listed plant communities) also require protection and maintenance. The Conservation Data Centre has identified a number of provincially rare ecosystems and site series, but some may yet be unidentified.

Some rare ecosystems have been already been identified in the Biodiversity Conservation Strategy of 1996 (p. 48) and it is recommended that the regional committee act as the body to consolidate the variety of information pertaining to rare ecosystems and sensitive or uncommon plant communities. There is a need for further work to identify rare ecosystems occurring in the Horsefly SRMP area.

### 6.5.2 Wildlife and Habitat Features

The CCLUP (p. 153) requires the protection and maintenance of *sensitive species and habitats*. Sensitive habitats include a number of types of habitat features that are used by one or more wildlife species. Specific examples of features are bear den sites, raptor nests, mineral licks, and heron rookeries. Some features are used only for a single year, and other features are less often encountered but used by wildlife for many years. These features require special management to protect and maintain their value to wildlife, because they are relatively persistent over a period of at least several years, the species involved may use a feature repeatedly, and they are commonly affected by forest harvesting. Usually these features are small and can be addressed through overlap with other land use constraints or the placement of wildlife tree patches, where the feature is forested or associated with forest. All CCLUP subunit targets (p. 60 to 133) also recommend the management of species at risk and other sensitive habitats. The list of sensitive species and habitats, including management guidelines is provided in "Wildlife Habitat Features, Summary of Management Guidelines, Southern Interior Forest Region" (WLAP), 2004.

<sup>22</sup> Biodiversity Guidebook, p. 76; CCLUP Biodiversity Conservation Strategy p. 47-48.

**Objective 14** Manage industrial and commercial activities to maintain habitat and minimize disturbance to *sensitive species and habitats*.

**Definition** **Sensitive species and habitats:** *Sensitive species and habitats are those species and habitats listed by MOE for the Southern Interior of BC.*

Strategy 14.1 Manage according to the list and guidelines contained in “Wildlife Habitat Features: Summary of Management Guidelines. Southern Interior Region.” prepared by WLAP (2004). Habitat will be maintained within the balance of CCLUP land use constraints.

### 6.5.3 Wildlife Tree Retention

The CCLUP (p. 153) requires stand level biodiversity be addressed through management of stand structure. The primary mechanism of management for stand level biodiversity is through Wildlife Tree Reserves (WTR), which can consist of dispersed single tree retention or Wildlife Tree Patches (WTPs). Some of the important WTR features contributing to wildlife values are:

- standing dead and dying trees,
- coarse woody debris,
- tree species diversity,
- understory vegetation,
- soil organisms,
- refugia for large and small species of plants, animals, bacteria and fungi, and
- representation of rare site series in mature and old seral stage.

Maintenance of stand level biodiversity is a critical component of overall biodiversity management by ensuring retention of some habitat structure associated with each cutblock or cutting permit. Where stands are harvested using partial cut systems, it is important that standing dead trees be maintained through time. The calculation of the long-term and short-term WTR requirements is described in Section 7 with the calculations shown in the Analysis Procedures and Results Document. The short-term WTR requirement is the present objective, which will be revised consistent with the Biodiversity Guidebook, when the relative proportion of the landscape harvested without wildlife tree patches decreases.

Many individual wildlife tree patches can be harvested and replaced over time consistent with the CCLUP Integration direction that 50 percent of the WTR would be available over one rotation. The 50 percent of WTP area contributing to the old seral target are unavailable for harvest. The WTPs unavailable will be identified based partly on overlaps with other values.

**Objective 15** Meet or exceed the minimum wildlife tree retention targets for each harvest area (cutblock or cutting permit), within each biogeoclimatic subzone in each landscape unit as given in Table 12, where harvesting removes >50 percent of the stand

**basal area or where the harvest is the preparatory cut of a shelterwood silvicultural system.**

Strategy 15.1 Design wildlife tree reserves according to the management principles in BCC Update #12.

**Objective 16 Where feasible, retain high-value, wildlife trees up to the limits in Table 12 in partially cut stands having >50 percent basal area remaining after harvest.**

Strategy 16.1 Retain existing wildlife trees (classes 2 through 8 as defined in the Biodiversity Guidebook) over 37.5 cm dbh among target residual species and over 20 cm dbh for deciduous tree species.

**Table 12 Wildlife Tree Retention Targets**

<b>Landscape Unit – Biogeoclimatic Sub-unit</b>	<b>Minimum Wildlife Tree Retention Target (% gross harvest area)</b>
<b>Beaver Valley</b>	
1-ICHwk2	7
2-ICHmk3	8
3-SBSdw1	8
3-SBSmh	7
3-SBSdw2	8
3-SBPSmk	8
<b>Black Creek</b>	
1-ESSFwc3	7
1-ESSFwk1	8
1-ICHwk2	8
2-ICHmk3	9
3-SBSdw1	8
3-SBSmc1	8
3-SBPSmk	9
<b>Cariboo Lake</b>	
1-ESSFwc3	10
1-ESSFwk1	10
1-ICHwk4	11
2-SBSwk1	11
<b>East Arm</b>	
1-ESSFwc3	0
1-ESSFwk1	5
1-ICHwk1	0
1-ICHwk2	7
<b>Eastside</b>	
1-ESSFwc3	6
1-ESSFwk1	6
1-ICHwk2	7
<b>Horsefly</b>	
1-ESSFwc3	7
1-ESSFwk1	7
1-ICHwk2	8
2-ICHmk3	8
3-SBSdw1	8

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<b>Landscape Unit – Biogeoclimatic Sub-unit</b>	<b>Minimum Wildlife Tree Retention Target (% gross harvest area)</b>
<b>Likely</b>	
1-ESSFwc3	3
1-ESSFwk1	9
1-ICHwk2	9
2-ICHmk3	10
<b>Little River</b>	
1-ESSFwc3	1
1-ESSFwk1	6
1-ICHwk4	7
<b>Lower Cariboo</b>	
1-ESSFwc3	4
1-ESSFwk1	10
1-ICHwk2	10
1-ICHwk4	10
2-ICHmk3	11
2-SBSwk1	11
3-SBSmw	10
<b>MacKay</b>	
1-ESSFwc3	9
1-ESSFwk1	9
1-ICHwk2	10
<b>McKinley</b>	
1-ESSFwc3	7
1-ESSFwk1	8
1-ICHwk2	9
2-ICHmk3	9
3-SBSdw1	9
<b>McKusky</b>	
1-ESSFwc3	3
1-ESSFwk1	7
1-ICHwk2	8
<b>Mitchell Lake</b>	
1-ESSFwc3	0
1-ESSFwk1	2
1-ICHwk2	2
1-ICHwk4	10
<b>Moffat</b>	
1-ESSFwc3	7
1-ESSFwk1	7
3-SBSdw1	9
3-SBSdw2	9
3-SBSmc1	8
3-SBPSmk	8
<b>Niagara</b>	
1-ESSFwc3	0
1-ESSFwk1	0
1-ICHwk2	0
<b>Penfold</b>	
1-ESSFwc3	5
1-ESSFwk1	5
1-ICHwk2	6

Landscape Unit – Biogeoclimatic Sub-unit	Minimum Wildlife Tree Retention Target (% gross harvest area)
<b>Polley</b>	
1-ICHwk2	8
2-ICHmk3	9
3-SBSdw1	9
3-SBSmh	9
3-SBSmw	6
<b>Wasko/Lynx</b>	
1-ESSFwc3	5
1-ESSFwk1	6
1-ICHwk2	6
<b>Westside</b>	
1-ESSFwc3	0
1-ESSFwk1	4
1-ICHwk2	7

#### 6.5.4 Species Composition

Maintaining species composition of stands is an important aspect of biodiversity as described in CCLUP (p. 153). Spruce and aspen are specifically identified. Many organisms have life requisites associated with particular plant species. Maintenance of biodiversity requires that tree and other plant species composition be maintained as close to the natural condition as possible, recognizing that some natural variation occurs in plant communities.

**Recommendation** Maintain or regenerate a significant component of the dominant climax tree species appropriate to the site in all harvest units.

#### 6.5.5 Riparian Habitats

Riparian habitats are a cornerstone for meeting many CCLUP values. Riparian habitats include the area dominated by continuous high moisture content, and may include the associated adjacent upland vegetation. They include both surrounding vegetation (including large woody debris) that influences the watercourse (including fish and fish habitat), and vegetation that is influenced by the watercourse. Riparian ecosystems, and the riparian features they are associated with, contain many of the highest value non-timber resources in the natural forest as well as many First Nations cultural and heritage features. The CCLUP cites the *Riparian Management Area Guidebook* (FPC) as direction for managing non-timber riparian resources. Consistent with the Riparian Guidebook, shrub-carrs are included with wetlands.

**Objective 17** Establish riparian reserve zones and riparian management zones consistent with the specifications in Table 13.

**Table 13** Riparian Reserve Zone and Riparian Management Zone Specifications

	Width (m)	Riparian Class	Riparian Reserve Zone Minimum Width* (m)	Riparian Management Zone Minimum Width ** (m)	Riparian Management Area Minimum Width (m)
<b>Streams</b>					
All streams in community watersheds, and all fish streams	> 20	S1	50	20	70
	> 5 ≤ 20	S2	30	20	50
	1.5 ≤ 5	S3	20	20	40
	< 1.5	S4	0	30	30
Streams outside of community watersheds that are not fish streams	> 3	S5	0	30	30
	≤ 3	S6	0	20	20
<b>Wetlands and shrub-carrs</b>					
<b>Size (ha)</b>					
Any location	> 5 ha	W1	10	40	50
	> 1 ≤ 5	W2 BG, IDFxm	10	20	30
	> 1 ≤ 5	W3	0	30	30
	> 0.5 ≤ 1	W4 BG, IDFxm	0	30	30
2 or more individual wetlands and/or shrub-carrs with overlapping riparian management zones	Combined size of wetlands ≥ 5	W5	10	40	50
<b>Lakes</b>					
<b>Size (ha)</b>					
Any location	> 5	L1	10	See Section 6.9 of this Plan	
Any location (applicable only if the lake has not been addressed in Section 6.9 Lakes)	> 1 ≤ 5	L2 BG, IDFxm	10	20	30
	> 1 ≤ 5	L3	0	30	30
	> 0.5 ≤ 1	L4 BG, IDFxm	0	30	30

**\*Reserve Zones:**

- The stream riparian reserve zone extends the specified minimum widths from the edge of the stream channel bank. The wetland or shrub-carr riparian reserve zone extends the specified minimum widths from the edge of the wetland or shrub-carr.
- The lake riparian reserve zone extends the specified minimum widths from the edge of (a) the natural boundary of the lake, or (b) the wetland or shrub-carr that is contiguous to the lake if the wetland or shrub-carr is up to five ha in size.

**\*\*Management Zones:**

- The stream riparian management zone extends from (a) the outer edge of the riparian reserve zone; or (b) if there is no riparian reserve zone, the edge of the stream channel bank. The stream riparian management zone extends to the top of the inner gorge of the stream or to the greater of (a) the specified minimum widths; and (b) the outer edge of any (i) active flood plain or (ii) wetland or shrub-carr that is less than one ha in size and is within the width of the specified riparian management area.

- The wetland or shrub-carr riparian management zone extends from (a) the outer edge of the riparian reserve zone; or (b) if there is no riparian reserve zone, the edge of the wetland or shrub-carr.
- The lakeshore management zone or lake riparian management zone extends the specified minimum widths from (a) the outer edge of the riparian reserve zone; or (b) if there is no riparian reserve zone from the edge of (i) the natural boundary of the lake, or (ii) a wetland or shrub-carr that is contiguous to the lake if the wetland or shrub-carr is up to five ha in size.

**Objective 18 Maintain sufficient forest structure in the riparian management zone of all classified streams, lakes, and wetlands to minimize windthrow in the riparian reserve zone.**

Strategy 18.1 Retain deciduous species and follow principles contained in the Windthrow Management Guidebook. Avoid construction of roads in the riparian reserve zones and riparian management zones of streams and wetlands, except for stream crossings or where there are no other practicable routes.

**Objective 19 Except at road crossing sites, retain windfirm trees and other vegetation in riparian management zones on S4 streams and those S5 and S6 streams that contribute directly to fish bearing waters sufficient to:**  
**1) maintain streambank stability and channel processes, and**  
**2) minimize changes to stream shade and organic input to the stream.**

Strategy 19.1 Follow the “best management practices” as outlined in the Riparian Management Area Guidebook (1995).

**Objective 20 Manage riparian management zones on W3 and W4 wetlands and L3 and L4 lakes to conserve deciduous patches, high value wildlife trees, major wildlife features, and in ecosystems where wetlands and lakes are not common, moist, understorey habitats.**

Strategy 20.1 Follow the “best management practices” as outlined in the Riparian Management Area Guidebook (1995).

### 6.5.6 Coarse Woody Debris

Retention of coarse woody debris is identified in CCLUP (p. 153) as a component of biodiversity conservation. Coarse woody debris fulfils valuable ecological roles by providing habitat for many vertebrates and invertebrates, shade and moisture, carbon storage and additions to the soil of nutrients and organic matter. The quality (length, diameter, decay level, tree species) as well as the quantity of coarse woody debris is important. While retention of coarse woody debris is an important element of managing for biodiversity, CCLUP does not set quantitative objectives by ecosystem. The intent is to retain as much coarse woody debris as possible, consistent with size, types, and distribution present on site at the stand level prior to harvest.

The quantity and quality of coarse woody debris retained on a harvest area can be enhanced by:

- retention of individual stubs or dead or living wildlife trees, especially those over 25 cm diameter of varying tree species,
- retention of wildlife tree patches,
- retention of stub tops or fallen danger trees on site,
- retention of expected cull trees (such as spiral grain) standing on site,
- stump side processing,
- leaving larger debris that is not utilizable out of roadside burn piles,
- focusing pile and burn activities on fines, except where very high coarse woody debris levels exist,
- leaving small patches of natural coarse woody debris accumulations or windthrow undisturbed,
- retaining longer debris that is not utilisable near riparian or understory/stub retention areas,
- keeping longer debris that is not utilisable out of roadside piles,
- retaining small unburned piles and other coarse woody debris adjacent to block boundaries and riparian features, and
- moving longer pieces off skid trails to avoid breakage.

**Objective 21**    **Manage coarse woody debris according to the following principles:**

- 1. Leave as much volume as practicable,**
- 2. Emphasize retention of larger pieces (diameter and length) for that stand, and**
- 3. Leave pieces distributed across the harvested area where possible.**

## 6.6 Wildlife

Although riparian and biodiversity retention provide habitat for a large number of species, management for individual species' needs is also necessary. This represents the fine filter component of the provincial approach to biodiversity. Selected species are also of particular importance to First Nations, guide-outfitters, trappers, hunters, and non-consumptive wildlife users.

### 6.6.1 Mule Deer

The CCLUP (p. 154-155) requires that mule deer winter range (MDWR) be maintained in a condition that will support the regional population during critical winter conditions. The logging method required to maintain mule deer winter habitat is light selective harvesting. Mule deer are regionally important and are to be managed consistent with the CCLUP Management Strategy for Mule Deer Winter Ranges in the Cariboo-Chilcotin. Part 1a: Management Plan for Shallow and Moderate Snowpack Zones (2002) and Part 1b: Management Plan for Transition and Deep Snowpack Zones

(2005). Cariboo Forest Region Extension Note #25A<sup>23</sup> (applicable outside Horsefly in IDFd3, IDd4, and IDFx), and individual management plans for each winter range. There are 13 mule deer winter ranges entirely or partly within the Horsefly SRMP area.

Mule deer occur throughout much of the SRMP area during the summer, but their distribution in winter is limited by snow depth. The winter habitat includes shrub forage used mostly in the early and late winter, but in typical snow depths litter fall from old Douglas-fir is required for food. Forests within winter range need to be managed using silviculture prescriptions that maintain or promote Douglas-fir and maintain and enhance the number of large old trees that provide the best snow interception and litterfall to maintain winter habitat. Use of silviculture systems such as clear-cut systems and selection systems with heavy, frequent stand entries are not appropriate since they do not provide adequate distribution of good snow interception and litterfall habitat.

**Objective 22**    **Manage Crown land within the boundaries shown on Map 6 as mule deer winter range.**

**Objective 23**    **Manage each mule deer winter range to meet the condition and distribution of habitat in accordance with the following:**

- 1. The approved *management plan* (see definition),**
- 2. Long term objectives map applicable to that mule deer winter range, and**
- 3. the Transition Opportunities Plan for MDWR.**

**Definition**    **MDWR Management Plans:** *These include the Management Strategy for Mule Deer Winter Ranges in the Cariboo-Chilcotin. Part 1a: Management Plan for Shallow and Moderate Snowpack Zones; Part 1b: Management Plan for Transition and Deep Snowpack Zones; Part 2: Long-term Habitat Objectives map for individual Winter Ranges; and Part 3: Transition Harvest Opportunities.*

### 6.6.2 Mountain Caribou

The CCLUP (p. 156) states that the overriding objective is to maintain habitat values for mountain caribou within the CCLUP area because of the importance of the eastern caribou to the provincial population of mountain caribou. Mountain caribou occur in the mountainous parts of the eastern CCLUP area and are provincially red-listed and federally listed as threatened. There are less than 2000 mountain caribou in the world, almost all of which live in British Columbia.

Suitable winter habitat is fundamental to the maintenance of the mountain caribou population. Important areas of early winter habitat are located in the Interior Cedar Hemlock biogeoclimatic zone in the vicinity of Quesnel Lake. As snow depths increase, caribou move up into the sub alpine and alpine, where they feed on arboreal lichens. See the Caribou Strategy and its updates for details of the biology of caribou. Mountain

<sup>23</sup> Structural Definitions for Management of Mule Deer Winter Range Habitat in the Interior Douglas-Fir Zone. Cariboo Forest Region Research Section Extension Note #25A. August 2000 (7 pp.).

caribou are being managed through application of the CCLUP *Mountain Caribou Strategy* (October, 2000), and by other direction as accepted by the CMC and RRC.

Disturbance as well as habitat loss can affect the viability of caribou populations. Motorized sports such as snowmobiling are discouraged in key caribou habitats because of the stress and energy burden caused by frightening the animals or forcing them to move away from preferred habitats.

**Objective 24** Manage Crown land within the caribou no-harvest and caribou modified harvest areas as caribou winter range as shown on Map 6.

**Objective 25** Manage caribou no-harvest and caribou modified harvest areas to meet the condition and distribution of habitat in accordance with the CCLUP *Mountain Caribou Strategy* (October 2000).

### 6.6.3 Mountain Goat

Mountain goats are regionally important and are “identified wildlife” under the FPC. The term “species and habitats at risk” was deemed under the CCLUP declaration to be equivalent to the FPC term “identified wildlife”. Critical habitat areas for mountain goat include natal areas, escape terrain, and winter range. Maintaining connectivity of suitable habitat for movement between summer ranges and winter ranges is also important.

Mountain goats are vulnerable to loss of these habitats. They generally avoid snow depths greater than 50 cm, although in deep snow areas they may winter in areas with snow depths of 100 cm or more. High elevation mature and old forests, especially on steep south slopes, have reduced snow depth and are frequently used for winter foraging and thermal cover. In the SRMP area goats also utilize windblown ridge-lines where snow is shallow. Escape terrain such as steep, rocky slopes and cliffs is an essential habitat, including adjacent forest cover.

Mountain goat may suffer mortality associated with disturbance from motor vehicles, especially aircraft. Direct mortality can result from falls that occur while animals are fleeing from the disturbance. Indirect mortality can occur due to avoidance of key habitats and excessive energy depletion during critical winter months. As a result, avoidance by aircraft and snowmobiles of key mountain goat winter range habitats and natal areas is important to population maintenance. Currently, mapping of natal areas is incomplete.

**Objective 26** Manage the Crown land within the boundaries shown on Map 6 as mountain goat winter range.

**Objective 27** Mitigate aircraft disturbance to mountain goats occupying winter range or natal areas as shown on Map 6 by following established avoidance procedures.

- Strategy 27.1 Ensure aircraft operation is consistent with the "Interim Wildlife Guidelines for Commercial Backcountry Recreation in British Columbia" or its successor documents.
- Strategy 27.2 Ensure aircraft operation is consistent with an alternate operational strategy which has the support of the Ministry of Environment, Environmental Stewardship Division, and the responsible authority for tenure issuance.

**Objective 28 Within mountain goat winter range, as shown on Map 6, provide security and thermal cover within 200 meters of escape terrain.**

- Strategy 28.1 Ensure no more than 33 percent of the forested habitat within the 200 meter escape terrain buffer is early seral at any time, and at least 50 percent of the basal area consists of mature and old stems at all times.

**Objective 29 Prevent disease transmission to mountain goats from domestic sheep used for vegetation management.**

- Strategy 29.1 Maintain separation of domestic sheep used for vegetation management and areas used by mountain goats in the summer.

#### **6.6.4 Moose**

Management for moose is identified in the CCLUP (p. 155-156), including the sub-unit targets (p. 61, 83, 85, 113, 115, 121). The plan specifies management to maintain moose winter, calving, and summer habitat and there is emphasis on maintaining forested areas around wetland and riparian areas.

Moose winter and calving habitat should be managed to minimize human disturbance and maximize suitable shrub browse. Some mature forest cover needs to be maintained, for thermal cover, visual cover, and snow interception. At least part of the perimeter of each wetland or shrub-carr should be maintained as advanced immature or mature forest cover, for security and thermal cover. Permanent roads should be built as far as possible from areas of important summer, natal, and winter use, such as riparian areas, wet forest types, and areas of high shrub production. In winter and calving areas, densities of actively used roads should be minimized, to minimize disturbance. Some plant species used for moose forage include maple, red-osier dogwood, saskatoon, mountain ash, rose, willow, and hazelnut.

Enhancement for moose should only occur outside areas that the Caribou Strategy Committee have identified as important for caribou management, because the overriding objective is to maintain habitat values for mountain caribou (CCLUP, p. 156). Specifically, habitat enhancement for moose in Management Unit 5-15 is discouraged because of the risks to mountain caribou from wolves that depend on moose as an alternate prey species.

**Objective 30 In areas identified as key wetlands or key riparian habitat for moose on Map 7 and in W1, W3, and W5 wetlands (including**

**shrub-carrs), retain sufficient vegetation to provide security and thermal cover for wintering moose.**

**Definition** **Vegetative Cover Providing Security and Thermal Cover for Moose:** *For the purpose of meeting Objective 30, ‘vegetative cover providing security and thermal cover for moose’ includes all non-commercial and non-productive vegetation, early and mid-seral forest and mature+old equivalent to the retention targets for each riparian management zone.*

- Strategy 30.1 At least 50 percent of the wetland perimeter for wetlands over five ha should be maintained as advanced immature or mature forest cover.
- Strategy 30.2 Avoid broadcast herbicide treatments within the riparian management area of wetlands.
- Strategy 30.3 Where practicable, locate roads at least 500m away from classified (W1-W5) wetlands. It is recommended, where possible, to also render secondary and temporary roads within 500m of these wetlands impassable to four-wheel drive vehicles.

### 6.6.5 Grizzly Bear

Management for grizzly habitat is referenced in several of the CCLUP sub-unit targets (p. 61,) as well as the general requirement to manage for species at risk (p. 156). Grizzly bear are recognized as a species of special importance in the province of British Columbia. They are blue-listed and are designated as “Vulnerable” by the Committee on the Status of Endangered Wildlife in Canada. They are considered “Identified Wildlife” under the FPC, but have no mandatory management requirements under the *Managing Identified Wildlife Procedures and Measures*. Instead, the grizzly bear is one of three species for which the *Identified Wildlife Management Strategy* provides for wildlife higher level plan objectives to address habitat needs that cannot be completely captured within discrete areas of limited habitat. See the Identified Wildlife Strategy<sup>24</sup> for further information. The maintenance of grizzly bear populations is dependent both upon the continued availability of suitable habitats for foraging, resting, and denning as well as the avoidance of disturbance from human activities.

**Recommendation** Minimize human-grizzly bear conflicts by:

- a) Locating commercial and industrial camps away from areas of known high use grizzly habitat,
- b) Restriction from use of domestic sheep for vegetation management in locations with high grizzly concentration.

**Definition** **High use grizzly habitat:** *Site specific location where grizzly are known to frequent at some period during the year. Locations include but are not limited to salmon and trout spawning shoals and stream reaches, and*

<sup>24</sup> Accounts and Measures for Managing Identified Wildlife. WLAP. 2004.

*herb dominated avalanche tracks and run-out zones on southerly and westerly aspects.*

**Objective 31** Where available, retain *security cover* adjacent to critical grizzly bear foraging habitats, which may include the salmon and trout spawning reaches or shoals identified on Map 8, and herb-dominated avalanche tracks and run-out zones on southerly and westerly aspects, in the areas identified as high and moderate capability grizzly bear habitat on Map 3.

**Definition** **Grizzly Bear Security Cover:** *For the purpose of meeting Objective 31, grizzly bear security cover is deemed to be a combination of vegetative and topographic features sufficient to minimize sight lines to the foraging areas from adjacent roads. Unless designated as a WHA, timber within the security cover area is managed over a normal rotation.*

Strategy 31.1 Follow the management principles for grizzly bear outlined in the Identified Wildlife Management Strategy (2004).

### 6.6.6 Fur-bearers

Within the SRMP area fur-bearers are an important resource for both native and non-native trappers, and are an important element of the ecosystem. Management of coarse woody debris, wildlife trees, riparian areas, fish, other wildlife and biodiversity will address many of the habitat requirements of fur-bearers.

Riparian areas are particularly important habitats for furbearers. Therefore, within riparian management zones and L1 lakeshore management zones, wildlife trees and large diameter trees should be retained.

### 6.7 Species and Habitats at Risk

The CCLUP (p.156), including sub-unit targets (p. 60-133), states that species and habitats at risk should be protected using wildlife habitat areas, sensitive areas, or other appropriate land designations. The need for inventory and preparation of recovery plans is also noted.

First Nation cultural and environmental values also include concern for species and habitats at risk. Species occurring in the Cariboo and red or blue listed in BC or listed as nationally endangered, threatened or of special concern by the Committee on the Status of Endangered Wildlife in Canada are shown in Appendix D. The Identified Wildlife Management Strategy 2004 addresses only those species specified in the WLAP order under FRPA. The species occurring in the Cariboo, listed under the order, are as follows:

- Great Basin Spadefoot Toad
- Great Basin Gopher Snake
- Flammulated Owl
- Lewis's Woodpecker

- Short-eared Owl
- Yellow-breasted Chat
- Long-billed Curlew
- Wolverine (subspecies)
- Badger
- Fringed Myotis
- Spotted Bat
- Mountain Caribou
- Grizzly Bear

<b>Objective 32</b>	<b>Minimize disturbance and maintain habitat necessary to sustain species at risk as listed in the Identified Wildlife Management Strategy (2004) and its updates.</b>
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Strategy 32.1 In the absence of General Wildlife Measures specified under FRPA, follow procedures outlined in the Identified Wildlife Management Strategy (2004) for protection of habitat and amelioration of disturbance.

## 6.8 Aquatic Resources

Under CCLUP, management of aquatic biodiversity and fish habitat is largely addressed through conservation of riparian areas in combination with other specific initiatives discussed in this section. Application of the FPC is recognized as a major tool in addressing water quality concerns (p. 164).

Within the SRMP area, the Quesnel and Horsefly River drainages are particularly important. The Horsefly River drains into Quesnel Lake. Together, they provide critical habitat for a unique strain of large rainbow trout that contributes to one of the largest recreational fisheries in the region. In addition, the Horsefly River has one of the highest returns of sockeye salmon in the province. Sensitive populations of Kokanee are present in the lake and are critical to the existence of the large rainbow trout, and other important fish species such as lake char and bull trout.

The Horsefly River sockeye provide significant values to First Nations as well as economic and biological values to the province. First Nations have significant concern and interests with both freshwater fish and salmon within the planning area.

### 6.8.1 Watershed Hydrology

Direction contained under the CCLUP sub unit targets (p. 83, 85, 113) indicates the Cariboo, Cottonwood, and Horsefly River watersheds are to be managed for hydrologic stability through watershed assessment, restoration, and monitoring. More generally, the CCLUP (p. 160) recommends that watershed assessments be done when disturbance levels exceed 25 per cent, and that they be done in key watersheds to ensure the maintenance of critical fish and wildlife habitat and hydrological stability. The CCLUP (p. 179) assigns particular importance to development within the SRDZ being consistent with watershed assessment prescriptions. The CCLUP (p. 180) requires completion of watershed assessments for all watersheds, commencing with high-priority fisheries watersheds in the SRDZ. Watershed assessments are normally

conducted on watersheds of 500 ha to 50,000 ha<sup>25</sup>, however many of the important watersheds tributary to Quesnel Lake that are less than 500 ha may also require assessments to ensure that their salmon and trout habitat values are maintained. A fisheries target risk assessment<sup>26</sup> completed in 1996 indicated that the CCLUP fisheries targets were achievable while maintaining watershed hydrology. The CCLUP (p. 164) specifies that key or sensitive watersheds should be selected for intensive research/monitoring to assess hydrologic and water quality impacts of logging.

### 6.8.2 Fish

The HSRMP area has a diversity of fish populations inhabiting the rivers and lakes. Several fish species require specific management objectives, with other species being managed indirectly through the management of the highlighted species. The fish species of particular concern within the HSRMP are sockeye, chinook and coho salmon, kokanee, bull trout, lake trout, and rainbow trout.

Specific watersheds have been identified where fish stocks require special attention. Critical fish habitat has been mapped to help meet this CCLUP objective (see Map 8). The critical fish habitat designation applies to riparian areas that require additional habitat protection as compared with the standard requirements of the FPC or FRPA. Agencies contributing to the identification of critical fish habitat include the Department of Fisheries and Oceans and MOE. Salmon, bull trout, rainbow trout and kokanee were the species considered.

Critical fish habitat is designated as follows:

- Defined lake shore areas on Quesnel and Horsefly Lakes where sockeye salmon and kokanee spawn. Protection of these spawning areas by retention of additional lakeshore riparian areas will prevent disturbance to high quality surface and ground water sources necessary for successful spawning.
- Specific watercourses adjacent to main channels within floodplains. These include backchannels, oxbows, wetlands, and ground water sources connected to the main watercourse. These areas provide exceptional habitat for juvenile salmonids. Many of these aquatic areas are not included in the designated riparian reserve/management zones for the respective riparian/stream class. In these areas the reserve zone has been extended to the first elevation contour of the floodplain and upslope interface for selected S1, S2, and S3 streams.
- Selected streams with bull trout, rainbow trout and salmon populations that require increased riparian protection to maintain channel morphology and natural temperature regimes critical for spawning and rearing. This may include tributary S5 and S6 streams that require riparian buffers to maintain

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<sup>25</sup> Interior Watershed Assessment Procedure Guidebook (IWAP) Second Edition, Version 2.1, April 1999: page 2.

<sup>26</sup> Fisheries Target Risk Assessment Prepared for the CCLUP Integration Process, August 15, 1996 (2 cover letters +19 pages + 1 map).

natural water quality and temperatures for the receiving, fish bearing streams.

**Objective 33** Maintain or enhance fish passage, natural channel width, streambed substrate and water quality at all new road crossings of fish streams.

Strategy 33.1 Follow the principles outlined in the stream crossing guidebook in combination with timing and measures outlined by MOE for the local area.

**Recommendation** Where suitable fish habitat occurs upstream of culverts that currently create barriers to fish passage, replace those culverts with appropriate structures that permit fish passage.

**Objective 34** Prevent the cumulative hydrological effects of forestry activities from resulting in a significant adverse impact on fish habitat.

Strategy 34.1 In major sub-basins of key watersheds (Horsefly R., Cottonwood/Swift R., Bonaparte R., Cariboo R., Bridge Ck.) where timber harvesting exceeds 25%, perform watershed assessments using accepted procedures and manage roads with erosion control plans.

**Objective 35** Manage the areas shown as critical fish habitat on Map 8 as No-harvest Areas.

### 6.8.2.1 Salmon

The CCLUP specifies that the Cariboo River, Horsefly River, Quesnel River (which includes Quesnel Lake), Beaver Creek, Hazeltine Creek, and Edney Creek watersheds be managed for salmon stocks through riparian area protection and controls on the rate of harvest (p. 61, 83, 85, 115, 121). The salmon species present are pink, chinook, coho, and sockeye. The CCLUP (p. 168-169) includes a list of specific objectives for salmon management.

### 6.8.2.2 Bull Trout

Bull trout are not currently listed as identified wildlife (2004) but they are a provincially blue-listed species because their regional population is particularly sensitive due to their restricted distribution, susceptibility to habitat degradation, disruption of migration patterns and over fishing. Bull trout are considered to be an indicator of ecosystem health and are extremely sensitive to reduced water quality, increased water temperatures, loss of riparian habitat, and loss of stream channel integrity. The current known distribution of bull trout has been determined through stream inventories, but inventory has not been completed throughout the entire SRMP area. Critical fish habitat has currently been identified for bull trout in Sellers Creek and "Tucket" Creek (Map 8). Additional critical fish habitat for bull trout is likely to exist within the plan area.

### 6.8.3 Water Resources

The CCLUP (p. 164) states that a comprehensive water management strategy is needed for the Cariboo Region, to address the impacts on water resources from agriculture, residential development, roads, industrial activity, and forest harvesting. A water management strategy should provide direction on how to balance various uses of the water resource.

The water management strategy (p. 159) should include allocations of water for conservation purposes and the Lemon Creek watershed and the Beaver Valley ERDZ should be managed to address fisheries flow issues and agricultural needs for competing water uses (p. 85, 115). The CCLUP (p. 113) also recommends the initiation of water allocation planning in the Cottonwood ERDZ to address stream flow requirements in late summer and placer mining. No reduction in timber access would result from the water management strategy.

### 6.9 Lakes

The CCLUP subunit targets (p. 61, 85, 115, 121) requires management of specified *approximate* numbers of lakes as quality lakes for wilderness fisheries, referenced herein as 'wilderness fisheries lakes'. These lakes are identified in Table 14, with further details in Appendix F. The need for management of scenic landscapes adjacent to fishing lakes is also described (p. 141) and CCLUP sub-unit targets (p. 60, 84, 114, 120, 144) require management of backcountry and scenic areas adjacent to key lakes and tourism facilities. Completion of Lake Management Plans for important lakes is also identified under the CCLUP (p. 160).

**Table 14 Wilderness Fisheries Lakes**

<b>CCLUP Resource Management Zone Sub Unit</b>	<b>Approximate Number of Lakes Specified by CCLUP</b>	<b>Lakes Identified in HSRMP (details provided in Appendix F)</b>	<b>Lakes Identified in Other Plan Areas</b>
Boss/Deception Special Resource Development Zone*	7	2 designated, Banana # 2 Lake (12674); Unnamed Lake (12677)	2 (100 Mile)
Beaver Valley Enhanced Resource Development Zone*	2	4 designated, Annette Lake (12530); Edney Lake (12554); Cossack Lake (Crow Lake) (12694); Freshette Lake (12527)	3 (Williams Lake)
Canim Enhanced Resource Development Zone*	10	5 designated, Eureka Lake (12616); McKee Lake (12663); three Unnamed lakes (12701, 12710, 12706)	8 (100 Mile House)
Cottonwood Enhanced Resource Development Zone	0	none	None
Quesnel Highlands	0	none	None

CCLUP Resource Management Zone Sub Unit	Approximate Number of Lakes Specified by CCLUP	Lakes Identified in HSRMP (details provided in Appendix F)	Lakes Identified in Other Plan Areas
Special Resource Development Zone			
Quesnel Lake Special Resource Development Zone*	5	7 designated, Buckingham Lake (12519); Little Tisdale Lake (12660); Patenaude Lake (Marten Lake) (12636); Suey Lake (Sam Suey Lake) (12542); Wasko Lake (Lower) (12518); Wasko Lake (Upper) or (Obstacle Lake) (12516); Wasko Lake (Little) or (Round Lake) (12523)	1 (Quesnel)

\*This CCLUP subunit is not entirely within the HSRMP; additional identified lakes are located outside the HSRMP area.

Lakes important for tourism, recreation and fish and wildlife purposes have been designated into one of the five management categories based on predominant management goals. Where required, a recommended visual quality objective associated with the lake’s viewshed (section 6.10.4) and the recommendations applicable to the backcountry unit (section 6.10.2) are included.

The five categories of lakes are as follows:

1. **Refugium Lake:** These lakes are ecologically unique or important for ecosystem representation and contain rare or endangered species or habitats, have unique ecological or physiographic associations (e.g. karst formations) or maintain ecosystem integrity and representation. Opportunities for access and development are variable and must be consistent with ecosystem protection. Critical ecosystem attributes must remain unmodified. Fishing regulations must be consistent with the refugium management intent, recognizing site-specific ecological factors and/or the lake’s associated rare or endangered species habitat requirements.

Lake management objectives applying to a refugium lake are summarized as follows:

- General Objective – Maintain or enhance the lake, the riparian reserve zone, and the lakeshore management zone for the sensitive fish, wildlife or habitat value identified in Appendix F.
- Riparian Reserve Zone Objective – 10 meter width, manage as a no new development area (forestry, alienation as private land, recreation, etc.).
- Lakeshore Management Zone Objective – width as specified for each lake in Appendix F.
- Access Objective – variable, as specified for each lake in Appendix F.

2. Wilderness Fisheries Lake: These lakes provide natural features in undisturbed areas generally having non-motorized access. Users must hike, canoe, kayak, or fly in. The setting is primitive with pristine surroundings and unmodified natural environment. There is limited or no commercial land development. Special fishing regulations and restricted guided fisheries use is recommended.

Lake management objectives applying to a wilderness fisheries lake are summarized as follows:

- General Objective – Maintain or enhance the lake, the riparian reserve zone, the lakeshore management zone, and the surrounding area to provide a quality wilderness fishing experience.
- Riparian Reserve Zone Objective – 10 meter width, manage as a no new development area (forestry, alienation as private land, recreation, etc.).
- Lakeshore Management Zone Objective – width as specified for each lake in Appendix F, manage LMZ as a no new development area (forestry, alienation as private land, recreation, etc.).
- Access Objective – hike or fly-in only, no new motorized access within 2 km unless there is no other practicable option to access other resource values or as specified for each lake in Appendix F.

3. Quality Lake – These lakes provide quality natural features. Access may be limited. There are pristine surroundings and natural appearing environment. Commercial land development is limited or non-existent.

Lake management objectives applying to a quality lake are as follows:

- General Objective – Maintain or enhance the lake, the riparian reserve zone, the lakeshore management zone, and the surrounding area to provide a quality fishing experience.
- Riparian Reserve Zone Objective – 10 meter width, manage as a no new development area (forestry, alienation as private land, recreation, etc.).
- Lakeshore Management Zone Objective – width and objectives as specified for each lake in Appendix F.
- Access Objective – as specified for each lake in Appendix F.

4. General Lake – These lakes provide public recreation in a predominantly rural or natural setting. Access is generally good (2 wheel drive). Land development is variable and the natural environment may be substantially modified.

Lake management objectives applying to a general lake are as follows:

- General Objective – Maintain or enhance the lake, the riparian reserve zone, the lakeshore management zone, and the surrounding area for the specific lake value(s) identified in Appendix F.
- Riparian Reserve Zone Objective – 10 meter width, no harvest.
- Lakeshore Management Zone Objective – width and objectives as specified for each lake in Appendix F.
- Access Objective – as specified for each lake in Appendix F.

5. **Key Lake** – These lakes have visual objectives and other values important to the tourism industry and related recreation opportunities. They can also be classified as one of the above mentioned Refugium, Wilderness Fisheries, Quality, or General lakes.
  - General Objective – Maintain or enhance the visual quality in the viewshed surrounding these lakes.

The former Ministry of Forests Horsefly District completed some aspects related to lake management planning. This, in combination with information supplied by MOE fisheries staff, was considered when developing the objectives and strategies for lakes in this SRMP. Changes to the management objectives of some lakes may occur as the result of any future lake management planning processes.

**Objective 36 Maintain lake and lakeshore values by managing forest development activities in accordance with the management direction listed in Appendix F, Table 17.**

Strategy 36.1 Within lakeshore management zones, follow the strategies listed in Appendix F, Table 18.

## 6.10 Tourism and Recreation

According to CCLUP (p. 46) tourism and recreation will have full access to the SRDZ. A Tourism Sector Strategy (p. 139-144) also provides direction on access, visual quality, forestry, and other existing uses when integrating them with tourism. The CCLUP sub-unit targets (p. 60, 82, 84, 112, 112, and 120) also provide specific direction for tourism management.

### 6.10.1 Recreation Corridors and Trails

Scenic landscapes are recognized by CCLUP (p. 141) as a key component of tourism. The plan highlights the need to protect and enhance visual landscapes associated with tourism facilities and access corridors leading to key tourism areas or facilities and to protected areas. In the SRMP visually important areas have been mapped with emphasis applied to the visual quality around established resorts and destination areas.

The CCLUP (p. 144) also states that plans for river and trail corridors should apply across SRMP boundaries, to maintain consistency of management approach throughout the length of the linear feature. The CCLUP *Recreation Corridor Management Strategy*<sup>27</sup> was developed in 1996, and provides the basis for sustainable resource management planning. The locations of important trails came from public input (refer to Map 9), and have been incorporated into the plan.

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<sup>27</sup> Recreation Corridor Management Strategy: Cariboo Chilcotin Land Use Plan, October 1, 1996 (54 pages).

**Objective 37** Except at sites where roads cross trails, maintain 50 meter management zones on either side of the buffered trails identified on Map 9 with the treed area inside the zones at a combined basal area retention of at least 85 percent.

Strategy 37.1 Divide the total trail management zone buffer on both sides of the trail in a way that best protects the visual and recreational values of the trail.

**6.10.2 Backcountry**

Targets were established for the amount of area to be managed in backcountry condition in each sub-unit (CCLUP p. 61, 82, 84, 112, 114, 120). These areas are a mix of special features (river corridors, key lakes, significant trails, etc) and specific Recreation Opportunity Spectrum classes (semi-primitive motorized, semi-primitive non-motorized and primitive) to provide opportunities for a variety of public and commercial outdoor recreation activities that are dependent on a natural environment. The guide-outfitting industry is especially dependent on backcountry areas. The CCLUP (p. 140) specifies that tranquil settings, with forest operations conducted outside the peak tourism season, are necessary to respect recreation tourism in backcountry areas.

The backcountry units identified by this SRMP for each sub-unit are shown on Map 9. The backcountry areas are focused on relatively undisturbed viewsapes, forests, watercourses, lakes, and recreation features. In all backcountry units, the over-riding management consideration is maintenance of the non-timber resource value within the backcountry unit. Some harvesting will occur over time in these areas<sup>28</sup>, and therefore backcountry characteristics will change over time.

Use of alternative silviculture systems may be necessary to achieve the visual and recreational objectives of backcountry areas. Industrial activities (road construction, harvesting, slash burning, etc.) may need to occur during the off peak periods for backcountry use. Where temporary roads are constructed, access constraints should be implemented for any period the road is not in use to discourage development of access use patterns that conflict with the long-term implementation of this plan. To avoid direct impact on trails, strategies should be used such as falling away from trails, minimizing or avoiding road crossings, skidding away from trails, and seeding disturbed areas.

**Objective 38** Maintain or enhance existing backcountry areas identified on Map 9.

**Table 15 Values for Backcountry Units**

This table identifies specific recreation features and some activities that are dependent upon those features for a quality experience.

Back-country Unit	Backcountry Values

<sup>28</sup> Government Clarification of Key Components of the CCLUP (5 pages), September 27, 1996.

Horsefly Sustainable Resource Management Plan

<b>Back-country Unit</b>	<b>Backcountry Values</b>
DHO - 1	Snowmobile trails, 4x4 trails, mountain bike trails, heritage trails, and dispersed backcountry skiing.
DHO - 2	Quesnel River and the Cariboo River for kayaking, canoeing, rafting, fishing; Cariboo Lake for fishing, hiking and other lakeshore activities; the cultural and heritage values of sites at Quesnel Forks, French Snowshoe Creek Cemetery, and Murderer Creek; heritage trails; the motorized touring route to Barkerville; 4 x 4 trails; and snowmobile trails.
DHO - 3	Alpine ski touring and hiking; alpine lakes; Maeford Lake; Browntop Forest Service Trail; Cameron Ridge Trail (Browntop Mountain); and Mount Brew.
DHO - 4	Alpine hiking and skiing, and non-motorized use trails.
DHO - 5	Wilderness setting and visual quality surrounding the Beaver Creek lake chain (Joan Lk., Chambers Lk. and Opheim Lk.) and the tourism loop road.
DHO - 6	Hiking and cross-country skiing trails, other non-motorized use; Visual quality around Trio, Jacobie, and Gavin Lakes.
DHO - 7	Wilderness setting for fishing and visual quality around Spanish Lake, Benny Lake, Freshette Lake, Annette Lake, and Spanish Mountain.
DHO - 8	Visual quality around Quesnel Lake and adjacent fishing and wilderness lakes; hiking trails; informal campsites for motorized and non-motorized boating; and motorized touring of Ditch Road.
DHO - 9	Kayaking on Grain Creek and wildlife viewing.
DHO - 10	Access to recreational lakes and provincial parks.
DHO - 11	Fishing lakes and streams; non-motorized use trails; snowmobiling trails / terrain; Viewland Trail; wildlife viewing; and guide / outfitter trails.
DHO - 12	Visual Quality along Horsefly River (maintain as a Heritage River) and tributaries; maintain the wildlife viewing and recreational opportunities.
DHO - 13	Lake and lakeshore for fishing and boating; motorized and non-motorized use trails; Suey Bay – Slate Bay Trail; and Archie Creek Falls.
DHO - 14	Guide / outfitter trails; Class A lakes; wildlife viewing; Horsefly Mountain; and non-motorized use trails.
DHO - 15	Wildlife viewing and hunting; hiking, canoeing, kayaking, and other recreation associated with the Horsefly River and Horsefly Falls.
DHO - 16	High elevation trails; backcountry skiing terrain and trails; guide / outfitter camps / trails; high elevation lakes; and Teapot Mountain (aka Mount Elsey).
DHO - 17	Visual quality and heritage value of Moffat Falls and the Chinese Oven.

<b>Back-country Unit</b>	<b>Backcountry Values</b>
DHO - 18	Wilderness setting and visual quality around Cossack and McIntosh Lakes and trail; wildlife viewing; fishing, camping and other lakeshore activities.
DHO - 19	Non-motorized use trails and semi-primitive dispersed use.
DHO - 20	Wilderness setting of fishing and quality wilderness lakes; camping and non-motorized use trails.
DHO - 21	Non-motorized use trails; guide / outfitter operations; and wilderness setting and visual quality around fishing lakes.
DHO - 22	Wilderness setting and visual quality around Moffat Lake chain (quality wilderness lakes); wildlife viewing.
DHO - 23	Winter snowmobile trail and non-motorized dispersed winter use of alpine.
DHO - 24	Wilderness setting and visual quality around Crooked Lake; wilderness lakes; trails and guide / outfitter camps; wildlife viewing; waterfall and trail associated with a tributary of McKlusky Creek; a wetland complex; and non-motorized horse trails.

### 6.10.3 High Elevation Visuals

High elevation viewpoints in the SRMP are all located above tree line and encompass a panoramic viewing area. Management of high elevation visuals from the viewpoints are an essential component of meeting the recreation objectives. The high elevation viewpoints reflect current use and may be supplemented over time with increased tourism and recreation use, particularly in backcountry areas. Additions to this list will not impact on access to timber, because management for high elevation visuals is simply focused on using design principles to minimize visual impact. Cutblocks should blend into the surrounding landscape rather than showing as geometric patterns with hard, straight edges.

Management for high elevation visuals occurs within a 16 kilometre radius from each viewpoint. Where a more distant disturbance would be visibly dominant, these objectives and strategies should also be applied. Development design considerations from low elevation viewpoints should take precedence over those from high elevation viewpoints, where they overlap. Where a viewshed from a high elevation viewpoint overlaps with an area managed for mountain caribou, management for mountain caribou takes precedence.

<b>Objective 39</b>	<p><b>Manage high elevation viewsapes by designing harvest openings to reflect existing natural openings, vegetation patterns, and natural features when viewed from the following high elevation viewpoints as identified on Map 10:</b></p> <ul style="list-style-type: none"> <li>• <b>Mount Timothy (outside HSRMP but viewshed is partly inside)</b></li> <li>• <b>Snowshoe Plateau (Yanks Peak)</b></li> </ul>
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- **Teapot**
- **Boss Mountain**
- **Mount Elsey**
- **Eureka Peak**
- **Browntop Mountain**
- **Mount Stevenson**
- **Three Ladies**
- **Roaring Peaks – Ogden**

#### 6.10.4 Scenic Areas

The management of scenery around lakes and rivers is very important, and forest operations should avoid or minimize impacts on scenic quality (including air visibility quality) in or near important tourism areas. Tranquil settings, scenic quality, and air visibility (smoke) quality, setting diversity and access controls are important factors for meeting tourism objectives. The CCLUP Tourism and Recreation sub-unit targets (p. 60, 82, 84, 112, 114, 120) include direction for visual resource management. Forested and non-forested Crown land including grasslands, alpine areas, and wetlands are included in visual resource management.

Areas of high visual importance are managed as *scenic areas*, which can have *visual quality objectives* legally established. Visual quality areas and objectives may be refined through future planning processes; however the overall effect on timber access will not increase over time. New public and commercial activities and development that are dependent on a managed viewshed should be directed to take advantage of sites that have viewsheds that are part of the visual quality areas defined through this process (CCLUP, p. 140). The viewsheds identified in this plan (Map 10) are generally where people spend periods of time in one place, or where commercial success is dependent on maintained viewshed quality. The viewsheds from existing tourism facilities and key tourism use areas are included in the visual quality areas, as are areas of high public recreation use.

The definitions used for visual quality objectives in this SRMP are:

- **Preservation:** requires that management activities or alterations not be visible. The goal is to conceal all activities, when the forest is seen from the established viewpoint.
- **Retention:** requires that management activities or alterations not be visually apparent. The goal is to repeat the line, form, colour, and texture of the characteristic landscape. Less than 1.5 percent of the forested area can be in a non-visually effective greenup condition from the perspective view of the viewpoints.
- **Partial Retention:** requires that alterations remain visually subordinate to the characteristic landscape. Repetition of the line, form, colour, and texture is important to ensure a blending with the dominant elements. 1.5 percent -7 percent of the forested area can be in a non-visually effective greenup condition from the perspective view of the viewpoints.
- **Modification:** allows alterations to dominate the original characteristic landscape. However, alterations must borrow from natural line and form to such

an extent and on such a scale that they are comparable to natural occurrence. 7.1 percent -18 percent of the forested area can be in a non-visually effective greenup condition from the perspective view of the viewpoints.

<p><b>Objective 40</b>    <b>Manage the areas shown on Map 10 as scenic areas as viewed from the designated viewpoints.</b></p>
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Strategy 40.1    Maintain the visual quality of the areas shown on Map 10 from the designated viewpoints, consistent with Table 19 in Appendix G.

Strategy 40.2    Design disturbances (roads, cutblocks, landings) to mimic naturally occurring line, form, and texture of the viewshed, and design opening size to reflect the existing scale of natural openings, vegetation patterns, and natural features.

Refer to Appendix G for additional information on viewpoints, viewlines, and viewsheds.

### 6.11 Mineral and Aggregate Resources

The CCLUP (p. 9-10, 135-138, 181), including the zonal and sub-unit targets (p. 60-134), specifies that mineral exploration and development are appropriate land uses throughout the SRMP, excluding parks and other protected areas, subject to applicable legislation (e.g. *Mines Act*, the *Mineral Tenure Act*, *Mining Right of Way Act*, *Mining Rights Amendment Act*, *Mineral Exploration Code*, and *Land Act etc*). For the purposes of this plan, the word “mineral” includes those resources defined as such under the *Mineral Tenure Act*, 1996, Part 1.

Mineral resource development presents unique challenges. The resources are mostly hidden, not quantifiable (except at enormous cost) and fixed in place. They must be mined where found. Finding new mines requires knowledge, time, patience and considerable investment. Large areas of land and many targets need to be evaluated through repeated exploration campaigns. It can take years or decades, before a commercially viable mineral deposit is delineated. In order to sustain the exploration and development process, the mining sector needs security of tenure, security of access for exploration and development, and certainty with respect to other land uses.

This plan conforms with the Province’s two-zone approach to mineral resource management (see Map 11). Consistent with Section 14 of the *Mineral Tenure Act*, the objectives and strategies in this plan are not intended to unduly delay, restrict, or prohibit responsible mining exploration or development activities.

The CCLUP (p. 181) specifies a number of measures that may be implemented to minimize the adverse impacts of mineral and energy development in sensitive areas within the SRDZ.

<p><b>Recommendation</b>    Government should review all no-staking reserves, and amend or rescind those that are obsolete.</p>
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## 6.12 Energy Resources

Energy resources were not addressed by the CCLUP, and hence are not discussed in this SRMP. Exploration and development activities for oil and gas will be reconciled with the CCLUP and SRMPs as required. They include both renewable (hydroelectricity, wind, solar, geothermal and biomass) and non-renewable resources (petroleum, natural gas, coal-bed methane), together with the infrastructure (pipelines, processing and production facilities, transmission lines) to deliver the energy resources to the end-user.

Exploration and development of energy resources require access to lands where these activities are allowed by law. Access to pipeline and electricity transmission corridors for maintenance and upgrading is also required. Future energy resource developments may require connection to the existing infrastructure.

## 6.13 Range

The Cariboo Region accounts for approximately 20 percent of British Columbia's beef cattle population. The beef industry is the backbone of the agriculture industry, with over 50 percent of the regional agricultural enterprises being beef operations. The Region's extensive rangeland provides a seasonal supply of forage for beef production.

The CCLUP sub-unit targets (p. 62, 82, 84, 112, 114, 120) require that the current authorized level of grazing, defined in Animal Unit Months, be maintained by subzone and by Range Unit (see Table 16). The CCLUP (p. 159) identifies the need for improved cattle management, particularly with respect to riparian and alpine habitats; and both haying and grazing of wetlands are to be managed to maintain environmental values. The Biodiversity Guidebook and Riparian Guidebook are to be used as sources of guidance for protecting environmental and conservation values. The CCLUP (p. 181) requires that proposals for grazing in currently (1994) unused areas be accompanied by a plan that recognizes and addresses other values and uses. The CCLUP (p. 159) direction for all fences to be wildlife safe through the use of top rails has been amended to read "all range (and Highways) fences should be wildlife safe including top rails, where there is a recognized need to address wildlife safety concerns, and appropriate wire spacing."<sup>29</sup>

**Objective 41**    **Where there is a significant, site-specific hazard to wildlife at fence crossing locations, as determined by the BC Ministry of Environment, ensure range and highways fences at those locations meet regional wildlife safety standards.**

Strategy 41.1    Regional wildlife safety standards state that wildlife-safe fencing should be no higher than 42 inches with 18 inches below the bottom wire and have either a wooden top rail or visibility marker.

**Table 16**    **CCLUP and HSRMP Target Animal Unit Months in 1994 by CCLUP Resource Development Zone**

<sup>29</sup> Amendment to the Cariboo Chilcotin Land Use Plan, May 31, 1996 (1 page).

<b>CCLUP Sub-unit</b>	<b>CCLUP Target (Entire Zones) (Animal Unit Months)</b>
Quesnel ERDZ	15,432
Cottonwood ERDZ	84
Quesnel Highlands SRDZ	112
Beaver Valley ERDZ	40,076
Quesnel Lake SRDZ	4,883
Canim ERDZ	3,055
Boss / Deception SRDZ	150
<b>Total</b>	<b>63,792</b>

### 6.14 Agriculture

While the CCLUP does not establish numerical or percentage access targets for agriculture, it does state (p. 14) that agricultural strategies are to focus on the continued opportunity for expansion onto suitable agricultural lands. The CCLUP (p. 172) specifies that all lands within the plan area can be considered for the expansion of existing agricultural holdings, and includes a CCLUP objective of providing for the future growth and development of the agriculture, food, and fisheries industries. Industry access and use of Crown resources for land, grazing, hay cutting, and water should be maintained or enhanced. The CCLUP (p. 164) specifies that as part of a water management strategy, water availability for current and future users be considered with respect to new agricultural developments. All other resource values should be fully considered when land alienation is proposed for agricultural and other purposes. The needs of industry to enhance their access to Crown land and water in support of agricultural economic opportunities is recognized.

The Crown Agricultural Land Reserve (ALR) in the Cariboo Region represents an area of secure land base for future agricultural production. The CCLUP (p. 172) supports the purpose and intent of the ALR and the development of high capability agricultural land when required for expansion of holding under the existing agricultural lease policy.

Existing agricultural activity occurs primarily on private land, with the exception of hay cutting and grazing, and hence is mostly outside the scope of this plan. A provincial Agriculture Resources Access Strategy is under development.

**Recommendation** Maintain or enhance soil productivity where agriculture occurs on Crown land.

**Recommendation** Manage agricultural activities to prevent declines in water quality in streams, lakes, and wetlands adjacent to agricultural areas on Crown land by following the Code of Agricultural Practice for Waste Management and the *Farm Practices Protection (Right to Farm) Act*.

<b>Objective 42</b> <b>Manage livestock to prevent damage to riparian vegetation, bank stability, fish habitat, and water quality in streams, lakes, and wetlands.</b>
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### **6.15 Land Allocation**

Government recognizes that communities require access to Crown land (including forest lands) and water resources for community infrastructure, settlement, and economic development and diversification purposes. New business opportunities and a diversified economy also demand greater access to Crown Land and water resources. Commitments have been made to create economic growth in a sustainable, manner that reflects sound economic and environmental principles. The intent is to transform British Columbia into a leading provincial economy, attract high levels of private sector investment, increase a private sector economy that creates employment opportunities, and give First Nations, local communities, and governments greater influence over the uses of undeveloped Crown land. To encourage economic development and meet the challenges of today, the conditions, stipulations, and statutory responsibilities need to be attractive for entrepreneurs to invest in the Cariboo Region.

Where compatible with other CCLUP values, resource management objectives of the HSRMP will not preclude the use of Crown ALR lands for intensive agricultural use unless found to be infeasible in light of provincial level resource management strategies and socio-economic analysis.

With respect to land alienation, the CCLUP (p. 154) requires review where the disposal of Crown land might negatively impact biodiversity conservation values. Furthermore, the plan (p. 159) speaks to restrictions on land alienation in wetland areas, and improved water allocation and management where it affects wetlands.

### **6.16 Wildcraft (Botanical Forest Products)**

The CCLUP (p. 146) requires the maintenance and enhancement of the present (1995) level of use of the wildcraft (botanical forest product) resource, which includes resources such as mushrooms, berries, floral and/or decorative materials, and medicinal plants. It also indicates that key pine mushroom sites be maintained in a condition that promotes mushroom growth, but there are no such sites known in the SRMP area at this time. Wildcraft resources should be mapped as they become known.

The CCLUP (p. 146), through sub-unit targets (p. 62, 82, 84, 112, 114, 120), requires the maintenance of specified levels of roaded access for the purpose of wildcraft harvesting.

### **6.17 Trapping**

The CCLUP (p. 177 and Appendix 1) acknowledges that trapping will proceed in all zones, including the SRDZs. The CCLUP (p. 153) also specifies that all renewable resources will be managed for sustainable use, and that management for appropriate

uses of fish and wildlife will be undertaken. The entire SRMP area has trapping tenures. The maintenance of a viable trapping industry is linked to the maintenance of mature and old forest, and is primarily addressed in this SRMP through the objectives and strategies for landscape level biodiversity, stand level biodiversity, riparian habitats, coarse woody debris, and specific wildlife species (especially fur-bearers).

### 6.18 Access

The CCLUP (p. 159) identifies the need for an access management strategy, with a further requirement to address specific issues. A Regional Access Management Strategy<sup>30</sup> was completed in 1996 to provide direction for sub-regional access planning. According to CCLUP (p. 159-160), access management is necessary to minimize conflicts between industrial, commercial, and recreational user groups, while minimizing the negative impacts of access on fish, wildlife and the environment. The maintenance or restriction of access is required to address CCLUP resource targets for wildcraft, mining, recreation, timber, fish, and wildlife.

The general public identified a variety of access concerns pertaining both to expansion and reduction within the HSRMP. Some specific issues regarding reduced access include: i) preventing increased road access in backcountry, wildlife habitat, fisheries, and sensitive alpine areas; ii) prevention of continued public access by deactivation or rehabilitation of existing or traditional access structures; iii) restriction of new permanent access structures; iv) location of access structures related to views and viewpoints; and v) restriction of access beyond an access management point or as a result of road deactivation activities. Access restrictions can occur through various levels of deactivation, as well as physical and regulatory methods.

“Access” means the ability to enter Crown land; the mode of travel may be motorized, which may include commercial vehicles, four or two-wheel drive vehicles, all terrain vehicles, snowmobiles, aircraft and motorbikes, or may be non-motorized such as travel by foot, horse or mountain bike. The “roaded access” targets of the CCLUP subunits (p. 60, 82, 84, 110, 112, 114, 120) are not intended as precise direction on exactly how much of the unit is to be maintained as roads or to have restrictions on permanent road access. The Regional Access Management Strategy specifies that these targets are designed to give general guidance and the relative importance of access restrictions in each sub-unit, rather than being fixed numbers. A portion of each access target will change its geographic location with time, as new roads are built and other roads are removed. A portion of the landbase will remain permanently without roads. The existing roaded access is shown on Map 12.

Another aspect of access planning pertains to snowmobiles. The *Snowmobile Access Working Group Report*<sup>31</sup> was presented to the IAMC by the Snowmobile Access and Caribou Committees in 1999. The *Mountain Caribou – Snowmobile Options Report* was then produced after consultation with snowmobile clubs and with consideration of

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<sup>30</sup> Cariboo Chilcotin Land Use Plan Regional Access Management Strategy, August 9, 1996 (28 pages).

<sup>31</sup> Snowmobile Access Working Group Report, May 18, 1999 (15 pages).

the *Mountain Caribou Strategy*<sup>32</sup>. Further discussions are ongoing outside the SRMP process.

The timber, biodiversity, wildlife, mining, energy, and tourism sections of this plan must be referred to for full SRMP direction related to access. See Table 18 in Appendix F for access management strategies in the lakeshore management zone of lakes over five ha.

**Recommendation** To facilitate enforcement of wildlife regulations, new, permanent roads, passable by 4 wheel drive vehicles, must not create circuits over five kilometres long with separate entry points to an existing road.

**Objective 43** **Locate new roads away from refugia and wilderness fisheries lakes, sufficient to maintain lake management direction (Appendix F) unless no other practicable route exists.**

Strategy 43.1 Locate new, permanent roads >2000m from wilderness fisheries lakes, or consistent with alternative locations agreed to by MOE, Environmental Stewardship Division.

**Recommendation** Where new, permanent roads are proposed within 1 km of an existing park, consultation with MOE Parks should occur.

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<sup>32</sup> Mountain Caribou Strategy, October 2000 (77 pages + 12 maps).

## 7 Analysis Methods and Results

Spatial requirements for managing non-timber resources were mapped on separate layers during the sustainable resource management planning process. The layers were then overlaid in a Geographic Information System (GIS) to create a database which was then analysed. The analysis was designed to assess the scenario for consistency with the CCLUP numeric targets for timber and biodiversity, as well as to quantify scenario specifications for other CCLUP targets and strategies. A series of SRMP scenarios were developed and analysed in an iterative process during 1998 – 2005, during which the map layers and analysis of non-timber resources were modified to better achieve all CCLUP management objectives. The analysis assumptions for non-timber resources are provided in Table 20 in Appendix H.

ArcInfo GIS version 8.1 was used to perform GIS operations with map layers stored in “Coverage” format. ArcInfo was used to generate a digital overlay from the map layers (coverages) and the results of this overlay were exported into Microsoft Access 2000 for database analysis.

### 7.1 Timber and Non-Timber Objectives Analysis

The CCLUP contains timber access targets for the SRDZ, IRMZ, and ERDZ that were refined through the CCLUP Integration Report<sup>33</sup> and later became higher level plan objectives<sup>34</sup>. In addition the IAMC has endorsed the prorated portions of the corresponding no-harvest targets, expressed at both the CCLUP sub-unit and SRMP levels<sup>35</sup>. The HSRMP’s prorated portion of the no-harvest target is 27 per cent.

Timber harvesting access is defined<sup>36</sup> as the portion of the “productive forest landbase” (PFLB) that is accessible for timber harvesting within or beyond what are considered normal timber harvesting rotation ages. The timber harvesting rotation age is defined as 80 years for pine or deciduous tree dominated stands, and 120 years for stands dominated by all other conifer species. All productive forest was classified into one of these two forest stand types.

A separate “overlap analysis table” was compiled to analyse the timber and non-timber values in each CCLUP sub-unit within the SRMP area, and another was compiled for the SRMP area as a whole. Using *equivalent excluded area* (EEA) as a common measure (See Appendix H for EEA definition), the no-harvest and modified harvest constraints were arranged in a ranked order from the most constraining to the least constraining to timber access, and adjusted so that no area was counted twice. The percentage of the PFLB required for each constraint was then summed for the entire sub-unit, and compared to the IAMC-endorsed no-harvest targets. Detailed overlap

<sup>33</sup> Cariboo-Chilcotin Land Use Plan Integration Report, April 6, 1998 (59 pages).

<sup>34</sup> Order Varying the *Cariboo-Chilcotin Land-Use Plan* 90-Day Implementation Process Final Report, February 1995 Resource Management Zone Objectives Pursuant to Section 3(2) of the Forest Practices Code of British Columbia Act, June 22, 1999 (2 pages).

<sup>35</sup> Letter from the Cariboo Mid-Coast Inter-Agency Management Committee, dated July 18, 2000, that endorses revised no-harvest targets for Sub-Regional Planning processes (3 pages).

<sup>36</sup> Cariboo-Chilcotin Land Use Plan Integration Report, April 6, 1998 (pages 11 - 12).

analysis, analysis assumptions, mule deer adjustments, S4/S6 stream calculations, and relevant background information are included in contained in a separate document, Analysis Procedures and Results.

## 7.2 Biodiversity Objectives Analysis

### 7.2.1 Old Growth Management Areas

The biodiversity targets are based on the minimum old seral forest requirements by biogeoclimatic subzone variant portion of draft Landscape Units (see Table 4). Central to the OGMAs planning process is the concept of overlapping old seral requirements where possible with areas that are already constrained by non-timber resource values. This reduces impacts to timber access by minimizing the mapped OGMAs in the “conventional landbase”. The contributions made by the non-timber constraints toward the old seral targets, both over the long term and based on current seral condition of the landscape, are included in the Analysis Procedures and Results Document.

Permanent OGMAs contribute to the long-term targets. Where they do not currently contain old forest, a transition OGMA requirement was calculated. In calculating the amount of transition (temporary) OGMA requirements, the Inventory Adjustment Factor (IAF) was *not* applied. This approach is consistent with the CCLUP Biodiversity Committee’s *Update Note #1 – Key Assumptions and Recommendations For the Use of the Inventory Adjustment Factor in the Cariboo Forest Region*. Furthermore, where required, mature forest within OGMAs was deemed to fully contribute to meeting the old forest target.

### 7.2.2 Wildlife Tree Retention

Wildlife Tree Retention (WTR) analysis was conducted based on the Biodiversity Guidebook Table 20(a) (see the Analysis Procedures and Results Document). In this analysis, WTR percent targets were calculated for both the long term and current condition of the landscape. In the long-term analysis, the proportion of the landscape unit harvested without wildlife tree retention becomes zero, but in the short-term some proportion of each landscape unit has been harvested without FPC wildlife tree retention.

In addition to WTR percentage targets by Landscape Unit/Biogeoclimatic Ecosystem Classification (LU/BEC) subunit, total resulting WTR ha were estimated by LU/BEC for both the long term and the current rotation. This calculation involved applying the WTR percentage targets to the portion of the forest harvesting landbase that generates a WTR requirement. WTR requirements are defined as follows:

- all areas with no constraints, plus
- constrained land areas included in the productive forest landbase. These areas include:
  - stream, wetland, and shrub-carr riparian reserve zones
  - trail management zones
  - S1, S2, S3, S4, S5 and S6 stream riparian management zones
  - wetland and shrub-carr riparian management zones

- o riparian reserve and management zones for lakes < 5 ha and > 5 ha

For the long term, the resulting total area was halved to account for overlaps between wildlife tree patches and other constraints. For the current rotation, factors were applied to the total WTR ha to estimate a reasonable amount of WTR that can contribute to Transition OGMA requirements, subject to tracking and ecological suitability criteria.

The resulting wildlife tree retention requirements were also calculated by CCLUP sub-unit, using the same steps, and transferred to the EEA overlap tables.

### **7.3 Analysis Results**

#### **7.3.1 Timber/Non-Timber Targets**

Results of the analysis show that the HSRMP is consistent with CCLUP long term timber targets in a regional context. The results of the Timber/Non-Timber Targets analysis are summarized in, the Analysis Procedures and Results Document including:

- EEA analysis results,
- calculation adjustments for Mule Deer Winter Range,
- wildlife tree retention analysis and results, and
- transition OGMA harvest availability schedule.

#### **7.3.2 Biodiversity**

The results of the OGMA analysis are available in a 22 inch x 22 inch plot file (see the Analysis Procedures and Results Document) and summarize the achievement of the:

- permanent old growth management area targets
- transition (temporary) old growth management area targets; and
- interior old forest condition objectives.

## 8 Implementation and Monitoring

### 8.1 Implementation

The HSRMP will be implemented by:

1. Provision of the plan, once approved by CMC, in consultation with the RRC, to designated decision makers as best management for CCLUP implementation.
2. Establishment of the *Objectives*, where appropriate, as legal requirements to be met by proponents of future development activities.
3. Establishment of the proposed *Goal 2 Protected Areas*, subject to approval by the CMC, the RRC, and Cabinet. This would be followed by the removal of all restrictions on access to the remaining proposed Goal 2 protected areas.
4. Interpretation and application of the plan to operational plans by industry and government.

### 8.2 Monitoring

A regional monitoring framework is presently under discussion by the CMC. Ultimately the SRMP will need to be monitored, for both compliance with higher level plan objectives and for the achievability and effectiveness of those objectives.

It is recommended that the HSRMP be reviewed in detail every five years from the date of the plan approval to ensure all relevant current information is being used for land use planning decisions. The HSRMP can also be revisited at any time before that with the approval of the CMC and the RRC.

### 8.3 Future Inventory

Inventory information is incomplete for many of the resource values that are required to be managed for under the CCLUP. To best manage the resources and to aid in the achievement of the SRMP objectives, the following inventories are recommended to be completed or updated:

1. rare ecosystems and species,
2. additional critical habitat for bull trout,
3. classify all existing road and trail access,
4. wildlife migration corridors and natal areas for mountain goat,
5. fish presence and fish habitat including complete stream classification,
6. First Nations' trails.

This is not meant to be a complete list or to be seen as a commitment for completion of any or all of these inventories by a specific agency or group.

### 8.4 Future Planning

The following additional planning processes are under consideration subject to available resources:

1. Lake management plans.
2. Completion of access management planning for backcountry units.
3. A water management strategy for the Cariboo Region (CCLUP p. 164), and/or sub-regional water allocation and management plans to address water quality and quantity (CCLUP p. 206).
4. Completion of the Regional snowmobile strategy.
5. Completion of the process to inform the allocation of Crown land for settlement, agricultural, and industrial use (CCLUP p. 205).

### **8.5 Mechanisms for Land Use Changes**

The SRMP analysis reflects a balance of all interests under CCLUP based on available information. Priorities and distribution of land uses can change over time. Such changes can happen as a result of new information or administrative changes. When change occurs, consistency with CCLUP objectives, targets and strategies must still be maintained. ILMB will review all land use changes to ensure this balance is achieved through time.

Several mechanisms are available to accommodate land use changes within the overall targets of CCLUP. The land value may be overlapped with a WTP when the area is small and protection of the value requires retention or extended rotation harvesting. No additional EEA would accrue because of the existing modeling assumption that a portion of WTPs are retained for meeting the old forest seral target. This mechanism can apply to new wildlife features and smaller wildlife habitat areas.

Larger areas or areas unsuited to overlap with WTP require a shift of land allocation among values such that overall EEA is maintained. Some flexibility to reallocate land uses is already available as a result of adjustments to MDWR boundaries and loss of some OGMAs to mountain pine beetle. Should a major new land requirement become known, simple transfer of EEA can be used to address the new value where its maintenance is deemed to be greater than an existing one.

Reallocation of land uses can affect short term values as well. This will be considered through normal consultative mechanisms associated with each process.

## 9 Glossary of Selected Terms

Unless otherwise specified, the meanings of words used in the Horsefly SRMP are consistent with the definitions provided in the glossary contained in the *Guide to Writing Resource Objectives and Strategies*. B.C. Ministry of Forests. (December 1998).

**Catastrophic mountain pine beetle damage:** regionally significant, severe mortality covering multiple landscape units as the result of mountain pine beetle attack of lodgepole pine.

**Grizzly Bear Security Cover:** For the purpose of meeting Objective 31, grizzly bear security cover is deemed to be a combination of vegetative and topographic features sufficient to minimize sight lines to the foraging areas from adjacent roads. Unless designated as a WHA, timber within the security cover area is managed over a normal rotation.

**High Use Grizzly Habitat:** Site specific locations where grizzly are known to frequent at some period during the year. Locations include but are not limited to salmon and trout spawning shoals and stream reaches, and herb dominated avalanche tracks and run-out zones on southerly and westerly aspects.

**Least risk stands:** refers to the priorities as listed in Table 6.

**Maintain (where applied to ecological values):** To prevent decline from current condition, excluding naturally caused perturbations such as wildfire, insect infestations and extreme weather events.

**Maintain Visual Quality:** Maintain the vegetative cover of the identified area from specified viewpoints consistent with the Visual Quality Objectives (VQO) listed.

**MDWR Management Plans:** These include the Management Strategy for Mule Deer Winter Ranges in the Cariboo-Chilcotin. Part 1a: Management Plan for Shallow and Moderate Snowpack Zones; Part 1b: Management Plan for Transition and Deep Snowpack Zones; Part 2: Long-term Habitat Objectives map for individual Winter Ranges; and Part 3: Transition Harvest Opportunities.

**No-harvest area:** No-harvest areas are parcels of land, other than parks and protected areas, designated to conserve special ecological and cultural values. Protection of those values is paramount and encompasses the maintenance of natural processes such as endemic levels of natural disturbance. Therefore, with the exception of mining, industrial development, including timber harvesting is permitted only under special circumstances as described in Objective 7. No-harvest areas include:

1. Old Growth Management Areas,
2. Caribou No-harvest Areas,
3. Riparian Reserves,
4. Critical Fisheries Habitat,
5. Lake Management Zone, Class A lakes, and
6. "Community Areas of Special Concern" within the Anahim Round Table Interest Area.

**Old Forest:** To meet Objective 9, the following stands are deemed to contribute to meeting the old forest target in the order listed:

1. Old forest as described in Table 4,
2. Mature forest as described in Table 4 within permanent old growth management areas, and no harvest areas,
3. Mature forest as described in Table 4 within transition old growth management areas,
4. Stands meeting attribute-based criteria for old forest once those criteria are developed and approved by the ILMB statutory authority for Cariboo.

**Rotation (Age):** The base rotation ages are 80 years for pine and deciduous stands and 120 years for all other species. The rotation age represents the number of years required to harvest 100% of the productive forest in a given zone (adapted from: CCLUP Integration Report, 1998).

**Sensitive species and habitats:** Sensitive species and habitats are those species and habitats listed by MOE for the Southern Interior of BC.

**Vegetative Cover Providing Security and Thermal Cover for Moose:** For the purpose of meeting Objective 30, 'vegetative cover providing security and thermal cover for moose' includes all non-commercial and non-productive vegetation, early and mid-seral forest and mature+old equivalent to the retention targets for each riparian management zone.

## 10 Appendices

### Appendix A: Maps

The following maps are provided for this plan:

- Map 1. CCLUP Timber Harvesting Access Levels
- Map 2. Resource Development Zones and Protected Areas
- Map 3. Grizzly Habitat Capability
- Map 4. Landscape Units
- Map 5. Old Growth Management Areas
- Map 6. Ungulate Management Areas
- Map 7. Key Wetlands for Moose
- Map 8. Critical Fish Habitat and Stream Classification
- Map 9. Backcountry
- Map 10. Visual Resource Management Areas and Recommended VQOs
- Map 11. Mineral Access and Tenures
- Map 12. Existing Access

**Appendix B: First Nations List**

**First Nations**

The following First Nations as well as the Northern Secwepemc te Qelmucw, Carrier-Chilcotin, and Shuswap Nation Tribal Councils were invited to meetings and to provide input to the Horsefly Sustainable Resource Management Plan:

- Williams Lake Band
- Soda Creek Band
- Canim Lake Band
- Lhtako First Nation
- Esketemc First Nation
- North Thompson Band
- Lheidli T'enneh First Nation

## **Appendix C: First Nations Interests**

### **Northern Secwepemc te Qelmucw**

Government has collaborated with the Northern Secwepemc te Qelmucw (NStQ) communities in a project that facilitated NStQ's involvement in sustainable resource management planning. This work is being completed through a Treaty Related Measure. NStQ values identified from their Land Use Plan were overlaid with other values in the HSRMP. Where values overlapped, efforts were made to integrate and consider NStQ's interests. Where they did not, ILMB made adjustments to the plan, where possible. Where this was not possible, NStQ will seek other venues to have their interests addressed. NStQ's participation does not mean there is agreement with all aspects of the plan, specific areas of concern to the NStQ are: the amount of logging, mining, agriculture and development and their effects on NStQ cultural heritage areas and red & blue listed species. The NStQ are in the final stages of completing their comprehensive Land Use Plan. Through this process, NStQ interest in cultural tourism led to a three year Economic Measures Fund project related to tourism opportunities and economic development for NStQ.

The following was provided by the NStQ for inclusion in the HSRMP. It is included in its entirety and does not necessarily represent the position of the Provincial Government.

*“Northern Secwepemc te Qelmucw (NStQ) historical & contemporary use of the Horsefly Sustainable Resource Management Planning area.*

*The Northern Secwepemc te Qelmucw (NStQ) have been living in the Cariboo Region since time immemorial; according to archaeologists, NStQ specific culture has been recognizable on the landscape for at least 4,000 years, as evidenced by pithouse villages and other cultural markers. There is further evidence that our ancestors were here for at least 6,000 years before that. Our language connects us to the land through place names (sk<sup>w</sup>estúlec<sup>w</sup>) that describe our long-standing relationship with the land and its resources. For example, we have a term referring to the NStQ's territory “Secwepemcul'ecw” which means the land, animals, and people are one.*

*The NStQ has used and continues to use the Beaver Valley area for hunting, fishing, camping, plant gathering, berry picking, food gathering, trapping, and for spiritual uses. Semi-permanent villages were located around Quesnel Lake, McKinley Lake and Horsefly Lake. The NStQ has used and continues to use many of the areas within the Horsefly planning area such as Beaver Valley, Quesnel Lake, Moffat Lakes, Horsefly Lake, as well as throughout the planning area as evidenced archaeologically, through oral history, through archival information, and through continued NStQ use.*

*Our name for Quesnel Lake is Ti'weltk (means “to the mountains”) and the mountainous region around Quesnel Lake is called Skwelkweit (means “the snow mountains”). Ti'weltk (Quesnel Lake-the area between the north & east arm) is designated as a Wilderness Area in the NStQ Land Use Plan. The Ti'weltk Wilderness Area is considered sacred by the NStQ, special protocol are to be followed before entering the area. The Wilderness Area also has important fish and wildlife habitat. The NStQ are concerned that the habitat needs of the red and blue listed species (Mountain Caribou, Grizzly Bears, Fishers, Northern Long-Eared Myotis) dependent on*

*undisturbed Old Growth forests is not being adequately met. There are also red and blue listed species dependent on undisturbed, mature forests: Great Blue Heron and Wolverines. Because of the sacredness of the Ti'wetk Wilderness Area to the NStQ and the concerns regarding endangered and threatened species, the NStQ does not want to see logging, snowmobiling, or heliskiing (some red and blue listed species are negatively affected by these activities) within the area.*

*The Quesnel Lake area has always been used for NStQ's traditional activities:*

- *camping and recreational uses*
- *hunting and trapping*
- *gathering medicinal plants*
- *picking berries and food plant gathering*
- *fishing salmon and trout*
- *spiritual uses*

*The Quesnel Lake area has always been used in the past and will continue to be used by the NStQ for all of the above listed activities as evidenced archaeologically, through oral history, through archival information and through continued NStQ use. Continued NStQ use is not just limited to traditional use it also includes modern use. Modern use includes the Community Forest Licence held by Soda Creek/Deep creek First Nations within the Horsefly planning area. There is work started on NStQ joint ventures related to tourism within the Horsefly planning area. The NStQ also use the Horsefly planning area for recreational activities such as hiking and camping. NStQ have participated in fish restoration projects, AIA's, a moose habitat research project, and traditional use studies within the planning area. NStQ ethnobotany work has been completed in the Horsefly planning area in cooperation with Ministry representatives and the Canadian Forest Service.*

*NStQ followed a permanent seasonal round of resource procurement with recognized family and shared resource areas that were regularly returned to and managed over thousands of years. For warmth, during the winter people lived in semi-subterranean "pit homes" (sc7istktn) and subsisted mainly on stored salmon (sqlélten) and root (stek'lép) foods. This was a time for ceremonial activities. (In some cases First Nation people lived in the villages year-round). A number of Interior Plateau village sites were occupied for over 7,000 years. During the spring (sqepts), people moved out onto the Territory gathering plants, including the cambium layer of pine trees for vitamins. During the summer, salmon fishing and berry picking were the main sources of food (stsíllen). This was also a time for inter and intra-tribal gatherings and trade. Most hunting was done in the fall. The extensive network of trails, place names (sk<sup>w</sup>estúlec<sup>w</sup>), archaeological and traditional use evidence demonstrates that people utilized huge areas of territory, including much of the Horsefly Sustainable Resource Management Planning area. This seasonal round and pattern of use and resource management continues to be followed today, with many community members providing much of their families' food from the land (tmic<sup>w</sup>) and enjoying social, ceremonial, and recreational activities within Secwepemcul'ecw.*

The NStQ's understanding of the interconnectedness of the land, people, and resources has guided and continues to guide our management decisions. Each decision must consider the cultural ecosystem as a whole and the potential impacts over the next seven generations. The NStQ continue to assert rights and title within Secwepemcul'ecw that includes the whole of the Horsefly Sustainable Resource Management Plan area.

The types of heritage resources requiring protection are predicted (at this point) to include fishing sites, occupation sites, cache pits, burial sites, archaeological sites, spiritual sites, hunting cabins and trap lines, sweat lodges, camp sites, trails, locally rare or infrequent medicinal plants, including secwsqéqxe7ten (*Ledum groenlandicum*), commonly known as Swamp Tea or Indian Tea, Culturally Modified Trees (CMTs) and cache pits or other cultural depressions (including pit homes). Other plants identified in the area (to date) as being culturally important are listed in table 2

**Table 2 Some Traditional Use Plants Used in the HSRMP Area**

<i>Secwepemc (Shuswap) Name*</i>	<i>Scientific Name</i>	<i>Common Name</i>	<i>Uses</i>
<i>secwsqéqxe7ten</i>	<i>Ledum groenlandicum</i>	<i>Labrador Tea</i>	<i>Medicinal, Ceremonial, Food</i>
<i>k'etse7éllp</i>	<i>Oplopanax horridus</i>	<i>Devil's Club</i>	<i>Medicinal</i>
<i>qwillin</i>	<i>Betula papyrifera</i>	<i>Paper Birch</i>	<i>Technological, Ceremonial, Medicinal</i>
<i>estqw</i>	<i>Thuja plicata</i>	<i>Cedar roots</i>	<i>Technological, Medicinal, Spiritual</i>
<i>melénellp</i>	<i>Abies lasiocarpa</i>	<i>Balsam Fir</i>	<i>Technological, Medicinal, Food, Ceremonial</i>
<i>t'sellp</i>	<i>Picea engelmannii x glauca</i> <i>Picea engelmannii</i> <i>Picea glauca</i>	<i>Hybrid White Spruce</i> <i>Engelmann Spruce</i> <i>White Spruce</i>	<i>Technological, Medicinal</i>
<i>ts'e7éllp</i>	<i>Sorbus sitchensis</i>	<i>Sitka Mountain Ash</i>	<i>Technological</i>
<i>qé7p'cw</i>	<i>Corylus cornuta</i>	<i>Beaked Hazelnut</i>	<i>Food, Medicinal, Technological</i>
<i>qw'lséllp</i>	<i>Salix scouleriana</i>	<i>Scouler's Willow</i>	<i>Technological, Ritual</i>
<i>pek'lén</i>	<i>Prunus pensylvanica</i>	<i>Pin Cherry</i>	<i>Food, Technological</i>
<i>tkwlose7éllp</i>	<i>Prunus virginiana</i>	<i>Choke Cherry</i>	<i>Medicinal, Food, Technological</i>
<i>s7éytsqwem</i>	<i>Rubus idaeus</i>	<i>Red Raspberry</i>	<i>Food, Medicinal</i>
<i>sesepéllp</i>	<i>Vaccinium caepitosum</i>	<i>Dwarf Blueberry</i>	<i>Food</i>
<i>set'éqe7</i>	<i>Vaccinium ovalifolium</i>	<i>Oval leaf blueberry</i>	<i>Food, Medicinal</i>
<i>wenexéllp</i>	<i>Vaccinium membranaceum</i>	<i>Black Huckleberry</i>	<i>Food, Ceremonial</i>
<i>tcwelcwe7llp</i>	<i>Ribes lacustre</i>	<i>Swamp Gooseberry</i>	<i>Food, Medicinal, Technological</i>
<i>sxuseméllp</i>	<i>Shepherdia canadensis</i>	<i>Soopalallie</i>	<i>Food, Medicinal</i>
<i>skwenkwinem</i>	<i>Claytonia lanceolata</i>	<i>Indian potato</i>	<i>Food</i>

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<i>Secwepemc (Shuswap) Name*</i>	<i>Scientific Name</i>	<i>Common Name</i>	<i>Uses</i>
<i>textsin</i>	<i>Lilium columbianum</i>	<i>Tiger Lily</i>	<i>Food</i>
<i>qweqwile</i>	<i>Lomatium dissectum</i>	<i>Chocolate Tips</i>	<i>Food</i>
<i>t'nesellp</i>	<i>Viburnum edule</i>	<i>Highbush Cranberry</i>	<i>Food</i>
<i>qunllp</i>	<i>Nuphar polysepalum</i>	<i>Water Lily</i>	<i>Medicinal</i>
<i>kwtellp</i>	<i>Scirpus lacustris</i>	<i>Bulrush</i>	<i>Technological</i>
<i>cwecw7ú7cw</i>	<i>Mentha arvensis</i>	<i>Field Mint</i>	<i>Medicinal</i>

*\*Some plants have slight differences in Secwepemc spelling due to differences in dialects.*

*Swamp tea has been noted to be less and less available in the NStQ Territory; it is considered to be a threatened species by the Secwepemc. There is a general concern about continued access to all traditional use plants in the area due to the extensive logging that has occurred in the last few decades.”*

### **Additional First Nations Cultural Heritage Interest and Areas**

Note: This list may be incomplete.

#### 1. Hunting:

- Traditional hunting
- Community hunting area
- Chief's hunting area
- Major hunting area
- Fall hunting
- Drying racks
- Hunting blinds/jumps

#### **Big game**

Moose	Elk	Mountain goat
Black bear	Mule Deer	Bighorn Sheep
Caribou	White Tail Deer	Cougar
Grizzly bear	Wolf	Lynx
Bobcat	Fox	Coyote

#### **Small game**

Beaver	Muskrat	Groundhog
Rabbit	Geese	Crane
Hare	Ptarmigan	Bird eggs
Shot beaver	Porcupine	Marmot
Ducks	Swan	Grouse
Weasel	Other bird	Red squirrel
Wolverine	Fisher	Marten
Mink	Eagles	Badger
Partridge	Otter	Raccoon
Skunk		

2. Fishing:

- Contemporary fishing camp
- Fishing station
- Fishing site
- Major fishing site
- Winter fishing
- Drying racks
- Processing camps

**Fish**

Kokanee	Dolly varden	Whitefish
Other fish	Steelhead	Trout
Sturgeon	Suckers	Salmon

3. Occupancy sites and areas:

- Including cabin, tent-cabin, company building, guiding camp, lean-to, tent, shelter under tree, bark hut, underground fish drying racks, contemporary cabin use, contemporary campsites, camping, winter camping, long term camping, drying racks
- Archaeological site, cultural depressions, archaeological site of extreme antiquity, significant archaeological site, unrecorded archaeological site, cache pits, cooking pits, artifacts, lithic scatter, chert gathering, petroglyph, pictograph, CMT's, temporary seasonal permanent camps, underground house
- Ancestral village sites, continuous occupation site, old original village, village site, village site – original location, prehistoric occupation site, village site – summer, rock shelters, major summer occupation site, occupation site, traditional campsites, camping, winter camping, long term camping, pithouses
- Gathering place, meeting area, major gathering area, trading area
- Social celebration site
- Historic marker posts (for old Indian reserves), Former Indian Reserve, Federal Indian Reserve, Ancestral band, monuments
- Historic occupation site, historic village site, historical buildings, historic business (saloon, horse trading, hotel), Chief's house, historic cabin, transitional homes, traditional hay meadows, square pithouses, barn, corral
- Cairn marker, territorial marker, signal place, coyote rocks – marker rocks, CMT's

4. Spiritual/Sacred/Ceremonial sites and areas:

- Ceremony site
- Burial or cremation site
- Birth or death
- Sacred site
- Non-human being
- Landmark with legend

- Rock painting or carving
- Health site
- Isolation areas
- Teaching sites
- Sweatlodges
- Healing rock, sweatlodge, puberty rights, right of passage, vision quest, healing journeys, prayer site, warm springs
- Marked grave sites, grave sites, grave sites – smallpox, burial sites, unmarked grave sites, possible burial sites
- Creation story area, teaching area for youth, stories, legends, elders teachings about how to behave on the land, teaching area (signs, stories), protocols, ceremonial hunting
- Spiritual site, sacred area, spiritual area, unique spiritual area, spiritual renewal area, supernatural
- Coyote rocks – other, entrance to the Bear World, Entrance to Spirit World, Sacred site

5. Plant resources:

Special plants	Medicinal plant	Berries
Other Food plants	Dye plants	Wild tobacco
Special wood	Large Trees for dugout canoes	
For crafts, including bark stripping	Roots	CMT's

6. Travel Routes & Trails

- Trail
- Trail – pre WWI
- Trail – mountain pass
- Trail – network
- Trail – trade route
- Trail – war path
- Travel corridors
- Wagon trails

6. Trapping/traplines

- Trap lines, trapline area, snares,

7. Quarry/mineral

- Gravel, rocks, minerals

8. Lookout

- Lookout site, lookout

9. Battle areas

- Battleground, battlefields, battle site, suicide rock, fortress/battle blinds, cultural depressions

10. Recreation

- Recreational sites

11. Miscellaneous:

- Wild hay
- Drinking water
- Wild horse range
- Stock range
- Feral horse corral
- Fish weir or trap

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**Appendix D: 2005 Cariboo Red & Blue Listed Species Information**

Common Name	Prov Status	COSEWIC Status E/T/SC/ NAR/DD	Breeding y/n	Identified Wildlife Volume 1 1999 Version2 2004	Forest Districts				
					100	Chi	Hor	Que	WL
<b>Reptiles</b>									
Gopher Snake - <i>deserticola ssp</i>	b	T	yes	Vol1/Ver2	x				x
Painted Turtle	b		yes		x				x
Racer	b	SC	yes	Vol1	x				x
Rubber Boa	n/a	SC	yes		x	x			x
<b>Amphibians</b>									
Great Basin Spadefoot	b	T	?	Ver2	x				x
Western Toad	n/a	SC	yes		x	x	x	x	x
<b>Fish</b>									
Bull Trout	b		yes	Vol1	?	x	x	x	x
Chiselmouth	b	NAR	yes					x	
Dolly Varden	b		yes						
White Sturgeon	r	E	yes		x			x	x
Coho		E			x	x	x	x	x
<b>Invertebrates</b>									
Familiar Bluet (Damselfly)	r		yes		x				
Hagen's Bluet (Damselfly)	b		yes						x
<b>Birds</b>									
American Avocet	r		yes		x	x			x
American Bittern	b		yes	Vol 1	x	x	x	x	x
American Golden-Plover	b		yes?		x			x	x
American White Pelican	r	NAR	yes	Vol1	x	x		x	x
Barn Owl	b	SC	yes?		x				x
Bobolink	b		yes	Vol 1	x	x	x	x	x
Brewer's Sparrow - <i>breweri ssp</i>	r		no?	Vol1	x				x
California Gull	b		yes-Q		x	x	x	x	x
Caspian Tern	b	NAR	no						
Double-crested Cormorant	r	NAR	yes-Chi			x			x
Flammulated Owl	b	SC	yes	Ver2	x	x			x
Great Blue Heron - <i>herodias</i>	b		yes		x	x	x	x	x
Gyrfalcon	b	NAR	no		x	x	x	x	x
Lark Sparrow	r		Yes WL		x	x		x	x
Lewis's Woodpecker	b	SC	yes	Vol1/Ver2	x	x			x
Long-billed Curlew	b	SC	yes	Vol1/Ver2	x	x		x	x
Long-tailed Duck (Oldsquaw)	b		no		x	x	x	x	x
Peregrine Falcon - <i>anatum ssp</i>	r	T	yes		x	x	x	x	x
Prairie Falcon	r	NAR	yes	Vol1	x	x			x
Red-necked Phalarope	b		no		x	x	x	x	x
Sandhill Crane	b	NAR	yes	Vol1	x	x	x	x	x
Sharp-tailed Grouse	b		yes		x	x	x	x	x

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Common Name	Prov Status	COSEWIC Status E/T/SC/ NAR/DD	Breeding	Identified Wildlife Volume 1 1999 Version2 2004	Forest Districts				
					100	Chi	Hor	Que	WL
Short-billed Dowitcher	b		no		x				x
Short-eared Owl	b	SC	yes-WL	Ver2	x	x	x	x	x
Surf Scoter	b		no		x	x	x	x	x
Swainson's Hawk	r		no		x	x	x	x	x
Upland Sandpiper	r		yes?			x			x
Western Grebe	r		historic	Vol 1	x	x	x	x	x
White-throated Swift	b		yes		x	x			x
Yellow-breasted Chat	r	E	yes	Vol1/Ver2	?				x
<b>Mammals</b>									
Badger	r	E	yes	Ver2	x	x	x	x	x
California Bighorn Sheep	b		yes	Vol1	x	x			x
Common Pika - <i>septentrionalis ssp</i>	r		yes			x			
Fisher	b		yes		x	x	x	x	x
Fringed Myotis	b	DD	yes	Ver2	x	x			x
Grizzly Bear	b	SC	yes	Vol1/Ver2	x	x	x	x	x
Northern Long-eared Myotis	b		yes		x		x	x	
Spotted Bat	b	SC	yes	Ver2	x	x			x
Townsend's Big-eared Bat	b		yes		x	x			x
Western Small-footed Myotis	b		yes		x	x			x
Wolverine - <i>luscus ssp</i>	b	SC	yes	Ver2	x	x	x	x	x
Woodland Caribou - Southern Mountain population	r	T	yes	Ver2	x		x	x	
Woodland Caribou - Northern Mountain population	b	T/SC	yes	Ver2		x		x	
<b>Unconfirmed species</b>									
Burrowing Owl	r	E	?	Ver2	?				?
Pallid Bat	r	T	?	Ver2	?				?

X – species is either known or predicted to occur in the District.

**Species** - Any indigenous species, subspecies, variety, or geographically or genetically distinct population of wild fauna and flora.

**Extinct (X)** - A species that no longer exists.

**Extirpated (XT)** - A species no longer existing in the wild in Canada, but occurring elsewhere.

**Endangered (E)** - A species facing imminent extirpation or extinction.

**Threatened (T)** - A species likely to become endangered if limiting factors are not reversed.

**Special Concern (SC)** - A species that is particularly sensitive to human activities or natural events but is not an endangered or threatened species.

**Data Deficient (DD)** - A species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction.

**Not At Risk (NAR)** - A species that has been evaluated and found to be not at risk.

## Appendix E: Watershed Sensitivity

A sensitive watershed is a watershed having significant fisheries or downstream fisheries values, and in which the quality, flow rates of the water, water temperature, and stream channel complexity is vulnerable to physical changes in the watershed. Such watersheds typically have steep slopes, erodible soils, are prone to landslides, experience higher annual precipitation, or have risks of high water temperatures during late summer low flows.

The Interagency Planning Team recognizes that some harvesting will be undertaken *before* appropriate watershed-level planning can be completed, harvesting without requisite watershed-level planning should be minimized in watersheds that are suspected of being “sensitive”.

A qualified registered professional (as defined in the Watershed Assessment Procedure (WAP)) carries out the watershed sensitivity analysis. It is a procedure designed to determine whether, and in what degree, land use or land development will affect the flows of water and/or water quality in a watershed. All features relevant to delineating and determining the sensitivity of a watershed should be identified. These include:

- Fish species and distribution.
- Classification of surface waters.
- Terrain stability mapping that includes the following 4 points:
  - i. Drainage feature mapping can be incorporated into terrain mapping for cost-effectiveness, but should include stream gradient, width, channel pattern, riparian characteristics, floodplain width, type of floodplain, degree of confinement, etc. Information on published topographic maps is not sufficient, and ground checking is important.
  - ii. General terrain maps and other assembled information (e.g., geology, drainage features, soils), showing slope stability classes, erodible materials and poorly drained organic terrain.
  - iii. Detailed terrain stability mapping (classes I–V); especially class V (unstable under natural conditions) and class IV (potentially unstable) (field checked).
  - iv. Erosion potential classes, especially terrain subject to surface erosion by running water under natural conditions.
    - Landslide inventory, all recognisable landslides (symbols for each slide scar, extent of tracks, code for approximate age).
    - Avalanche tracks (for applying avalanche protection zones).
    - Baseline stream channel audits.
    - Stream at risk for water temperature increases that are harmful to fish and fish habitat (may include field sampling program)
    - Existing and proposed roads and road densities (field checked).

**Rate-of-harvest Defined:**

Rate-of-harvest: the proportion of the watershed area (in ha) allowed to be harvested each year or in a time period. (AAC applies to the entire Williams Lake TSA, and is not relevant at the watershed level)

Selecting a silvicultural system is a separate decision from the rate at which a forest is harvested—the “rate-of-harvest.” The choice of silvicultural system is based on site-specific characteristics and management objectives for a specific area of land. The determination of rate-of-harvest, while considering these factors, employs larger planning units such as a watershed, and is calculated as an area.

**The rate-of-harvest is also distinct from Equivalent Clearcut Area (ECA). ECA is the area that has been harvested, cleared or burned, with consideration given to the silvicultural system, regeneration growth, and location within the watershed. For example, as a watershed is harvested, the ECA increases and as replanted forests grow, ECA decreases.**

At present there are no standards to establish a rate-of-harvest to regulate the total area cut in a watershed. The WAP recommends that an assessment of the “cumulative effects” of logging should be carried out on all watersheds larger than 500 ha. that:

- have at least 20 percent of the total watershed area has been logged during the past 25 years; or
- there is evidence of significant stream channel instability; or
- landslides are frequent; or
- over 25 percent of the riparian forest along either bank of the main stream channels has been logged over the past 40 years.

There is however, a risk of disrupting the hydrological stability of a watershed before the WAP is initiated. Also, the WAP does not take into account other potential impacts to the fisheries resource such as increases in water temperature. For these reasons “rate-of-harvest” is described in the CCLUP and the integration report as a management tool for the conservation of salmon.

If a watershed is determined to be potentially sensitive then a qualified registered professional (as defined in the WAP) will be retained to examine this watershed, confirm the sensitivity, and recommend (among other things) controls on the “rate of harvest”, high levels of retention (selective cut), restrictions on the amount of new road development, reserve areas, and prescriptions for riparian management zones.

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### Appendix F: Lake Management

**Table 17 Lake Management**

\* Waterbody Identifiers available

\*\*Forest Management Classes in the Lakeshore Management Zone and their objectives (see [Table 18](#) in this appendix for associated strategies)

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
12530	093A.054	Annette Lake	12.4	10	200	A	wilderness fisheries	Non-motorized access; walk-in or fly-in only.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries
12674	093A.028	<i>Banana # 2 Lake</i>	14.6	10	200	A	wilderness fisheries	Non-motorized access; walk-in or fly-in only.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries
12519	093A.057	Buckingham Lake	47.3	10	200	A	wilderness fisheries	Non-motorized access; walk-in or fly-in only.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries
12694	093A.023	Cossack Lake ( <i>Crow Lake</i> )	65.3	10	200	A	wilderness fisheries	Non-motorized access; walk-in or fly-in only.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries
12554	093A.043	Edney Lake	33.6	10	200	A	wilderness fisheries	Non-motorized access; walk-in or fly-in only.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries

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Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
12616	093A.037	<i>Eureka Lake</i>	20.9	10	200	A	wilderness fisheries	Non-motorized access; walk-in or fly-in only.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries
12527	093A.054	Freshette Lake	37.2	10	200	A	wilderness fisheries	Non-motorized access; walk-in or fly-in only.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries
12660	093A.025	<i>Little Tisdall Lake</i>	33.4	10	200	A	wilderness fisheries	Non-motorized access; walk-in or fly-in only.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries
12663	093A.027	McKee Lake	15.8	10	200	A	wilderness fisheries	Existing road; no new permanent access.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries
12636	093A.035	Patenaude Lake ( <i>Marten Lake</i> )	26.9	10	200	A	wilderness fisheries	Existing road; no new permanent access.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries
12542	093A.046	Suey Lake ( <i>Sam Suey Lake</i> )	18.5	10	200	A	wilderness fisheries	Non-motorized access; walk-in or fly-in only.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
12701	093A.015	Unnamed Lake	50.0	10	200	A	wilderness fisheries	Non-motorized access; walk-in or fly-in only.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries
12706	093A.015	Unnamed Lake	20.2	10	200	A	wilderness fisheries	Non-motorized access; walk-in or fly-in only.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries
12710	093A.015	Unnamed Lake	30.8	10	200	A	wilderness fisheries	Non-motorized access; walk-in or fly-in only.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries
12677	093A.028	Unnamed Lake	5.0	10	200	A	wilderness fisheries	Non-motorized access; walk-in or fly-in only.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries
12523	093A.056	Wasko Lake (Little) ( <i>Round Lake</i> )	24.3	10	200	A	wilderness fisheries	Non-motorized access; walk-in or fly-in only.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries
12518	093A.056	Wasko Lake (Lower)	167.9	10	200	A	wilderness fisheries	Non-motorized access; walk-in or fly-in only.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
12516	093A.056	Wasko Lake (Upper) ( <i>Obstacle Lake</i> )	449.7	10	200	A	wilderness fisheries	Non-motorized access; walk-in or fly-in only.	No new development.	No new permanent road access within 2 km of lakeshore.	Fisheries
12469	093A.086	<i>Grizzly Lake</i>	6.5	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Protect fish populations.	Fisheries
12690	093A.018	Unnamed Lake	8.0	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12691	093A.018	Unnamed Lake	6.9	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12693	093A.018	Unnamed Lake	5.8	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12641	093A.027	Unnamed Lake	7.2	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
12592	093A.037	Unnamed Lake	6.2	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12613	093A.037	Unnamed Lake	10.6	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12585	093A.038	Unnamed Lake	5.5	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12597	093A.038	Unnamed Lake	31.6	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12541	093A.047	Unnamed Lake	10.1	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12543	093A.047	Unnamed Lake	6.5	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
12550	093A.047	Unnamed Lake	5.2	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12557	093A.048	Unnamed Lake	38.0	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12506	093A.057	Unnamed Lake	5.5	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12507	093A.064	Unnamed Lake	6.4	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12489	093A.067	Unnamed Lake	14.2	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12500	093A.067	Unnamed Lake	5.5	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
12502	093A.067	Unnamed Lake	6.9	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12505	093A.067	Unnamed Lake	5.5	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12487	093A.068	Unnamed Lake	18.4	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12490	093A.068	Unnamed Lake	8.5	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12494	093A.068	Unnamed Lake	10.8	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
2025	093A.076	Unnamed Lake	5.1	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
12482	093A.077	Unnamed Lake	19.4	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12483	093A.077	Unnamed Lake	26.1	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12484	093A.077	Unnamed Lake	8.2	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12485	093A.077	Unnamed Lake	10.3	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12480	093A.078	Unnamed Lake	28.7	10	200	A	refugium	Non-motorized access; walk-in or fly-in only.	No new development.	Maintain alpine tundra ecosystem.	As required.
12637	093A.033	Abbott Lake	22.1	10	200	A	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ.	As required.

Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
12614	093A.032	Ballon Lake	23.1	10	200	B	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ. (Fisheries Research Lake).	As required.
12524	093A.054	Benny Lake	56.7	10	200	A	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ.	As required.
12526	093A.052	Bootjack Lake	261.9	10	200	B	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ. (Rec. Site).	As required.
12692	093A.017	Bosk Lake	496.7	10	200	B	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ. (Rec. Site).	As required.
12704	093A.016	Buster Lake	92.8	10	200	A	quality	Site specific.	Limited or no new development.	No permanent motorized access in LMZ.	As required.
12474	093A.074	Cariboo Lake	1,032.0	10	200	B	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in	As required.

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Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
										LMZ. (Rec. Site).	
12571	093A.044	<i>Clam Lake</i>	10.9	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12643	093A.027	Crooked Lake	1,097.5	10	200	B	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ. (Rec. Site and resort).	As required.
12638	093A.026	Doreen Lake	19.9	10	200	B	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ.	As required.
12589	093A.044	Douglas Lake ( <i>Little Burn Lake</i> )	20.0	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12667	093A.026	Elbow Lake	342.5	10	200	B	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ. (Rec. Site).	As required.
12517	093A.052	Frypan Lake	16.9	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12606	093A.034	<i>Game Crossing Lake</i>	2.9	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.

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Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
12547	093A.042	Gavin Lake	94.2	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12609	093A.034	Gruhs Lake	28.5	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12540	093A.045	Hen Ingram Lake ( <i>9 Mile Lake</i> )	353.5	10	200	B	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ. (Rec. Site).	As required.
12471	093A.077	Hilda Lake	24.5	10	200	A	quality	Site specific.	Limited or no new development.	No permanent motorized access in LMZ.	As required.
12564	093A.044	Hooker Lake	23.4	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
13273		Horsefly Lake (Narrows)	1,393.1	10	200	B	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ.	As required.
13271		Horsefly Lake (Suey Bay)	1,155.3	10	200	B	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ. .	As required.
12531	093A.052	Jacobie Lake	86.0	10	200	B	quality	Site specific.	Limited or no new development.	No new motorized permanent	As required.

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Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lakeshore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
										road access in LMZ. (Rec. Site).	
12545	093A.045	Jacques Lake	176.4	10	200	B	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ. (Rec. Site).	As required.
12590	093A.044	Jim Lowry Lake	28.7	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12535	093A.045	Keno Lake	229.8	10	200	B	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ. (Rec. Site).	As required.
12594	093A.044	Kwun Lake ( <i>Burn Lake</i> )	50.9	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12583	093A.044	Lea Lake	12.7	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12546	093A.042	<i>Little Gavin Lake</i>	15.9	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12604	093A.034	Little Horsefly Lake	39.9	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.

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Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
12509	093A.062	Little Lake	74.1	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12473	093A.076	Maeford Lake	51.7	10	200	A	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ.	As required.
12653	093A.026	McKinley Lake	519.6	10	200	B	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ. (Rec. Site).	As required.
12673	093A.024	<i>Mica Lake</i>	20.4	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12563	093A.044	Murdock Lake (Centre) ( <i>Otter Lake</i> )	6.8	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12559	093A.044	Murdock Lake (North) ( <i>Goose Lake</i> )	29.3	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12567	093A.044	Murdock Lake (South) ( <i>Skunk Lake</i> )	30.0	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12538	093A.046	Oslie Lake ( <i>Kantymir Lake</i> )	26.3	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12650	093A.027	Pickertow Lake (North)	7.6	10	200	B	quality	No objectives.	Limited or no new	No objectives.	As required.

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
									development.		
13279		Quesnel Lake ( <i>Junction</i> )	7,616.8	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
13274		Quesnel Lake ( <i>Mitchell Bay</i> )	4,645.7	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
13277		Quesnel Lake ( <i>Silver Tip</i> )	1,563.9	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12514	093A.054	Spanish Lake	450.8	10	200	B	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ. (Rec. Site).	As required.
12661	093A.024	Starlike Lake	58.7	10	200	B	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ.	As required.
12675	093A.025	Tisdall Lake	496.9	10	200	B	quality	Site specific.	Limited or no new development.	No new motorized permanent road access in LMZ. (Rec. Site).	As required.
12532	093A.052	Trio Lake	40.2	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.

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Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
12711	093A.016	Unnamed Lake	12.0	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12575	093A.044	Ussa Lake ( <i>Camp Lake</i> )	74.6	10	200	B	quality	No objectives.	Limited or no new development.	No objectives.	As required.
12601	093A.034	Alah Lake ( <i>Birch Lake</i> )	28.6	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12588	093A.043	Antoine Lake	219.9	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12624	093A.034	Armstrong Lake	14.8	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12652	093A.032	Batten Lake	20.6	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12656	093A.023	Bells Lake	49.0	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12635	093A.032	Beveridge Lake ( <i>Island Lake</i> )	116.1	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12688	093A.026	Boscar Lake	18.6	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12528	093A.053	Boswell Lake	10.9	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12580	093A.045	<i>Campbell Lake</i>	25.5	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12595	093A.034	<i>Chance Lake</i>	9.0	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12639	093A.033	China Cabin Lake	14.3	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12570	093A.042	Choate Lake	6.4	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.

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Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
12658	093A.024	Corner Lake	12.4	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
4056	093A.017	Cruiser Lake	88.6	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12631	093A.033	<i>Dean Lake</i>	17.5	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12591	093A.044	<i>Deep Lake</i>	7.5	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12581	093A.044	<i>Deer Lake</i>	5.6	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12562	093A.044	Dillabough Lake ( <i>Bear Lake</i> )	89.3	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12569	093A.042	Dorsey Lake	18.7	10	200	B	general	No objectives.	No objectives.	No objectives.	As required.
12593	093A.043	Eric Lake	41.2	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12558	093A.042	Fire Lake	16.3	10	200	B	general	No objectives.	No objectives.	No objectives.	As required.
12495	093A.063	Five Mile Lake	7.3	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12647	093A.033	Gammarus Lake	7.2	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12655	093A.024	Green Lake	11.2	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12629	093A.033	Harpers Lake	9.2	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12510	093A.063	Hepburn Lake	5.1	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
13270		Horsefly Lake (East End)	582.5	10	200	B	general	No objectives.	No objectives.	No objectives.	As required.

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
13272		Horsefly Lake (Prairie Creek)	2,671.3	10	200	B	general	No objectives.	No objectives.	No objectives.	As required.
12508	093A.061	Jackpine Lake	43.4	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12649	093A.032	Jessica Lake	53.6	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12488	093A.073	Kangaroo Lake	6.9	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12476	093A.077	<i>Kato Lake</i>	11.4	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12472	093A.078	<i>Kitamara Lake</i>	5.1	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12533	093A.055	Klinne Lake	20.6	10	200	B	general	No objectives.	No objectives.	No objectives.	As required.
12619	093A.034	Lemon Lake	20.4	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12618	093A.033	<i>Little Ballon Lake</i>	26.7	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12676	093A.023	Malcolm Lake	7.8	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12493	093A.065	<i>Matzen Lake</i>	13.2	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12599	093A.032	McCauley Lake	101.3	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12712	093A.013	McIntosh Lake (North)	249.6	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12720	093A.013	McIntosh Lake (South)	428.1	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12665	093A.022	Meiss Lake	15.4	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
12555	093A.045	Melissa Lake ( <i>Back Lake</i> )	57.2	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12708	093A.013	Miner Lake	23.4	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12715	093A.015	Moffat Lake (East)	120.5	10	200	B	general	No objectives.	No objectives.	No objectives.	As required.
12717	093A.015	Moffat Lake (West)	78.1	10	200	B	general	No objectives.	No objectives.	No objectives.	As required.
12561	093A.042	Moorhouse Lake	12.1	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12515	093A.052	Morehead Lake	203.6	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12577	093A.044	Nikwit Lake ( <i>"U" Lake</i> )	78.7	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12521	093A.053	Nina Lake ( <i>Cedar Dam Lake</i> )	10.8	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12552	093A.044	Niquidet Lake	68.9	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12645	093A.026	Offset Lake	11.4	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12520	093A.052	Polley Lake	385.4	10	200	B	general	No objectives.	No objectives.	No objectives.	As required.
12504	093A.063	Poquette Lake	16.6	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12511	093A.062	Prior Lake	28.1	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12582	093A.042	Prouton Lake (Big)	40.8	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12587	093A.042	Prouton Lake	16.4	10	200	C	general	No	No	No objectives.	As required.

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lakeshore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
		(Little)						objectives.	objectives.		
13278		Quesnel Lake ( <i>Beach Point</i> )	2,561.4	10	200	B	general	No objectives.	No objectives.	No objectives.	As required.
13276		Quesnel Lake ( <i>East Arm</i> )	5,287.5	10	200	B	general	No objectives.	No objectives.	No objectives.	As required.
13275		Quesnel Lake ( <i>North Arm</i> )	5,639.6	10	200	B	general	No objectives.	No objectives.	No objectives.	As required.
12603	093A.033	Ratdam Lake	40.9	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12602	093A.032	Robert Lake	49.1	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12486	093A.073	Rollie Lake	25.7	10	200	B	general	No objectives.	No objectives.	No objectives.	As required.
12672	093A.023	Sausser Lake	24.3	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12573	093A.043	Shiko Lake	42.3	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12496	093A.063	Six Mile Lake	10.0	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12651	093A.024	Stillwater Lake	4.8	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12632	093A.034	Sucker Lake	44.8	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12513	093A.055	Tasse Lake	65.7	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12723	093A.013	Tillicum Lake	88.6	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12596	093A.034	<i>Tommies Lake</i>	23.0	10	200	C	general	No	No	No objectives.	As required.

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
								objectives.	objectives.		
12659	093A.023	Triplet Lake	10.9	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12726	093A.002	Unnamed Lake	14.8	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12727	093A.003	Unnamed Lake	22.8	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12725	093A.003	Unnamed Lake	16.9	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12728	093A.003	Unnamed Lake	5.2	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12729	093A.003	Unnamed Lake	5.4	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12730	093A.003	Unnamed Lake	11.7	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12724	093A.012	Unnamed Lake	4.8	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12707	093A.013	Unnamed Lake	18.5	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12709	093A.013	Unnamed Lake	25.1	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12721	093A.013	Unnamed Lake	6.8	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12698	093A.014	Unnamed Lake	5.5	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12702	093A.014	Unnamed Lake	16.1	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12703	093A.014	Unnamed Lake	5.3	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12705	093A.014	Unnamed Lake	6.9	10	200	E	general	No	No	No objectives.	As required.

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
								objectives.	objectives.		
12714	093A.014	Unnamed Lake	6.4	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12716	093A.014	Unnamed Lake	9.1	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12719	093A.014	Unnamed Lake	5.7	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12722	093A.014	Unnamed Lake	13.4	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12699	093A.015	Unnamed Lake	6.7	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12713	093A.015	Unnamed Lake	12.3	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12697	093A.016	Unnamed Lake	6.9	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12700	093A.016	Unnamed Lake	14.3	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12696	093A.016	Unnamed Lake	13.5	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12689	093A.017	Unnamed Lake	5.0	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12686	093A.019	Unnamed Lake	14.4	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12657	093A.022	Unnamed Lake	6.5	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12679	093A.022	Unnamed Lake	11.0	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12684	093A.022	Unnamed Lake	14.8	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12654	093A.023	Unnamed Lake	19.3	10	200	E	general	No	No	No objectives.	As required.

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
								objectives.	objectives.		
12685	093A.023	Unnamed Lake	6.3	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12666	093A.023	Unnamed Lake	7.4	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12678	093A.023	Unnamed Lake	6.3	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12681	093A.023	Unnamed Lake	10.1	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12670	093A.024	Unnamed Lake	7.2	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12695	093A.024	Unnamed Lake	5.7	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12669	093A.025	Unnamed Lake	10.4	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12662	093A.025	Unnamed Lake	4.9	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12680	093A.026	Unnamed Lake	5.3	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12644	093A.026	Unnamed Lake	5.3	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12648	093A.026	Unnamed Lake	7.4	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12682	093A.026	Unnamed Lake	6.4	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12630	093A.027	Unnamed Lake	11.9	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12634	093A.027	Unnamed Lake	5.9	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12671	093A.027	Unnamed Lake	10.8	10	200	D	general	No	No	No objectives.	As required.

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
								objectives.	objectives.		
12664	093A.028	Unnamed Lake	10.9	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12668	093A.028	Unnamed Lake	6.6	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12612	093A.032	Unnamed Lake	17.8	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12617	093A.032	Unnamed Lake	10.7	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12621	093A.032	Unnamed Lake	13.6	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12622	093A.032	Unnamed Lake	6.3	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12610	093A.032	Unnamed Lake	5.5	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12625	093A.032	Unnamed Lake	5.3	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12627	093A.032	Unnamed Lake	5.7	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12640	093A.032	Unnamed Lake	5.7	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12642	093A.032	Unnamed Lake	9.8	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12646	093A.032	Unnamed Lake	9.1	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12600	093A.033	Unnamed Lake	9.5	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12605	093A.033	Unnamed Lake	6.1	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12607	093A.033	Unnamed Lake	11.4	10	200	D	general	No	No	No objectives.	As required.

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
								objectives.	objectives.		
12598	093A.033	Unnamed Lake	5.8	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12633	093A.033	Unnamed Lake	6.8	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12608	093A.034	Unnamed Lake	7.1	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12623	093A.034	Unnamed Lake	6.4	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12628	093A.034	Unnamed Lake	6.5	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12611	093A.036	Unnamed Lake	8.0	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12626	093A.038	Unnamed Lake	5.5	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12548	093A.042	Unnamed Lake	9.4	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12579	093A.042	Unnamed Lake	10.3	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12586	093A.042	Unnamed Lake	10.0	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12556	093A.043	Unnamed Lake	6.9	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12568	093A.043	Unnamed Lake	10.0	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12565	093A.044	Unnamed Lake	22.0	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12574	093A.044	Unnamed Lake	6.7	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12560	093A.044	Unnamed Lake	5.7	10	200	E	general	No	No	No objectives.	As required.

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
								objectives.	objectives.		
12566	093A.044	Unnamed Lake	7.6	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12553	093A.045	Unnamed Lake	5.6	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12572	093A.045	Unnamed Lake	7.3	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12576	093A.045	Unnamed Lake	17.6	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12539	093A.045	Unnamed Lake	8.4	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12551	093A.045	Unnamed Lake	6.1	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12537	093A.046	Unnamed Lake	5.7	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12578	093A.046	Unnamed Lake	12.1	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12584	093A.046	Unnamed Lake	5.6	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12534	093A.051	Unnamed Lake	5.2	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12536	093A.052	Unnamed Lake	7.5	10	200	E	general	No objectives.	No objectives.	No objectives.	As required.
12525	093A.054	Unnamed Lake	7.5	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12529	093A.055	Unnamed Lake	8.7	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12522	093A.058	Unnamed Lake	11.1	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12492	093A.065	Unnamed Lake	15.5	10	200	D	general	No	No	No objectives.	As required.

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
								objectives.	objectives.		
12498	093A.065	Unnamed Lake	6.8	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12499	093A.067	Unnamed Lake	8.1	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12501	093A.067	Unnamed Lake	5.9	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12503	093A.067	Unnamed Lake	13.6	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12491	093A.074	Unnamed Lake	8.4	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12475	093A.077	Unnamed Lake	5.9	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12481	093A.077	Unnamed Lake	6.3	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12477	093A.078	Unnamed Lake	5.2	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12478	093A.078	Unnamed Lake	9.8	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12479	093A.078	Unnamed Lake	15.0	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12470	093A.086	Unnamed Lake	8.9	10	200	D	general	No objectives.	No objectives.	No objectives.	As required.
12620	093A.032	Veith Lake	22.0	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12687	093A.023	Walters Lake	13.4	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12512	093A.058	Warttig Lake	53.8	10	200	B	general	No objectives.	No objectives.	No objectives.	As required.
12615	093A.034	Wawn Lake	19.6	10	200	C	general	No	No	No objectives.	As required.

## Horsefly Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map	Lake Name (unofficial names in italics)	Area (ha)	Riparian Reserve Zone Width (m)	Lake-shore Management Zone Width (m)	Forest Management Class in the Lakeshore Management Zone	Lake Management Category	Access Management	Lakeshore Management Zone Crown Land Development	Site Specifics	Lake Management Plan or resource values initiating the need for a Lake Management Plan
								objectives.	objectives.		
12544	093A.044	Whiffle Lake	144.6	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12549	093A.045	Wolftrack Lake ( <i>Cutoff Lake</i> )	9.0	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.
12497	093A.063	Wolverine Lake	21.3	10	200	B	general	No objectives.	No objectives.	No objectives.	As required.
12683	093A.024	Woodjam Lake ( <i>Square Lake</i> )	7.2	10	200	C	general	No objectives.	No objectives.	No objectives.	As required.

Horsefly Sustainable Resource Management Plan

**Table 18 Lake Management Strategies**

	<b>A Class</b>	<b>B Class</b>	<b>C Class</b>	<b>D Class</b>	<b>E Class</b>
<b>Recommended Visual Quality Class within the LMZ</b>	Preservation	Retention	Partial Retention	Modification	Modification
		Maintain a natural looking landscape incorporating visual landscape design concepts.			
<b>Preferred Forest Management Practices for the Lakeshore Management Zone:</b>	No harvest.	Clearcutting is not permitted in the LMZ unless partial cutting is not feasible.	Partial cutting is encouraged to maintain non-timber values.	Partial cutting is encouraged to maintain non-timber values.	Partial cutting is encouraged to maintain non-timber values.
<b>Uneven-Aged / Selection Silvicultural Systems (partial cut):*</b>	No harvest; this restriction may be waived by government on a site specific basis for the management of fire, windthrow, above endemic levels of pests or disease.	≤20% of the LMZ area per 20 years and ≥50% of the original basal area must be retained.	≤40% of the LMZ area per 20 years and ≥50% of the original basal area must be retained.	≤60% of the LMZ area per 20 years and ≥50% of the original basal area must be retained.	≤100% of the LMZ area per 20 years and ≥50% of the original basal area must be retained.
<b>Even Aged Silvicultural Systems (clearcut):*</b>		≤10% of the LMZ area.	≤20% of the LMZ area.	≤30% of the LMZ area.	≤50% of the LMZ area.
		<5 ha cutblocks.	<10 ha cutblocks.		
		Maximum lateral distance of an individual opening along the LMZ / RRZ interface is 300 metres.	Maximum lateral distance of an individual opening along the LMZ / RRZ interface is 400 metres.	Maximum lateral distance of an individual opening along the LMZ / RRZ interface is 500 metres.	Maximum lateral distance of an individual opening along the LMZ / RRZ interface is 500 metres.
<b>Combined Silvicultural Systems (partial and clearcut):</b>	Incorporate/combine the recommendations as per the even and un-even aged silvicultural system guidelines.				
<b>Roads, Landings and Skid Trails in the Lakeshore Management Zone:</b>	No new roads, borrow pits or landings should be located in the LMZ unless there are no feasible alternatives.	Locate operational/haul roads outside of the LMZ.	Locate operational/haul roads outside of the LMZ.	Locate operational/haul roads >75 metres away from the RRZ.	Locate operational/haul roads >30 metres away from the RRZ.
		Locate spur/block roads and landings >200 metres away from the RRZ.	Locate spur/block roads and landings >100 metres away from the RRZ.	Locate spur/block roads and landings >40 metres away from the RRZ.	Locate spur/block roads and landings >30 metres away from the RRZ.
		Locate skid trails >30 metres away from RRZ.	Locate skid trails >30 metres away from RRZ.	Locate skid trails >30 metres away from RRZ.	Locate skid trails >30 metres away from RRZ.
		Back spar trails are not recommended without an approved rehabilitation plan.	Back spar trails are not recommended without an approved rehabilitation plan.		

\* translated to area or basal area retention objectives for each LMZ forest management class (see [Table 17](#)).

Horsefly Sustainable Resource Management Plan

**Appendix G: Viewpoints, Viewlines, Viewscapes, and Visual Quality Objectives**

**Table 19 Summary of Viewpoints, Viewlines, Viewscapes, and Visual Quality Objectives**

Viewpoint Number	Viewline Number	Viewscape Polygon Number	Visual Quality Objective (VQO)	Range of forest landbase (in perspective view) allowed to be in non-VEG state (%)	Comments
no #	023L	069V	PR	1.6 - 7.0	from guide-outfitter's trail
013U	004L	072V	PR	1.6 - 7.0	
015U	005L	072V	PR	1.6 - 7.0	
020U	006L	072V	PR	1.6 - 7.0	
	265L	072V	PR	1.6 - 7.0	from centreline of Quesnel Lake (North Arm)
	268L	072V	PR	1.6 - 7.0	from centreline of Quesnel Lake (North Arm)
	270L	072V	PR	1.6 - 7.0	from centreline of Quesnel Lake (North Arm)
	272L	072V	PR	1.6 - 7.0	from centreline of Quesnel Lake (North Arm)
	274L	072V	PR	1.6 - 7.0	from centreline of Quesnel Lake (North Arm)
	276L	072V	PR	1.6 - 7.0	from centreline of Quesnel Lake (North Arm)
	278L	072V	PR	1.6 - 7.0	from centreline of Quesnel Lake (North Arm)
	280L	072V	PR	1.6 - 7.0	from centreline of Quesnel Lake (North Arm)
	282L	072V	PR	1.6 - 7.0	from centreline of Quesnel Lake (North Arm)
010U	067L	073V	PR	1.6 - 7.0	
006U	068L	073V	PR	1.6 - 7.0	
007U	069L	073V	PR	1.6 - 7.0	
004U	070L	073V	PR	1.6 - 7.0	
no #	124L	073V	PR	1.6 - 7.0	from Cariboo River
	201L	073V	PR	1.6 - 7.0	from centreline of Cariboo Lake
	202L	073V	PR	1.6 - 7.0	from centreline of Cariboo Lake
	203L	073V	PR	1.6 - 7.0	from centreline of Cariboo Lake
	204L	073V	PR	1.6 - 7.0	from centreline of Cariboo Lake
	205L	073V	PR	1.6 - 7.0	from centreline of Cariboo Lake
	206L	073V	PR	1.6 - 7.0	from centreline of Cariboo Lake
	207L	073V	PR	1.6 - 7.0	from centreline of Cariboo Lake
	208L	073V	PR	1.6 - 7.0	from centreline of Cariboo Lake
	209L	073V	PR	1.6 - 7.0	from centreline of Cariboo Lake
	210L	073V	PR	1.6 - 7.0	from centreline of Cariboo Lake
	211L	073V	PR	1.6 - 7.0	from centreline of Cariboo Lake
	212L	073V	PR	1.6 - 7.0	from centreline of Cariboo Lake
005U	001L	074V	PR	1.6 - 7.0	
009U	002L	074V	PR	1.6 - 7.0	

## Horsefly Sustainable Resource Management Plan

Viewpoint Number	Viewline Number	Viewscape Polygon Number	Visual Quality Objective (VQO)	Range of forest landbase (in perspective view) allowed to be in non-VEG state (%)	Comments
011U	003L	074V	PR	1.6 - 7.0	
027U	007L	074V	PR	1.6 - 7.0	
	267L	074V	PR	1.6 - 7.0	from centreline of Quesnel Lake (North Arm)
	269L	074V	PR	1.6 - 7.0	from centreline of Quesnel Lake (North Arm)
	271L	074V	PR	1.6 - 7.0	from centreline of Quesnel Lake (North Arm)
	273L	074V	PR	1.6 - 7.0	from centreline of Quesnel Lake (North Arm)
	275L	074V	PR	1.6 - 7.0	from centreline of Quesnel Lake (North Arm)
	277L	074V	PR	1.6 - 7.0	from centreline of Quesnel Lake (North Arm)
	279L	074V	PR	1.6 - 7.0	from centreline of Quesnel Lake (North Arm)
	281L	074V	PR	1.6 - 7.0	from centreline of Quesnel Lake (North Arm)
018U	038L	080V	PR	1.6 - 7.0	
011T	039L	080V	PR	1.6 - 7.0	Silvertip Lodge
	291L	080V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
	293L	080V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
017U	065L	083V	PR	1.6 - 7.0	
017U	066L	083V	PR	1.6 - 7.0	
	396L	084V	PR	1.6 - 7.0	from lake centre (East Arm)
no #	029L	085V	R	0.1 - 1.5	from Niagara Falls
011T	033L	085V	R	0.1 - 1.5	Silvertip Lodge
	289L	085V	R	0.1 - 1.5	from centreline of Quesnel Lake (East Arm)
	290L	085V	R	0.1 - 1.5	from centreline of Quesnel Lake (East Arm)
	292L	085V	R	0.1 - 1.5	from centreline of Quesnel Lake (East Arm)
	295L	087V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
	297L	087V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
	299L	087V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
011T	034L	090V	PR	1.6 - 7.0	Silvertip Lodge
016U	036L	090V	PR	1.6 - 7.0	
014T	060L	092V	PR	1.6 - 7.0	Likely Hotel / Lone Wolf Tours
011T	032L	093V	PR	1.6 - 7.0	Silvertip Lodge
016U	035L	093V	PR	1.6 - 7.0	
031T	017L	094V	PR	1.6 - 7.0	Cariboo Mountain Wilderness Adventures
022T	020L	094V	PR	1.6 - 7.0	Quesnel Lake Resort
021T	021L	094V	PR	1.6 - 7.0	Quesnel Lake Resort
019T	022L	094V	PR	1.6 - 7.0	Quesnel Lake Resort
032U	025L	094V	PR	1.6 - 7.0	
025T	026L	094V	PR	1.6 - 7.0	Quesnel Lake Resort

## Horsefly Sustainable Resource Management Plan

Viewpoint Number	Viewline Number	Viewscape Polygon Number	Visual Quality Objective (VQO)	Range of forest landbase (in perspective view) allowed to be in non-VEG state (%)	Comments
	284L	094V	PR	1.6 - 7.0	from Wasko Lake (west)
	302L	094V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
	303L	094V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
	307L	094V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
	309L	094V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
	311L	094V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
019U	027L	095V	PR	1.6 - 7.0	
no #	028L	095V	PR	1.6 - 7.0	from Niagara Falls
011T	037L	095V	PR	1.6 - 7.0	Silvertip Lodge
	294L	095V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
	296L	095V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
	298L	095V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
	300L	095V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
	301L	095V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
	304L	095V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
034T	050L	097V	PR	1.6 - 7.0	Mitchell Bay Landing
no #	071L	097V	PR	1.6 - 7.0	from Spanish Lake rec. site (# 44)
026U	072L	097V	PR	1.6 - 7.0	
028U	073L	097V	PR	1.6 - 7.0	
no #	125L	097V	PR	1.6 - 7.0	from Cedar Dam Lake rec. site (# 45)
no #	126L	097V	PR	1.6 - 7.0	from Boswell Lake rec. site (# 43)
	223L	097V	PR	1.6 - 7.0	from centreline of Spanish Lake
	224L	097V	PR	1.6 - 7.0	from centreline of Spanish Lake
	225L	097V	PR	1.6 - 7.0	from centreline of Spanish Lake
	226L	097V	PR	1.6 - 7.0	from centreline of Spanish Lake
	227L	097V	PR	1.6 - 7.0	from centreline of Spanish Lake
	228L	097V	PR	1.6 - 7.0	from centreline of Spanish Lake
	229L	097V	PR	1.6 - 7.0	from centreline of Spanish Lake
	230L	097V	PR	1.6 - 7.0	from centreline of Spanish Lake
	243L	097V	PR	1.6 - 7.0	from centreline of Quesnel Lake ("West Arm")
030T	008L	098V	R	0.1 - 1.5	Lowry's Outfitters
027T	010L	098V	R	0.1 - 1.5	Elysia Resort
028T	012L	098V	R	0.1 - 1.5	Quesnel Lake Resort
026T	014L	098V	R	0.1 - 1.5	Quesnel Lake Resort
031T	018L	098V	R	0.1 - 1.5	Cariboo Mountain Wilderness Adventures

## Horsefly Sustainable Resource Management Plan

Viewpoint Number	Viewline Number	Viewscape Polygon Number	Visual Quality Objective (VQO)	Range of forest landbase (in perspective view) allowed to be in non-VEG state (%)	Comments
047U	041L	098V	R	0.1 - 1.5	
048U	043L	098V	R	0.1 - 1.5	
033T	044L	098V	R	0.1 - 1.5	Plato Island Resort
	251L	098V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
	253L	098V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
	255L	098V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
	257L	098V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
	259L	098V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
	261L	098V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
	264L	098V	R	0.1 - 1.5	from centreline of Quesnel Lake (North Arm)
	266L	098V	R	0.1 - 1.5	from centreline of Quesnel Lake (North Arm)
016U	030L	101V	PR	1.6 - 7.0	
011T	031L	101V	PR	1.6 - 7.0	Silvertip Lodge
027U	019L	107V	R	0.1 - 1.5	
	283L	107V	R	0.1 - 1.5	from Wasko Lake (west)
023T	056L	111V	PR	1.6 - 7.0	Northern Lights Lodge Ltd.
020T	057L	111V	PR	1.6 - 7.0	Neilson's Lakeshore Cabins
016T	058L	111V	PR	1.6 - 7.0	Highcountry Inn
014T	059L	111V	PR	1.6 - 7.0	Likely Hotel / Lone Wolf Tours
	232L	111V	PR	1.6 - 7.0	from centreline of Quesnel Lake ("West Arm")
	234L	111V	PR	1.6 - 7.0	from centreline of Quesnel Lake ("West Arm")
	238L	111V	PR	1.6 - 7.0	from centreline of Quesnel Lake ("West Arm")
	240L	111V	PR	1.6 - 7.0	from centreline of Quesnel Lake ("West Arm")
018T	063L	115V	PR	1.6 - 7.0	Morehead Lake Resort & Restaurant
023U	064L	115V	PR	1.6 - 7.0	
	213L	115V	PR	1.6 - 7.0	from centreline of Morehead Lake
	214L	116V	PR	1.6 - 7.0	from centreline of Morehead Lake
	215L	116V	PR	1.6 - 7.0	from centreline of Morehead Lake
	216L	116V	PR	1.6 - 7.0	from centreline of Morehead Lake
	217L	116V	PR	1.6 - 7.0	from centreline of Morehead Lake
	218L	116V	PR	1.6 - 7.0	from centreline of Morehead Lake

## Horsefly Sustainable Resource Management Plan

Viewpoint Number	Viewline Number	Viewscape Polygon Number	Visual Quality Objective (VQO)	Range of forest landbase (in perspective view) allowed to be in non-VEG state (%)	Comments
027T	011L	124V	R	0.1 - 1.5	Elysia Resort
028T	013L	124V	R	0.1 - 1.5	Quesnel Lake Resort
029T	015L	124V	R	0.1 - 1.5	Quesnel Lake Resort
031T	016L	124V	R	0.1 - 1.5	Cariboo Mountain Wilderness Adventures
no #	040L	124V	R	0.1 - 1.5	from north end of Suey Bay - Slate Bay trail
	263L	124V	R	0.1 - 1.5	from centreline of Quesnel Lake (North Arm)
	313L	124V	R	0.1 - 1.5	from centreline of Quesnel Lake (East Arm)
	315L	124V	R	0.1 - 1.5	from centreline of Quesnel Lake (East Arm)
	317L	124V	R	0.1 - 1.5	from centreline of Quesnel Lake (East Arm)
	319L	124V	R	0.1 - 1.5	from centreline of Quesnel Lake (East Arm)
	321L	124V	R	0.1 - 1.5	from centreline of Quesnel Lake (East Arm)
	235L	129V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
049U	074L	131V	PR	1.6 - 7.0	
041U	075L	131V	PR	1.6 - 7.0	
057U	076L	131V	PR	1.6 - 7.0	
050U	077L	131V	PR	1.6 - 7.0	
058U	079L	131V	PR	1.6 - 7.0	
070U	082L	131V	PR	1.6 - 7.0	
069U	083L	131V	PR	1.6 - 7.0	
067U	084L	131V	PR	1.6 - 7.0	
067U	085L	131V	PR	1.6 - 7.0	
	305L	131V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
	306L	131V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
	310L	131V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
	312L	131V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
	314L	131V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
	369L	131V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	371L	131V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	373L	131V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	375L	131V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	377L	131V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	379L	131V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	381L	131V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	383L	131V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	387L	131V	PR	1.6 - 7.0	from centreline of Horsefly Lake

## Horsefly Sustainable Resource Management Plan

Viewpoint Number	Viewline Number	Viewscape Polygon Number	Visual Quality Objective (VQO)	Range of forest landbase (in perspective view) allowed to be in non-VEG state (%)	Comments
	389L	131V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	390L	131V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	391L	131V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	392L	131V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	393L	131V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	394L	131V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	395L	131V	PR	1.6 - 7.0	from centreline of Horsefly Lake
030T	009L	132V	PR	1.6 - 7.0	Lowry's Outfitters
033T	042L	132V	PR	1.6 - 7.0	Plato Island Resort
	249L	132V	PR	1.6 - 7.0	from centreline of Quesnel Lake ("West Arm")
033T	045L	134V	R	0.1 - 1.5	Plato Island Resort
no #	046L	134V	R	0.1 - 1.5	from rec. site at Cariboo Island (North) (# 52)
	248L	134V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
	220L	135V	PR	1.6 - 7.0	from centre of Bootjack Lake (northern portion)
046U	054L	136V	PR	1.6 - 7.0	
043U	055L	136V	PR	1.6 - 7.0	
	237L	136V	PR	1.6 - 7.0	from centreline of Quesnel Lake ("West Arm")
no #	061L	137V	PR	1.6 - 7.0	from rec. site at Bootjack Lake (# 38)
	219L	137V	PR	1.6 - 7.0	from centre of Bootjack Lake (northern portion)
025T	024L	139V	PR	1.6 - 7.0	Quesnel Lake Resort
	308L	139V	PR	1.6 - 7.0	from centreline of Quesnel Lake (East Arm)
no #	062L	141V	PR	1.6 - 7.0	from rec. site at Polley Lake (# 46)
040U	047L	142V	R	0.1 - 1.5	
056U	048L	142V	R	0.1 - 1.5	
no #	049L	142V	R	0.1 - 1.5	from Winkley Creek rec. site (# 42)
	242L	142V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm"); arrow points into the wrong direction
	244L	142V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
	246L	142V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
	252L	142V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
	254L	142V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
	256L	142V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")

## Horsefly Sustainable Resource Management Plan

Viewpoint Number	Viewline Number	Viewscape Polygon Number	Visual Quality Objective (VQO)	Range of forest landbase (in perspective view) allowed to be in non-VEG state (%)	Comments
					Arm")
	258L	142V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
	260L	142V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
	262L	142V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
	316L	142V	R	0.1 - 1.5	from centreline of Quesnel Lake (East Arm)
	318L	142V	R	0.1 - 1.5	from centreline of Quesnel Lake (East Arm)
	320L	142V	R	0.1 - 1.5	from centreline of Quesnel Lake (East Arm)
	322L	142V	R	0.1 - 1.5	from centreline of Quesnel Lake (East Arm)
034T	052L	144V	R	0.1 - 1.5	Mitchell Bay Landing
046U	053L	144V	R	0.1 - 1.5	
	241L	144V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
	250L	145V	PR	1.6 - 7.0	from centreline of Quesnel Lake ("West Arm")
	245L	150V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
	247L	150V	R	0.1 - 1.5	from centreline of Quesnel Lake ("West Arm")
055U	094L	156V	PR	1.6 - 7.0	
059U	078L	158V	PR	1.6 - 7.0	
060U	080L	158V	PR	1.6 - 7.0	
072U	081L	158V	PR	1.6 - 7.0	
	368L	158V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	370L	158V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	372L	158V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	374L	158V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	376L	158V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	378L	158V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	380L	158V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	384L	158V	PR	1.6 - 7.0	from centreline of Horsefly Lake
	386L	158V	PR	1.6 - 7.0	from centreline of Horsefly Lake
051U	092L	160V	PR	1.6 - 7.0	
	221L	160V	PR	1.6 - 7.0	from centre of Gavin Lake
	222L	160V	PR	1.6 - 7.0	from centre of Gavin Lake
055U	093L	165V	PR	1.6 - 7.0	
063U	090L	174V	PR	1.6 - 7.0	
037T	088L	177V	R	0.1 - 1.5	Horsefly Landing Resort

## Horsefly Sustainable Resource Management Plan

Viewpoint Number	Viewline Number	Viewscape Polygon Number	Visual Quality Objective (VQO)	Range of forest landbase (in perspective view) allowed to be in non-VEG state (%)	Comments
	366L	177V	R	0.1 - 1.5	from centreline of Horsefly Lake
	367L	177V	R	0.1 - 1.5	from centreline of Horsefly Lake
071U	091L	188V	PR	1.6 - 7.0	
	364L	192V	M	7.1 - 18.0	from centreline of Horsefly Lake
037T	089L	196V	R	0.1 - 1.5	Horsefly Landing Resort
	363L	196V	R	0.1 - 1.5	from centreline of Horsefly Lake
	365L	196V	R	0.1 - 1.5	from centreline of Horsefly Lake
	362L	197V	M	7.1 - 18.0	from centreline of Horsefly Lake
038T	104L	209V	PR	1.6 - 7.0	Eureka Peak Lodge & Outfitters
088U	105L	209V	PR	1.6 - 7.0	
084U	106L	209V	PR	1.6 - 7.0	
083U	107L	209V	PR	1.6 - 7.0	
	346L	209V	PR	1.6 - 7.0	from centreline of McKinley Lake
	347L	209V	PR	1.6 - 7.0	from centreline of McKinley Lake
	348L	209V	PR	1.6 - 7.0	from centreline of McKinley Lake
	349L	209V	PR	1.6 - 7.0	from centreline of McKinley Lake
	350L	209V	PR	1.6 - 7.0	from centreline of McKinley Lake
	351L	209V	PR	1.6 - 7.0	from centreline of McKinley Lake
	323L	210V	PR	1.6 - 7.0	from centre of Eureka Lake
	324L	210V	PR	1.6 - 7.0	from centre of Eureka Lake
039T	086L	211V	PR	1.6 - 7.0	Cariboo Country Inn & Ranch
037T	087L	211V	PR	1.6 - 7.0	Horsefly Landing Resort
no #	114L	216V	PR	1.6 - 7.0	from point between McKinley & Crooked Lakes
054T	117L	216V	PR	1.6 - 7.0	Crooked Lake Resort
085U	118L	216V	PR	1.6 - 7.0	
055T	119L	216V	PR	1.6 - 7.0	Lonesome Loon Lodge / Two Boys Outfitting
081U	120L	216V	PR	1.6 - 7.0	
058T	121L	216V	PR	1.6 - 7.0	Eureka Peak Lodge & Outfitters
091U	122L	216V	PR	1.6 - 7.0	
059T	123L	216V	PR	1.6 - 7.0	Eureka Peak Lodge & Outfitters
	325L	216V	PR	1.6 - 7.0	from centreline of Crooked Lake
	326L	216V	PR	1.6 - 7.0	from centreline of Crooked Lake
	327L	216V	PR	1.6 - 7.0	from centreline of Crooked Lake
	328L	216V	PR	1.6 - 7.0	from centreline of Crooked Lake
	329L	216V	PR	1.6 - 7.0	from centreline of Crooked Lake

## Horsefly Sustainable Resource Management Plan

Viewpoint Number	Viewline Number	Viewscape Polygon Number	Visual Quality Objective (VQO)	Range of forest landbase (in perspective view) allowed to be in non-VEG state (%)	Comments
	330L	216V	PR	1.6 - 7.0	from centreline of Crooked Lake
	331L	216V	PR	1.6 - 7.0	from centreline of Crooked Lake
	332L	216V	PR	1.6 - 7.0	from centreline of Crooked Lake
051T	095L	218V	PR	1.6 - 7.0	Horsefly Motel
no #	097L	219V	PR	1.6 - 7.0	from Horsefly River
no #	098L	219V	PR	1.6 - 7.0	from Horsefly River
no #	101L	219V	PR	1.6 - 7.0	from Horsefly River
053T	102L	219V	PR	1.6 - 7.0	Black Creek Ranch
no #	103L	219V	PR	1.6 - 7.0	from Horsefly River rec. site (# 61)
052T	099L	221V	PR	1.6 - 7.0	Eureka Peak Lodge & Outfitters
052T	100L	221V	PR	1.6 - 7.0	Eureka Peak Lodge & Outfitters
no #	115L	238V	R	0.1 - 1.5	from point between McKinley & Crooked Lakes
096U	112L	239V	PR	1.6 - 7.0	
092U	113L	239V	PR	1.6 - 7.0	
093U	116L	239V	PR	1.6 - 7.0	
	340L	239V	PR	1.6 - 7.0	from centreline of Elbow Lake
	341L	239V	PR	1.6 - 7.0	from centreline of Elbow Lake
	342L	239V	PR	1.6 - 7.0	from centreline of Elbow Lake
	343L	239V	PR	1.6 - 7.0	from centreline of Elbow Lake
	344L	239V	PR	1.6 - 7.0	from centreline of Elbow Lake
	345L	239V	PR	1.6 - 7.0	from centreline of Elbow Lake
095U	108L	240V	PR	1.6 - 7.0	
097U	109L	240V	PR	1.6 - 7.0	
097U	110L	240V	PR	1.6 - 7.0	
	353L	240V	PR	1.6 - 7.0	from centreline of Tisdall Lake
	354L	240V	PR	1.6 - 7.0	from centreline of Tisdall Lake
	355L	240V	PR	1.6 - 7.0	from centreline of Tisdall Lake
	356L	240V	PR	1.6 - 7.0	from centreline of Tisdall Lake
	357L	240V	PR	1.6 - 7.0	from centreline of Tisdall Lake
	358L	240V	PR	1.6 - 7.0	from centreline of Tisdall Lake
	360L	240V	PR	1.6 - 7.0	from centreline of Tisdall Lake
	361L	240V	PR	1.6 - 7.0	from centreline of Tisdall Lake
	397L	243V	PR	1.6 - 7.0	from centre of unnamed lake
	398L	243V	PR	1.6 - 7.0	from centre of unnamed lake
101U	111L	245V	PR	1.6 - 7.0	

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Viewpoint Number	Viewline Number	Viewscape Polygon Number	Visual Quality Objective (VQO)	Range of forest landbase (in perspective view) allowed to be in non-VEG state (%)	Comments
	333L	245V	PR	1.6 - 7.0	from centreline of Bosk Lake
	334L	245V	PR	1.6 - 7.0	from centreline of Bosk Lake
	335L	245V	PR	1.6 - 7.0	from centreline of Bosk Lake
	336L	245V	PR	1.6 - 7.0	from centreline of Bosk Lake
	337L	245V	PR	1.6 - 7.0	from centreline of Bosk Lake
060T	096L	246V	PR	1.6 - 7.0	Eureka Peak Lodge & Outfitters
	338L	248V	PR	1.6 - 7.0	from centre of Buster Lake
	339L	248V	PR	1.6 - 7.0	from centre of Buster Lake
	388L	none			from centreline of Horsefly Lake
	231L	not yet			from centreline of Quesnel Lake ("West Arm")
	233L	not yet			from centreline of Quesnel Lake ("West Arm")
	236L	not yet			from centreline of Quesnel Lake ("West Arm")
	239L	not yet			from centreline of Quesnel Lake ("West Arm")
	285L	not yet			from centreline of Wasko Lake (east)
	286L	not yet			from centreline of Wasko Lake (east)
	287L	not yet			from centreline of Wasko Lake (east)
	288L	not yet			from centreline of Wasko Lake (east)
	382L	not yet			from centreline of Horsefly Lake
	385L	not yet			from centreline of Horsefly Lake

**Abbreviations used:**

M means "modification"

PR means "partial retention"

R means "retention"

VEG means "visual effective green-up"

VQO means "visual quality objective"

**Suffixes:**

L for (view)line

T for Tourism Use Area or Resort

U for land set aside for the "use for the recreation and enjoyment of the public" (UREP)

V for viewscape

**Appendix H: Analysis Assumptions for Non-Timber Resources and EEA Description**

**Non-Timber Resources**

The non-timber resources that were mapped and analysed are summarized in Table 20, which includes specifications regarding analysis assumptions, contributions to old seral targets and relevant background information. These specifications are consistent between SRMPs; however additional comments are included in the tables in Workbook 11 (see website: [http://srmwww.gov.bc.ca/car/planning/horsefly/srp\\_index.html](http://srmwww.gov.bc.ca/car/planning/horsefly/srp_index.html)) to explain factors unique to the Horsefly SRMP, or analysis procedures that are not otherwise apparent.

**Table 20 Non-Timber Resource Assumptions**

Non-timber resource	Strategy rotation	EEA factor		Assumptions for definition	Contribution to old seral	Comments
	(years)	Pine, decid.	Other conifer			
<b>No Harvest</b>						
Parks	removed from forest landbase for EEA calculations			LUCO Protected Areas	100%	<ul style="list-style-type: none"> <li>Coverage updated August 2000 via data from LUCO</li> <li>Some boundary issues to the NE of Caribou Mtns. PA</li> </ul>
Goal 2 Areas	removed from forest landbase for EEA calculations			BC Parks source	100%	<ul style="list-style-type: none"> <li>Information digitized from 1:50,000 photocopies with line created by 1/8 inch felt marker (!); effective resolution likely around 1:100,000</li> <li>Last edits made Mar. 29, 2000</li> </ul>
Riparian Reserves 20m & 30m	n/a	.9	.9	S1: 50m buffer S2: 30m buffer S3: 20m buffer	100%	<ul style="list-style-type: none"> <li>Forest Cover (FC1) linework used for streams (supplied by Inland Timber)</li> <li>classified streams supplied by Inland Timber and compiled from information supplied by Forest licensees</li> <li>major edits based on MOE, DFO recommendations April 2000</li> <li>streams not classified default to original modelled buffers</li> </ul>
Riparian Reserves Wetlands and shrub-carrs – 10m	n/a	.9	.9	W1 & W5 wetlands and shrub-carrs >5ha: 10m buffer	None	<ul style="list-style-type: none"> <li>FC1 base modelled by Paragon</li> <li>addressed the issue of island polygons within large swamps</li> </ul>
Critical Fish Habitat	n/a	.9	.9	Critical habitat for salmon and bull trout	100%	<ul style="list-style-type: none"> <li>DFO submission, jointly refined by DFO and MOE using 1:50,000 topographic maps to delineate critical floodplain salmon habitat and several critical bull trout streams</li> <li>last edits January 2002</li> </ul>
Class A Lakes 200 m buffer	n/a	.9	.9	From Horsefly Forest District Draft Lakes Classification	100%	
Caribou No Harvest	n/a	.9	.9	From updated Caribou East Strategy	100%	New coverage last received from MELP October 12, 2000
OGMA's	n/a	.9	.9		100% to	Coverage in current analysis dated Jan. 19/02; coverage currently being revised to address seral target shortfalls and

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Non-timber resource	Strategy rotation (years)	EEA factor		Assumptions for definition	Contribution to old seral	Comments
		Pine, decid.	Other conifer			
						overages, revisions will be reviewed with stakeholders prior to analysis
<b>Modified Harvest</b>						
Trail reserve zone 50m buffer	n/a	.85	.85	<i>Document source/process</i>	None	<ul style="list-style-type: none"> <li>• buffers of 100m, 75m, 50m and 25m width</li> <li>• Last update April 2000</li> </ul>
Visual Preservation		.85	.85			<ul style="list-style-type: none"> <li>•</li> </ul>
Visual Retention VQO	400	.80	.70	<i>Document source/process</i>	Rotation age difference contributes to long term old	<ul style="list-style-type: none"> <li>• Assume overall long term average across sustainable resource management plan of 5% non-VEG in planimetric view will meet max 1.5% non-VEG in perspective view</li> <li>• 5%/pass + re-entry every 20 yrs = 400 yr. strategy rotation</li> </ul>
Rip. Mgmt. Zones Stream Class S4 (30m buffer)	n/a	.50	.50		None	<ul style="list-style-type: none"> <li>• 30m buffers on S4 streams to be average 50% retention level</li> <li>• portions of modelled S4 stream RMZ estimated to be S6 transferred to S6 RMZ, portions estimated by % for 5 quadrants across sustainable resource management plan, overall 34% S4 transferred to S6 after conversion to S6 RMZ width</li> </ul>
Caribou East	240	.67	.50	From updated Caribou East Strategy	where overlapped with mapped OGMA	New coverage last received from MELP October 12, 2000
Class B lakes 200m buffer	200	.60	.40	From Horsefly Forest District Draft Lakes Classification	where overlapped with mapped OGMA	From Horsefly Forest District Draft Lakes Classification for Class B lakes: 10% removal/pass + re-entry every 20 yrs = 200 yr. strategy rotation
Rip. Mgmt. Zones Stream Class S1, S2, S3	n/a	.50	.50	S1: 20m S2: 20m S3: 20m	none	<ul style="list-style-type: none"> <li>• FC1 linework used for streams (supplied by Inland Timber)</li> <li>• classified streams supplied by Inland Timber and compiled from information supplied by Forest licensees</li> <li>• major edits based on MOE, DFO recommendations April 2000</li> <li>• streams not classified default to original modelled buffers</li> </ul>
Visual Partial Retention	120	.33	0	<i>Document source/process</i>	none	<ul style="list-style-type: none"> <li>• Assume overall long term average across sustainable resource management plan of 17% non-VEG in planimetric view will meet max 7% non-VEG in perspective view</li> <li>• 17%/pass + re-entry every 20yrs = 120 yr. strategy rotation</li> </ul>
MDWRs Deep Snow Transition Moderate Shallow Snow	Fir Fir Fir Fir		.35 .26 .18 .13		Where overlapped with mapped OGMA; in excess of 25% of fir area overlapped with mapped	<ul style="list-style-type: none"> <li>• Revised MDWR boundaries will be incorporated when completed for Williams Lake TSA and approved by IAMC</li> </ul>

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Non-timber resource	Strategy rotation (years)	EEA factor		Assumptions for definition	Contribution to old seral	Comments
		Pine, decid.	Other conifer			
					OGMA	
Rip. Mgmt. Zones Stream Class S5	n/a	.25	.25	S5: 30m	None	<ul style="list-style-type: none"> <li>FC1 linework used for streams (supplied by Inland Timber)</li> <li>classified streams supplied by Inland Timber and compiled from information supplied by Forest licensees</li> <li>major edits based on MOE, DFO recommendations April 2000</li> <li>streams not classified default to original modelled buffers</li> </ul>
RMZ wetlands and shrub-carrs	n/a	.25	.25	>5 ha = 30m RMZ (incorrect, should have been 40m) 1 – 5 ha = 30m RMZ	None	<ul style="list-style-type: none"> <li>FC1 base modelled by Paragon</li> <li>addressed the issue of island polygons within large swamps</li> </ul>
Class C Lakes 200m buffer	100	.20	0	From Horsefly Forest District Draft Lakes Classification	None	From Horsefly Forest District Draft Lakes Classification for Class B lakes: 20% removal/pass + re-entry every 20 yrs = 100 yr. strategy rotation
Rip. Mgmt. Zones Stream Class S6 (spatial)	n/a	.05	.05	S6: 20m	none	<ul style="list-style-type: none"> <li>FC1 linework used for streams (supplied by Inland Timber)</li> <li>classified streams supplied by Inland Timber and compiled from information supplied by Forest licensees</li> <li>major edits based on MOE, DFO recommendations April 2000</li> <li>streams not classified default to original modelled buffers</li> </ul>
Rip. Mgmt. Zones Stream Class S6 (non-spatial: % of S4 by sustainable resource management plan quadrant)	n/a	.05	.05	S6: 20m	none	<ul style="list-style-type: none"> <li>portions of modelled S4 streams estimated to be S6 transferred to S6 RMZ, portions estimated by % for 5 quadrants, overall 34% S4 transferred to S6</li> </ul>
WTP (non-spatial)	n/a	.50	.50	See Tables 27 & 28 for calculation procedures for estimating long term and current WTP requirements		

### Equivalent Excluded Area (EEA)

Equivalent Excluded Area (EEA) is used as a common measure to determine the impact of non-timber strategies (or constraints) on the productive forest land base. The EEA is based on the difference between a strategy rotation age (SRA) and the minimum rotation age (MRA), with the “EEA factor” calculated as follows:

$$\text{EEA factor} = (\text{SRA} - \text{MRA}) / \text{SRA}$$

Where:

EEA factor is expressed as a decimal or percentage

SRA is the strategy rotation age (years)

MRA is the minimum rotation age (years)

Example: a non-timber value requires the rotation period for a pine stand to be increased from the MRA of 80 years to an SRA of 200 years:

$$\text{EEA factor} = (200 - 80) / 200 = 0.6 \text{ or } 60 \%$$

In other words, 60 percent of the area is unavailable for harvest within the minimum rotation for the pine stand of 80 years.

For some of the non-timber values, a required overall level of retention is used instead of an extended rotation. For example for riparian management zones, 50 percent retention is required for S1, S2 and S3 streams, which equates to an EEA factor of 50 per cent.

The EEA factor for each non-timber value is multiplied by the area the non-timber constraint occupies, to reflect the impact on the timber harvesting landbase.

### **Overlap Analysis**

The Overlap Analysis methodology is used to assess the level of timber access and constraint associated with the non-timber resource values. A separate overlap analysis table was completed for each CCLUP sub-unit within the HSRMP area as well as for the SRMP area as a whole. The steps followed were as follows:

1. EEA factors as defined above were calculated or assigned to each non-timber value or constraint to timber based on:
  - the portion of timber allowed by the non-timber strategy to be accessed within the minimum rotation age, resulting in a calculated EEA factor, or
  - a level of retention required for the non-timber value, resulting in an assigned EEA factor.
2. Non-timber values were arranged in a ranked order from the most constraining to the least constraining to timber access: the EEA of areas overlapped by two or more constraints defaults to the highest EEA of the overlaps.
3. Through GIS and resultant database analysis, the net area of productive forest that is required for each non-timber constraint is calculated; after each constraint is measured in order of descending EEA, the areas are removed from subsequent measurements thus, no double counting of overlapped constraints occurs.
4. The area and percentage of productive forest required for the non-timber constraints, tallied as EEA, is then summed for the CCLUP sub-unit and the SRMP as a whole: the sub-unit and SRMP EEA is then compared to the July 2000 EEA targets to determine if the sub-unit and SRMP is over or under the targets for constrained area.