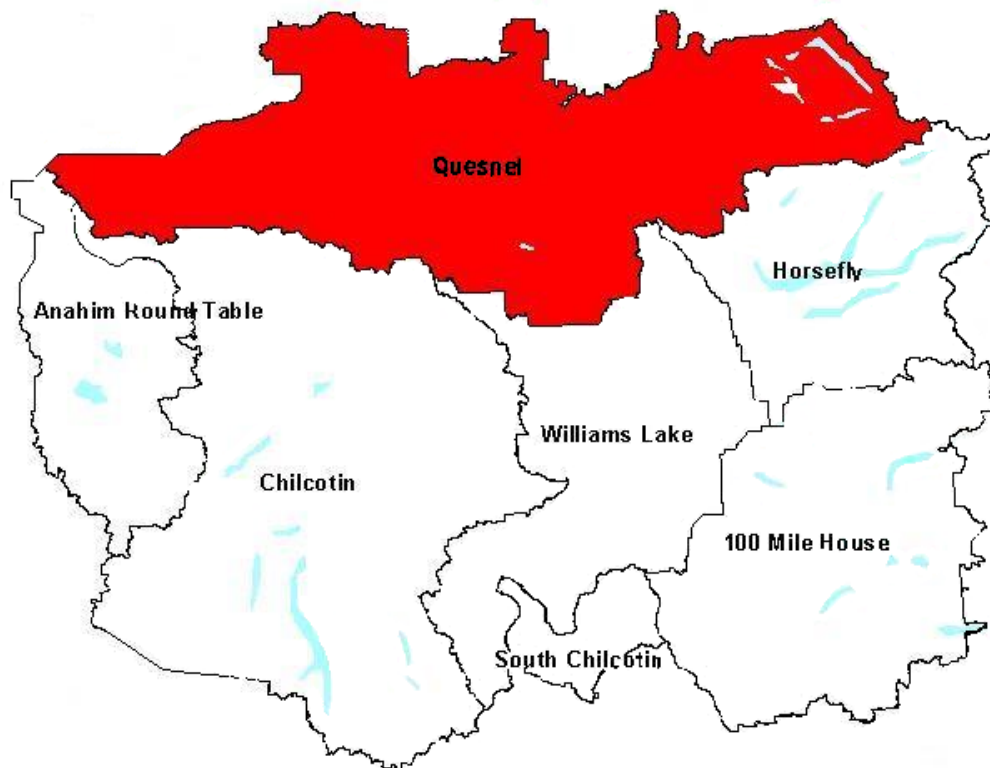


Cariboo-Chilcotin Land-Use Plan

Quesnel Sustainable Resource Management Plan

February, 2007



Quesnel Sustainable Resource Management Plan

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1 EXECUTIVE SUMMARY

The Quesnel Sustainable Resource Management Plan (QSRMP) is one of seven plans covering the Cariboo-Chilcotin Region, including the previously endorsed South Chilcotin, Anahim Round Table, Williams Lake, and Horsefly plans. SRMPs are a spatial application of the Cariboo Chilcotin Land Use Plan (CCLUP) direction at the sub regional planning level. The Quesnel SRMP covers a gross area of approximately 2,077,000 hectares, with approximately 1,632,845 hectares being productive forest landbase. This plan area coincides with the Quesnel Forest District and the Quesnel Timber Supply Area.

The QSRMP have Provincial Red-listed; Sturgeon, Fisher, Badger, Pika, Mountain Caribou, American White Pelican, Lark Sparrow, Peregrine Falcon, Western Grebe, and Swainson's Hawk, all within its planning area.

There are 42 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 Quesnel Sustainable Resource Management Plan (QSRMP) is one of seven SRMPs in the region. These plans are important elements of the *Cariboo-Chilcotin Land Use Plan (CCLUP)*¹ implementation. They provide the spatial reference and detailed objectives needed to implement the land use plan over the long term.

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)*². It was later amended in 1999³. As a higher level plan, the CCLUP guides application of the FPC and other resource management activities. In 1998 the *Integration Report*⁴ 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 QSRMP. 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.

The SRMP does not apply to private land or protected areas, and the QSRMP conforms with the Province's two-zone approach to mineral resource management. Consistent with Section 14 of the *Mineral Tenure Act*, the

¹ 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).

² 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).

³ 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).

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

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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 the FRPA in the region.

3.1 Forest Industry

The timber access targets achieved in the QSRMP provide assurance that the forest industry will continue as a major economic driver in the Cariboo Region. The QSRMP covers the Quesnel Timber Supply Area (TSA), Tree Farm Licence 52, Tree Farm Licence 5, and 65 woodlots. During the 2002/2003 fiscal, the QSRMP area accounted for 49 percent of the timber harvest within the Cariboo Region and 60 percent of the stumpage revenue.

The average annual revenue was \$106.4 million provided to the provincial government by the Quesnel TSA prior to the Allowable Annual Cut (AAC) uplift on July 1, 2001⁵. With the uplift in AAC for the Quesnel TSA, the annual revenues to the provincial government were projected to be \$151.9 million⁶.

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. 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

The capital employed in these facilities totals \$946 million. During 2001, 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 m³ of logs. The accumulated sales value of 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.

⁵ Quesnel TSA Timber Supply Review – (TSA Analysis Report) – February 2001

⁶ Quesnel TSA Timber Supply Review – (TSA Analysis Report) – February 2001

For the region as a whole, the forest industry provided 8,470 full time jobs in 2001. While the area covered within the QSRMP represents only a portion of the entire area included within the CCLUP, it has made a significant contribution to the fibre supply required to maintain the industry here in the Cariboo.

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.

Due to the unprecedented increase in Mountain Pine Beetle (MPB), in 2004 the AAC was increased in the Quesnel TSA to 5,280,000 cubic meters. The purpose of the increase was to salvage the huge volume of dead pine. As a result of the MPB-caused mortality a decline in timber supply below the long term harvest level is forecast within the TSA in the second and third decades.

3.2 Mining

The QSRMP ensures access to 100 percent of the plan area for mineral and aggregate exploration and potential development, excluding protected areas and Goal 2 areas (see Map 2). This is consistent with government's two-zone approach to mineral exploration and development. The comprehensive nature of the QSRMP 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.

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.

3.3 Tourism and Recreation

Tourism is a significant and growing land use component in the Cariboo Chilcotin and plays a key role in diversifying the resource based economy of the region. Tourism relies on secure access to, and sustainability of, a variety of high quality natural environments, resources, and experiences. The Quesnel SRMP supports existing tourism operations and development opportunities through:

- Establishment of visual quality objectives in viewsheds surrounding existing tourism operations and tourism use areas.
- Establishment of Lakes Management Objectives
- Establishment of trail buffers to maintain viability of key trail corridors
- Establishment of Backcountry areas.

In March 2001 The Ministry of Small Business, Tourism and Culture released a Tourism Opportunity Study (TOS) for the Quesnel Forest District. The TOS focused on

identifying and evaluating options for the development of adventure and cultural tourism products. The TOS analysis determined fishing, canoeing and backpacking as the three most popular adventure tourism products in the Quesnel area.

3.3.1 Fishing

The recreational fishery is a key tourism development opportunity. The QSRMP 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 QSRMP area overlaps with the following eleven bands with asserted traditional territories: (i) T'exelc (Williams Lake Indian Band), (ii) Xats'ull (Soda Creek Band), (iii) Lhoosk'uz Dene (Kluskus Band), (iv) Lhtako (Red Bluff Band), (v) Nazko Band, (vi) Ulkatcho Band, (vii) Saik'uz First Nation, (viii) 'Esdilagh (Alexandria Indian Band), (ix) Tsi Del Del (Alexis Creek Indian Band), (x) Tl'etinqox (Anaham Indian Band), and the (xi) Lheidli T'enneh.

Williams Lake Band and Soda Creek Band are affiliated with the Northern Secwepemc te Qelmuw (Cariboo Tribal Council). Kluskus Band, Red Bluff Band, and Ulkatcho Band are affiliated with the Carrier-Chilcotin Tribal Council. The Saik'uz First Nation is associated with the Carrier Sekani Tribal Council. Alexandria Indian Band, Alexis Creek Indian Band, and Anaham Indian Band are affiliated with Tsilhqot'in Nation. The Lheidli T'enneh and the Nazko First Nation have no tribal council affiliation.

The QSRMP planning team reviewed the Kluskus, Soda Creek, and Williams Lake Indian Bands' Traditional Use Studies. 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 Quesnel 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.

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)

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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

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

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 the CCLUP, 17 large new “Goal 1” parks and other protected areas were established. In the Quesnel area these include the Cariboo Mountains and Cariboo River, Kluskoil, and Itcha Ilgachuz 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 QSRMP is approximately 5538 ha. The interagency planning team evaluated and refined the 11 candidate areas, with a total area of nearly 10,599 ha, which were suggested by members of the public, the Regional Protected Areas Team, and other government agencies. The QSRMP has identified 4 areas totalling 4,804 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 Quesnel SRMP Area

Area	Designation	Approximate Size (ha)
Titetown Lake	Class A Park	1016
Narcosli Lake	Class A Park	1218
Dragon Mountain	Class A Park	1839
Wentworth Lake	Class A Park	617
Total		4690

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). 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 Interagency Management Committee, responsible for implementing the CCLUP, further refined the timber targets in 2000 in a regional analysis⁷ 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 EEA.

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 (STTA) 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

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 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).

⁷ Letter from the Cariboo Mid-Coast Inter-Agency Management Committee, dated July 18, 2000 (3 pages).

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 requires 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: 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 severe 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 3 **During vegetation management activities, ensure high and medium value wildlife trees contributing to wildlife tree retention requirements are retained.**

Strategy 3.1 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 Characteristics⁸

Wildlife Tree Value	Characteristics
<p>HIGH</p> <p>A high-value wildlife tree has at least two of the characteristics listed in the adjacent column.</p>	<ul style="list-style-type: none"> • Internal decay (heart rot or natural/excavated cavities present). • Crevices present (loose bark or cracks suitable for bats). • Large brooms present. • Active or recent wildlife use. • Current insect infestation. • Tree structure suitable for wildlife use (e.g., large nest, hunting perch, bear den, etc.).

⁸ Provincial Wildlife Tree Policy and Management Recommendations, February, 2000 (14 pp.).

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Wildlife Tree Value	Characteristics
	<ul style="list-style-type: none"> • Largest trees on site (height and/or diameter) and/or veterans. • Locally important wildlife tree species.
MEDIUM	<ul style="list-style-type: none"> • Large, stable trees that will likely develop two or more of the above attributes for High.
LOW	<ul style="list-style-type: none"> • Trees not covered by High or Medium categories.

Objective 4 **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 4.1 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.

Quesnel TSA is currently in an unprecedented situation with respect to pine mortality due to attack from mountain pine beetle. As a consequence, the AAC for Quesnel TSA has been increased dramatically to recover damaged timber while it still has economic value. The impact of this salvage is directed primarily at the conventional land base. Some harvesting of damaged stands contributing to mature + old seral stands and transition OGMAs has been authorized where ecological values have been deemed to be severely eroded. This harvesting is intended to be guided by the Biodiversity Conservation Committee Updates as listed below. Conversely, some additional stand level retention is expected consistent with Chief Forester advice because of the increased rate of harvest and because of the creation of some very large cutblock openings. This situation will continue to be monitored but no additional harvesting access to constrained areas within the SRMP is planned at this time.

Objective 5 **Manage infectious outbreaks of forest diseases and pests in accord with objectives for other resource values identified in the SRMP.**

Strategy 5.1 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 Quesnel 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 MPB 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.

Objective 6 **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 OGMAs 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 minerals⁹ and coal; exploration and development of placer mines in designated placer areas.**

⁹ Mineral as defined in the *Mineral Tenure Act*, RSBC, 1996, Chapter 292, Part 1(1).

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 6. No-harvest areas include:

1. Old Growth Management Areas,
2. Caribou No-harvest Areas,
3. Riparian Reserves,
4. Critical Fisheries Habitat, and
5. Lake Management Zone, Class A lakes.

Strategy 6.1 Harvesting in no-harvest areas should be in accordance with accepted procedures as approved by the CMC. These procedures include but are not limited to: BCC Updates 5, 6, 7, 8, 9, 10, 11, 12 and 13.

6.36.4 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 Strategy¹⁰ 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 Guidebook¹¹.

6.3.16.4.1 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*¹² and through subsequent District initiatives.

Objective 6 ~~Objective 7~~ **Manage for biodiversity in accord with the landscape unit boundaries and biodiversity emphasis as shown on Map 4.**

6.3.26.4.2 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-

¹⁰ Biodiversity Conservation Strategy for the Cariboo-Chilcotin Land-Use Plan, July 1996 (183 pages).

¹¹ Forest Practices Code of British Columbia Biodiversity Guidebook, September 1995 (99 pages).

¹² Regional Landscape Unit Planning Strategy. June 30, 1999.

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units within landscape units. The seral objectives are derived from the Biodiversity Guidebook as modified by the Biodiversity Conservation Strategy¹³.

Old forest is being managed as spatially designated OGMAs, 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 underway currently present. As a result, mature forest within OGMAs 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 OGMAs).

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.

Definition **Old Forest:** *For the purpose of meeting Objective 8, 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, within permanent and transition old growth management areas, and no harvest areas,*
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, and*
4. *Stands meeting attribute-based criteria for old forest once those criteria are approved by the ILMB statutory authority for the Cariboo.*

Table 4 Seral Stage Definitions Used for Seral Condition Analysis in the Cariboo-Chilcotin Region¹⁴

Formatted: Bullets and Numbering

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

¹³ Biodiversity Guidebook p.9, 25, 35; Biodiversity Conservation Strategy p.40, Update #2.

¹⁴ Biodiversity Conservation Strategy for the Cariboo-Chilcotin Land-Use Plan, July 1996 (183 pages). p. 40

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NDT	Biogeoclimatic Zone	Seral stage		
		Early	Mature	Old
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 7 ~~Objective 8~~ Meet or exceed the targets for old and M+O forest, by biogeoclimatic subunit, as specified in Table 5 including:

1. Old growth management areas,
2. Replacement areas for severely damaged lodgepole pine stands that are salvage logged, as specified in Objective 9.

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

Ahbau (TFL 5) Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
3-SBSmw	26187	>11	>11	≥1.10	n/a
3-SBSdw1	385	>11	>11	≥1.10	n/a
3-SBSdw2	1860	>11	>11	≥1.10	n/a
3-SBSmh	4773	>11	>11	≥1.10	n/a
Antler Landscape Unit – Intermediate Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	8629	>36	>19	≥9.50	<22
1-ESSFwk1	18064	>36	>19	≥9.50	<22
2-SBSwk1	14504	>31	>9	≥2.25	<36
Baezaeko Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
3-SBPSdc	22518	>8	>7	≥0.70	n/a
3-SBPSmk	16999	>8	>7	≥0.70	n/a
3-SBPMC2	7952	>11	>11	≥1.10	n/a
3-SBSdw2	2591	>11	>11	≥1.10	n/a
3-MSxv	27792	>14	>14	≥1.40	n/a
Baker Landscape Unit – High Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest

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3-SBSmc2	17413	>34	>16	≥4.00	<40
3-SBSdw2	12752	>34	>16	≥4.00	<40
3-SBSmh	98	>34	>16	≥4.00	<40
3-SBSdw1	1340	>34	>16	≥4.00	<40
3-SBPSdc	9343	>25	>10	≥2.50	<50
3-SBPSmk	36954	>25	>10	≥2.50	<50
3-MSxv	2550	>39	>21	≥5.25	<35
Betty Wendle Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	5054	>19	>19		n/a
1-ESSFwk1	11157	>19	>19		n/a
1-ICHwk4	9008	>17	>13		n/a
2-SBSwk1	2159	>15	>9		n/a
Big Valley Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	2297	>19	>19	≥4.75	n/a
1-ESSFwk1	10135	>19	>19	≥4.75	n/a
2-SBSwk1	6245	>15	>9	≥0.90	n/a
Bowron Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	4216	>19	>19	≥4.75	n/a
1-ESSFwk1	9439	>19	>19	≥4.75	n/a
1-ICHwk4	347	>17	>13	≥3.25	n/a
2-ICHmk3	4212	>15	>9	≥0.90	n/a
2-SBSwk1 (Mountain)	18965	>15	>9	≥0.90	n/a
Chine Landscape Unit – Intermediate Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
3-SBSmc2	4169	>23	>11	≥2.75	<54
3-SBPSdc	45538	>17	>7	≥1.75	<66
3-MSxv	1333	>26	>14	≥3.50	<46
Clisbako Landscape Unit – Intermediate Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
3-SBPSmk	21667	>17	>7	≥1.75	<66
3-SBPSdc	8689	>17	>7	≥1.75	<66
3-MSxv	38230	>26	>14	≥3.50	<46
Coglistiko Landscape Unit – Intermediate Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
3-SBSmc2	4542	>23	>11	≥2.75	<54
3-SBPSdc	19056	>17	>7	≥1.75	<66
3-MSxv	27203	>26	>14	≥3.50	<46
Cunningham Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	8082	>19	>19	≥4.75	n/a
1-ESSFwk1	12454	>19	>19	≥4.75	n/a
1-ICHwk4	9726	>17	>13	≥3.25	n/a
Downton Landscape Unit – Intermediate Biodiversity Emphasis					

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Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
2-ESSFvx1	5619	>28	>9	≥2.25	<36
3-MSxv	32943	>26	>14	≥3.50	<46
Dragon Landscape Unit – Intermediate Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
3-SBSdw1	18305	>23	>11	≥2.75	<54
3-SBSmh	7108	>23	>11	≥2.75	<54
3-SBSdw2	29048	>23	>11	≥2.75	<54
3-SBSmc1	5671	>23	>11	≥2.75	<54
4-IDFxm (pine group)	29	>23	>11	≥5.50	<30
4-IDFxm (fir group)	600	>43	>21	≥10.50	<30
Eliguk Landscape Unit – Intermediate Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
2-ESSFmv1	539	>28	>9	≥2.25	<36
2-ESSFvx1	1096	>28	>9	≥2.25	<36
3-SBSmc2	338	>23	>11	≥2.75	<54
3-SBSmc3	1152	>23	>11	≥2.75	<54
3-SBPSmc	19472	>17	>7	≥1.75	<66
3-MSxv	7044	>26	>14	≥3.50	<46
Euchiniko Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
2-ESSFmv1	171	>14	>9	≥0.90	n/a
3-SBSmc2	18095	>11	>11	≥1.10	n/a
3-SBSmc3	3145	>11	>11	≥1.10	n/a
3-SBPSdc	31099	>8	>7	≥0.70	n/a
Gerimi Landscape Unit – Intermediate Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
2-SBSwk1	364	>31	>9	≥2.25	<36
3-SBSmw	31881	>23	>11	≥2.75	<54
3-SBSmh	6641	>23	>11	≥2.75	<54
Indianpoint Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	913	>19	>19	≥4.75	n/a
1-ESSFwk1	4169	>19	>19	≥4.75	n/a
2-SBSwk1	13297	>15	>9	≥0.90	n/a
Jack of Clubs Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	6614	>19	>19	≥4.75	n/a
1-ESSFwk1	13932	>19	>19	≥4.75	n/a
2-SBSwk1	3711	>11	>11	≥1.10	n/a
Kluskus Landscape Unit – Intermediate Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
3-SBPSdc	5971	>17	>7	≥1.75	<66
3-SBPSmc	25385	>17	>7	≥1.75	<66
3-MSxv	34235	>26	>14	≥3.5	<46
Lightning Landscape Unit – Low Biodiversity Emphasis					

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Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	3978	>19	>19	≥4.75	n/a
1-ESSFwk1	15614	>19	>19	≥4.75	n/a
2-SBSwk1	12336	>15	>9	≥0.90	n/a
3-SBSmw	2048	>11	>11	≥1.10	n/a
Marmot Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
2-ESSFmv1	15	>14	>9	≥0.90	n/a
3-SBSmc2	580	>11	>11	≥1.10	n/a
3-SBSdw2	12591	>11	>11	≥1.10	n/a
3-SBPSdc	6517	>8	>7	≥0.70	n/a
3-SBPSmk	19315	>8	>7	≥0.70	n/a
3-MSxv	7859	>14	>14	≥1.40	n/a
Matthew Landscape Unit – Intermediate Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	4632	>36	>19	≥9.50	<22
1-ESSFwk1	8072	>36	>19	≥9.50	<22
1-ICHwk4	9961	>34	>13	≥6.50	<30
Narcosli Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
3-SBSmc2	10770	>11	>11	≥1.10	n/a
3-SBSdw2	39165	>11	>11	≥1.10	n/a
3-SBSdw1	22	>11	>11	≥1.10	n/a
3-SBSmh	1697	>11	>11	≥1.10	n/a
3-SBPSmk	2368	>8	>7	≥0.70	n/a
4-IDFxm (pine group)	20	>11	>11	≥2.75	n/a
4-IDFxm (fir group)	136	>22	>21	≥5.25	n/a
Pan Landscape Unit – Intermediate Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
2-ESSFv1	8969	>28	>9	≥2.25	<36
3-SBSmc3	480	>23	>11	≥2.75	<54
3-SBPSmc	13942	>17	>7	≥1.75	<66
3-MSxv	25507	>26	>14	≥3.50	<46
Pantage Landscape Unit – Intermediate Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
2-ESSFmv1	768	>28	>9	≥2.25	<36
3-SBSmc2	10175	>23	>11	≥2.75	<54
3-SBSdw1	3040	>23	>11	≥2.75	<54
3-SBSdw2	16710	>23	>11	≥2.75	<54
3-SBPSmk	40285	>17	>7	≥1.75	<66
3-SBPSdc	20	>17	>7	≥1.75	<66
Pelican Landscape Unit – Intermediate Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
2-ESSFmv1	691	>28	>9	≥2.25	<36
3-SBSmc2	3526	>23	>11	≥2.75	<54
3-SBSdw2	6588	>23	>11	≥2.75	<54
3-SBPSdc	57822	>17	>7	≥1.75	<66

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Ramsey Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
3-SBSdw2	5519	>11	>11	≥1.10	n/a
3-MSxv	13898	>14	>14	≥1.40	n/a
3-SBPSdc	4399	>8	>7	≥0.70	n/a
3-SBPSmk	41022	>8	>7	≥0.70	n/a
4-IDFdk3 (pine group)	7	>11	>11	≥2.75	n/a
4-IDFdk3 (fir group)	29	>22	>21	≥5.25	n/a
Sandy Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	3110	>19	>19	≥4.75	n/a
1-ESSFwk1	3499	>19	>19	≥4.75	n/a
1-ICHwk4	7513	>17	>13	≥3.25	n/a
2-ICHmk3	1947	>15	>9	≥0.90	n/a
Snaking Landscape Unit – Intermediate Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
2-ESSFmv1	200	>28	>9	≥2.25	<36
3-SBSmc2	18174	>23	>11	≥2.75	<54
3-SBSdw2	262	>23	>11	≥2.75	<54
3-SBPSmk	23268	>17	>7	≥1.75	<66
3-SBPSdc	17024	>17	>7	≥1.75	<66
Swift Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	10084	>19	>19	≥4.75	n/a
1-ESSFwk1	16240	>19	>19	≥4.75	n/a
2-SBSwk1	7018	>15	>9	≥0.90	n/a
Tibbles Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
3-SBPSdc	12189	>8	>7	≥0.70	n/a
3-SBPSmk	18994	>8	>7	≥0.70	n/a
3-SBSmc2	20144	>11	>11	≥1.10	n/a
3-MSxv	10489	>14	>14	≥1.40	n/a
Toil Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
3-SBPSdc	594	>8	>7	≥0.70	n/a
3-SBPSmk	653	>8	>7	≥0.70	n/a
3-MSxv	45108	>14	>14	≥1.40	n/a
Twan Landscape Unit – High Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
3-SBSdw2	7907	>34	>16	≥4.00	<40
3-SBPSdc	11116	>25	>10	≥2.50	<50
3-SBPSmk	887	>25	>10	≥2.50	<50
3-SBPSxc (Williams Lake SRMP only)	1451	>25	>10	≥2.50	<50
4-IDFxm (pine group)	66	>34	>16	≥8.00	<23
4-IDFxm (fir group)	253	>65	>32	≥16.00	<23
4-IDFdk3 (pine group)	15754	>34	>16	≥8.00	<23

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4-IDFdk3 (fir group)	6672	>65	>32	≥16.00	<23
Umiti Landscape Unit – Intermediate Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	158	>36	>19	≥9.50	<22
1-ESSFwk1	5054	>36	>19	≥9.50	<22
2-SBSwk1	12516	>31	>9	≥2.25	<36
3-SBSmw	34437	>23	>11	≥2.75	<54
3-SBSdw1	7797	>23	>11	≥2.75	<54
3-SBSmh	1657	>23	>11	≥2.75	<54
Victoria Landscape Unit – High Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	1718	>54	>28	≥14.00	<17
1-ESSFwk1	7809	>54	>28	≥14.00	<17
2-SBSwk1	17414	>46	>13	≥3.25	<27
3-SBSmw	29039	>34	>16	≥4.00	<40
Wentworth Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
3-SBPSdc	20785	>8	>7	≥0.70	n/a
3-SBPSmk	17371	>8	>7	≥0.70	n/a
3-SBPMC2	1868	>11	>11	≥1.10	n/a
3-MSxv	20134	>14	>14	≥1.40	n/a
Whittier Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
3-SBSdw1	22587	>11	>11	≥1.10	n/a
3-SBSdw2	12542	>11	>11	≥1.10	n/a
3-SBSmh	3075	>11	>11	≥1.10	n/a
3-SBPSmk	8756	>8	>7	≥0.70	n/a
3-SBPMC2	552	>11	>11	≥1.10	n/a
Willow Landscape Unit – Low Biodiversity Emphasis					
Natural Disturbance Type – Biogeoclimatic Variant	Area (ha)	Mature+Old Forest	Old Forest	Interior Old Forest**	Early Seral Forest
1-ESSFwc3	1355	>19	>19	≥4.75	n/a
1-ESSFwk1	21489	>19	>19	≥4.75	n/a
2-SBSwk1	22655	>15	>9	≥0.90	n/a

*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 8 **Objective 9** Consistent with Objective 8(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) ¹		
		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		
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

¹Within 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 seral condition against the objectives and strategies 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. Definitions of the fir and pine groups are from the BCC update #3.

Table 7 Amalgamation of Small NDT-BEC Units Used for Assessment of Seral Objectives in the QSRMP

Landscape Unit	Natural Disturbance Type – Biogeoclimatic Variant Amalgamations
Ahbau	SBSdw1 + SBSdw2 + SBSmh + SBSmw
Baezaeko	SBSdw2 + SBPSdc
Baker	a) MSxv + SBPSmk b) SBSmh + SBSdw1 + SBSdw2
Betty Wendle	SBSwk1 + ICHwk4
Big Valley	ESSFwc3 + ESSFwk1
Bowron	a) ICHwk4 + ICHmk3 + SBSwk1 b) ESSFwc3 + ESSFwk1

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Landscape Unit	Natural Disturbance Type – Biogeoclimatic Variant Amalgamations
Chine	MSxv + SBS mc2 + SBPSdc
Coglistico	SBSmc2 + SBPSdc
Dragon	IDFxm + SBSmh
Eliguk	a) ESSFvx1 + MSxv b) SBSmc2+ SBSmc3 + ESSFmv1 + SBPSmc1
Euchiniko	ESSFmv1 + SBSmc3 + SBSmc2
Gerimi	SBSwk1 + SBSmw
Indianpoint	ESSFwc3 + ESSFwk1
Lightning	a) ESSFwc3 + ESSFwk1 b) SBSmw + SBSwk1
Marmot	ESSFmv1 + SBSmc2 + SBPSmk
Matthew	ESSFwc3 + ESSFwk1
Narcosli	SBPSmk + SBSdw1 + SBSmh + IDFxm + SBSdw2
Pan	SBSmc3 + SBPSmc
Pantage	a) ESSFmv1 + SBSmc2 b) SBSdw1 + SBSdw2 + SBPSdc
Pelican	ESSFmv1 + SBSmc2 + SBPSdc
Ramsey	IDFd3 + SBPSdc + SBPSmk
Sandy	a) ICHmk3 + ICHwk4 b) ESSFwc3 + ESSFwk1
Snaking	a) ESSFmv1 + SBSmc2 b) SBSdw2 + SBPSdc
Toil	SBPSdc + SBPSmk + MSxv
Twan	a) IDFxm + IDFd3 b) SBPSmk + SBPSxc (Williams Lake only) + SBPSdc
Umiti	a) ESSFwc3 + ESSFwc1 b) SBSmh + SBSdw1
Victoria	ESSFwc3 + ESSFwk1
Wentworth	SBSmc2 + SBPSmk
Whittier	SBSmh + SBSmc2 + SBSdw2
Willow	ESSFwc3 + ESSFwk1

6.3.36.4.3 Old Growth Management Areas

Old forest objectives are achieved in the short and long term through a combination of permanent OGMAs, rotating, 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 area deemed to contribute to old forest 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 WTPs. 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 oldest available forest to

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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 #2¹⁵. Where possible, OGMA's 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 9 **Objective 10** Maintain the permanent old growth management areas as shown on Map 5, subject to the provisions set out in Objective 6 for no-harvest areas.

Objective 10 **Objective 11** Maintain permanent OGMA's by replacing any areas that are removed or harvested with suitable areas of equivalent size in the same landscape unit-biogeoclimatic subunit.

Strategy 10.4 **Strategy 11.1** Replacement areas for portions of OGMA's removed or salvage harvested must be approved by the ILMB statutory decision maker.

Objective 11 **Objective 12** Maintain the transition OGMA's as shown on Map 5, subject to the provisions set out in Objective 6 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.

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 percent of the productive forest in a given CCLUP zone (adapted from: CCLUP Integration Report, 1998).*

OGMA's 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 OGMA's according to the definition provided for old forest and in consideration of the specifications in Table 8. Except where mature stands show a high proportion of dead pine as defined in BCC Update #8 and #9, 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 OGMA's.

¹⁵ CCLUP Biodiversity Conservation Strategy Update #2.

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 below the targets listed in Table 5.

Table 8 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					Lakes and large (“double-line”) rivers and roads
	Mature (> 120 years)	101-120 years	41-100 years	0-40 years	Non-Productive and Non-forested	
Old	50	50	100	200	100	100
Mature	N/A	50	100	200	100	100

6.3.46.4.4 Distribution of Cut and Leave Areas

The CCLUP (p. 153) ~~requires planning~~ identifies the need to plan for temporal and spatial distribution of cutblocks. ~~This means 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 ~~provided for~~ prescribed under the Operational Planning Regulation of the ~~Forest Practices Code. Included FPC~~ and the Planning and Practices Regulation in 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. Achievement of this distribution of cut and leave areas will be severely altered in ecosystems where there is salvage activity directed at MPB-attacked timber. The direction to leave additional retention in areas subject to salvage harvest was intended to partially compensate for this.

Temporal distribution of cutblocks is also addressed through seral stage objectives. Early seral objectives are ~~particularly 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 ~~into 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. In ecosystems that are the focus of MPB salvage it will not be possible to manage for the early seral guideline in the short term.

~~Consistent with Biodiversity Strategy Update #4, older (mature and/or old forest) patches are defined by seral stage, while younger patches, including harvest patches, are defined by 20-year forest cover age class. Patches cross natural disturbance type and biogeoclimatic unit boundaries but do not cross Landscape Unit boundaries.~~ 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 ~~409~~ provides some guidance with respect to size of retention patches. Small retention patches are expected to be plentiful due to harvest history and natural

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disturbance and are therefore not included as part of the management focus (see also Section 6.4.5).

Recommendation Spatially locate available M+O forest, excluding OGMAs, to meet biodiversity distribution according to the following needs in order of priority:

1. Rare plant communities as identified by government,
2. M+O forest patches \geq the sizes listed in Table 9,
3. Ecosystem connectivity according to the principles listed in Table 10.

Table 9 Mature+Old Retention Patch Size Targets for the Quesnel 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

6.3-56.4.5 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 network¹⁶. Management to reduce fragmentation and maintain connectivity should be guided by the type and degree of connectivity found in each natural disturbance type.

¹⁶ Biodiversity Guidebook, p. 4, 19-20, 26-27, 35-36, 46-48, 52, 53-59, 74.

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

Table 10 Principles for Landscape Connectivity

NDT	Connectivity Characteristics	Frequency of Occurrence		
1	Upland to upland	High		
	Upland to stream	High		
	Upland to wetland	High		
	Cross-elevational	High		
	Wetland complex	Low to moderate		
	Stream riparian	High		
	Island remnants	Low		
2	Upland to upland	High		
	Upland to stream	Moderate		
	Upland to wetland	Moderate		
	Cross-elevational	High		
	Wetland complex	Low		
	Stream riparian	High		
	Island remnants	Low		
3		SBPS, SBSdk / mk / mc3 / wk1 / dw	MSxv	All other sub-zones
	Upland to upland	Low	Mod to high	Low to mod.
	Upland to stream	Low	Mod to high	Low to mod.
	Upland to wetland	Low	Mod to high	High
	Cross-elevational	Low	Low	Moderate
	Wetland complex	High	High	Moderate
	Stream riparian	Low	Low	High
	Island remnants	High	Moderate	Moderate
	4			IDFdk
Upland to upland			Mod to High	High
	Upland to stream		Mod to High	High
	Upland to wetland		Mod to High	High
	Cross-elevational		Low	High
	Wetland complex		High	Low to Mod
	Stream riparian		Low	High
	Island remnants		Moderate	Low
	5	All	Contiguous tracts of late seral to climax vegetation, with a few small early seral patches.	

6.46.5 Stand Level Biodiversity

6.4.16.5.1 Rare Ecosystems

The CCLUP (p. 153-154, 156) ~~requires~~ identifies the need for protection and maintenance 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) but it always functions as a unit. 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 area¹⁷.

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 it is likely not all have been identified and documented to date ~~most rare ecosystems have not been~~.

Some rare ecosystems have 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 Quesnel SRMP area.

6.4.26.5.2 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 ~~if~~ 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. ~~Contact WLAP for precautions to be taken near specific habitat features.~~

Objective 12 — ~~Manage industrial and commercial activities to ensure, where encountered, that~~The list of sensitive species and habitats ~~and habitat features supporting sensitive species, as identified in Table 12, are not damaged or disturbed so as to render them ineffective.~~

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¹⁷ Biodiversity Guidebook, p. 76; CCLUP Biodiversity Conservation Strategy p. 47-48.

including management guidelines will be provided in “Wildlife Habitat Features in Summary of Management Guidelines, Southern Interior Forest Region” by MOE Ecosystems Branch.

Objective 13 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 12.1~~

~~Strategy 12.2 Strategy 13.1 Definition Natal Areas: Specific topographic habitat features used by ungulates during Manage according to the list and guidelines contained in “Wildlife Habitat Features: Summary of Management Guidelines. Southern Interior Region.” prepared by MOE, (2004). Habitat will be maintained within the birthing period (early May-early June) and imprinting phase of mother-young social development. Natal areas are often secluded and isolated areas that provide reduced risk of predation and allow critical initial developmentbalance of mother-young bonds. These areas typically include cliffs used by mountain sheep and mountain goats where mother and offspring are temporarily isolated from social groups or bands for approximately one week, after which they group together to form nursery bands (3-4weeks) before moving to summer ranges.CCLUP land use constraints.~~

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~~6.4.36.5.3~~ **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 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

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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.

As part of the increase in AAC to address MPB, the Chief Forester has recommended stand level retention increase in affected areas, with retention in some cases up to 20 percent of the cutblock area. Implementation of this increase does not constitute an EEA impact as it applies only in the short term and addresses the portion of dead timber that is assumed to not be harvestable within economic timeframes.

Many individual wildlife tree patches can be harvested and replaced over time consistent with the CCLUP Integration Report 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 13 ~~Objective 14~~ **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 11, where harvesting removes >50 percent of the stand basal area or where the harvest is the preparatory cut of a shelterwood silvicultural system.**

~~Strategy 13.1~~ **Strategy 14.1** Design wildlife tree reserves according to the management principles in BCC Update #12.

~~Objective 14~~ **Objective 15** **Where feasible, retain high-value, wildlife trees up to the limits in Table 11 in partially cut stands having >50 percent basal area remaining after harvest.**

~~Strategy 14.1~~ **Strategy 15.1** 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 11 Wildlife Tree Retention Targets

Landscape Unit – Biogeoclimatic sub-unit	Minimum Wildlife Tree Retention Target (% gross harvest area)
Ahbau (TFL 5)	
3-SBSmw	6
3-SBSdw1	6
3-SBSdw2	6
3-SBSmh	3
Antler	
1-ESSFwc3	2

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Landscape Unit – Biogeoclimatic sub-unit	Minimum Wildlife Tree Retention Target (% gross harvest area)
1-ESSFwk1	8
2-SBSwk1	9
Baezaeko	
3-SBPSdc	8
3-SBPSmk	8
3-SBSmc2	8
3-SBSdw2	8
3-MSxv	7
Baker	
3-SBSmc2	7
3-SBSdw2	8
3-SBSmh	8
3-SBSdw1	6
3-SBPSdc	8
3-SBPSmk	8
3-MSxv	8
Betty Wendle	
1-ESSFwc3	0
1-ESSFwk1	0
1-ICHwk4	0
2-SBSwk1	0
Big Valley	
1-ESSFwc3	7
1-ESSFwk1	8
2-SBSwk1	9
Bowron	
1-ESSFwc3	3
1-ESSFwk1	6
1-ICHwk4	3
2-ICHmk3	7
2-SBSwk1	4
Chine	
3-SBSmc2	7
3-SBPSdc	5
3-MSxv	7
Clisbako	
3-SBPSmk	8
3-SBPSdc	7
3-MSxv	7
Coglistiko	
3-SBSmc2	7
3-SBPSdc	6
3-MSxv	6
Cunningham	
1-ESSFwc3	5
1-ESSFwk1	7
1-ICHwk4	7
Downton	
2-ESSFxv1	15
3-MSxv	15
Dragon	

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Landscape Unit – Biogeoclimatic sub-unit	Minimum Wildlife Tree Retention Target (% gross harvest area)
3-SBSdw1	8
3-SBSmh	8
3-SBSdw2	8
3-SBSmc1	8
4-IDFxm (pine group)	8
4-IDFxm (fir group)	8
Eliguk	
2-ESSFmv1	7
2-ESSFv1	0
3-SBSmc2	7
3-SBSmc3	7
3-SBPSmc	6
3-MSxv	4
Euchiniko	
2-ESSFmv1	8
3-SBSmc2	6
3-SBSmc3	7
3-SBPSdc	6
Gerimi	
2-SBSwk1	6
3-SBSmw	7
3-SBSmh	7
Indianpoint	
1-ESSFwc3	1
1-ESSFwk1	6
2-SBSwk1	6
Jack of Clubs	
1-ESSFwc3	5
1-ESSFwk1	6
2-SBSwk1	7
Kluskus	
3-SBPSdc	6
3-SBPSmc	6
3-MSxv	4
Lightning	
1-ESSFwc3	6
1-ESSFwk1	9
2-SBSwk1	9
3-SBSmw	8
Marmot	
2-ESSFmv1	9
3-SBSmc2	8
3-SBSdw2	8
3-SBPSdc	8
3-SBPSmk	8
3-MSxv	7
Matthew	
1-ESSFwc3	4
1-ESSFwk1	8
1-ICHwk4	10
Narcosli	

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Landscape Unit – Biogeoclimatic sub-unit	Minimum Wildlife Tree Retention Target (% gross harvest area)
3-SBSmc2	9
3-SBSdw2	9
3-SBSdw1	10
3-SBSmh	7
3-SBPSmk	8
4-IDFxm (pine group)	8
4-IDFxm (fir group)	9
Pan	
2-ESSFv1	0
3-SBSmc3	7
3-SBPSmc	6
3-MSxv	4
Pantage	
2-ESSFmv1	8
3-SBSmc2	8
3-SBSdw1	8
3-SBSdw2	8
3-SBPSmk	8
3-SBPSdc	9
Pelican	
2-ESSFmv1	7
3-SBSmc2	7
3-SBSdw2	7
3-SBPSdc	7
Ramsey	
3-SBSdw2	9
3-MSxv	9
3-SBPSdc	9
3-SBPSmk	9
4-IDFdk3 (pine group)	10
4-IDFdk3 (fir group)	10
Sandy	
1-ESSFwc3	0
1-ESSFwk1	0
1-ICHwk4	0
2-ICHmk3	0
Snaking	
2-ESSFmv1	9
3-SBSmc2	8
3-SBSdw2	8
3-SBPSmk	8
3-SBPSdc	8
Swift	
1-ESSFwc3	3
1-ESSFwk1	8
2-SBSwk1	9
Tibbles	
3-SBPSdc	8
3-SBPSmk	8
3-SBSmc2	8
3-MSxv	7

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Landscape Unit – Biogeoclimatic sub-unit	Minimum Wildlife Tree Retention Target (% gross harvest area)
Toil	
3-SBPSdc	7
3-SBPSmk	6
3-MSxv	2
Twan	
3-SBSdw2	8
3-SBPSdc	8
3-SBPSmk	9
3-SBPSxc	8
4-IDFxm (pine group)	6
4-IDFxm (fir group)	7
4-IDFdk3 (pine group)	8
4-IDFdk3 (fir group)	7
Umiti	
1-ESSFwc3	4
1-ESSFwk1	10
2-SBSwk1	11
3-SBSmw	10
3-SBSdw1	10
3-SBSmh	10
Victoria	
1-ESSFwc3	5
1-ESSFwk1	6
2-SBSwk1	8
3-SBSmw	7
Wentworth	
3-SBPSdc	9
3-SBPSmk	9
3-SBSmc2	9
3-MSxv	8
Whittier	
3-SBSdw1	8
3-SBSdw2	8
3-SBSmh	8
3-SBPSmk	8
3-SBSmc2	8
Willow	
1-ESSFwc3	5
1-ESSFwk1	8
2-SBSwk1	9

6.4.46.5.4 Species Composition

The CCLUP (p. 153) requires management for 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, recognising that some natural variation occurs in plant communities.

Recommendation ~~to~~ Maintain or regenerate a significant component of the Interior Cedar-Hemlock Zone maintain significant cedar and hemlock representation in second-growth stands dominant climax tree species appropriate to the site in all harvest units.

6.4.56.5.5 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 15~~ **Objective 16** Establish riparian reserve zones and riparian management zones consistent with the specifications in Table 12.

Table 12 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)
Streams					
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
Wetlands and shrub-carrs					
Any location	> 5 ha	W1	10	40	50
	> 1 ≤ 5	W2 BG, IDFx _m	10	20	30
	> 1 ≤ 5	W3	0	30	30
	> 0.5 ≤ 1	W4 BG, IDFx _m	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
Lakes					
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 and referenced	> 1 ≤ 5	L2 BG, IDFx _m	10	20	30
	> 1 ≤ 5	L3	0	30	30

in Appendix E)	$> 0.5 \leq 1$	L4 BG, IDFxm	0	30	30
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***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 5 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 1 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 5 ha in size.

~~Objective 16~~ **Objective 17 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 16.1~~ **Strategy 17.1** 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 17~~ **Objective 17—Where logging or road-building occurs adjacent to a waterbody classified as an S4, S5 or S6 stream, W3 or W4 wetland or L3 or L4 lake, maintain the following habitat functions within the riparian management zone in accordance with the pre-harvest condition of the riparian area:**

- **1. interception of sediment to the waterbody,**
- **2. bank stability,**
- **3. shaded area of the waterbody,**
- **4. input of organic matter to the waterbody.**

Objective 18 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 18.1 Follow the “best management practices” as outlined in the Riparian Management Area Guidebook (1995).

Objective 19 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, understory habitats.

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

6.4-6.5.6 Coarse Woody Debris

Retention of coarse woody debris is identified in CCLUP (p. 153) as a component of biodiversity conservation. Coarse woody debris fulfills 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, the 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 utilizable near riparian or understory/stub retention areas,
- keeping longer debris that is not utilizable out of roadside piles,

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- 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 18~~ **Objective 20 Manage coarse woody debris by leaving it distributed across harvested areas with emphasis upon according to the following principles:**

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

~~6.5.6~~ **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 of particular importance to First Nations, guide-outfitters, trappers, hunters, and non-consumptive wildlife users.

~~6.5.16~~ **6.1 Mule Deer**

The CCLUP (p. 154-155) requires that 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 in Quesnel 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) and as described in the approved General Wildlife Measure U-5 001 for the Quesnel TSA September 27th 2006.

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 mid-winter 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 19~~ **Objective 21 Manage Crown land within the boundaries shown on Map 6 as mule deer winter range.**

~~Objective 20~~ **Objective 22** 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.*

~~6.5-26.6.2~~ **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. The CCLUP sub-unit targets (p. 83 and 85) mention the need to maintain caribou habitat as per the Quesnel Highlands caribou strategy. Quesnel Highlands caribou strategy is found within the October 2000, CCLUP Mountain Caribou strategy. 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 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~~ **Objective 23** Manage Crown land within the caribou no-harvest and caribou modified harvest areas as caribou winter range as shown on Map 6.

~~Objective 22~~ **Objective 24 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).**

~~6.5.36.6.3~~ **6.3 Northern Caribou**

The CCLUP (p. 157) and the sub-unit targets (p. 71, 91, 93 and 107) require the management of the Itcha/Ilgachuz caribou (northern caribou) through no harvest and modified harvest areas. Northern Caribou within the Quesnel SRMP area are to be managed through the CCLUP *Northern Caribou Strategy*, (March, 2002), and by other direction as accepted by the Interagency Management Committee and Regional Resource Committee.

There are an estimated 4,800 blue-listed Northern caribou. The caribou described within the Northern Caribou strategy refer to three of the five West Central Meta population herds. These are the Itcha-Ilgachuz, the Rainbow, and the Charlotte Alplands herds. These three herds consist of approximately 2,200 animals in the Cariboo region.

From a conservation perspective, the Itcha-Ilgachuz herd is very significant because it is currently one of the largest and highest density herds in the province. The conservation of the Itcha-Ilgachuz herd will be vital to the overall recovery of caribou in the Southern Mountains National Ecological area.

~~Objective 23~~ **Objective 25 Manage Crown land within the caribou no-harvest and caribou modified harvest areas as caribou winter range, as shown on Map 6, in accordance with the Northern Caribou Strategy (March, 2002).**

~~6.5.46.6.4~~ **6.4 Mountain Goat**

Mountain goats are regionally important and are “identified wildlife” under the ~~Forest Practices Code~~ **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 ~~such as include~~ natal areas, escape terrain, ~~should be designated as Wildlife Habitat Areas with mandatory management requirements under the Managing Identified Wildlife Procedures and Measures (p. 103-104)~~ 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.

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

~~Objective 25~~ **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 25.1~~ 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 25.2~~ 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 26~~ **Objective 28** **Within mountain goat winter range, as shown on Map 6, provide security and thermal cover within 200 meters of escape terrain.**

~~Strategy 26.1~~ 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 27~~ **Objective 29** **Prevent disease transmission to mountain goats from domestic sheep used for vegetation management.**

~~Strategy 27.1~~ Strategy 29.1 Maintain separation of domestic sheep used for vegetation management and areas used by mountain goats in the summer.

6.5-56.6.5 Moose

Management for moose is identified in the CCLUP (p. 155-156), including the sub-unit targets (p. 71, 75, 83, 85, 91, 93, 107, 109, 111, 113, 115, 117). The plan specifies management to maintain moose winter, calving and summer habitat.

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. Also, for similar reasons, moose enhancement activities should be discouraged in the parts of management units 5-6, 5-12, 5-10 and 5-11 that overlap with the range of northern caribou.

~~Objective 28~~ **Objective 30** In areas identified as key wetlands or key riparian habitat for moose ~~d on Map xx and 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 28.1~~ Strategy 30.1 At least 50 percent of the wetland perimeter for wetlands over 5 ha should be maintained as advanced immature or mature forest cover.

~~Strategy 28.2~~ Strategy 30.2 Avoid broadcast herbicide treatments within the riparian management area of wetlands.

~~Strategy 28.3~~ 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.

~~6.5-6.6~~ **6.6 Grizzly Bear**

Management of grizzly habitat is referenced in several of the CCLUP sub-zone objectives (p. 61 to 133), 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 limiting

habitat. See the Identified Wildlife Strategy¹⁸ 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 herb dominated avalanche tracks and run-out zones on southerly and westerly aspects.*

Objective 29 **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 29.1~~ **Strategy 31.1** Follow the management principles for grizzly bear outlined in the Identified Wildlife Management Strategy (2004).

6.5-76.6.7 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.

¹⁸Accounts and Measures for Managing Identified Wildlife, MOE. 2004.

6.66.7 Species and Habitats at Risk

The CCLUP (p. 156), including subunit targets (p. 60 to 133), states that species and habitats at risk should be protected using wildlife habitat areas, sensitive areas, or other appropriate land designations for their management. 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 on the red or blue list 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 C. The Identified Wildlife Management Strategy 2004 addresses only those species specified in the MOE ~~has an~~ order under FRPA. The ~~protection of~~ species occurring in the Cariboo, listed under the order, are as follows ~~at risk as listed below~~:

- Great Basin Spadefoot Toad
- Great Basin Gopher Snake
- Flammulated Owl
- Lewis's Woodpecker
- Short-eared Owl
- Burrowing Owl
- Yellow-breasted Chat
- Long-billed Curlew
- Wolverine (subspecies)
- Badger
- Fringed Myotis
- Pallid Bat
- Spotted Bat
- Mountain and Northern Caribou
- Grizzly Bear

For district specific species see Appendix C or contact Ministry of Environment.

~~Objective 30~~ **Objective 32 Minimize disturbance and maintain habitat necessary to sustain species at risk as listed in the Identified Wildlife Management Strategy (2004) and its updates.**

~~Strategy 30.4~~ 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.

6.76.8 Aquatic Resources

Under CCLUP, management of aquatic biodiversity and fish habitat is largely addressed through ~~the conservation of~~ riparian ~~habitat section combined~~ areas in combination with ~~the other~~ specific ~~issues addressed~~ initiatives discussed in this section. ~~The CCLUP (page 164) expects general~~ Application of the FPC is recognized as a major tool in addressing water quality ~~to be conserved through application of the Forest Practices~~

~~Code, the Forest and Range Practices Act, and the other objectives and strategies of the SRMP-concerns (p. 164).~~

6.7.16.8.1 Watershed Hydrology

Direction contained under the CCLUP sub unit descriptions (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 percent, 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 ha¹⁹, 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 assessment²⁰ 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.

6.7.26.8.2 Fish

The QSRMP 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 CCLUP specifically mentions the Blackwater River (p. 91) and the Upper Dean (p. 71) to be managed for quality wilderness stream fisheries and quality stream fisheries respectively, as well as the need to restore the fisheries habitat values in Baker Creek.

The CCLUP identified specific watersheds 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 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:

¹⁹ Interior Watershed Assessment Procedure Guidebook (IWAP) Second Edition, Version 2.1, April 1999: page 2.

²⁰ Fisheries Target Risk Assessment Prepared for the CCLUP Integration Process, August 15, 1996 (2 cover letters +19 pages + 1 map).

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- Defined lake shore areas 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 natural water quality and temperatures for the receiving, fish bearing streams.

~~Objective 31~~ **Objective 33 Maintain or enhance fish passage, natural channel width, streambed substrate and water quality at all new road crossings of fish streams.**

~~Strategy 31.1~~ **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 32~~ **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 percent, perform watershed assessments using accepted procedures and manage roads with erosion control plans.

~~Objective 33~~ **Objective 35 Manage the areas shown as critical fish habitat on Map 8 as No-harvest Areas.**

6.7.2.16.8.2.1 Salmon

The CCLUP specifies that the Dean River, Baezaeko River, Cariboo River, Bowron River, Cottonwood River, Quesnel River, Horsefly, Nazko River, Beaver Creek, Hazeltine Creek, and Edney Creek watersheds and Fraser River mainstem and banks to be managed for salmon stocks through riparian area protection and controls on the

rate of harvest (p. 71, 83, 85, 107, 109, 111, 113, 115, 117). The salmon species present are pink, chinook, coho, and sockeye. The CCLUP (p. 168-169) includes a list of specific objectives for salmon management.

6.7.2-26.8.2.2 Bull Trout

Bull trout 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. Additional critical fish habitat for bull trout is likely to exist within the plan area.

6.7.36.8.3 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. The CCLUP (p. 113) ~~requires~~ 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 is expected to result from the water management strategy.

6.86.9 Lakes

The CCLUP sub-unit targets (p. 71, 75, 85, 91, 93, 109, 111 and 115) 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 13, with further details in Appendix E. The ~~CCLUP (p. 141) also requires need for~~ management of scenic landscapes ~~that contribute adjacent to a lake-fishing experience~~ lakes is also described (p. 141) and ~~the~~ CCLUP sub-unit targets (p. 70, 90, 92, 114, and 132), require management of backcountry units 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 13 Wilderness Fisheries Lakes

CCLUP Resource Management Zone Sub Unit	Approximate Number of Lakes Required by CCLUP	Lakes Identified (details provided in Appendix E)	Others

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Itcha /Ilgachuz Special Resource Development Zone	3	*1 designated, unnamed lake (1577)	1 DCH 3 ART
Lower Blackwater Special Resource Development Zone	2	2 designated, Purdy Lake (565) and unnamed lake (635)	None
Quesnel Highlands Special Resource Development Zone	0	*none	None
Quesnel Lake Special Resource Development Zone	5	*1 designated, Cameron Lake (1490)	7 Horsefly
Upper Blackwater Special Resource Development Zone	20	17 designated, Eliguk Lake (1611), Basalt Lake (1553), Goose Lake (1585), Pettry Lake (1487), Tsilbekuz Lake (1550), Naglico Lake (1391), Cluchuta Lake (1561), Tsetzi Lake (1524), Blue Lake (1476), Tsacha Lake (1040), Kluskus Lakes (996, 1044, 1095), Euchiniko Lakes (830, 13280, 13281), and Neyasri Lake (1500)	None
Kluskus Integrated Resource Management Zone	1	3 designated, Stuyvesant Lake (1636) and unnamed lakes (1294, 1312)	None
Baezaeko Enhanced Resource Development Zone	0	*1 designated, Crater Lake (1830)	None
Nazko Enhanced Resource Development Zone	1	*5 designated, Wentworth Lake (2306) and unnamed lakes (891, 2098, 2102, 2281)	None
Quesnel Enhanced Resource Development Zone	3	6 designated, Le Bourdais Lake (2121) and unnamed lakes (1321, 1331, 1384, 1738, 1765)	None
Cottonwood Enhanced Resource Development Zone	0	*none	None
Beaver Valley Enhanced Resource Development Zone	2	*none	4 Horsefly 3 W.Lake
Williams Lake Enhanced Resource Development Zone	0	*none	None
Batnuni Enhanced Resource Development Zone	0	none	None

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

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The CCLUP (p. 156) and the sub-unit targets (p. 91, 109 and 117) require that Kluskus, Owen, Pantage, and Natsy Lakes be managed for key White Pelican habitat and/or be considered for designation as WHAs.

Lakes important for tourism, recreational and/or fish and wildlife purposes have been designated into one of the five management categories. Where required, a recommended visual quality objective associated with the lakes' viewshed (section 6.9) 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 E.
 - 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 E.
 - Access Objective – variable, as specified for each lake in Appendix E.
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 E, manage LMZ as a no new development area (forestry, alienation as private land, recreation, etc.).

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- 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 E.
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 E.
 - Access Objective – as specified for each lake in Appendix E.
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 E.
 - Riparian Reserve Zone Objective – 10 meter width, no harvest.
 - Lakeshore Management Zone Objective – width and objectives as specified for each lake in Appendix E.
 - Access Objective – as specified for each lake in Appendix E.
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 Ministry of Forests in Quesnel supplied most of the information related to lake classification in the Quesnel TSA. 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 34 ~~Objective 36~~ **Maintain lake and lakeshore values by managing forest development activities in accordance with the management direction listed in Appendix E, Table 16.**

~~Strategy 34.1~~ Strategy 36.1 Within lakeshore management zones, follow the strategies listed in Appendix E, Table 17.

6.96.10 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 to 133) also provide specific direction for tourism management.

First Nations may be interested in developing cultural and heritage sites for eco-cultural tourism.

6.9.16.10.1 Recreation Corridors and Trails

~~The Scenic landscapes are recognized by~~ CCLUP (p. 141) ~~requires management for scenic~~ 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 ~~activities~~ 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) ~~directs~~ 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*²¹ 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.

The Alexander Mackenzie Heritage Trail, located between Quesnel and Bella Coola, was designated a Heritage Site under the *Heritage Conservation Act* in 1987. A heritage management plan was developed for the Crown land portion of the trail in 1993 for the purpose of protecting the trail's provincially and nationally significant heritage values. The CCLUP sub-unit targets specify that the measures in the "Alexander Mackenzie Heritage Trail Management Plan" should be implemented.

Recommendation For operations occurring on or in close proximity to the Alexander Mackenzie Heritage Trail implement the measures included in the "Alexander Mackenzie Heritage Trail Management Plan".

²¹ Recreation Corridor Management Strategy: Cariboo Chilcotin Land Use Plan, October 1, 1996 (54 pages).

Objective 35 **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, except where natural disturbance has severely compromised the wilderness character and visual buffering effect of the management zone.

~~Strategy 35.1~~ 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.

~~Strategy 35.2~~ Strategy 37.2 Avoid disturbing the trail bed. If disturbance does occur, restore trail to its original state.

~~6.9.26.10.2~~ **Backcountry**

Targets were established for the amount of area to be managed in backcountry condition in each sub-unit (CCLUP p. 60 to 133). 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. ~~144~~) specifies ~~that sustainable resource management plans will determine the appropriate mix of Recreation Opportunity Spectrum classes in backcountry areas. The CCLUP (p. 144, 140)~~ specifies that tranquil settings, with forest operations conducted outside the peak tourism season, are ~~required~~ 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 viewscapes, forests, watercourses, lakes, and recreation features. In all backcountry units, the over-riding management consideration is maintenance of the overlapping non-timber resource value within the backcountry unit. Some harvesting will occur over time in these areas²², 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.

²² Government Clarification of Key Components of the CCLUP (5 pages), September 27, 1996.

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

Table 14 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
DQ – 1	Alexander Mackenzie Grease Trail, trails leading into Itcha Ilgachuz Park, caribou habitat, hiking, wildlife viewing and hunting.
DQ – 2	Alexander Mackenzie Grease Trail, key lakes, fishing, hunting, hiking, wildlife viewing and canoeing.
DQ – 3	Alexander Mackenzie Grease Trail, trails along the Blackwater River, river rafting, hiking, key lakes, fishing.
DQ – 4	Hiking, guide outfitting, hunting, key lakes and trails leading into Itcha Ilgachuz Park.
DQ – 5&6	Fishing, wildlife viewing, hunting, canoeing, key lakes.
DQ – 7	Boating & sight seeing along the Fraser River.
DQ – 8	Rafting, wildlife viewing, hiking and fishing.
DQ – 9	River rafting, canoeing, kayaking and fishing.
DQ – 10	Mountain Caribou, motorized and non-motorized trails, backcountry hiking, skiing, snowboarding, snowmobiling, cross-country skiing, wildlife viewing, Cariboo Wagon Road heritage trail.
DQ – 11 & 12	Mountain Caribou, backcountry hiking, skiing and snowboarding, snowmobiling.

6.9-36.10.3 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. 70, 74, 82, 84, 90, 92, 106, 108, 110, 112, 114, 118, 132) 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.

~~Objective 37~~ **Objective 39 Manage the areas shown on Map 10, as scenic areas as viewed from the designated viewpoints, consistent with Table 22 in Appendix I.**

~~Strategy 37.1~~ **Strategy 39.1** Maintain the visual quality of the areas shown on Map 10, from the designated viewpoints, consistent with Table 17 in Appendix F.

~~Strategy 37.2~~ **Strategy 39.2** Design disturbances (roads, cutblocks, landings) to mimic naturally occurring line, form, and texture of the viewshed. Design opening size to reflect the existing scale of natural openings, vegetation patterns, and natural features.

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

6.106.11 Mineral and Aggregate Resources

The CCLUP (p. 9-10, 135-138, 181), including the zonal and sub-unit targets (p. 60 to 133), specifies that mineral exploration and development are appropriate land uses

throughout the SRMP area, excluding parks and 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 Special Resource Development Zone.

Recommendation Government should review all no-staking reserves, and amend or rescind those that are obsolete.

6.146.12 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.

6.126.13 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.

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The CCLUP sub-unit targets (p. 60 to 133) require that the current authorized level of grazing, defined in Animal Unit Months, be maintained by subzone and by Range Unit (see Table 15). 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.”²³

Objective 38 ~~Objective 38~~ **Objective 40** 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 38.1~~ **Strategy 40.1** 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 15 CCLUP and QSRMP Target Animal Unit Months in 1994 by CCLUP Resource Development Zone

CCLUP Sub-unit	Animal Unit Months CCLUP Target (Entire Zones)
Itcha/Ilgachuz SRDZ	4,603
Lower Blackwater SRDZ	2,683
Quesnel Highlands SRDZ	112
Quesnel Lake SRDZ	4,883
Upper Blackwater SRDZ	244
Kluskus IRMZ	135
Chezacut IRMZ	19,422
Baezaeko ERDZ	524
Nazko ERDZ	9,135
Quesnel ERDZ	15,432
Cottonwood ERDZ	84
Beaver Valley ERDZ	40,076
Williams Lake ERDZ	34,501
Palmer ERDZ	7,050
Batnuni ERDZ	895
Total	139,779

²³ Amendment to the Cariboo Chilcotin Land Use Plan, May 31, 1996 (1 page).

*Existing Authorized Animal Unit Months were higher than CCLUP targets

6.136.14 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 <i>Farm Practices Protection (Right to Farm) Act</i> .

Objective 39 Objective 41 Manage livestock to prevent damage to riparian vegetation, bank stability, fish habitat, and water quality in streams, lakes, and wetlands.

6.146.15 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 QSRMP 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.

The cumulative effects of crown land alienation on all CCLUP values should be carefully monitored and periodically reviewed by the CMC.

6.156.16 Wildcraft (Botanical Forest Products)

The CCLUP (p. 146) requires the maintenance and enhancement of the present (1994) 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. Wildcraft resources should be mapped as they become known.

The CCLUP (p. 146), through sub-unit targets (p. 60 to 133), requires the maintenance of specified levels of roaded access for the purpose of wildcraft harvesting.

6.166.17 Trapping

The CCLUP (p. 177 and Appendix 1) acknowledges that trapping will proceed in all zones, including 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 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).

6.176.18 Access

The CCLUP (p. 159) recognized the need for an access management strategy, with a further requirement to address specific issues. A Regional Access Management

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Strategy²⁴ 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.

“Access” means the ability to enter Crown land; the mode of travel may be motorised, which may include commercial vehicles, four or two wheel drive vehicles, all terrain vehicles, snowmobiles, aircraft and motorbikes, or may be non-motorised such as travel by foot, horse or mountain bike. The “roaded access” targets of the CCLUP subunits (p. 60 to 133) 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*²⁵ 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 the *Mountain Caribou Strategy*²⁶. 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 17 in Appendix E for any existing 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 and exit points.
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Objective 40 Objective 40 Objective 42 Locate new roads away from refugia and wilderness fisheries lakes, sufficient to maintain lake management direction (Appendix E) unless no other practicable route exists.

Strategy 40.1 Strategy 42.1 Locate new, permanent roads >2000m from wilderness fisheries lakes, or consistent with alternative locations agreed to by the MOE, Environmental Stewardship Division

²⁴ Cariboo Chilcotin Land Use Plan Regional Access Management Strategy, August 9, 1996 (28 pages).

²⁵ Snowmobile Access Working Group Report, May 18, 1999 (15 pages).

²⁶ Mountain Caribou Strategy, October 2000 (77 pages + 12 maps).

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

7 Analysis Methods and Results

Spatial requirements for managing non-timber resources were mapped on separate layers during the SRMP 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.

ArclInfo GIS version 8.1 was used to perform GIS operations with map layers stored in "Coverage" format. ArclInfo 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 Report²⁷ and later became higher level plan objectives²⁸. In addition the IAMC has endorsed the prorated portions of the corresponding no-harvest targets, expressed at both the CCLUP sub-unit and SRMP levels²⁹. The QSRMP prorated portion of the no-harvest target is 20 percent.

Timber harvesting access is defined³⁰ 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, 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 analysis, analysis assumptions, mule deer adjustments, S4/S6 stream calculations, and relevant background information are contained in a separate document, Analysis Procedures and Results.

²⁷ Cariboo-Chilcotin Land Use Plan Integration Report, April 6, 1998 (59 pages).

²⁸ 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).

²⁹ 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).

³⁰ Cariboo-Chilcotin Land Use Plan Integration Report, April 6, 1998 (pages 11 - 12).

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 OGMA 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 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 Forest Practices Code wildlife tree retention.

In addition to WTR percentage targets by Landscape Unit/Biogeoclimatic Ecosystem Classification (LU/BEC) unit, 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 (including that transferred from S4s) stream riparian management zones
 - wetland and shrub-carr riparian management zones
 - 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 QSRMP 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 QSRMP will be implemented by:

1. Provision of the plan, once approved by the 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 QSRMP 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 QSRMP 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, and
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.

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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 the 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.

Alienation of crown land can lead to large changes in land use. Therefore, the cumulative effects of land alienation on CCLUP land use values needs to be carefully monitored and considered to ensure that the shifts in land use still meet the desired balance of land uses.

9 Glossary of Selected Terms

Unless otherwise specified, the meanings of words used in the Quesnel 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 32, 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 6. No-harvest areas include:

1. Old Growth Management Areas,
2. Caribou No-harvest Areas,
3. Riparian Reserves,
4. Critical Fisheries Habitat, and
5. Lake Management Zone, Class A lakes.

Old Forest: To meet Objective 8, the following stands are deemed to contribute to meeting the old forest target in the order listed:

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1. old forest as described in Table 4, within permanent and transition old growth management areas, and no harvest areas,
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 approved by the ILMB statutory authority for the 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 percent 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

The following First Nations, as well as the Northern Secwepemc te Qelmucw, Carrier-Chilcotin, and Carrier Sekani Tribal Councils, and the Tsilhqot'in National Government were invited to meetings and invited to provide input to the Quesnel SRMP:

T'exelc (Williams Lake Indian Band)
Xats'ull (Soda Creek Band)
Lhoosk'uz Dene (Kluskus Band)
Lhtako (Red Bluff Band)
Nazko Band
Ulkatcho Band
Saik'uz First Nation
'Esdilagh (Alexandria Indian Band)
Tsi Del Del (Alexis Creek Indian Band)
Tl'etinqox (Anaham Indian Band)
Lheidli T'enneh

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Appendix C: 2005 Cariboo Red & Blue Listed Species Information

Common Name	Prov Status	COSEWIC Status	Breeding	Identified Wildlife	Forest Districts				
					Volume 1 1999 Version2 2004	100	Chi	Hor	Que
	r/b	E/T/SC/NAR/DD	y/n						
Reptiles									
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
Amphibians									
Great Basin Spadefoot	b	T	?	Ver2	x				x
Western Toad	n/a	SC	yes		x	x	x	x	x
Fish									
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
Invertebrates									
Familiar Bluet (Damselfly)	r		yes		x				
Hagen's Bluet (Damselfly)	b		yes						x
Birds									
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
Gyr Falcon	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				
	r/b		y/n		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
Mammals									
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	
Unconfirmed species									
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 D: 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, erodable 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 recognises that some harvesting will be undertaken *before* appropriate watershed-level planning can be completed, harvesting without requisite watershed-level planning should be minimised 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, erodable 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 Quesnel 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 *Watershed Assessment Procedure* 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 *Watershed Assessment Procedure* 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 *Watershed Assessment Procedure*) 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 E: Lake Management

Table 16 Lake Management

* Waterbody Identifiers available

**Forest Management Classes in the Lakeshore Management Zone and their objectives (see Table 17 in this appendix for associated strategies):

Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
221	093H.031	Davids Lake	31.8	10	200	A			
1040	093F.006	Tsacha Lake	1832.8	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1044	093F.008	Kluskus Lakes	164.7	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1095	093F.008	Kluskus Lakes	405.5	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1294	093F.007		60.3	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1312	093F.008		26.0	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1321	093B.100		7.0	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
13280		Euchiniko Lake 3	3.0	0	200	A	wilderness fisheries	No new permanent road access within 2 km's	
13281		Euchiniko Lake 1	442.0	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1331	093B.100		13.4	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1384	093B.100		10.1	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1476	093C.096	Blue Lake	64.5	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1487	093C.094	Petry Lake	60.2	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1490	093A.086	(Cameron Lake)	13.1	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1500	093C.096	Neyasri Lake	120.6	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
1524	093C.095	Tsetzi Lake	77.5	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1550	093C.095	Tsilbekuz Lake	247.8	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1553	093C.093	Basalt Lake	59.7	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1561	093C.095	Cluchuta Lake	136.5	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1577	093C.093		15.2	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1585	093C.094	Goose Lake	26.7	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1611	093C.093	Eliquk Lake	360.1	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1636	093C.095	Stuyvesant Lake	135.8	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
1738	093A.081		29.0	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1765	093A.081		15.4	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1830	093B.082	Crater Lake	10.8	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
2098	093B.072		31.7	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
2102	093B.072		45.4	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
2121	093A.072	Le Bourdais Lake	90.5	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
2281	093B.072		10.6	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
2306	093B.074	Wentworth Lake	115.5	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
565	093G.021	Purdy Lake	32.7	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
635	093G.022		17.9	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
830	093F.018	Euchiniko Lakes	150.7	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
891	093G.013		67.6	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
996	093F.018	Kluskus Lakes	70.4	10	200	A	wilderness fisheries	No new permanent road access within 2 km's	
1112	093H.003	Groundhog Lake	5.2	10	150	B			
1329	093G.001	Coglistiko Lake	35.4	10	150	B			
1333	093B.096	Puntchesakut Lake	219.5	10	150	B			
1391	093F.005	Naglico Lake	230.7	10	150	B	wilderness fisheries	No new permanent road access within 2 km's	
1395	093A.091	Sovereign Lakes	32.6	10	150	B			
1411	093F.004		77.1	10	200	B			

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
1420	093B.095	Puntataenkut Lake	283.5	10	150	B			
1436	093A.091	Sovereign Lakes	32.9	10	150	B			
1523	093C.093		50.4	10	150	B			
1543	093B.092	Fishpot Lake	89.0	10	150	B			
1623	093B.093	Marmot Lake	55.5	10	150	B			
1974	093B.080	Nyland Lake	54.9	10	150	B			
2101	093A.071	Maud Lake	163.0	10	150	B			
213	093H.034		20.6	10	150	B			
2420	093B.066	Tzenzaicut Lake	811.5	10	150	B			
253	093F.040	Comstock Lake	123.1	10	150	B			
257	093F.040	Batnuni Lake	521.4	10	150	B			
308	093G.031		15.6	10	150	B			
316	093G.030	Ahbau Lake	819.7	10	150	B			
319	093G.031	Hanham Lake	57.2	10	150	B			
337	093G.031		7.4	10	150	B			
348	093G.031		10.1	10	150	B			
361	093G.031		16.5	10	150	B			
364	093G.031		58.3	10	150	B			
388	093G.032	Titetown Lake	311.0	10	150	B			
491	093G.023		163.7		150	B			
494	093G.022		11.0	10	150	B			
501	093G.022		7.3	10	100	B			

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
502	093G.022		6.5	10	150	B			
504	093G.023	Nuntzun Lake	52.4	10	150	B			
526	093G.023		6.5	10	150	B			
531	093G.023		22.0	10	150	B			
535	093G.022	Yimpakluk Lake	66.1	10	150	B			
637	093G.025	Pantage Lake	383.7	10	150	B			
769	093G.016	Emerald Lake	11.8	10	150	B			
793	093G.016		9.8	10	150	B			
887	093H.002		7.1	10	150	B			
1015	093F.010		74.5	10	100	C			
1017	093F.019		22.9	10	100	C			
1023	093F.019		52.1	10	100	C			
1029	093G.009	Davey Lake	17.2	10	100	C			
1034	093F.010		45.3	10	100	C			
1057	093G.009	Sixteen Mile Lake	18.1	10	100	C			
1078	093F.009		7.4	10	100	C			
1086	093G.010		8.4	10	100	C			
1089	093H.001	Wingdam Lake	6.9	10	100	C			
1109	093F.009		35.5	10	100	C			
111	093G.041		87.8	10	100	C			
1124	093G.003		16.7	10	100	C			
1132	093G.005		14.9	10	100	C			

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
1138	093G.006	Squamish Lake	17.5	10	100	C			
1140	093A.095		12.4	10	100	C			
1142	093G.001		5.8	10	100	C			
1158	093A.095		7.0	10	100	C			
1159	093A.095		7.6	10	100	C			
1162	093G.003		15.3	10	100	C			
1170	093G.010		19.9	10	100	C			
1178	093G.001		12.1	10	100	C			
1188	093G.009	Kenny Lake	16.6	10	100	C			
1191	093G.002		40.4	10	100	C			
1217	093G.002		35.1	10	100	C			
1262	093B.099		9.8	10	100	C			
1264	093B.100		5.0	10	100	C			
1276	093B.100	(Holland Lake)	19.3	10	100	C			
1291	093G.002	Redwater Lake	99.8	10	100	C			
1295	093F.009		31.7	10	100	C			
130	093G.041		8.2	10	100	C			
1308	093B.100	(Lily Lake)	29.4	10	100	C			
1332	093B.100		9.4	10	100	C			
1335	093G.002	Rainbow Lake	74.1	10	100	C			
1338	093G.003		11.1	10	100	C			
1342	093B.100		8.1	10	100	C			

Quesnel Sustainable Resource Management Plan

Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
1348	093B.100		11.1	10	100	C			
1349	093B.095	Ripley Lake	45.7	10	100	C			
1377	093F.009		48.2	10	100	C			
1419	093B.096	Quanstrom Lake	5.3	10	100	C			
1431	093B.093	Wutlus Lake	58.5	10	100	C			
1438	093B.092		33.4	10	100	C			
1451	093B.095	Teltierone Lake	20.1	10	100	C			
1468	093C.100		10.9	10	100	C			
1475	093C.100		8.7	10	100	C			
148	093G.041		7.5	10	100	C			
1480	093C.094		48.2	10	100	C			
1498	093A.091		11.0	10	100	C			
1537	093B.099	Hallis Lake	12.1	10	100	C			
1558	093B.100	Benson Lake	66.9	10	100	C			
157	093G.041		7.1	10	100	C			
1575	093A.081	Bendixon Lake	32.1	10	100	C			
1578	093B.090	Robertson Lake	62.7	10	100	C			
1580	093B.093	Stump Lake	29.3	10	100	C			
1581	093B.090		8.0	10	100	C			
1599	093C.098		6.8	10	100	C			
1605	093B.090		5.1	10	100	C			
161	093G.041		5.0	10	100	C			

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
1615	093C.093		98.4	10	100	C			
162	093G.042	(Kevin Lake)	67.2	10	100	C			
1624	093C.094		22.6	10	100	C			
1635	093B.097		9.8	10	100	C			
164	093G.041		47.0	10	100	C			
1662	093B.092	(Lava Lake)	5.5	10	100	C			
1675	093B.094		19.4	10	100	C			
1679	093B.092		5.0	10	100	C			
169	093F.050		20.2	10	100	C			
1696	093B.091		17.4	10	100	C			
1708	093C.094		43.3	10	100	C			
1711	093A.081		11.3	10	100	C			
1724	093B.090		15.2	10	100	C			
1743	093C.100		14.1	10	100	C			
1746	093C.098		13.9	10	100	C			
176	093F.050		43.8	10	100	C			
1785	093B.090		15.9	10	100	C			
1793	093A.081	Sundberg Lake	15.8	10	100	C			
1799	093A.081		13.6	10	100	C			
183	093G.041		6.3	10	100	C			
1836	093C.083		13.2	10	100	C			
184	093F.050		9.4	10	100	C			

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
1842	093C.086		8.6	10	100	C			
1844	093B.083		6.6	10	100	C			
1849	093B.086	Townsend Lake	24.2	10	100	C			
186	093G.043	Holman Lake	39.3	10	100	C			
1876	093A.081		8.8	10	100	C			
1911	093B.083		9.4	10	100	C			
196	093F.050		5.6	10	100	C			
1978	093B.079		15.4	10	100	C			
1980	093B.085	Long John Lake	26.0	10	100	C			
1985	093A.071		9.8	10	100	C			
1999	093B.083		12.0	10	100	C			
2002	093A.071		7.6	10	100	C			
2030	093A.071	Chiaz Lake	6.4	10	100	C			
204	093G.041		17.3	10	100	C			
2105	093B.077		6.5	10	100	C			
2136	093B.079	Hill Lake	26.3	10	100	C			
2153	093A.071		7.1	10	100	C			
2162	093B.080		8.7	10	100	C			
2178	093B.072		7.7	10	100	C			
2179	093A.071		19.8	10	100	C			
219	093F.050		5.9	10	100	C			
2220	093B.072		8.8	10	100	C			

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
2226	093B.072		7.5	10	100	C			
2244	093B.074		66.4	10	100	C			
2258	093B.072		9.9	10	100	C			
2259	093B.075		8.2	10	100	C			
227	093H.034	Kruger Lake	78.2	10	100	C			
231	093H.034		5.4	10	100	C			
2317	093B.072		5.3	10	100	C			
232	093F.039	Klunchatistli Lake	69.9	10	100	C			
2322	093B.072		35.0	10	100	C			
2329	093C.080		29.2	10	100	C			
2333	093B.072		6.6	10	100	C			
2336	093B.068	Blue Lake	12.1	10	100	C			
236	093F.039	Klunchatistil Lake	22.6	10	100	C			
2363	093B.068	Eveline Lake	76.6	10	100	C			
2369	093B.069	Moffat Lake	6.5	10	100	C			
2370	093B.062		54.0	10	100	C			
2380	093B.071		30.3	10	100	C			
2398	093B.063	Tzazati Lake	57.9	10	100	C			
2401	093B.069		6.6	10	100	C			
2432	093B.069		10.4	10	100	C			
2439	093B.064		45.0	10	100	C			
2470	093B.068	Alix Lakes	5.1	10	100	C			

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
2473	093B.068	Alix Lakes	2.9	0	0	C			
2477	093B.068	Alix Lakes	8.8	10	100	C			
2513	093B.067		6.3	10	100	C			
255	093H.033		20.8	10	100	C			
2581	093B.066		29.4	10	100	C			
2586	093B.065		7.9	10	100	C			
2608	093B.064		13.5	10	100	C			
2651	093B.054		14.8	10	100	C			
2667	093B.059		29.7	10	100	C			
2674	093B.054	Cantillon Lake	24.2	10	100	C			
2713	093B.059	Souran Lake	50.6	10	100	C			
2719	093B.055		38.2	10	100	C			
2760	093B.057		9.5	10	100	C			
2781	093B.057		45.9	10	100	C			
2801	093B.058	Maquoi Lake	31.0	10	100	C			
2828	093B.059		13.6	10	100	C			
2850	093B.049	Cuisson Lake	177.4	10	100	C			
2865	093B.049		6.9	10	100	C			
2894	093B.049		6.6	10	100	C			
2918	093B.049	Rimrock Lake	45.7	10	100	C			
2997	093B.046		9.3	10	100	C			
303	093G.031	Boat Lake	52.9	10	100	C			

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
304	093G.032	Sheein Lake	27.4	10	100	C			
3057	093B.047	(Noon Lake)	12.2	10	100	C			
3157	093B.046		26.6	10	100	C			
3178	093B.046	Taharti Lake	111.3	10	100	C			
3203	093B.048		8.9	10	100	C			
323	093H.021	Cameron Lake	6.6	10	100	C			
3249	093B.048		15.8	10	100	C			
3254	093B.048	Soap Lake	124.9	10	100	C			
328	093G.032	Pelican Lake	386.9	10	100	C			
3287	093B.048		8.0	10	100	C			
3318	093B.048		14.2	10	100	C			
3341	093B.047	Twan Lake	33.7	10	100	C			
3348	093B.047		6.0	10	100	C			
336	093H.022		5.1	10	100	C			
339	093H.022	Ketcham Lake	5.3	10	100	C			
341	093H.021		5.1	10	100	C			
3481	093B.037		10.6	10	100	C			
356	093G.031	Chuniar Lake	34.6	10	100	C			
360	093G.032		9.8	10	100	C			
373	093G.033		5.7	10	100	C			
374	093H.021	Crescent Lake	25.8	10	100	C			
379	093F.040		24.0	10	100	C			

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393	093G.032		10.7	10	100	C			
398	093G.031		16.3	10	100	C			
400	093G.032		6.8	10	100	C			
410	093G.032		17.0	10	100	C			
411	093G.033	Moses Lake	64.3	10	100	C			
430	093G.033		6.5	10	100	C			
446	093H.022	Westpass Lake	5.6	10	100	C			
462	093H.023	Lottie Lake	11.8	10	100	C			
475	093H.022		7.1	10	100	C			
485	093F.029		12.3	10	100	C			
507	093G.022	Cotsworth Lake	90.2	10	100	C			
514	093G.024		10.0	10	100	C			
520	093H.023	Selina Lake	8.1	10	100	C			
537	093G.021		9.6	10	100	C			
540	093G.021		12.8	10	100	C			
545	093G.021		6.7	10	100	C			
551	093G.025		13.1	10	100	C			
554	093G.024	Boot Lake	34.7	10	100	C			
559	093G.022		7.2	10	100	C			
562	093H.014	Atan Lake	29.5	10	100	C			
570	093G.021		8.6	10	100	C			
575	093G.021		5.4	10	100	C			

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599	093H.014	Chisel Lake	30.1	10	100	C			
615	093G.022		34.8	10	100	C			
652	093G.022		75.0	10	100	C			
661	093G.021	Kluskoil Lake	510.8	10	100	C			
666	093G.022		41.0	10	100	C			
674	093H.013	Nine Mile Lake	5.3	10	100	C			
695	093H.013	Eight Mile Lake	11.4	10	100	C			
754	093H.011		53.4	10	100	C			
764	093G.019	Hush Lake	6.2	10	100	C			
772	093G.013		20.1	10	100	C			
840	093H.011	Four Mile Lake	6.4	10	100	C			
843	093G.013		7.2	10	100	C			
851	093H.003	Jack Of Clubs Lake	122.3	10	100	C			
856	093G.019	Bellos Lake	25.1	10	100	C			
899	093G.015		7.9	10	100	C			
901	093G.016		16.3	10	100	C			
913	093G.016	Herkyelthtie Lake	21.6	10	100	C			
1008	093G.002		5.6	10	25	D			
1012	093G.002		5.7	10	25	D			
1026	093G.002		6.3	10	25	D			
1229	093G.006		7.9	10	25	D			
1326	093F.007		82.4	10	25	D			

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1363	093F.010		12.4	10	25	D			
1392	093B.092		13.4	10	25	D			
1439	093A.086		6.6	10	25	D			
1479	093B.096		12.4	10	25	D			
1529	093B.096		9.4	10	25	D			
1628	093C.094		7.0	10	25	D			
1634	093C.094		9.7	10	25	D			
1642	093B.088		7.5	10	25	D			
1683	093B.093		8.7	10	25	D			
1934	093B.084		6.6	10	25	D			
203	093G.041		19.4	10	25	D			
2100	093B.071		8.0	10	25	D			
2156	093C.078		6.0	10	25	D			
2207	093B.074		14.2	10	25	D			
2377	093B.064		5.9	10	25	D			
271	093G.031		8.1	10	25	D			
2723	093B.054		19.8	10	25	D			
2816	093B.054		10.9	10	25	D			
2817	093B.054		9.6	10	25	D			
2830	093B.059		5.1	10	25	D			
2912	093B.048		6.2	10	25	D			
2946	093B.048		6.9	10	25	D			

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2996	093B.047		8.9	10	25	D			
3072	093B.046		7.1	10	25	D			
3107	093B.046		7.1	10	25	D			
3130	093B.048		13.5	10	25	D			
3146	093B.046		15.3	10	25	D			
3181	093B.047		24.8	10	25	D			
3189	093B.048		20.1	10	25	D			
3339	093B.048	Tingley Lake	57.3	10	25	D			
3353	093B.048		14.8	10	25	D			
3394	093B.038		20.7	10	25	D			
3395	093B.037	Suzannie Lake	24.6	10	25	D			
3415	093B.037		6.7	10	25	D			
3420	093B.038		11.4	10	25	D			
3446	093B.038		10.3	10	25	D			
3452	093B.038		6.4	10	25	D			
3469	093B.037		7.0	10	25	D			
3508	093B.038		9.0	10	25	D			
3521	093B.037		6.2	10	25	D			
556	093F.029		4.5	0	0	D			
868	093G.017		5.8	10	25	D			
912	093G.017		6.1	10	25	D			
964	093G.007		14.7	10	25	D			

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984	093G.011		14.4	10	25	D			
1021	093G.006		7.1	10	25	E			
1042	093F.008		23.9	10	25	E			
1052	093G.005		8.8	10	25	E			
1059	093F.009		10.1	10	25	E			
1092	093F.009		9.1	10	25	E			
1094	093G.003		8.8	10	25	E			
1099	093F.009		15.1	10	25	E			
1113	093G.009	Fifteen Mile Lake	8.6	10	25	E			
1148	093F.009		25.1	10	25	E			
1150	093F.008		10.1	10	25	E			
1164	093G.003		37.1	10	25	E			
1168	093F.008		5.0	10	25	E			
1184	093G.003		10.6	10	25	E			
1194	093G.009	Black Lake	7.6	10	25	E			
1197	093F.007		19.3	10	25	E			
1206	093G.001		7.7	10	25	E			
1208	093F.009		17.0	10	25	E			
1223	093G.005		18.1	10	25	E			
1227	093G.007	Mit Lake	12.6	10	25	E			
1259	093G.003		23.3	10	25	E			
12833	093B.038		76.6	10	25	E	general		

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1284	093B.099		10.2	10	25	E			
1307	093G.002		9.8	10	25	E			
1320	093G.003		11.1	10	25	E			
1322	093G.002		28.8	10	25	E			
1397	093B.092		11.0	10	25	E			
1404	093B.096	Tiltzarone Lake	56.9	10	25	E			
1412	093F.007		13.8	10	25	E			
1424	093B.093		6.9	10	25	E			
1437	093F.005		8.0	10	25	E			
1445	093B.094		9.1	10	25	E			
1448	093C.097		7.9	10	25	E			
1458	093C.094		11.1	10	25	E			
1459	093C.095		8.2	10	25	E			
1472	093C.094		13.7	10	25	E			
1478	093C.097		34.8	10	25	E			
1484	093C.094		9.7	10	25	E			
1494	093B.093		57.4	10	25	E			
1502	093B.100		9.3	10	25	E			
1509	093C.094		26.1	10	25	E			
1515	093C.094		14.9	10	25	E			
1565	093B.097		5.3	10	25	E			
1566	093C.094		5.8	10	25	E			

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
1592	093C.096		7.6	10	25	E			
1594	093C.094		11.3	10	25	E			
1596	093C.094		12.0	10	25	E			
1598	093C.099		5.9	10	25	E			
1604	093C.095		18.9	10	25	E			
1608	093B.093		12.8	10	25	E			
1609	093B.090		6.9	10	25	E			
1647	093B.088		9.4	10	25	E			
165	093G.042		5.8	10	25	E			
1651	093B.094		11.3	10	25	E			
1658	093B.089	Dale Lake	39.2	10	25	E			
1669	093C.094		6.9	10	25	E			
1672	093C.096		28.9	10	25	E			
1673	093C.099		45.7	10	25	E			
1700	093B.087		10.5	10	25	E			
1702	093C.094		7.2	10	25	E			
1707	093C.094		18.4	10	25	E			
1716	093C.095		5.0	10	25	E			
1722	093B.087		7.1	10	25	E			
1731	093B.090		12.7	10	25	E			
1740	093C.093	Tilgatgo Lake	56.3	10	25	E			
175	093F.050		21.5	10	25	E			

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1776	093C.093		24.2	10	25	E			
1786	093C.089		9.1	10	25	E			
1804	093C.083		5.9	10	25	E			
1814	093C.083		60.0	10	25	E			
1821	093B.086		8.4	10	25	E			
1850	093B.088		13.6	10	25	E			
1853	093B.086		11.4	10	25	E			
1856	093C.083		5.0	10	25	E			
1871	093B.086		11.6	10	25	E			
189	093F.050		18.1	10	25	E			
1923	093B.088	Ruric Lake	5.9	10	25	E			
1940	093C.088		10.9	10	25	E			
1949	093B.087		8.7	10	25	E			
1951	093A.071		15.5	10	25	E			
1970	093B.086	Margaret Lake	7.0	10	25	E			
199	093G.041		6.4	10	25	E			
2000	093B.085		5.0	0	25	E			
202	093F.050		10.5	10	25	E			
2036	093C.087		8.6	10	25	E			
2050	093B.078		12.0	10	25	E			
2082	093A.071		13.9	10	25	E			
2088	093A.071		7.1	10	25	E			

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
2119	093B.074		48.9	10	25	E			
215	093G.041		8.8	10	25	E			
2164	093B.072		8.4	10	25	E			
2176	093C.078		7.0	10	25	E			
2250	093B.073	Deepdown Lake	14.4	10	25	E			
2265	093B.077	Webster Lake	7.8	10	25	E			
2290	093B.074		21.0	10	25	E			
2326	093B.075		6.7	10	25	E			
2360	093B.071		14.8	10	25	E			
2385	093B.065		24.2	10	25	E			
2395	093B.065		23.9	10	25	E			
2423	093B.065		7.3	10	25	E			
2436	093B.062		12.7	10	25	E			
2455	093B.068		6.9	10	25	E			
2465	093B.062		17.4	10	25	E			
2474	093B.062		7.8	10	25	E			
2494	093B.067		14.0	10	25	E			
2529	093B.068		12.1	10	25	E			
2550	093B.062		18.3	10	25	E			
2558	093B.061		6.8	10	25	E			
2572	093B.062		12.1	10	25	E			
2575	093B.062		30.3	10	25	E			

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
2588	093B.064		5.3	10	25	E			
2599	093B.064		5.9	10	25	E			
2605	093B.059		18.0	10	25	E			
2606	093B.062		25.9	10	25	E			
2632	093B.064		13.6	10	25	E			
2636	093B.058		10.1	10	25	E			
2647	093B.056		9.1	10	25	E			
2648	093B.057	Blue Lake	46.8	10	25	E			
2695	093B.059		8.0	10	25	E			
2722	093B.059	Lewis Lake	7.0	10	25	E			
2762	093B.059	Valerie Lake	28.8	10	25	E			
2831	093B.055		7.0	10	25	E			
2848	093B.055		9.5	10	25	E			
2855	093B.058		9.6	10	25	E			
2874	093B.056		6.8	10	25	E			
2921	093B.055		13.4	10	25	E			
2944	093B.055		17.1	10	25	E			
3009	093B.046		10.3	10	25	E			
3033	093B.049	Ross Lake	6.2	10	25	E			
3104	093B.046		14.2	10	25	E			
3127	093B.046		19.0	10	25	E			
3179	093B.048		6.6	10	25	E			

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
3192	093B.047		7.4	10	25	E			
3304	093B.048		7.4	10	25	E			
3360	093B.047		10.6	10	25	E			
3495	093B.038		5.3	10	25	E			
382	093G.031		5.6	10	25	E			
405	093G.031		12.3	10	25	E			
433	093G.032		6.4	10	25	E			
443	093G.032		6.2	10	25	E			
444	093G.032		5.7	10	25	E			
452	093G.032		6.6	10	25	E			
454	093G.022		21.6	10	25	E			
473	093G.022		15.1	10	25	E			
513	093G.022	(Pretty Lake)	20.3	10	25	E			
538	093G.022		8.7	10	25	E			
552	093G.021		8.2	10	25	E			
553	093G.022		7.6	10	25	E			
557	093F.029		14.2	10	25	E			
564	093F.029		7.4	10	25	E			
571	093G.022		21.0	10	25	E			
572	093G.021		5.3	10	25	E			
573	093G.021		10.6	10	25	E			
580	093G.022		9.7	10	25	E			

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
588	093H.022	Yuzkli Lake	10.1	10	25	E			
592	093G.022		6.7	10	25	E			
595	093G.022		11.3	10	25	E			
643	093G.022		8.5	10	25	E			
649	093G.022		29.5	10	25	E			
675	093G.022		17.9	10	25	E			
693	093G.022		18.3	10	25	E			
705	093H.014		9.1	10	25	E			
716	093G.022		6.2	10	25	E			
719	093G.015		6.2	10	25	E			
725	093H.014		12.6	10	25	E			
728	093G.013		40.3	10	25	E			
729	093G.013		13.0	10	25	E			
771	093G.012		14.1	10	25	E			
784	093G.012		16.7	10	25	E			
808	093G.016		11.0	10	25	E			
870	093F.020		7.2	10	25	E			
872	093F.020		31.4	10	25	E			
927	093F.019		8.5	10	25	E			
933	093G.015		5.5	10	25	E			
968	093G.009	Sakam Lake	9.3	10	25	E			
978	093G.013		5.9	10	25	E			

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
987	093F.019		7.6	10	25	E			
1050	093F.008		7.1	10	0	N/A			
1117	093G.007	Bouchie Lake	136.0	10	0	N/A			
1153	093G.005		6.5	10	40	N/A			
1169	093G.001		6.6	10	40	N/A			
1183	093G.007	Milburn Lake	16.9	10	0	N/A			
1371	093B.098	Dragon Lake	541.0	10	0	N/A			
1417	093B.091		8.3	10	40	N/A			
1429	093B.091		5.4	10	0	N/A			
1444	093A.091		6.3	10	40	N/A			
1466	093B.098		5.2	10	0	N/A			
1481	093B.091		25.9	10	0	N/A			
1557	093C.100	Narcosli Lake	328.5	10	0	N/A			
1668	093B.093		5.7	10	40	N/A			
1701	093B.092		7.8	10	0	N/A			
1720	093B.092		11.0	10	40	N/A			
2010	093B.083		9.6	10	40	N/A			
2303	093A.062		7.5	10	0	N/A			
2419	093B.068		6.9	10	0	N/A			
2660	093B.059		235.7	10	0	N/A			
2804	093B.054		7.5	10	0	N/A			
2856	093B.049		8.6	10	0	N/A			

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Regional Lake Number	Forest Cover Map & Polygon Number*	Lake Name (unofficial names in brackets)	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	Lake Management Plan or resource values initiating the need for a Lake Management Plan
489	093G.022		4.9	0	0	N/A			
626	093G.021	(White's Lake)	145.4	10	0	N/A			
789	093G.012		5.7	10	0	N/A			
864	093G.018		9.2	10	0	N/A			
876	093H.003		7.6	10	0	N/A			
884	093G.012		27.0	10	0	N/A			
934	093G.008	Ten Mile Lake	272.1	10	0	N/A			

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Table 17 Lake Management Strategies

	A Class	B Class	C Class	D Class	E Class
Recommended Visual Quality Class within the LMZ	Preservation	Retention	Partial Retention	Modification	Modification
		Maintain a natural looking landscape incorporating visual landscape design concepts.			
Preferred Forest Management Practices for the Lakeshore Management Zone:	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.
Uneven-Aged / Selection Silvicultural Systems (partial cut):*	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.
Even Aged Silvicultural Systems (clearcut):*		≤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.
Combined Silvicultural Systems (partial and clearcut):	Incorporate/combine the recommendations as per the even and un-even aged silvicultural system guidelines.				
Roads, Landings and Skid Trails in the Lakeshore Management Zone:	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

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Appendix F: Viewpoints, Viewlines, Viewscapes, and Visual Quality Objectives

Table 18 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
463	545L	001V	M	7.1 - 18.0	
460	617L	002V	PR	1.6 - 7.0	
502	618L	002V	PR	1.6 - 7.0	
459	619L	002V	PR	1.6 - 7.0	
459	620L	002V	PR	1.6 - 7.0	
459	616L	004V	M	7.1 - 18.0	
459	615L	005V	M	7.1 - 18.0	
473	538L	009V	M	7.1 - 18.0	
474	539L	009V	M	7.1 - 18.0	
470	540L	009V	M	7.1 - 18.0	
470	534L	010V	M	7.1 - 18.0	
473	546L	010V	M	7.1 - 18.0	
474	535L	011V	M	7.1 - 18.0	
471	537L	012V	M	7.1 - 18.0	
472	536L	013V	M	7.1 - 18.0	
473	533L	014V	M	7.1 - 18.0	
461	531L	015V	M	7.1 - 18.0	
462	530L	016V	M	7.1 - 18.0	
461	529L	017V	M	7.1 - 18.0	
461	544L	018V	M	7.1 - 18.0	
465	547L	024V	M	7.1 - 18.0	
465	532L	025V	M	7.1 - 18.0	
465	548L	026V	M	7.1 - 18.0	
480	311L	027V	R	0.1 - 1.5	
476	313L	027V	R	0.1 - 1.5	
478	318L	028V	R	0.1 - 1.5	
477	315L	029V	M	7.1 - 18.0	
477	314L	030V	M	7.1 - 18.0	
466	316L	031V	M	7.1 - 18.0	
468	317L	032V	PR	1.6 - 7.0	
468	323L	033V	PR	1.6 - 7.0	
467	324L	033V	PR	1.6 - 7.0	
428	480L	033V	PR	1.6 - 7.0	
468	308L	034V	PR	1.6 - 7.0	
469	319L	037V	PR	1.6 - 7.0	
469	320L	037V	PR	1.6 - 7.0	
495	583L	043V	PR	1.6 - 7.0	
450	599L	043V	PR	1.6 - 7.0	
450	604L	044V	PR	1.6 - 7.0	
493	586L	045V	PR	1.6 - 7.0	
452	598L	046V	M	7.1 - 18.0	
497	662L	047V	M	7.1 - 18.0	
497	661L	048V	M	7.1 - 18.0	
493	578L	049V	PR	1.6 - 7.0	
497	663L	050V	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
493	660L	051V	PR	1.6 - 7.0	
497	588L	052V	PR	1.6 - 7.0	
451	606L	053V	PR	1.6 - 7.0	
451	607L	054V	M	7.1 - 18.0	
451	659L	055V	M	7.1 - 18.0	
451	593L	056V	M	7.1 - 18.0	
496	594L	056V	M	7.1 - 18.0	
451	589L	057V	M	7.1 - 18.0	
496	613L	057V	M	7.1 - 18.0	
452	614L	058V	M	7.1 - 18.0	
452	595L	059V	M	7.1 - 18.0	
496	596L	059V	M	7.1 - 18.0	
451	587L	060V	M	7.1 - 18.0	
496	608L	060V	M	7.1 - 18.0	
452	582L	061V	M	7.1 - 18.0	
490	621L	062V	PR	1.6 - 7.0	
491	624L	063V	M	7.1 - 18.0	
490	622L	064V	M	7.1 - 18.0	
492	623L	064V	M	7.1 - 18.0	
491	625L	064V	M	7.1 - 18.0	
456	634L	077V	M	7.1 - 18.0	
456	645L	079V	R	0.1 - 1.5	
423	646L	079V	R	0.1 - 1.5	
456	641L	080V	M	7.1 - 18.0	
456	644L	080V	M	7.1 - 18.0	
456	647L	081V	M	7.1 - 18.0	
456	642L	082V	M	7.1 - 18.0	
456	643L	083V	M	7.1 - 18.0	
457	640L	084V	M	7.1 - 18.0	
457	639L	085V	M	7.1 - 18.0	
457	637L	086V	M	7.1 - 18.0	
457	635L	087V	M	7.1 - 18.0	
457	638L	088V	M	7.1 - 18.0	
457	636L	089V	PR	1.6 - 7.0	
458	633L	090V	PR	1.6 - 7.0	
454	601L	091V	R	0.1 - 1.5	
453	629L	092V	M	7.1 - 18.0	
454	630L	092V	M	7.1 - 18.0	
454	631L	093V	M	7.1 - 18.0	
481	680L	095V	M	7.1 - 18.0	
481	681L	098V	PR	1.6 - 7.0	
481	679L	099V	M	7.1 - 18.0	
481	683L	100V	PR	1.6 - 7.0	
426	664L	102V	R	0.1 - 1.5	
426	665L	103V	M	7.1 - 18.0	
482	682L	104V	R	0.1 - 1.5	
449	673L	105V	PR	1.6 - 7.0	
449	677L	106V	M	7.1 - 18.0	

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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
449	676L	107V	M	7.1 - 18.0	
449	675L	108V	M	7.1 - 18.0	
449	674L	109V	M	7.1 - 18.0	
449	672L	110V	M	7.1 - 18.0	
449	671L	111V	M	7.1 - 18.0	
449	670L	112V	M	7.1 - 18.0	
449	669L	113V	M	7.1 - 18.0	
449	666L	114V	M	7.1 - 18.0	
449	667L	115V	M	7.1 - 18.0	
448	678L	116V	M	7.1 - 18.0	
484	022L	117V	M	7.1 - 18.0	
488	033L	117V	M	7.1 - 18.0	
488	046L	118V	M	7.1 - 18.0	
483	026L	119V	M	7.1 - 18.0	
489	045L	119V	M	7.1 - 18.0	
526	303L	120V	M	7.1 - 18.0	
486	042L	122V	M	7.1 - 18.0	
484	030L	125V	M	7.1 - 18.0	
431	307L	125V	M	7.1 - 18.0	
372	016L	126V	PR	1.6 - 7.0	
488	036L	126V	PR	1.6 - 7.0	
488	034L	135V	M	7.1 - 18.0	
424	558L	141V	M	7.1 - 18.0	
424	551L	142V	M	7.1 - 18.0	
424	560L	143V	M	7.1 - 18.0	
424	555L	144V	M	7.1 - 18.0	
424	562L	145V	M	7.1 - 18.0	
425	564L	146V	R	0.1 - 1.5	
425	569L	147V	R	0.1 - 1.5	
424	554L	149V	M	7.1 - 18.0	
424	632L	150V	M	7.1 - 18.0	
424	563L	151V	M	7.1 - 18.0	
455	628L	152V	R	0.1 - 1.5	
424	553L	153V	M	7.1 - 18.0	
424	549L	154V	M	7.1 - 18.0	
424	568L	155V	M	7.1 - 18.0	
500	649L	156V	M	7.1 - 18.0	
500	656L	156V	M	7.1 - 18.0	
500	602L	159V	PR	1.6 - 7.0	
500	657L	159V	PR	1.6 - 7.0	
501	581L	161V	PR	1.6 - 7.0	
501	654L	162V	M	7.1 - 18.0	
501	655L	163V	M	7.1 - 18.0	
501	653L	164V	PR	1.6 - 7.0	
501	651L	165V	M	7.1 - 18.0	
499	590L	166V	M	7.1 - 18.0	
501	591L	166V	M	7.1 - 18.0	
499	603L	167V	M	7.1 - 18.0	

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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
499	584L	168V	M	7.1 - 18.0	
499	600L	169V	M	7.1 - 18.0	
499	585L	170V	M	7.1 - 18.0	
498	658L	171V	M	7.1 - 18.0	
498	648L	172V	M	7.1 - 18.0	
498	650L	173V	M	7.1 - 18.0	
551	458L	209V	M	7.1 - 18.0	
551	459L	213V	M	7.1 - 18.0	
367	521L	217V	M	7.1 - 18.0	
367	522L	228V	M	7.1 - 18.0	
551	460L	232V	M	7.1 - 18.0	
371	494L	233V	PR	1.6 - 7.0	
367	523L	238V	M	7.1 - 18.0	
371	486L	239V	PR	1.6 - 7.0	
371	489L	243V	R	0.1 - 1.5	
370	498L	243V	R	0.1 - 1.5	
369	505L	243V	R	0.1 - 1.5	
370	497L	245V	R	0.1 - 1.5	
368	516L	245V	R	0.1 - 1.5	
355	360L	246V	M	7.1 - 18.0	
551	461L	246V	M	7.1 - 18.0	
551	462L	248V	M	7.1 - 18.0	
551	463L	248V	M	7.1 - 18.0	
538	465L	248V	M	7.1 - 18.0	
371	487L	250V	M	7.1 - 18.0	
367	519L	251V	M	7.1 - 18.0	
367	520L	253V	PR	1.6 - 7.0	
369	506L	256V	PR	1.6 - 7.0	
367	517L	260V	M	7.1 - 18.0	
371	490L	261V	M	7.1 - 18.0	
368	508L	261V	M	7.1 - 18.0	
542	423L	264V	R	0.1 - 1.5	
367	518L	268V	M	7.1 - 18.0	
549	473L	271V	PR	1.6 - 7.0	
549	474L	271V	PR	1.6 - 7.0	
537	397L	283V	PR	1.6 - 7.0	
542	422L	283V	PR	1.6 - 7.0	
369	507L	284V	PR	1.6 - 7.0	
530	337L	292V	M	7.1 - 18.0	
530	338L	296V	M	7.1 - 18.0	
368	515L	301V	PR	1.6 - 7.0	
533	355L	303V	M	7.1 - 18.0	
538	377L	305V	PR	1.6 - 7.0	
541	395L	305V	PR	1.6 - 7.0	
533	353L	310V	M	7.1 - 18.0	
535	354L	310V	M	7.1 - 18.0	
538	374L	312V	PR	1.6 - 7.0	
538	375L	312V	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
361	407L	313V	PR	1.6 - 7.0	
361	408L	313V	PR	1.6 - 7.0	
361	409L	313V	PR	1.6 - 7.0	
528	333L	319V	M	7.1 - 18.0	
361	404L	322V	PR	1.6 - 7.0	
524	297L	323V	M	7.1 - 18.0	
531	336L	327V	M	7.1 - 18.0	
361	405L	335V	M	7.1 - 18.0	
360	393L	337V	PR	1.6 - 7.0	
361	410L	337V	PR	1.6 - 7.0	
364	433L	337V	PR	1.6 - 7.0	
540	387L	342V	PR	1.6 - 7.0	
540	388L	342V	PR	1.6 - 7.0	
524	296L	343V	M	7.1 - 18.0	
532	343L	348V	M	7.1 - 18.0	
531	346L	349V	M	7.1 - 18.0	
553	484L	350V	M	7.1 - 18.0	
360	392L	356V	M	7.1 - 18.0	
549	447L	358V	PR	1.6 - 7.0	
363	381L	361V	R	0.1 - 1.5	
553	483L	362V	PR	1.6 - 7.0	
524	295L	364V	M	7.1 - 18.0	
534	352L	376V	M	7.1 - 18.0	
360	411L	378V	M	7.1 - 18.0	
532	341L	380V	R	0.1 - 1.5	
532	342L	380V	R	0.1 - 1.5	
540	386L	380V	R	0.1 - 1.5	
359	357L	381V	R	0.1 - 1.5	
356	468L	381V	R	0.1 - 1.5	
356	469L	381V	R	0.1 - 1.5	
532	344L	384V	R	0.1 - 1.5	
536	365L	384V	R	0.1 - 1.5	
536	366L	384V	R	0.1 - 1.5	
536	367L	384V	R	0.1 - 1.5	
540	389L	384V	R	0.1 - 1.5	
540	390L	384V	R	0.1 - 1.5	
540	391L	384V	R	0.1 - 1.5	
543	403L	384V	R	0.1 - 1.5	
362	394L	386V	PR	1.6 - 7.0	
548	441L	386V	PR	1.6 - 7.0	
536	364L	389V	M	7.1 - 18.0	
539	380L	390V	PR	1.6 - 7.0	
547	438L	394V	M	7.1 - 18.0	
534	351L	396V	M	7.1 - 18.0	
552	475L	396V	M	7.1 - 18.0	
528	339L	398V	M	7.1 - 18.0	
373	526L	401V	M	7.1 - 18.0	
373	528L	404V	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
411	169L	406V	P	0	
411	170L	406V	P	0	
403	222L	406V	P	0	
547	482L	407V	PR	1.6 - 7.0	
358	420L	409V	PR	1.6 - 7.0	
358	415L	411V	R	0.1 - 1.5	
358	416L	411V	R	0.1 - 1.5	
358	418L	411V	R	0.1 - 1.5	
358	421L	411V	R	0.1 - 1.5	
410	205L	412V	R	0.1 - 1.5	
358	428L	414V	R	0.1 - 1.5	
437	285L	417V	M	7.1 - 18.0	
548	439L	419V	PR	1.6 - 7.0	
550	448L	420V	M	7.1 - 18.0	
523	257L	422V	M	7.1 - 18.0	
436	293L	429V	M	7.1 - 18.0	
548	442L	430V	R	0.1 - 1.5	
357	444L	430V	R	0.1 - 1.5	
357	445L	430V	R	0.1 - 1.5	
528	340L	432V	M	7.1 - 18.0	
358	427L	434V	PR	1.6 - 7.0	
552	476L	434V	PR	1.6 - 7.0	
545	434L	436V	PR	1.6 - 7.0	
550	450L	436V	PR	1.6 - 7.0	
373	527L	437V	PR	1.6 - 7.0	
488	041L	442V	PR	1.6 - 7.0	
550	449L	444V	M	7.1 - 18.0	
434	003L	446V	PR	1.6 - 7.0	
488	040L	446V	PR	1.6 - 7.0	
447	254L	446V	PR	1.6 - 7.0	
523	258L	446V	PR	1.6 - 7.0	
444	259L	446V	PR	1.6 - 7.0	
440	262L	446V	PR	1.6 - 7.0	
446	263L	446V	PR	1.6 - 7.0	
445	265L	446V	PR	1.6 - 7.0	
442	266L	446V	PR	1.6 - 7.0	
442	267L	446V	PR	1.6 - 7.0	
443	272L	446V	PR	1.6 - 7.0	
443	273L	446V	PR	1.6 - 7.0	
441	274L	446V	PR	1.6 - 7.0	
438	277L	446V	PR	1.6 - 7.0	
435	279L	446V	PR	1.6 - 7.0	
433	281L	446V	PR	1.6 - 7.0	
433	284L	446V	PR	1.6 - 7.0	
437	287L	446V	PR	1.6 - 7.0	
436	290L	446V	PR	1.6 - 7.0	
436	292L	446V	PR	1.6 - 7.0	
446	304L	446V	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
440	261L	447V	M	7.1 - 18.0	
432	002L	449V	M	7.1 - 18.0	
356	466L	453V	M	7.1 - 18.0	
548	455L	458V	M	7.1 - 18.0	
546	437L	459V	R	0.1 - 1.5	
548	440L	461V	M	7.1 - 18.0	
529	334L	462V	M	7.1 - 18.0	
444	260L	463V	R	0.1 - 1.5	
446	301L	463V	R	0.1 - 1.5	
438	256L	466V	R	0.1 - 1.5	
439	278L	466V	R	0.1 - 1.5	
436	289L	466V	R	0.1 - 1.5	
412	186L	469V	R	0.1 - 1.5	
412	188L	469V	R	0.1 - 1.5	
433	282L	471V	M	7.1 - 18.0	
521	012L	472V	M	7.1 - 18.0	
521	013L	472V	M	7.1 - 18.0	
522	014L	472V	M	7.1 - 18.0	
522	015L	472V	M	7.1 - 18.0	
550	451L	473V	M	7.1 - 18.0	
362	413L	475V	M	7.1 - 18.0	
432	001L	476V	PR	1.6 - 7.0	
555	431L	478V	M	7.1 - 18.0	
406	091L	484V	PR	1.6 - 7.0	
406	092L	484V	PR	1.6 - 7.0	
405	117L	484V	PR	1.6 - 7.0	
405	120L	484V	PR	1.6 - 7.0	
412	189L	484V	PR	1.6 - 7.0	
544	424L	485V	M	7.1 - 18.0	
550	454L	485V	M	7.1 - 18.0	
436	291L	486V	M	7.1 - 18.0	
518	009L	488V	M	7.1 - 18.0	
488	038L	488V	M	7.1 - 18.0	
555	481L	491V	M	7.1 - 18.0	
437	286L	493V	M	7.1 - 18.0	
402	183L	494V	R	0.1 - 1.5	
525	298L	498V	M	7.1 - 18.0	
516	006L	499V	M	7.1 - 18.0	
515	005L	505V	M	7.1 - 18.0	
488	037L	506V	M	7.1 - 18.0	
488	039L	510V	PR	1.6 - 7.0	
517	008L	511V	M	7.1 - 18.0	
483	031L	511V	M	7.1 - 18.0	
365	396L	512V	PR	1.6 - 7.0	
525	300L	514V	PR	1.6 - 7.0	
403	221L	515V	R	0.1 - 1.5	
513	090L	517V	PR	1.6 - 7.0	
433	283L	518V	M	7.1 - 18.0	

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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
519	010L	526V	M	7.1 - 18.0	
520	011L	526V	M	7.1 - 18.0	
514	065L	527V	P	0	
514	066L	527V	P	0	
365	382L	529V	PR	1.6 - 7.0	
365	384L	529V	PR	1.6 - 7.0	
435	280L	534V	M	7.1 - 18.0	
436	288L	534V	M	7.1 - 18.0	
404	056L	543V	R	0.1 - 1.5	
404	057L	543V	R	0.1 - 1.5	
365	383L	544V	M	7.1 - 18.0	
555	432L	548V	M	7.1 - 18.0	
366	325L	549V	PR	1.6 - 7.0	
366	326L	549V	PR	1.6 - 7.0	
366	329L	551V	M	7.1 - 18.0	
396	059L	558V	PR	1.6 - 7.0	
396	060L	558V	PR	1.6 - 7.0	
394	157L	558V	PR	1.6 - 7.0	
394	158L	558V	PR	1.6 - 7.0	
394	160L	558V	PR	1.6 - 7.0	
397	193L	558V	PR	1.6 - 7.0	
395	214L	558V	PR	1.6 - 7.0	
395	215L	558V	PR	1.6 - 7.0	
431	306L	559V	M	7.1 - 18.0	
484	025L	560V	M	7.1 - 18.0	
488	032L	560V	M	7.1 - 18.0	
527	305L	560V	M	7.1 - 18.0	
365	385L	561V	M	7.1 - 18.0	
397	194L	563V	P	0	
389	148L	566V	P	0	
391	197L	566V	P	0	
390	199L	566V	P	0	
392	211L	566V	P	0	
388	239L	566V	P	0	
388	240L	566V	P	0	
389	143L	567V	R	0.1 - 1.5	
389	149L	567V	R	0.1 - 1.5	
395	216L	568V	PR	1.6 - 7.0	
385	101L	570V	P	0	
513	089L	571V	R	0.1 - 1.5	
512	131L	571V	R	0.1 - 1.5	
511	150L	571V	R	0.1 - 1.5	
389	146L	573V	R	0.1 - 1.5	
389	147L	573V	R	0.1 - 1.5	
390	202L	573V	R	0.1 - 1.5	
506	051L	575V	R	0.1 - 1.5	
505	073L	575V	R	0.1 - 1.5	
510	074L	575V	R	0.1 - 1.5	

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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
384	084L	575V	R	0.1 - 1.5	
384	085L	575V	R	0.1 - 1.5	
509	127L	575V	R	0.1 - 1.5	
393	138L	575V	R	0.1 - 1.5	
389	155L	578V	R	0.1 - 1.5	
389	159L	578V	R	0.1 - 1.5	
387	136L	579V	P	0	
386	151L	579V	P	0	
386	152L	579V	P	0	
366	327L	582V	M	7.1 - 18.0	
366	328L	584V	M	7.1 - 18.0	
385	102L	585V	R	0.1 - 1.5	
385	103L	585V	R	0.1 - 1.5	
391	196L	586V	R	0.1 - 1.5	
392	212L	586V	R	0.1 - 1.5	
504	109L	587V	R	0.1 - 1.5	
503	122L	587V	R	0.1 - 1.5	
387	137L	588V	R	0.1 - 1.5	
381	173L	588V	R	0.1 - 1.5	
381	174L	588V	R	0.1 - 1.5	
507	237L	594V	PR	1.6 - 7.0	
384	083L	595V	PR	1.6 - 7.0	
382	088L	595V	PR	1.6 - 7.0	
383	141L	595V	PR	1.6 - 7.0	
427	697L	60V	PR	1.6 - 7.0	
421	626L	615V	R	0.1 - 1.5	
421	627L	617V	M	7.1 - 18.0	
420	559L	619V	M	7.1 - 18.0	
419	577L	622V	R	0.1 - 1.5	
556	561L	624V	R	0.1 - 1.5	
417	557L	625V	R	0.1 - 1.5	
418	574L	625V	R	0.1 - 1.5	
416	567L	627V	R	0.1 - 1.5	
416	566L	630V	R	0.1 - 1.5	
554	573L	631V	R	0.1 - 1.5	
414	575L	631V	R	0.1 - 1.5	
415	565L	632V	M	7.1 - 18.0	
554	572L	636V	R	0.1 - 1.5	
554	571L	639V	R	0.1 - 1.5	
414	576L	640V	R	0.1 - 1.5	
554	570L	641V	R	0.1 - 1.5	
413	552L	645V	R	0.1 - 1.5	
425	556L	647V	R	0.1 - 1.5	
422	550L	649V	R	0.1 - 1.5	
427	695L	66V	M	7.1 - 18.0	
427	694L	67V	M	7.1 - 18.0	
427	693L	68V	M	7.1 - 18.0	
427	691L	69V	M	7.1 - 18.0	

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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
526	302L	731V	M	7.1 - 18.0	
524	294L	734V	M	7.1 - 18.0	
427	692L	75V	PR	1.6 - 7.0	
427	696L	76V	M	7.1 - 18.0	

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

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