

**Robson Valley (former Robson Valley Forest District)
Sustainable Resource Management Plan**

Robson Valley- Canoe Biodiversity Chapter

Background Report:

**The plan area for this document is made up of the following
Landscape Units:**

**West Kinbasket Landscape Unit
East Kinbasket Landscape Unit
Hugh Allan Landscape Unit
Foster Landscape Unit
Dawson Landscape Unit**

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Table of Contents

	Page
1.0 Introduction	1
2.0 Business Case / Purpose	3
3.0 Summary of Benefits and Impacts	5
3.1 Benefits and Impacts of OGMAs.....	5
3.2 Benefits and Impacts of Enhanced Riparian/Wildlife Movement Corridors.....	5
4.0 Landscape Unit Objectives for OGMAs and Enhanced Riparian/Wildlife Movement Corridors.....	7
4.1 Old Growth Management Areas.....	7
4.2 Enhanced Riparian/Wildlife Movement Corridors and Connectivity.....	7
5.0 OGMA, Enhanced Riparian/Wildlife Movement Corridors Planning Considerations and Rationale.....	9
5.1 Ecosystem Management	9
5.2 Timber Supply and Mitigation	9
5.3 Assessment Process and Selection Criteria	10
5.4 Monitoring and Review	12
5.5 Boundary Mapping	12
6.0 Other Biodiversity Provisions	14
7.0 Link to the Land and Resource Management Plan	15
8.0 Appendices.....	16
Appendix 1 – West Kinbasket Landscape Unit	
Appendix 2 – East Kinbasket Landscape Unit	
Appendix 3 – Foster Landscape Unit	
Appendix 4 – Hugh Allan Landscape Unit	
Appendix 5 – Dawson Landscape Unit	
Appendix 6A– Rationale for Old Growth Management Areas in Robson Valley	
Appendix 6B – Rationale for Enhanced Riparian Reserve/Wildlife Movement Corridors’ Legal Establishment	
Appendix 7 - Public Input and MSRM response	
Appendix 8– Valemount and Area Environmental Background Report	

Background Report – Robson Valley-Canoe Biodiversity Chapter for the Robson Valley Sustainable Resource Management Plan

1.0 Introduction

This report provides background information used during the preparation of old growth management areas (OGMAs), and enhanced riparian protection for wildlife movement within the West Kinbasket, East Kinbasket, Hugh Allan, Dawson, and Foster landscape units (henceforth collectively called the ‘planning area’). This report also provides a summary of selection criteria, rationale, and intent of legal objectives for the planning area. Much of the information on existing environmental conditions and biodiversity found in the planning area comes from the Valemount and Area Environmental Background Report (Appendix 8) that is a component of the Valemount and Area Integrated Land Use Plan.

Sustainable Resource Management (SRM) Planning is being undertaken in high priority areas of the province, and is an important component of the *Forest Practices Code* (FPC) which allows legal establishment of objectives to address landscape level biodiversity values. This importance is carried over to the Forest and Range Practices Act and the Government Action Regulation. Biological diversity or biodiversity is defined as: *‘the diversity of plants, animals and other living organisms in all their forms and levels of organization, and includes the diversity of genes, species and ecosystems as well as the evolutionary and functional processes that link them’*.

SRM planning implementation is intended to help maintain biodiversity values while achieving sustainable economic development of both land and resources. Retention of biodiversity is important for wildlife and provides benefits for landscape level management of other values such as; protection of water quality, habitat and movement conservation and preservation of other natural resources.

The former Robson Valley Forest District, now included in the Headwaters Forest District, had completed draft Landscape Unit (LU) boundaries and established draft Biodiversity Emphasis Options (BEO) in accordance with the direction provided by government. There are 23 LUs within the former Robson Valley Forest District. This report outlines the SRM planning process and objectives for the Robson Valley-Canoe area, which includes 5 of the southern most LUs centred around the Village of Valemount. (See Table 1 for LU names and BEOs).

Delineation of OGMAs was undertaken by the Ministry of Sustainable Resource Management (MSRM) with information provided by Ministry of Forests (MOF), Land and Water BC (LWBC) and Ministry of Water, Land and Air Protection (MWLAP) staff. MSRM has proposed wildlife movement corridors after extensive research and solicitation of local area knowledge from Land and Water BC (LWBC), MOF and MWLAP staff.

Input from licensees, government agencies, First Nations and other levels of government has been solicited and considered during this process. Advertising for public review and comment has been used to garner further local area knowledge and input. It is important to note that during public consultation, comments were sought regarding the location of OGMAs, enhanced riparian/

wildlife movement corridors and the establishment of legal objectives rather than the content of this report. First Nations consultation was conducted in a separate process.

Once made legal, the distribution of OGMA's will be reviewed periodically by MSRM or the relevant agency to ensure their ecological suitability through time. As stated in the original document: "A summary of all public comments and recommendations and the action considered for these shall be included in an appendix once the advertising period has concluded." These comments and recommendations are included in Appendix 7 of this document.

Table 1 Landscape Units and Biodiversity Emphasis Options within the Plan

Landscape Unit	Biodiversity Emphasis Option (BEO)
West Kinbasket	Low
East Kinbasket	Low
Hugh Allan	Intermediate
Foster	Low
Dawson	Low

2.0 Business Case / Purpose

The plan area consists of 5 landscape units located at the southern end of the former Robson Valley Forest District and surrounds the northern portion of the Ospika Arm of the Kinbasket reservoir. The communities of Valemout, Tete Jaune Cache and Albreda are supported through industries reliant on the utilization of natural resource values within the plan area. The plan area has been identified as a priority for establishment of old growth management areas (OGMAs) and enhanced riparian/wildlife movement corridors due to several related resource use initiatives.

The Village of Valemout is on the brink of significant potential growth and expansion. The recently announced approval for the Canoe Mountain Development by Sunrise International Inc. is expected to be the catalyst for economic development in the area. A second proposal for a development gives credence to predictions of long-term growth and a population boom for the local area. The land in the Robson Valley-Canoe area already supports significant winter recreation. As the area becomes recognized and promoted as a four season resort area, the commercial and non-commercial recreational use of mid and backcountry areas will also increase. Given the probable growth of populations in this area and the resulting pressures on the land base for settlement infrastructure in conjunction with the increase in recreational use, it is important for managers to examine the probable land use impacts and plan for these where possible.

As an instrument for maintaining biodiversity values, SRM planning can mitigate impacts related to expansion of land and resource development. The establishment of OGMAs and enhanced riparian/wildlife movement corridors within the plan area shall help preserve a level of biodiversity and help mitigate the potential impacts on wildlife migration that may otherwise become threatened through land development and community expansion.

The rationale and management direction for establishment of OGMAs and enhanced riparian protection for wildlife movement is outlined in the following sections. Each of these resource subjects shall be addressed individually, with biological and economic considerations taken into account and presented in a summary format of; benefits and impacts, management intent, and legal objectives.

Studies conducted on other small communities in mountainous areas that have experienced rapid population growth resulting from tourism reveal a common theme of detrimental impacts to wildlife movement and population maintenance due to the impact of community expansion. Lessons learned from these communities indicate that natural corridors that allow free movement of wildlife reduce human-wildlife conflict. By utilizing existing riparian management areas and expanding some of these to allow for use by some larger wildlife species, the impacts on other resources is kept to a minimum.

The seven landscape units have many similar reasons for being a priority for biodiversity planning:

- forest Development Plan pressure in landscapes that have limited old growth attributes;
- immediate harvesting required to deal with forest health issues;

- many of the same ecological characteristics;
- increased land use pressure from multiple resource users;
- declining volumes of Douglas fir;
- increased interest from commercial developers;
- pressure on the land base resulting from other agency initiatives such as Ungulate Winter Range, and
- winter recreation conflicts.

3.0 Summary of Benefits and Impacts

Within the context of the Ministry of Sustainable Resource Management and SRM Planning, the underlying purpose of the establishment of OGMAs and enhanced riparian/wildlife movement corridors as “core” wildlife areas is to help produce greater certainty for other resource uses and yield increased economic and social benefits while maintaining environmental values.

3.1 Benefits and Impacts of Old Growth Management Areas

The benefits and impacts of the establishment of OGMAs in West Kinbasket, East Kinbasket, Hugh Allan, Dawson and Foster landscape units are summarized as follows:

- improved certainty about the management of old growth and old growth dependent species;
- improved certainty for forest licensees and the Ministry of Forests when preparing and approving Forest Development Plans or Forest Stewardship Plans;
- improved certainty for one aspect of biodiversity for a landscape on the brink of significant economic development and growth;
- provides opportunity for recreation and tourism based activity in the area surrounding Valemount;
- social benefits include the support and confidence of the local community (Valemount) and potential investors in community and recreational development (Sunrise International Inc. and Terra Nova resorts);
- contribution toward a landscape level ecosystem network for wildlife movement across the landscape;
- no short term impact to the timber supply of the Robson Valley Timber Supply Area (TSA); very small mid and long term impact to the timber supply;
- impact on the timber harvesting land base (THLB) of 3094 hectares or 5.2%;
- no impact on existing mineral, aggregate and gas permits or tenures, nor, exploration and development activities.

3.2 Benefits and Impacts of Enhanced Riparian/Wildlife Movement Corridors

In addition to the benefits of establishing Old Growth Management Areas, the following benefits and impacts of enhanced riparian reserve/wildlife movement corridors in the seven landscape units are summarized as follows:

- improved certainty of water quality and quantity for domestic water users;
- maintenance of proper functioning conditions of riparian habitats;
- maintenance of ecological process connectivity;
- potential for less wildlife –resource conflicts;
- minimal to no impact on THLB as enhanced riparian/wildlife movement corridors overlap aspatial riparian netdown from TSR2. The impact to the THLB of 754 ha or 1.5%;

- access management restrictions and/or requirements for commercial and industrial exploration and development;
- increased management and development costs in areas where access has not been previously established and other viable options do not exist;
- enhanced riparian/wildlife movement corridors will not serve as a conduit for non-riparian species.

4.0 Landscape Unit Objectives for OGMA's and Enhanced Riparian/Wildlife Movement Corridors

Landscape Unit objectives will be legally established within the framework of the FPC Act and as such will become Higher Level Plan objectives. Operational Plans covered by the FPC Act must be consistent with these objectives.

The Regional Director of the Ministry of Sustainable Resource Management establishes the Objectives as Higher Level Plan under Section 4 of the *Forest Practices Code of B.C. Act*. The Strategies are intended to guide other Statutory Decision Makers, such as the District Manager of Ministry of Forests, when reviewing or approving operational plans.

OGMA's, enhanced riparian/wildlife movement corridor and OGMA objectives apply only to provincial forest lands.

4.1 Old Growth Management Areas

OGMA's were established in each Biogeoclimatic variant throughout each LU, as shown on the attached maps. This follows the coarse filter approach to biodiversity management whereby representative old growth stands are protected to maintain ecosystem processes and wildlife habitat requirements.

Old growth characteristics, that are used to assess suitability to include in OGMA's consist of: large diameter trees, variation in tree size, variation in tree species, dead standing trees, complex canopy structure, large size coarse woody debris both standing and fallen, gaps in the over-story canopy, under-story patchiness, broken or deformed tops, heart/root rot and other pathogens. OGMA's should also meet some minimum requirement for interior forest conditions. The impact of edge effect should also be considered.

While park and Crown forest lands outside of provincial forest may contribute to old seral representation, LU objectives do not apply to these areas. Water, Land and Air Protection staff with responsibility for parks indicated that “it will be incumbent on the statutory decision makers to determine if the OGMA objectives continue to be met if ecosystem management actions are taken within parks (with OGMA values indicated) and to designate additional OGMA's if required to meet OGMA objectives. The “Timber Supply Review: Robson Valley Timber Supply Area Analysis Report”, May 2000, p. 4, identifies Mt Robson Provincial Park as not being included in the Robson Valley TSA.

4.2 Enhanced Riparian/Wildlife Movement Corridors and Connectivity

The location of the five landscape units within the Rocky Mountain Trench, and the presence of portions of both the Columbia River and Fraser River drainage systems contribute to the diversity of flora and fauna found within this region. Within the context of Ministry of Sustainable Resource Management and Sustainable Resource Management Planning (SRMP), the underlying purpose of establishment and maintenance of terrestrial and aquatic connectivity is to maintain the long term movement potential for all wildlife species in the face of large scale modifications proposed in this area. Inherent high

productivity and diverse structural and functional attributes of riparian ecosystems contribute to movement, foraging, and reproductive requirements for many indigenous and migratory species of invertebrates, reptiles, amphibians, birds and mammals.

Enhanced riparian protection for wildlife movement is important to ensure the opportunity for genetic exchange between populations, migration between habitats and other life requisites of indigenous species within the area. A detailed description of the plan area, its wildlife and significant resource values can be found in Appendix 8. *Valemount and Area Environmental Background Report*.

Discrete habitats and core wildlife areas which support connectivity of the landscape have been identified as OGMAs, ungulate winter range, avalanche tracks, riparian areas, and natural movement corridors within Crown Forest Land Base (CFLB) both inoperable and operable. Maps in each Appendices provide a representation of significant biological areas within the plan area.

5.0 OGMA and Enhanced Riparian/Wildlife Movement Corridor Considerations and Rationale

This section is intended to provide information regarding LU planning considerations and to explain the rationale used during OGMA delineation.

5.1 Ecosystem Management: Wildlife habitat information was used, where available, for caribou, grizzly bear, fisher, wolverine, mountain goat, moose, white-tailed and mule deer, cougar and Northern Long-eared Myotis. These are all red or blue listed species in the plan area or are of regional importance. Each LU contains varying amounts of wildlife habitat from which to build on for ecosystem management. The declared ungulate winter range established under the FPC will also help provide a better foundation for ecosystem management. In addition, Wildlife Habitat Areas and Temperature Sensitive Streams that may be established in the future will add to the foundation, and the establishment of riparian reserve zones will contribute to ecosystem integrity. Existing Land Act reserves for Wildlife Habitat Management Areas, Natural Environment Areas, Wildlife Habitat Emphasis Areas, and Recreation Conservation Management Areas are also identified as areas that contribute to ecosystem management. The habitat provided by these various processes, in conjunction with OGMAs, provides the fundamental “backbone” for which to maintain a functioning ecosystem.

An important part of the planning exercise was to ensure that these separate processes complemented each other. Larger patches of old growth provide core areas and enhanced riparian/wildlife movement corridors allow greater opportunity to improve connectivity. The intent is to maintain a series of old forest habitat patches and enhanced riparian/wildlife movement corridors overlapping probable movement corridors to allow wildlife dispersal and genetic flow. Using both this approach and stand level biodiversity measures will increase the likelihood of sustaining viable wildlife populations that are well distributed across their natural range.

It should also be noted that natural processes such as insect feeding or disease will be allowed to occur within OGMAs provided that they do not pose a significant threat to forested areas outside OGMAs. These activities at endemic levels are considered a natural part of ecosystem variability and are expected to have varying effects on biodiversity. It is anticipated that delineation of OGMAs across the landscape reduces the likelihood of losing all OGMAs in one catastrophic event.

5.2 Timber Supply and Mitigation: During delineation of OGMAs for priority biodiversity provisions, an attempt was made to mitigate the short and long-term impacts on timber supply. For example, OGMAs were considered first in the non-contributing forest land base. Since representation must be at the variant level, the non-contributing land base could not always satisfy old forest requirements. Land base that was constrained due to other land uses, such as visual quality management, riparian buffers, community watersheds or declared Ungulate Winter Range, was also considered in the selection of OGMAs. Generally, more THLB was required in lower elevation variants to capture significant old growth attributes, while in the higher elevations less THLB was required due to the larger amount of non-contributing land base. Partial contributing forest land base was used before contributing forest land base because of the ratio of non-contributing to contributing in this category. This approach has less impact on contributing forest land base in a landscape with significant historical activities that put pressure on the THLB.

OGMAs were chosen in the oldest available age class first, however, old forest stands that were approved for harvesting on Forest Development Plans (FDP) were excluded from candidate OGMAs following direction outlined in the *Landscape Unit Planning Guide*. Licensees have reviewed the maps as part of the process and are identifying future harvesting opportunities so that timber supply impacts can be reduced wherever possible.

Licensees identified areas where forest health issues for beetle management will require harvesting in the short term. These areas were determined to be unsuitable for OGMAs unless there was a previous conservation designation or significant ecological reason for retention.

Where forest or mining roads must be constructed within OGMAs, they should be temporary where possible. Deactivation should occur upon completion of operational activities. Deactivation for temporary roads, should prevent motorized access (i.e. 4WD, ATV, motorcycle), should include re-contouring the right-of-way and include replanting when feasible. Permanent roads (access required for a long period of time) can be constructed and maintained where there is no other practicable option. Where impacts from roads are deemed major and can not be mitigated, replacement OGMAs should be established.

Cone gathering is permitted within OGMAs provided it can be done without felling the tree.

5.3 Assessment Process and Selection Criteria: Individual OGMA polygons were assessed by forest cover information, satellite photograph interpretation, aerial reconnaissance and/or field inspections, in an attempt to evaluate stand attributes and biodiversity values/attributes. See Tables 2 and 3 for the Robson Valley-Canoe area total OGMA attributes. Appendices 1 through 5 detail OGMA attributes specific to each LU.

In the selection process an attempt was made to select OGMAs that were in proximity to biologically significant features such as large rivers, avalanche tracts, swamps, etc. Wildlife use through capability, suitability and probability reports and maps were utilized where information was available. Interior forest habitat and edge effect relative to OGMA size and placement were also considered. OGMA placement was considered for connectivity to constrained operating areas and provided a variety of aspects, slope positions and tree species.

Some non-contributing forest land such as riparian reserve zones are being utilized as a portion of the enhanced riparian/wildlife movement corridors and as such are contributing to the “core” wildlife habitat areas.

Table 2 OGMA requirements for the entire Robson Valley- Canoe Planning Area

BEC Variant	Crown Forested Landbase Ha	Full OGMA Target		Draft OGMA Ha	OGMAs in Non-Contributing (NC)		OGMAs in Contributing (THLB)	
		%	Ha		%	Ha	%	Ha
ESSFmm1	67458	52	6045	5999	38	4506	12	1490
ESSFwc2	13599	18	2044	1956	15	1775	2	183
ICHmm	27573	21	2441	2307	9	1113	10	1194
ICHvk	197	.2	26	31	.2	26	0	5
ICHvk1	4075	4.2	490	1012	8	991	.2	21
ICHwk1	5333	4.3	498	537	3	412	1	125
SBS dh	285	.3	32	95	.1	17	.7	78
Total	118520	100	11576	11937	74.1	8840	25.9	3096

Table 3 Timber harvesting land base information for the Robson Valley-Canoe Planning Area

BEC variant	Crown Forested Land base Ha	Timber Harvesting Land base (before OGMA's) Ha	OGMAs in THLB		Remaining THLB	
			% of BEC	Ha	% of BEC	Ha
ESSF mm1	67458	30190	4.9	1490	95.1	28706
ESSF wc2	13599	4825	3.8	183	96.2	4642
ICH mm	27573	18510	6.5	1194	93.5	17312
ICH vk	197	136	3.6	5	96.4	132
ICH vk1	4075	2697	0.8	21	99.2	2675
ICH wk1	5333	3431	3.6	125	96.4	3306
SBS dh	285	240	32.5	78	67.5	162
Total of THLB	118520	60029	5.2	3096	94.8	56935

5.4 Monitoring and Review: Ministry of Sustainable Resource Management or the agency responsible will monitor activities within OGMA and enhanced riparian/wildlife movement corridors as issues are identified. It is the intention to review this plan and assess proposed changes to OGMA at least every 5 years.

The OGMA in higher elevations are anticipated to be stable for a significant period of time. The OGMA and enhanced riparian/wildlife movement corridors in stand types that are more susceptible to stand level disturbance may be subject to review and change more frequently.

If forest harvesting or a natural disturbance is considered to have impacted the integrity and/or function of an OGMA, then an assessment will take place to determine whether the affected portion should be replaced by an equivalent area, or whether the entire OGMA should be replaced.

5.5 Boundary Mapping: Natural features were used for OGMA boundaries wherever possible to ensure they could be located on the ground. OGMA were also delineated to include complete forest stands (forest cover polygons) wherever possible to reduce operational uncertainty and increase ease of OGMA mapping.

Enhanced riparian/wildlife movement corridors are located along waterbodies as outlined in Table 4 of this document. Where natural features such as stream banks or height of land fall marginally inside or outside the designated corridor, the movement corridor will follow those features.

OGMA boundaries do not have to be legally surveyed. Potential trespass across OGMA boundaries will be enforced to a reasonable standard of measurement. This means that a licensee's proposed harvest area can only be expected to be in or outside of an OGMA as it is shown on the map. Therefore if a licensee submitted a plan showing proposed development outside the mapped OGMA boundary that would be taken as correct. However, the licensee is responsible for ensuring due diligence in locating their cutblock boundaries to the accuracy shown on the map. OGMA are mapped at a range between 1:20,000 and 1:60,000 scale depending on the size of the Landscape Unit.

Further, to deal with potential operational overlap between OGMA and cutblocks, the following may be necessary. Where Category A approved or future cutblocks are located or proposed in close proximity (within 100m) to established OGMA, the OGMA boundary may be modified to conform to the cutblock boundary. This would be undertaken to avoid isolating timber and create a more defined boundary for future reference. This provision is not a substitute for accurate mapping and block layout.

Table 4

Wildlife Movement Corridors within the Robson Valley-Canoe Area: Enhanced Riparian Width and FPC RMA Breakdown for each water body

Waterbody	Applied Enhanced Riparian (m)	Original FPC Riparian Management Area (m)	Total Wildlife corridor width (m)
Yellowjacket Creek	50	50	100
Dave Henry Creek	50	50	100
Bulldog Creek	0	50	50 ¹
Ptarmigan Creek	30	70	100
Hugh Allan Creek	30	70	100
Blackman Creek	0	50	50 ¹
Iroquois Creek	10	30	40
East Iroquois Creek	10	30	40
Foster Creek	0	70	70 ¹

1- The widths for these corridors have been defaulted to the FPC riparian management areas. If increased consumptive land uses occur in these watersheds, this should be reviewed and revised if necessary.

6.0 Other Biodiversity Provisions

The *Landscape Unit Planning Guide* makes reference to comprehensive biodiversity planning which includes elements such as: seral stage distribution, landscape connectivity, species composition, and temporal and spatial distribution of cutblocks (patch size), forest interior habitat and wildlife tree retention. While old seral connectivity, old seral species composition, and old seral interior forest habitat are partially addressed through the establishment of OGMA's and Enhanced Riparian/Wildlife Movement Corridors, these and other elements may be fully considered in future Sustainable Resource Management Planning.

7.0 Link to the Land and Resource Management Plan (LRMP)

The Robson Valley LRMP was signed off for approval in April 1999. Within that plan there are relevant sections to consider and guide OGMA and Enhanced Riparian/Wildlife Movement Corridor establishment in addition to specific recommendations for increased buffers on select streams. These are: McLennan River – 60 m reserve and 20 m management zone; Canoe River – 50m reserve and 20 m management zone (outside wetlands); known domestic water intakes – minimum of 20 m reserve and 30 m machine free management zone upstream of known domestic water intakes. Some of these recommendations are implemented in other Landscape Unit plans.

A relevant objective is to “manage for the maintenance of representative old growth stands and their attributes”. Related strategies are:

- “Where appropriate, Forest Ecosystem Networks (FENs) will be established during landscape unit planning. FEN designs should maintain continuity/linkages between; critical wildlife habitat, protected areas, travel corridors, various landscapes (alpine, early seral, mature forests, old growth, etc.) and where possible incorporate inoperable and/or unmerchantable forested areas”.
- “Maintain well distributed representative areas of old growth within and across landscape units through consideration of the Biodiversity guidebook (FPC), Protected Areas and the work of the Robson Valley Old Growth Strategy document.”

Also within the Robson Valley LRMP, a relevant objective is to “identify and protect small, unique areas of unusual and rare species.” Related strategies are:

- “Manage red listed communities and/or species of plants and animals by protecting habitat from disturbance and loss.”
- “Manage blue listed species of plants and animals and their habitat to minimize loss of habitat and disturbance.”
- “Identify and protect representative areas of macro-lichen forest with local public input.”

The West Kinbasket, East Kinbasket, Hugh Allan, Foster and Dawson LUs are within several Resource Management Zones (RMZs), as identified in the LRMP. They include:

RMZ number	RMZ name	RMZ category
B1	Rocky Mountain Trench	Special Resource Management – Natural Habitat
B3	Rocky Mountain Trench –Tete Creek	Special Management
G1	East Kinbasket	Resource Development
G2	East Kinbasket Selwyn subzone	Resource Development
H	West Kinbasket	Resource Development
P10	Foster Arm	Protected Area

8.0 Appendices

- Appendix 1 – West Kinbasket Landscape Unit
- Appendix 2 – East Kinbasket Landscape Unit
- Appendix 3 – Hugh Allan Landscape Unit
- Appendix 4 – Dawson Landscape Unit
- Appendix 5 – Foster Landscape Unit
- Appendix 6– Rationale for Old Growth Management Areas in Robson Valley
- Appendix 7 – Public input and MSRM response/rationale
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Appendix 1–West Kinbasket Landscape Unit

1.0 West Kinbasket Landscape Unit Description

The West Kinbasket LU encompasses 12,382 ha, which parallels the west shore of Kinbasket reservoir. Kinbasket reservoir flows into the Columbia River, and is the eastern boundary of the LU. Of the total area, 8,927ha (72.1%) is within the Crown forest land base, and 5,123 ha of Crown forest land is within the Timber Harvesting Land Base (THLB). The remaining 3,455 ha (27.9 %) is non-forested or non-Crown (e.g. rock, alpine tundra, water, private land) and have been excluded from any OGMA contributions and calculations.

The West Kinbasket LU is situated within the Southern Interior Mountains Ecoprovince, and the Northern Columbia Mountains Ecosection. The landscape unit is comprised of two Biogeoclimatic Ecosystem Classification (BEC) subzones/variants ranging from low elevation Interior Cedar - Hemlock (ICH) to upper elevation Engelmann Spruce-Sub-alpine Fir (ESSF) adjacent to the high elevation Alpine Tundra.

2.0 Significant Resource Values

2.1 Fish, Wildlife and Biodiversity

Refer to Appendix 8 - Valemount and Area Environmental Background Report

2.2 Timber Resources

The forests of West Kinbasket LU have had first pass harvesting occur with some second pass harvesting ongoing. The West Canoe Forest Service Road is accessible primarily in summer and fall.

Table 1. Age distribution of forests within the West Kinbasket Landscape Unit.

Age	% of Crown Forested Landbase
1-60	19.06
61-100	3.02
101-140	14.34
141-250	33.05
250+	30.53

2.3 First Nations: The West Kinbasket LU is located within the traditional territory of the Lheidli T'enneh First Nation and the Simpcw (Shuswap) First Nation.

The establishment of these biodiversity elements are not anticipated to have a significant impact on Lheidli T'enneh First Nation or the Simpcw First Nation. Old growth management area establishment do not limit treaty negotiations or settlements.

Of concern to the Simpcw First Nation is the impact of forest development in the wildlife movement/enhanced riparian reserves, if it occurs. The protocol used by the Ministry of Forests for these LUs is taken from the Kamloops Timber Supply Area: Archeological Overview Guidelines. The Ministry of Forests reviews all forest development plans and road permits and weighs the likelihood of potential archeological sites in the proposed area. If there is a medium or high likelihood of archeological occurrence, a request to conduct an archeological assessment is put forth to the forest company.

2.4 Mining and Mineral Exploration: Subsurface resources (minerals, coal, oil, gas and geothermal) and aggregates are significant to the province. OGMA's have been located to avoid existing tenures wherever possible. It is important to note that establishment of old growth management areas will not impact the status of existing mineral, aggregate and gas permits or tenures; exploration and development activities are permitted. The preference is to proceed with exploration and development in a way that is sensitive to the old growth values of the OGMA; however, if exploration and development proceeds to the point of significantly impacting old growth values, then the OGMA will be relocated.

2.5 Recreation: Recreational opportunities in the West Kinbasket LU are limited in nature and focus on Kinbasket reservoir and alpine areas of this LU. There are a few special features known to locals but are not generally accessible to the general public.

Recreational activities are permitted in the OGMA's and enhanced riparian/wildlife movement corridors where compatible. The opportunity to develop new trails will be considered when proposed. The anticipated impact to old growth values should be considered in the approval process.

2.6 Trapping and Guiding: Trapping and guiding tenures overlap this LU. OGMA's are not anticipated to impact these tenures. It is intended that Trappers would be able to build trapline cabins within OGMA's. The trapper would be expected to minimize site disturbance and minimize impact to old growth attributes.

3.0 West Kinbasket Landscape Unit Objectives

Legal objectives established under the Landscape Unit plan will be Higher Level Plan objectives.

The West Kinbasket LU was ranked as a Low biodiversity emphasis option through the Robson Valley Forest District Landscape Unit Planning Strategy in 1998. This Low designation along with the BEC variant determines the percentage of the Crown forest land base that will be designated as OGMA. Table 2 outlines the total amount of OGMAs required in each variant and from which Crown forest category (i.e., Non Contributing-NC; Timber Harvesting Land Base-THLB)¹. The old growth target figures in Table 2 are derived from Appendix 2 in the Landscape Unit Planning Guide.

To ensure that landscape level biodiversity values were represented across the landscape, OGMAs were established to the target in each BEC variant. The attached West Kinbasket LU map visually shows their distribution.

Table 2. Old growth management area (OGMA) requirements, West Kinbasket Landscape Unit.

BEC Variant	Crown Forested Landbase	Full OGMA Target		Draft OGMAs	OGMAs in Non-Contributing (NC)		OGMAs in Contributing (THLB)	
		%	Ha		%	Ha	%	Ha
ESSFmm1	2994	34	269	248	28	221	3.4	27
ICH mm	5933	66	534	535	28	220	40.2	315
Total	8927	100	803	783	56	441	43.6	342

Table 3. Timber harvesting land base information by BEC variant, West Kinbasket Landscape Unit.

BEC Variant	Crown Forested Landbase	Timber Harvesting Land Base (Before OGMA)	OGMAs in Contributing (THLB)		THLB Remaining	
			%	Ha	%	Ha
ESSFmm1	2994	1034	2.6	27	97.4	1007
ICH mm	5933	4089	8	315	92	3774
Total	8927	5123	6.7	342	93.3	4781

ESSFmm1: Engelmann Spruce – Sub-alpine Fir, moist, mild

ICHmm: Interior Cedar – Hemlock, moist, mild

¹ Non Contributing (NC) forest land does not contribute to the Allowable Annual Cut. The Timber Harvesting Land Base (THLB) is made up of Contributing (C) forests and a portion of the Partially Contributing (PC) forests. Partially Contributing forests are “constrained” due to one of several factors such as unstable soils or wildlife habitat, but are still partially available for harvest. Contributing forest is unconstrained and available for timber harvest.

4.0 West Kinbasket OGMA Planning Results

4.1 Timber Harvesting Land Base Impact: In the West Kinbasket LU, most of the old growth targets are met within the non-contributing land base. In total, 342 ha of OGMA are identified in the THLB to meet old growth retention targets. The estimated impact to short term timber supply is estimated to be minimal due to placement of OGMAs in areas experiencing other constraints (i.e. VQOs, adjacency issues, etc.). The mid and long term impact to timber supply is anticipated to be proportionate to the percent of OGMAs which are established in the THLB.

4.2 OGMA Age Classes: In locating OGMAs in the West Kinbasket LU, MSRM deviated marginally from direction in the Landscape Unit Planning Guide by merging information from new science with existing guidance. The most current information on large scale disturbance in the Prince George Forest Region comes from work done by Delong, 2002. In his report, *Natural Disturbance Units in the Prince George Forest Region: Guidance for Sustainable Forest Management*, Delong has moved away from Natural Disturbance types as identified in the Biodiversity Guidebook and has provided localized information on the type of natural disturbance patterns or units (NDU), and the frequency of which they occur in the region. In the entire Robson Valley-Canoe planning area there are two natural disturbance units. In the valley, the NDU is the Moist Trench- Valley while the upper elevations consist of the Moist Trench-Mountain. Because of the broad expanse of natural disturbance unit, if MSRM was unable to meet the target for a BEC variant, an attempt was made to meet it across the landscape.

Appendix 2–East Kinbasket Landscape Unit

1.0 East Kinbasket Landscape Unit Description

The East Kinbasket LU encompasses 42,355 ha, which includes Packsaddle, Yellowjacket, Bulldog and Ptarmigan Creek. Each of these creeks flow into Kinbasket reservoir, which is the western boundary of the LU. Of the total area, 30,875ha (72.8%) is within the Crown forest land base, and 15,861 ha of Crown forest land is within the Timber Harvesting Land Base (THLB). The remaining 11,480 ha (27.1 %) are non-forested or non-Crown (e.g., rock, alpine tundra, water, private land) and have been excluded from any OGMA contributions and calculations.

The East Kinbasket LU is situated within the Southern Interior Mountains Ecoprovince, and the Northern Parks Ecoregion. The landscape unit is comprised of 3 Biogeoclimatic Ecosystem Classification (BEC) subzones/variants ranging from low elevation Sub-Boreal Spruce (SBS) and Interior Cedar - Hemlock (ICH) to upper elevation Engelmann Spruce-Sub-alpine fir (ESSF) adjacent to the high elevation Alpine Tundra.

2.0 Significant Resource Values

2.1 Fish, Wildlife and Biodiversity

Refer to Appendix 8 - Valemount and Area Environmental Background Report

2.2 Timber Resources

There is a history of logging in East Kinbasket LU that continues from the 1970's when logging occurred in the Yellowjacket and Horse Creek areas. Some logging in this LU required access by barge as the shoreline of the reservoir filled in the gentler slopes that would have made road building easier. Upper reaches of some of the streams in this LU still have access challenges.

Table 1. Age distribution of forests within the East Kinbasket Landscape Unit.

Age	% of Crown Forested Landbase
1-60	18.23
61-100	5.8
101-140	14.84
141-250	41.46
250+	19.66

2.3 First Nations: The East Kinbasket LU is located within the traditional territory of the Lheidli T'enneh First Nation as well as the Simpcw (Shuswap) First Nation.

The establishment of these biodiversity elements are not anticipated to have a significant impact on Lheidli T'enneh First Nation or the Simpcw First Nation. Old growth management area establishment will not limit treaty negotiations or settlements.

Of concern to the Simpcw First Nation is the impact of forest development in the wildlife movement/enhanced riparian reserves, if it occurs. The protocol used by the Ministry of Forests for these LUs is taken from the Kamloops Timber Supply Area: Archeological Overview Guidelines. The Ministry of Forests reviews all forest development plans and road permits and weighs the likelihood of potential archeological sites in the proposed area. If there is a medium or high likelihood of archeological occurrence, a request to conduct an archeological assessment is put forth to the forest company.

2.4 Mining and Mineral Exploration: Subsurface resources (minerals, coal, oil, gas and geothermal) and aggregates are significant to the province. OGMA's have been located to avoid existing tenures wherever possible. It is important to note that establishment of old growth management areas will not impact the status of existing mineral, aggregate and gas permits or tenures; exploration and development activities are permitted. The preference is to proceed with exploration and development in a way that is sensitive to the old growth values of the OGMA; however, if exploration and development proceeds to the point of significantly impacting old growth values, then the OGMA will be relocated.

2.5 Recreation: Recreational opportunities in the East Kinbasket LU cover a wide spectrum. There are numerous Forest Service recreation sites as well as a boat launch developed in cooperation between the Valemount Marina Association and BC Hydro. Fishing is popular in this LU along with hunting and berry picking. Several special features occur in the East Kinbasket LU and commercial hiking and heli-skiing tenures exist here with potential for more commercial recreation businesses to locate in this area.

Recreational activities are permitted in the OGMA's and enhanced riparian/wildlife movement corridors where compatible. The opportunity to develop new trails will be considered when proposed. The anticipated impact to old growth values should be considered in the approval process.

2.6 Trapping and Guiding: Trapping and guiding tenures overlap this LU. OGMA's are not anticipated to impact these tenures. It is intended that Trappers would be able to build trapline cabins within OGMA's. The trapper would be expected to minimize site disturbance and minimize impact to old growth attributes.

3.0 East Kinbasket Landscape Unit Objectives

Legal objectives established under the Landscape Unit plan will be Higher Level Plan objectives.

The East Kinbasket LU was ranked as a Low biodiversity emphasis option through the Robson Valley Forest District Landscape Unit Planning Strategy in 1998. This Low designation along with the BEC variant determines the percentage of the Crown forest land base that will be designated as OGMA. Table 2 outlines the total amount of OGMAs required in each variant and from which Crown forest category (i.e. Non Contributing-NC; Timber Harvesting Land Base-THLB)². The old growth target figures in Table 2 are derived from Appendix 2 in the Landscape Unit Planning Guide.

To ensure that landscape level biodiversity values were represented across the landscape, OGMAs were established to the target in each BEC variant. The attached East Kinbasket LU map visually shows their distribution.

Table 2. Old growth management area (OGMA) requirements, East Kinbasket Landscape Unit.

BEC Variant	Crown Forested Landbase	Full OGMA Target		Draft OGMAs	OGMAs in Non-Contributing (NC)		OGMAs in Contributing (THLB)	
		%	Ha		%	Ha	%	Ha
ESSF mm1	23544	76	2119	2090	52.7	1509	20.3	581
ICH mm	7046	23	634	679	12.7	365	11	314
SBS dh	285	1	31	95	.6	17	2.7	78
Total	30875	100	2784	2864	66	1891	34	973

Table 3. Timber harvesting land base information by BEC variant, East Kinbasket Landscape Unit.

BEC Variant	Crown Forested Landbase	Timber Harvesting Land Base (Before OGMA)	OGMAs in Contributing (THLB)		THLB Remaining	
			%	Ha	%	Ha
ESSF mm1	23544	11144	5	581	95	10563
ICH mm	7046	4484	7	314	93	4170
SBS dh	285	233	33.5	78	66.5	155
Total	30875	15861	6	973	94	14888

ESSFmm1: Engelmann Spruce – Sub-alpine Fir, moist, mild

ICHmm: Interior Cedar – Hemlock, moist, mild

SBSdh: Sub-boreal Spruce, dry, hot

² Non Contributing (NC) forest land does not contribute to the Allowable Annual Cut. The Timber Harvesting Land Base (THLB) is made up of Contributing (C) forests and a portion of the Partially Contributing (PC) forests. Partially Contributing forests are “constrained” due to one of several factors such as unstable soils or wildlife habitat, but are still partially available for harvest. Contributing forest is unconstrained and available for timber harvest.

4.0 East Kinbasket OGMA Planning Results

4.1 Timber Harvesting Land Base Impact: In the East Kinbasket LU, the majority of the old growth targets are met within the non-contributing land base. In total, 974 ha of OGMA are identified in the THLB to meet old growth retention targets. These areas were chosen where access to timber is difficult and costly. The estimated impact to short term timber supply is estimated to be minimal due to placement of OGMAs in areas experiencing other constraints (i.e., VQOs, adjacency issues, etc.). TSR 3 will verify this statement. The mid and long term impact to timber supply is anticipated to be proportionate to the percent of OGMAs which are established in the THLB.

4.2 OGMA Age Classes: In locating OGMAs in the East Kinbasket LU, there were marginal deviations from direction in the Landscape Unit Planning Guide by merging information from new science with existing guidance. The most current information on large scale disturbance in the Prince George Forest Region comes from work done by Delong, 2002. In his report, *Natural Disturbance Units in the Prince George Forest Region: Guidance for Sustainable Forest Management*, Delong has moved away from Natural Disturbance types as identified in the Biodiversity Guidebook and has provided localized information on the type of natural disturbance patterns or units (NDU), and the frequency of which they occur in the region. In the entire Robson Valley-Canoe planning area there are two natural disturbance units. In the valley, the NDU is the Moist Trench-Valley while the upper elevations consist of the Moist Trench-Mountain. Because of the broad expanse of natural disturbance unit, if MSRM was unable to meet the target for a BEC variant, an attempt was made to meet it across the landscape.

It has been identified that Douglas fir is on the decline in the former Robson Valley Forest District. This has prompted the creation of Douglas fir recruitment OGMAs in this landscape unit that may come from younger stands.

Appendix 3–Foster Landscape Unit

1.0 Foster Landscape Unit Description

The Foster LU encompasses 27,678 ha, which includes Foster and Howard Creeks. Both creeks flow into Kinbasket reservoir, which is the eastern boundary of the LU. Of the total area, 20,237ha (73.1%) is within the Crown forest land base, and 10,290 ha of Crown forest land is within the Timber Harvesting Land Base (THLB). The remaining 7,441 ha (26.9 %) are non-forested or non-Crown (e.g. rock, alpine tundra, water, private land) and have been excluded from any OGMA contributions and calculations.

The Foster LU is situated within the Southern Interior Mountains Ecoprovince, and the Upper Fraser Trench and Big Bend Trench Ecoregions. The landscape unit is comprised of 6 Biogeoclimatic Ecosystem Classification (BEC) subzones/variants ranging from low elevation Interior Cedar - Hemlock (ICH) to upper elevation Engelmann Spruce-Sub-alpine fir (ESSF) adjacent to the high elevation Alpine Tundra.

2.0 Significant Resource Values

2.1 Fish, Wildlife and Biodiversity

Refer to Appendix 8 - Valemount and Area Environmental Background Report

2.2 Timber Resources

The forests of the Foster LU have not traditionally been easy to access by road from the north but more recently, access from the south is creating opportunity for some harvest. There is significant old growth timber values in this area but the Foster Arm Protected Area and Ungulate Winter Range have removed these areas from the timber harvesting land base. Harvesting within the Ungulate Winter Range must be conducted as identified in the management objectives for Ungulate Winter Range in the Omineca Region of the Ministry of Water, Land and Air Protection.

Table 1. Age distribution of forests within the Foster Landscape Unit.

Age	% of Crown Forested Landbase
1-60	13.2
61-100	1.2
101-140	5.06
141-250	29.4
250+	51.13

2.3 First Nations: The Foster LU is located within the traditional territory of the Lheidli T'enneh First Nation as well as the Simpcw (Shuswap) First Nation.

The establishment of these biodiversity elements are not anticipated to have a significant impact on Lheidli T'enneh First Nation or the Simpcw First Nation. Old growth management area establishment will not limit treaty negotiations or settlements.

Of concern to the Simpcw First Nation is the impact of forest development in the wildlife movement/enhanced riparian reserves, if it occurs. The protocol used by the Ministry of Forests for these LUs is taken from the Kamloops Timber Supply Area: Archeological Overview Guidelines. The Ministry of Forests reviews all forest development plans and road permits and weighs the likelihood of potential archeological sites in the proposed area. If there is a medium or high likelihood of archeological occurrence, a request to conduct an archeological assessment is put forth to the forest company.

2.4 Mining and Mineral Exploration: Subsurface resources (minerals, coal, oil, gas and geothermal) and aggregates are significant to the province. There are no producing mines or active tenures in this area but it has been identified as having mineral potential. OGMA's have been located to avoid existing tenures wherever possible. It is important to note that establishment of old growth management areas will not impact the status of existing mineral, aggregate and gas permits or tenures; exploration and development activities are permitted. The preference is to proceed with exploration and development in a way that is sensitive to the old growth values of the OGMA; however, if exploration and development proceeds to the point of significantly impacting old growth values, then the OGMA will be relocated.

2.5 Recreation: Recreational opportunities in the Foster LU are limited because of difficult access. A commercial heli-skiing tenure exists in the alpine areas of Howard and Foster Creek.

Recreational activities are permitted in the OGMA's and enhanced riparian/wildlife movement corridors where compatible. The opportunity to develop new trails will be considered when proposed. The anticipated impact to old growth values should be considered in the approval process.

2.6 Trapping and Guiding: Trapping and guiding tenures overlap this LU. OGMA's are not anticipated to impact these tenures. It is intended that Trappers would be able to build trapline cabins within OGMA's. The trapper would be expected to minimize site disturbance and minimize impact to old growth attributes.

3.0 Foster Landscape Unit Objectives

Legal objectives established under the Landscape Unit plan will be Higher Level Plan objectives.

The Foster LU was ranked as a Low biodiversity emphasis option through the Robson Valley Forest District Landscape Unit Planning Strategy in 1998. This Low designation along with the BEC variant determines the percentage of the Crown forest land base that will be designated as OGMA. Table 2 outlines the total amount of OGMAs required in each variant and from which Crown forest category (i.e. Non Contributing-NC; Timber Harvesting Land Base-THLB)³. The old growth target figures in Table 2 are derived from Appendix 2 in the Landscape Unit Planning Guide.

To ensure that landscape level biodiversity values were represented across the landscape, OGMAs were established to the target in each BEC variant. The attached Foster LU map visually shows their distribution.

Table 2. Old growth management area (OGMA) requirements, Foster Landscape Unit.

BEC Variant	Crown Forested Landbase	Full OGMA Target		Draft OGMAs	OGMAs in Non-Contributing (NC)		OGMAs in Contributing (THLB)	
		%	Ha		%	Ha	%	Ha
ESSFmm1	1154	3	104	121	4	118	0	3
ESSFwc2	9343	59	1775	1746	53	1629	4	117
ICH mm	3007	9	271	278	4	119	5	159
ICHvk	197	1	26	31	1.0	26	0.2	5
ICH vk1	3451	15	449	484	15	478	0.2	6
ICH wk1	3085	13	401	426	12	363	2	63
Total	20237	100	3026	3086	89	2733	11.4	353

³ Non Contributing (NC) forest land does not contribute to the Allowable Annual Cut. The Timber Harvesting Land Base (THLB) is made up of Contributing (C) forests and a portion of the Partially Contributing (PC) forests. Partially Contributing forests are “constrained” due to one of several factors such as unstable soils or wildlife habitat, but are still partially available for harvest. Contributing forest is unconstrained and available for timber harvest.

Table 3. Timber harvesting land base information by BEC variant, Foster Landscape Unit.

BEC Variant	Crown Forested Landbase	Timber Harvesting Land Base (Before OGMA)	OGMAs in Contributing (THLB)		THLB Remaining	
	Ha	Ha	%	Ha	%	Ha
ESSFmm1	1154	568	1	3	99	565
ESSFwc2	9343	3344	4	117	96	3227
ICH mm	3007	2205	7	159	93	2046
ICH vk	197	136	4	5	96	131
ICH vk1	3451	2244	0.3	6	99.7	2238
ICH wk1	3085	1791	4	63	96	1728
Total	20237	10288	3	353	97	9935

ESSFmm1: Engelmann Spruce – Sub-alpine Fir, moist, mild

ESSFwc2: Engelmann Spruce-Sub-alpine Fir, wet, cold

ICHmm: Interior Cedar – Hemlock, moist, mild

ICHvk: Interior Cedar – Hemlock, very wet, cool

ICHvk1: Interior Cedar – Hemlock, very wet, cool variant 1

ICHwk1: Interior Cedar – Hemlock, wet, cool

4.0 Foster OGMA Planning Results

4.1 Timber Harvesting Land Base Impact: In the Foster LU, most of the old growth targets are met within the non-contributing land base. In total, 352 ha of OGMA are identified in the THLB to meet old growth retention targets. The estimated impact to short term timber supply is estimated to be minimal due to placement of OGMAs in areas experiencing other constraints (i.e. VQOs, adjacency issues, etc.). The mid and long term impact to timber supply is anticipated to be proportionate to the percent of OGMAs which are established in the THLB.

4.2 OGMA Age Classes: In locating OGMAs in the Foster LU, MSRM deviated marginally from direction in the Landscape Unit Planning Guide by merging information from new science with existing guidance. The most current information on large scale disturbance in the Prince George Forest Region comes from work done by Delong, 2002. In his report, *Natural Disturbance Units in the Prince George Forest Region: Guidance for Sustainable Forest Management*, Delong has moved away from Natural Disturbance types as identified in the Biodiversity Guidebook and has provided localized information on the type of natural disturbance patterns or units (NDU), and the frequency of which they occur in the region. In the entire Robson Valley-Canoe planning area there are two natural disturbance units. In the valley, the NDU is the Moist Trench- Valley while the upper elevations consist of the Moist Trench-Mountain. Because of the broad expanse of natural disturbance unit, if MSRM was unable to meet the target for a BEC variant, an attempt was made to meet it across the landscape.

It has been identified that Douglas fir is on the decline in the former Robson Valley Forest District. This has prompted the creation of Douglas fir recruitment OGMAs in this landscape unit that may come from younger stands.

Appendix 4–Hugh Allan Landscape Unit

1.0 Hugh Allan Landscape Unit Description

The Hugh Allan LU encompasses 32,998 ha, which includes Hugh Allan and Blackman Creeks. Both creeks flow into Kinbasket Lake, which is the western boundary of the LU. Of the total area, 25,343ha (76.8%) is within the Crown forest land base, and 12,894 ha of Crown forest land is within the Timber Harvesting Land Base (THLB). The remaining 7,655 ha (23.2 %) are non-forested or non-Crown (e.g., rock, alpine tundra, water, private land) and have been excluded from any OGMA contributions and calculations.

The Hugh Allan LU is situated within the Southern Interior Mountains Ecoprovince, and the Northern Parks Ranges Ecosession. The landscape unit is comprised of 3 Biogeoclimatic Ecosystem Classification (BEC) subzones/variants ranging from low elevation Interior Cedar - Hemlock (ICH) to upper elevation Engelmann Spruce-Sub-alpine fir (ESSF) adjacent to the high elevation Alpine Tundra.

2.0 Significant Resource Values

2.1 Fish, Wildlife and Biodiversity

Refer to Appendix 8 - Valemount and Area Environmental Background Report

2.2 Timber Resources

Since 1995, road development has reached into the Hugh Allan LU allowing the licensee to access timber further up the Hugh Allan drainage than previously. Logging continues to occur in this LU as conditions become favourable.

Table 1. Age distribution of forests within the Hugh Allan Landscape Unit.

Age	% of Crown Forested Landbase
1-60	5.74
61-100	6.32
101-140	22.48
141-250	48.03
250+	17.42

2.3 First Nations: The Hugh Allan LU is located within the traditional territory of the Lheidli T'enneh First Nation as well as the Simpcw (Shuswap) First Nation.

The establishment of these biodiversity elements are not anticipated to have a significant impact on Lheidli T'enneh First Nation or the Simpcw First Nation. Old growth management area establishment will not limit treaty negotiations or settlements.

Of concern to the Simpcw First Nation is the impact of forest development in the wildlife movement/enhanced riparian reserves, if it occurs. The protocol used by the Ministry of Forests for these LUs is taken from the Kamloops Timber Supply Area: Archeological Overview Guidelines. The Ministry of Forests reviews all forest development plans and road permits and weighs the likelihood of potential archeological sites in the proposed area. If there is a medium or high likelihood of archeological occurrence, a request to conduct an archeological assessment is put forth to the forest company.

2.4 Mining and Mineral Exploration: Subsurface resources (minerals, coal, oil, gas and geothermal) and aggregates are significant to the province. While no existing mines occur in this LU, it has been identified that there is a high potential for base or precious metals in the upper reaches of Hugh Allan Creek. OGMA's have been located to avoid existing tenures wherever possible. It is important to note that establishment of old growth management areas will not impact the status of existing mineral, aggregate and gas permits or tenures; exploration and development activities are permitted. The preference is to proceed with exploration and development in a way that is sensitive to the old growth values of the OGMA; however, if exploration and development proceeds to the point of significantly impacting old growth values, then the OGMA will be relocated.

2.5 Recreation: Recreational opportunities in the Hugh Allan LU focus on the Kinbasket reservoir and on the backcountry and alpine areas in this LU. Potential exists for commercial back country recreation tenures but currently the most prominent tenure exists for heli-skiing by a local company.

Recreational activities are permitted in the OGMA and enhanced riparian/wildlife movement corridors where compatible. The opportunity to develop new trails will be considered when proposed. The anticipated impact to old growth values should be considered in the approval process.

2.6 Trapping and Guiding: Trapping and guiding tenures overlap this LU. OGMA's are not anticipated to impact these tenures. It is intended that Trappers would be able to build trapline cabins within OGMA's. The trapper would be expected to minimize site disturbance and minimize impact to old growth attributes.

3.0 Hugh Allan Landscape Unit Objectives

Legal objectives established under the Landscape Unit plan will be Higher Level Plan objectives.

The Hugh Allan LU was ranked as a Intermediate biodiversity emphasis option through the Robson Valley Forest District Landscape Unit Planning Strategy in 1998. This Intermediate designation along with the BEC variant determines the percentage of the Crown forest land base that will be designated as OGMA. Table 2 outlines the total amount of OGMAs required in each variant and from which Crown forest category (i.e., Non Contributing-NC; Timber Harvesting Land Base-THLB)⁴. The old growth target figures in Table 2 are derived from Appendix 2 in the Landscape Unit Planning Guide.

To ensure that landscape level biodiversity values were represented across the landscape, OGMAs were established to the target in each BEC variant. The attached Hugh Allan LU map visually shows their distribution.

Table 2. Old growth management area (OGMA) requirements, Hugh Allan Landscape Unit.

BEC Variant	Crown Forested Landbase	Full OGMA Target		Draft OGMAs	OGMAs in Non-Contributing (NC)		OGMAs in Contributing (THLB)	
		%	Ha		%	Ha	%	Ha
ESSFmm1	18173	71	1636	1649	63	1295	17	354
ICH mm	7003	28	630	415	11	223	9	192
ICH vk1	167	1	22	0	0	0	0	0
Total	25343	100	2288	2064	74	1518	26	546

Table 3. Timber harvesting land base information by BEC variant, Hugh Allan Landscape Unit.

BEC Variant	Crown Forested Landbase	Timber Harvesting Land Base (Before OGMA)	OGMAs in Contributing (THLB)		THLB Remaining	
			%	Ha	%	Ha
ESSFmm1	18173	8203	4	354	96	7849
ICH mm	7003	4560	4	192	96	4368
ICH vk1	167	131	0	0	100	131
Total	25343	12894	4	546	96	12348

ESSFmm1: Engelmann Spruce – Sub-alpine Fir, moist, mild

ICHmm: Interior Cedar – Hemlock, moist, mild

ICHvk1: Interior Cedar- Hemlock, very wet, cool

⁴ Non Contributing (NC) forest land does not contribute to the Allowable Annual Cut. The Timber Harvesting Land Base (THLB) is made up of Contributing (C) forests and a portion of the Partially Contributing (PC) forests. Partially Contributing forests are “constrained” due to one of several factors such as unstable soils or wildlife habitat, but are still partially available for harvest. Contributing forest is unconstrained and available for timber harvest.

4.0 Hugh Allan OGMA Planning Results

4.1 Timber Harvesting Land Base Impact: In the Hugh Allan LU, most of the old growth targets are met within the non-contributing land base. In total, 545 ha of OGMA are identified in the THLB to meet old growth retention targets. The estimated impact to short term timber supply is estimated to be minimal due to placement of OGMAs in areas experiencing other constraints (i.e. VQOs, adjacency issues, etc.). Completion of TSR 3 will verify this statement. The mid and long term impact to timber supply is anticipated to be proportionate to the percent of OGMAs which are established in the THLB.

4.2 OGMA Age Classes: In locating OGMAs in the Hugh Allan LU, MSRM deviated marginally from direction in the Landscape Unit Planning Guide by merging information from new science with existing guidance. The most current information on large scale disturbance in the Prince George Forest Region comes from work done by Delong, 2002. In his report, *Natural Disturbance Units in the Prince George Forest Region: Guidance for Sustainable Forest Management*, Delong has moved away from Natural Disturbance types as identified in the Biodiversity Guidebook and has provided localized information on the type of natural disturbance patterns or units (NDU), and the frequency of which they occur in the region. In the entire Robson Valley-Canoe planning area there are two natural disturbance units. In the valley, the NDU is the Moist Trench- Valley while the upper elevations consist of the Moist Trench-Mountain. Because of the broad expanse of natural disturbance unit, if MSRM was unable to meet the target for a BEC variant, an attempt was made to meet it across the landscape.

It has been identified that Douglas fir is on the decline in the former Robson Valley Forest District. This has prompted the creation of Douglas fir recruitment OGMAs in this landscape unit that may come from younger stands.

Appendix 5–Dawson Landscape Unit

1.0 Dawson Landscape Unit Description

The Dawson LU encompasses 11,448 ha, which includes Baker and Dawson Creeks. Both creeks flow into Kinbasket reservoir, which is the western boundary of the LU. Of the total area, 8,065 ha (70.4 %) is within the Crown forest land base, and 4,121 ha of Crown forest land is within the Timber Harvesting Land Base (THLB). The remaining 3,383 ha (29.6%) are non-forested or non-Crown (e.g., rock, alpine tundra, water, private land) and have been excluded from any OGMA contributions and calculations.

The Dawson LU is situated within the Southern Interior Mountains Ecoprovince, and the Central Park Ranges Mountains Ecosession. The landscape unit is comprised of five Biogeoclimatic Ecosystem Classification (BEC) subzones/variants ranging from low elevation Interior Cedar - Hemlock (ICH) to upper elevation Engelmann Spruce-Sub-alpine fir (ESSF) adjacent to the high elevation Alpine Tundra.

2.0 Significant Resource Values

2.1 Fish, Wildlife and Biodiversity

Refer to Appendix 8 - Valemount and Area Environmental Background Report

2.2 Timber Resources

There are significant stands of old growth forest in this LU although access is an issue. Access to these forests are limited to barge operating along Kinbasket Lake with road access being planned that comes from the south outside the former Robson Valley Forest District.

Table 1. Age distribution of forests within the Dawson Landscape Unit.

Age	% of Crown Forested Landbase
1-60	7.31
61-100	4.36
101-140	8.82
141-250	31.92
250+	47.58

2.3 First Nations: The Dawson LU is located within the traditional territory of the Lheidli T'enneh First Nation as well as the Simpcw (Shuswap) First Nation.

The establishment of these biodiversity elements are not anticipated to have a significant impact on Lheidli T'enneh First Nation or the Simpcw First Nation. Old growth management area establishment will not limit treaty negotiations or settlements.

Of concern to the Simpcw First Nation is the impact of forest development in the wildlife movement/enhanced riparian reserves, if it occurs. The protocol used by the Ministry of Forests

for these LUs is taken from the Kamloops Timber Supply Area: Archeological Overview Guidelines. The Ministry of Forests reviews all forest development plans and road permits and weighs the likelihood of potential archeological sites in the proposed area. If there is a medium or high likelihood of archeological occurrence, a request to conduct an archeological assessment is put forth to the forest company.

2.4 Mining and Mineral Exploration: Subsurface resources (minerals, coal, oil, gas and geothermal) and aggregates are significant to the province. OGMA's have been located to avoid existing tenures wherever possible. It is important to note that establishment of old growth management areas will not impact the status of existing mineral, aggregate and gas permits or tenures; exploration and development activities are permitted. The preference is to proceed with exploration and development in a way that is sensitive to the old growth values of the OGMA; however, if exploration and development proceeds to the point of significantly impacting old growth values, then the OGMA will be relocated.

2.5 Recreation: Recreational opportunities in the Dawson LU are limited to backcountry and alpine areas. Fishing does occur in Kinbasket reservoir but this area of the lake is not as popular as locations closer to the marina.

Recreational activities are permitted in the OGMA's and enhanced riparian/wildlife movement corridors where compatible. The opportunity to develop new trails will be considered when proposed. The anticipated impact to old growth values should be considered in the approval process.

2.6 Trapping and Guiding: Trapping and guiding tenures overlap this LU. OGMA's are not anticipated to impact these tenures. It is intended that Trappers would be able to build trapline cabins within OGMA's. The trapper would be expected to minimize site disturbance and minimize impact to old growth attributes.

3.0 Dawson Landscape Unit Objectives

Legal objectives established under the Landscape Unit plan will be Higher Level Plan objectives.

The Dawson LU was ranked as a Low biodiversity emphasis option through the Robson Valley Forest District Landscape Unit Planning Strategy in 1998. This Low designation along with the BEC variant determines the percentage of the Crown forest land base that will be designated as OGMA. Table 2 outlines the total amount of OGMAs required in each variant and from which Crown forest category (i.e. Non Contributing-NC; Timber Harvesting Land Base-THLB)⁵. The old growth target figures in Table 2 are derived from Appendix 2 in the Landscape Unit Planning Guide.

To ensure that landscape level biodiversity values were represented across the landscape, OGMAs were established to the target in each BEC variant. The attached Dawson LU map visually shows their distribution.

Table 2. Old growth management area (OGMA) requirements, Dawson Landscape Unit.

BEC Variant	Crown Forested Landbase	OGMA Target 1/3 drawdown		Draft OGMAs	OGMAs in Non-Contributing (NC)		OGMAs in Contributing (THLB)	
		%	Ha		%	Ha	%	Ha
ESSFmm1	439	3	13	14	1.0	3	3	11
ESSFwc2	4256	64	269	210	36	144	17	66
ICH mm	665	5	20	37	6	24	3	13
ICH vk1	457	5	19	28	3	13	4	15
ICH wk1	2248	23	97	112	12	50	15	62
Total	8065	100	418	401	58	234	42	167

⁵ Non Contributing (NC) forest land does not contribute to the Allowable Annual Cut. The Timber Harvesting Land Base (THLB) is made up of Contributing (C) forests and a portion of the Partially Contributing (PC) forests. Partially Contributing forests are “constrained” due to one of several factors such as unstable soils or wildlife habitat, but are still partially available for harvest. Contributing forest is unconstrained and available for timber harvest.

Table 3. Timber harvesting land base information, Dawson Landscape Unit.

BEC Variant	Crown Forested Landbase	Timber Harvesting Land Base (Before OGMA)	OGMAs in Contributing (THLB)		THLB Remaining	
	Ha	Ha	%	Ha	%	Ha
ESSFmm1	439	237	5	11	95	226
ESSFwc2	4256	1481	5	66	95	1415
ICHmm	665	441	3	13	97	428
ICHvk1	457	322	5	15	95	307
ICHwk1	2248	1640	4	62	96	1578
Total	8065	4121	4	167	96	3954

ESSFmm1: Engelmann Spruce – Sub-alpine Fir, moist, mild

ESSFwc2: Engelmann Spruce-Sub-alpine Fir, wet, cold

ICHmm: Interior Cedar – Hemlock, moist, mild

ICHvk1: Interior Cedar – Hemlock, very wet, cool variant 1

ICHwk1: Interior Cedar – Hemlock, wet, cool

Dawson Landscape Unit Recruitment Targets and Timeframes

Given that the spatial old growth order for this LU is drawing down on the full old target, a recruitment strategy based on area should have the following target area over time:

Variant	Full OGMA Target	2004 One Third OGMA Target	Target Remaining to recruit	2084 Target (recruitment area at min age in 2004)	2164 Target (recruitment area at min age in 2004)	2244 Target (recruitment area at min age in 2004)
ESSFmm1	40	13	27	22 (9 ha at 170 yrs)	31 (9 ha at 90 yrs)	40 (9 ha at 10 yrs)
ESSFwc2	809	269	540	449 (180 ha at 170 yrs)	629 (180 ha at 170 yrs)	809 (180 ha at 170 yrs)
ICHmm	60	20	40	33 (13 ha at 170 yrs)	46 (13 ha at 90 yrs)	60 (14 ha at 10 yrs)
ICHvk1	59	19	40	32 (13 ha at 170 yrs)	45 (13 ha at 90 yrs)	59 (14 ha at 10 yrs)
ICHwk1	292	97	195	162 (65 ha at 170 yrs)	227 (65 ha at 90 yrs)	292 (65 ha at 10 yrs)

Example ESSFmm1 – 2004 establishment of 13 ha of a 40 ha target. A recruitment strategy needs to identify a further 27 ha to meet the target over 3 - 80 year rotations. In 2084, there should be at least 22 ha of old growth; in 2164 there should be at least 31 ha of old growth; and in 2244 there should be at least 40 ha of old growth. In order to do this, the strategy should identify recruitment areas consisting of 9 ha that is currently a minimum of 170 yrs of age; 9 ha that is currently at least 90 yrs of age; and 9 ha that is currently at least 10 yrs of age.

As per the Landscape Unit Planning Guide p.30 footnote, a rotation is considered 80 years.

4.0 Dawson OGMA Planning Results

4.1 Timber Harvesting Land Base Impact: In the Dawson LU, most of the old growth targets are met within the non-contributing land base. In total, 168 ha of OGMA are identified in the THLB to meet old growth retention targets. The estimated impact to short term timber supply is estimated to be minimal due to placement of OGMAs in areas experiencing other constraints (i.e. VQOs, adjacency issues, etc.). Completion of TSR 3 will verify this statement. The mid and long term impact to timber supply is anticipated to be proportionate to the percent of OGMAs which are established in the THLB. Although the analysis report for TSR 2 for the former Robson Valley Forest District does not require 1/3 drawdown for Low BEO Landscape Units, in the Dawson LU, the licensee operating in this area have very specific piece size needs. Placement location and amount has been developed with the needs of this licensee in mind.

4.2 OGMA Age Classes: In locating OGMAs in the Dawson LU, MSRSM deviated marginally from direction in the Landscape Unit Planning Guide by merging information from new science with existing guidance. The most current information on large scale disturbance in the Prince George Forest Region comes from work done by Delong, 2002. In his report, *Natural Disturbance Units in the Prince George Forest Region: Guidance for Sustainable Forest Management*, Delong has moved away from Natural Disturbance types as identified in the Biodiversity Guidebook and has provided localized information on the type of natural disturbance patterns or units (NDU), and the frequency of which they occur in the region. In the entire Robson Valley-Canoe planning area there are two natural disturbance units. In the valley, the NDU is the Moist Trench- Valley while the upper elevations consist of the Moist Trench-Mountain. Because of the broad expanse of natural disturbance unit, if MSRSM was unable to meet the target for a BEC variant, an attempt was made to meet it across the landscape.

Appendix 6A & 6B

**Appendix 6A -Rationale for Old Growth Management Area's (OGMAs) in the Robson
Valley
August, 2004 MSRM - Northern Interior Region**

**Appendix 6B - Rationale for Enhanced Riparian Reserve/Wildlife Corridor's Legal
Establishment in the Robson Valley-Canoe Plan Area
February 2005 MSRM – Northern Interior Region**

Appendix 6A

Rationale for Old Growth Management Area's (OGMAs) in the Robson Valley August, 2004 MSRM - Northern Interior Region

The questions that were posed during the August 9, 2004 conference call with Clearwater MOF are not uncommon. During the process of OGMA delineation, MSRM considered many factors and would like to provide the following rationale.

OGMA Planning Considerations and Rationale for the Robson Valley Landscape Unit Planning process did not veer from accepted Provincial Policy. The following is a list of specific measures and criteria analyzed for consideration for each potential OGMA, in order to balance the maximization of old growth value while respecting impacts to timber supply.

A) Process and Mandate

Following the procedure and “rules based approach” of the Landscape Unit Planning Guidebook (1999), OGMAs were delineated in the following way:

- 1) OGMAs were placed in Non-contributing⁶ (NC) areas that were spatially locatable on the landbase. The NC area determined for each BEC variant within the Landscape Unit (LU) is a resultant value of the aspatial exercise undertaken during the 2000 TSR 2. It is important to note that the total NC area includes the aspatial net down for Partial Contributing (PC), and riparian and landbase constraints as per TSR 2 netdown methodology (page 11, Robson Valley Timber Supply Area Analysis Report: May 2000).
- 2) Recognition of the fact that an aspatial exercise will result in areas that are not spatially locatable, every effort to mitigate impacts to old Timber Harvesting Land Base⁷ (THLB) was made through the capturing of mature NC whenever possible.
- 3) Where NC was insufficient for meeting the total OGMA targets, areas that are PC, or constrained for other reasons (i.e. visual quality, environmental sensitivity) within the THLB were considered to augment the area target.
- 4) THLB was considered as a “last resort” and those areas constrained for reasons listed above were considered first. Areas of rare old growth series, species or characteristics within the THLB, were only considered when absolutely necessary and in collaboration with the local licensees as per “OPERATIONAL CONSIDERATIONS” within the Landscape Unit Planning Guide, 1999 p.31.

⁶ Non-Contributing (NC): the crown forested land base that does not contribute to AAC but does contribute to biodiversity objectives and targets. It includes parks, riparian reserves, inoperable forest and any other 100% net down areas and partial netdowns, such as environmentally sensitive areas as defined by the Timber Supply Review.

⁷ Timber Harvesting Land Base (THLB): the area of the crown forested land base that is estimated to be economically and biologically available for harvesting and contributes to the AAC.

B) Implementation and Effectiveness

Consideration was given to many factors when delineating OGMA's, including the logistical problems associated with implementation and effectiveness monitoring of the objectives. Such considerations include:

- Locating OGMA's along locatable and natural features wherever possible in order to ease location 'on the ground'. Such features include; height of land or ridges, water features, roads, cutblock boundaries, and obvious changes in species and age composition.
- OGMA's included complete stands of timber to reduce operational uncertainty, and ease the process of mapping and locating OGMA's as well as maximise the "coarse filter" effectiveness of OGMA's for long-term old growth and biodiversity protection.

Old growth and biodiversity values were evaluated based on the following selection criteria:

Biological Criteria

- ❖ Old growth characteristics – age based definition, horizontal / vertical stand structure (CWD, snags etc.)
 - ❖ Distribution on the landscape – connectivity between OGMA's, UWR, protected areas and parks
 - ❖ High to low elevation connectivity – across valley connectivity
 - ❖ Ability to maintain in an "undisturbed" condition for a foreseeable period of time
 - ❖ Wildlife values – capability, suitability and probability
 - ❖ Interior forest habitat – large intact patches with little influence from edge
 - ❖ Proximity to biologically significant features:
 - large rivers – riparian corridors, red and blue listed species
 - avalanche tracts – grizzly bears, south facing slopes
 - rock bluffs – mountain goats, escape terrain
 - swamps – ungulate forage, movement, red and blue listed species
 - important spawning or rearing areas
-
- To achieve interior forest condition and large patches of old retention, mature NC was used before old PC or old THLB to amalgamate smaller 'slivers' of old NC.
 - Wildlife habitat information available for identified red listed species was used to delineate OGMA's adjacent to or in close proximity to known critical habitats when possible.

C) Mitigation to THLB Impacts

The process of delineating OGMA's in the Robson Valley was completed under the current provincial policy of "no greater impact to timber supply than a provincial average of 4.1% in the short term and 4.3% in the long term" (1996 Timber Supply Review, MOF). To be consistent with this direction, the following elements were also considered:

- Forest Development Plan information was requested from each forest licensee. This information, combined with direct communication was used to avoid placement of OGMA's over proposed or approved developments (i.e. CAT. A blocks). NC landbase identified by licensees as having potential for harvesting was removed from OGMA designation and replaced with other suggested and suitable areas.
- Old growth stands associated with parks and protected areas, Environmentally Sensitive Areas, areas with operability problems and marginal economic value (ex. low productivity sites) have been incorporated into OGMA's.

Locating OGMA's, the following operational considerations were used to ensure placement would not restrict licensees' future activities:

Operational Criteria

- ❖ Utilization of “already constrained landbase” – riparian buffer, UWR, VQO, community watershed
 - ❖ Constraints within the operating area
 - Slope steepness
 - High soil disturbance hazard
 - Green-up constraints
 - ❖ Location of developed and future infrastructure (i.e. roads)
 - ❖ Forest Development Plans – Category A Proposed / Approved, Category I
-
- Input and consultation with local licensees occurred for each LU. Changes were made based on the suggestions from those licensees whose familiarity with their chart area provided site specific knowledge.
 - Potential road building and harvest activities were considered so that OGMA placement would not preclude or hinder timber access in areas currently undeveloped.
 - Where placement occurred with the THLB, general agreement with licensees was achieved.

D) Low Biodiversity Emphasis Option (BEO⁸) Landscape Units (LUs)

The 5 LUs within the plan area include 1 Intermediate and 5 Low BEO classifications. 1/3 draw down of the OGMA target, as discussed in the Landscape Unit Planning Guide (LUP Guide), 1999 p.30, is to be considered for Low BEO LUs. The following is a rationale and explanation for decisions regarding this issue:

- The delineation of OGMA's, to the greatest extent possible, within the NC landbase of each Low BEO LU as per pg. 30 of the LUP Guide was followed. Where PC landbase was used there is an indirect impact to THLB area. Regardless, all areas were reviewed in

⁸ BEO: Biodiversity Emphasis Option: “A range of three options (Low, Intermediate, and High) for emphasizing biodiversity at the landscape level. Each option is designed to provide a different level of natural biodiversity and a different risk of losing elements of natural biodiversity”(Biodiversity Guidebook, 1995).

collaboration with the licensee(s) in the area and any issues regarding the placement of an OGMA resulted in changes, removals and strategies within specific OGMA boundaries⁹.

- Recruitment strategies within LUs where 1/3 drawdown was to be considered would have impacted THLB area. The full target is required to be met within three rotations. The recruitment strategy for many LUs would include areas of PC and THLB and the resulting constraints applied to these areas in order to ensure they reach ‘old’ within the three rotations would have indirect and direct “impact” on THLB area.
- East Kinbasket: This LU is located across the reservoir from the Canoe Mountain development. There has been expressed concern by the developer that the ‘visual integrity’ of surrounding viewsapes be maintained to the greatest degree possible. In consultation with the local licensee the full target OGMA were placed in sensitive viewsapes to manage this concern.
- Dawson: This LU was drawn down to the 1/3 target and will require a recruitment strategy to ensure the full target is met within three rotations.
- West Kinbasket: Consultation with local licensees and operators within this LU resulted in no issues or concerns at this time with the application of the full OGMA target.
- Foster: New Ungulate Winter Range (UWR) not reflected within the current forest cover data resulted in additional constraints and “area impact” within this LU. Where placement occurred within areas outside the UWR, consultation with licensees with regards to placement within the THLB has resulted in agreement and no issues at this time.

NOTE: TSR 2 sensitivity analysis for the “Uncertainty in the application of landscape-level biodiversity requirements” determined that even with the full requirement for old forest being met immediately in the Low BEO landscape units, there was no impact to the base case timber supply (Robson Valley Timber Supply Area Analysis Report: May 2000, p.59)

NOTE: TSR 3 is currently underway and is expected to be ready within 6 – 8 months. Sensitivity analysis with regard to OGMA and Enhanced Riparian/Wildlife Movement corridors is expected to show little to no impact to timber supply as a result of their spatial delineation. However, should an undue impact be determined as a result of the full target establishment, Part 2, Section 4 of the Strategic Planning Regulations (consolidated to May, 2004 at <http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcact/part2.htm>) allows the Minister or his delegate to establish, **vary or cancel** a landscape unit objective. Additionally, the LUPG (1999) states that:

“It is only acceptable to establish more than 1/3 of the OGMA target if it is determined through timber supply analysis associated with the TSR that it will not cause additional timber supply impacts”

⁹ Agreement for the partial harvest and sanitation harvest within specific OGMA boundaries has been achieved in certain areas where OGMA impact THLB. These areas are to be considered “Douglas Fir recruitment” OGMA as a result.

If there is a timber supply impact to the AAC, MSRSM will review the OGMA's to determine how best to address this issue as part of the continuous improvement and adaptive management process.

E) Area Based Impacts

The results reported for each LU in Section 8 are part of the individual chapters in the Robson Valley-Canoe Biodiversity Chapter of the Robson Valley Sustainable Resource Management Plan and can be interpreted by column number in the following way:

- 1) total crown forested land base by BEC variant in Hectares (Ha)
- 2) the full OGMA target in Ha and the percentage each BEC contributes to the full OGMA target
- 3) the area within the draft OGMA's in Ha by BEC variant
- 4) total NC area by BEC as established through the spatial analysis of TSR 2 was generated through GeoMedia OGMA analysis as per "Table 3.1. OGMA Targets (ha) Report" (LUPG, 1999, p.32) specifications.
- 5) Ha's of OGMA established within NC and the percent area by BEC variant of the total OGMA target
- 6) Ha's of OGMA established within THLB and the percent area by BEC variant of the total OGMA target

It is important to point out that the total impact to THLB is an 'area based impact' as opposed to a 'timber supply' or "timber flow (m³/year) impact. The total area based impact to THLB is 5.1%. This equates to a constraint on the Timber Harvesting Land Base area by 5.1% within the 7 LUs as follows: Canoe, Kiwa-Tete, West Kinbasket, East Kinbasket, Hugh Allan, Dawson, and Foster.

F) Robson Valley Enhanced Forest Management Pilot Project (EFMPP)¹⁰

The Robson Valley EFMPP performed spatial modelling of four "learning scenarios" using 2000 TSR 2 assumptions and EFMPP spatial data for the Robson Valley. Each scenario had a specific management intent that was to be applied – this resulted in varying degrees of constraints and restrictions across the landbase and subsequent variations in timber supply – AAC impacts.

Information provided by the EFMPP was considered during the process of landscape level planning within the Robson Valley – Canoe area and while specific scenarios are not directly relatable, some of the results indirectly reflect on the potential TSR 3 sensitivity analysis results to be expected. For example, the "Recreation and Tourism Scenario" applied additional constraints to the THLB that reduced the THLB area by 5%. Despite the 5% area reduction,

¹⁰ Robson Valley Enhanced Forest Management Pilot Project: a 'Scenario Planning Team' that used advanced spatial modeling and forecasting technologies to perform scenario planning and consider "what's possible for forest management in an uncertain future" (*Final Report Robson Valley Enhanced Forest Management Pilot Project; Scenario Planning Project – Analysis Results*, Tesera Systems Inc., 2003).

harvest forecast included in the analysis showed there was no negative impact to timber supply or the long term AAC. The analysis result can be extrapolated to the OGMA process as there are similar reductions to area.

Note: Established OGMAs will be a reduction to the Crown Forest landbase as an area based constraint in the definition of THLB for TSR 3.