

**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:**

Kiwa-Tete and Canoe Landscape Units

January 2006

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Note: This document was initiated under the Ministry of Sustainable Resource Management. Advertising and consultation was conducted under that Ministry's mandate. The Ministry of Sustainable Resource Management and Land Water BC have been joined together under the Ministry of Agriculture and Lands, Integrated Land Management Bureau. Also, the Ministry of Water, Land and Air Protection is now known as the Ministry of Environment.

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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 Kiwa-Tete and Canoe 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 5) 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 Kiwa-Tete and Canoe Landscape Units, located west and south of Tete Jaune Cache. (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.

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 4 of this document.

Table 1 Landscape Units and Biodiversity Emphasis Options within the Plan

Landscape Unit	Biodiversity Emphasis Option (BEO)
Kiwa-Tete	Low
Canoe	Low

2.0 Business Case / Purpose

The plan area consists of 2 landscape units located west and south of Tete Jaune Cache. The communities of Valemount, Tete Jaune Cache and Albrede 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 Valemount 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 two 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 OGMA's 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 OGMA's in Kiwa-Tete and Canoe 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 715 hectares or 6.1%;
- 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 two 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% over the entire area that has enhanced riparian/wildlife movement corridors;
- 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 OGMAs 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.

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

4.1 Old Growth Management Areas

OGMAs 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 OGMAs 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. OGMAs 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 OGMAs 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 two 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 5- 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 (8 Landscape Units). Appendices 1 and 2 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	73.3	8337	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	3094	94.9	56935

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

The OGMA's in higher elevations are anticipated to be stable for a significant period of time. The OGMA's 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's 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's are mapped at a range between 1:35,000 and 1:45,000 scale depending on the size of the Landscape Unit.

Further, to deal with potential operational overlap between OGMA's 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's, 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)
Kiwa Creek	30	70	100
Tete Creek	30	70	100*
McLennan River	30	70	100
Canoe River	30	70	100
Camp Creek	30	70	100**
Gold Creek	0	40	40 ¹
Kimmel Creek	0	50	50 ¹
Zillmer Creek	0	50	50 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.

*- Sections of Tete Creek are FPC default to 100m and in the interest of consistency, a 30menhanced area has been added where the FPC default is only 70m

****A portion of the riparian zone on Camp Creek is already at risk due to the proximity of Highway 5, railroad line, and transmission corridors for natural gas and electricity. In this situation the wildlife corridor should abut Highway 5 on the affected side.**

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.

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 Kiwa-Tete and Canoe 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
I1	Upper Canoe/Premiere Range	General Resource Management
I2	Upper Canoe/Premiere Range-Tete Creek subzone	General Resource Management

8.0 Appendices

Appendix 1 - Kiwa-Tete Landscape Unit

Appendix 2 – Canoe Landscape Unit

Appendix 3A – Rationale for Old Growth Management Areas in Robson Valley

Appendix 3B- Rationale for Enhanced Riparian/Wildlife Movement Corridors' Legal Establishment

Appendix 4 – Public input and MSRM response/rationale (to be included in final report)

Appendix 5 – Valemount and Area Environmental Background Report

Appendix 1–Kiwa-Tete Landscape Unit

1.0 Kiwa-Tete Landscape Unit Description

The Kiwa-Tete LU encompasses 15,080 ha, which includes Kiwa and Tete Creek. Both creeks flow into the Fraser River, which is the northern boundary of the LU. Of the total area, 10,591ha (70.2%) is within the Crown forest land base, and 4379 ha of Crown forest land is within the Timber Harvesting Land Base (THLB). The remaining 4489 ha (29.8%) 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 Kiwa-Tete LU is situated within the Southern Interior Mountains Ecoprovince, and the Northern Columbia Mountains Ecoregion. The landscape unit is comprised of three 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 5 - Valemount and Area Environmental Background Report

2.2 Timber Resources

The forests of Tete Creek are considered inoperable for harvesting due to steep slopes and sensitive soils. The south fork of Kiwa Creek has an early 1980's logging road in poor condition but harvesting in this LU is quite challenging,

Table 1. Age distribution of forests within the Kiwa-Tete Landscape Unit.

Age	% of Crown Forested Landbase
1-60	15.21
61-100	7.72
101-140	10.02
141-250	56.95
250+	10.03

2.3 First Nations: The Kiwa-Tete LU is located within the traditional territory of the Lheidli T'enneh First Nation as well as the Simpcw 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 Landscape Units 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 known in-ground resources of mica in the vicinity of the Mica Mountain mine. Current markets do not make this resource economic to mine although there are proven ore reserves available should change occur. 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 Kiwa-Tete LU focus on the backcountry and alpine areas abundant in this LU. An existing horse/hiking trail exists in the Tete Creek Drainage and a rough trail accesses the Kiwa Glacier and the pristine lake at the toe of the glacier.

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 Kiwa-Tete Landscape Unit Objectives

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

The Kiwa-Tete 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 Kiwa-Tete LU map visually shows their distribution.

Table 2. Old growth management area (OGMA) requirements, Kiwa-Tete 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	8515	80.38	766	737	60.6	565	18.4	172
ICH mm	2069	19.62	186	196	8.5	79	12.5	117
SBS dh	7	0	1	0	0	0	0	0
Total	10591	100	953	933	69.1	644	30.9	289

Table 3. Timber harvesting land base information by BEC variant, Kiwa-Tete Landscape Unit.

BEC Variant	Crown Forested Landbase	Timber Harvesting Land Base (Before OGMA)	OGMAs in Contributing (THLB)		THLB Remaining	
			%	Ha	%	Ha
ESSFmm1	8515	2815	6.1	172	93.9	2643
ICH mm	2069	1558	7.6	118	92.4	1440
SBS dh	7	6	0	0	100	6
Total	10591	4379	6.6	290	93.4	4089

ESSFmm1: Engelmann Spruce – Subalpine Fir, moist, mild

ICHmm: Interior Cedar – Hemlock, moist, mild

SBSdh: Sub-boreal Spruce, dry, hot

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 Kiwa-Tete OGMA Planning Results

4.1 Timber Harvesting Land Base Impact: In the Kiwa-Tete LU, most of the old growth targets are met within the non-contributing land base. In total, 289 ha of OGMA are identified in the THLB to meet old growth retention targets. The estimated impact to short term timber supply is none. The mid and long term impact to timber supply is anticipated to be proportionate to the percent of OGMA's which are established in the THLB.

4.2 OGMA Age Classes: In locating OGMA's in the Kiwa-Tete 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.

Appendix 2–Canoe Landscape Unit

1.0 Canoe Landscape Unit Description

The Canoe LU encompasses 23,389 ha, which includes the upper reaches of the Canoe River and tributaries such as Kimmel Creek. The Canoe River flows into the Kinbasket reservoir, which lies outside the boundary of the LU. Of the total area, 14,489ha (61.9%) is within the Crown forest land base, and 7362 ha of Crown forest land is within the Timber Harvesting Land Base (THLB). The remaining 8,900 ha (38 %) 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 Canoe LU is situated within the Southern Interior Mountains Ecoprovince, and the Northern Columbia Mountains Ecosession. The landscape unit is comprised of 2 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 5 -Valemount and Area Environmental Background Report

2.2 Timber Resources

Timber harvesting has been limited to the Canoe River and Kimmel Creek areas. The south-facing slopes of the Canoe River have a history of fire damage with a 3000 hectare fire occurring in 1971. A significant portion of the LU has been taken up by Ungulate Winter Range which allows some harvesting 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 Canoe Landscape Unit.

Age	% of Crown Forested Landbase
1-60	9.22
61-100	10.47
101-140	9.13
141-250	32.60
250+	38.57

2.3 First Nations: The Canoe LU is located within the traditional territory of the Lheidli T'enneh First Nation as well as the Simpcw 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 Landscape Units 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 Canoe LU focus on the backcountry and alpine areas abundant in this LU. Existing tenures for heli-skiing and heli-hiking exist in the upper Canoe River.

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 Canoe Landscape Unit Objectives

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

The Canoe 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 Canoe LU map visually shows their distribution.

Table 2. Old growth management area (OGMA) requirements, Canoe 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	12639	87	1138	1139	61	799	26	340
ICH mm	1850	13	166	167	7	83	6.5	85
Total	14489	100	1304	1306	68	882	32.5	425

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

BEC Variant	Crown Forested Landbase	Timber Harvesting Land Base (Before OGMA)	OGMAs in Contributing (THLB)		THLB Remaining	
			%	Ha	%	Ha
ESSFmm1	12639	6188	5.5	340	94.5	5852
ICH mm	1850	1173	7.2	85	92.8	1088
Total	14489	7362	5.8	425	94.2	6940

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

ICHmm: Interior Cedar – Hemlock, moist, mild

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 Canoe OGMA Planning Results

4.1 Timber Harvesting Land Base Impact: In the Canoe LU, most of the old growth targets are met within the non-contributing land base. In total, 425 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 OGMA in areas experiencing other constraints (i.e. VQOs, adjacency issues, etc.). It is expected that 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 OGMA which are established in the THLB.

4.2 OGMA Age Classes: In locating OGMA in the Canoe 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.

Appendix 3A

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

Appendix 3A

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-contributing³ (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 Base⁴ (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.

³ 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.

⁴ 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 (BEO⁵) Landscape Unit's (LU's)

The 7 LU's within the plan area include 1 Intermediate and 6 Low BEO classifications. The two addressed in this report are both Low BEO. 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 LU's. 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

⁵ 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 boundaries⁶.

- Recruitment strategies within LU's 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 LU's 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's 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.
- Kiwa Tete and West Kinbasket: Consultation with local licensees and operators within these LU's resulted in no issues or concerns at this time with the application of the full OGMA target.
- Canoe and Foster: New Ungulate Winter Range (UWR) not reflected within the current forest cover data resulted in additional constraints and "area impact" within these LU's. 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's 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"

⁶ Agreement for the partial harvest and sanitation harvest within specific OGMA boundaries has been achieved in certain areas where OGMA's impact THLB. These areas are to be considered "Douglas Fir recruitment" OGMA's as a result.

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

E) Area Based Impacts

Canoe LU Biodiversity Chapter of the Robson Valley Sustainable Resource Management Plan 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 aspatial analysis of TSR II was generated through GeoMedia OGMA analysis as per "Table 3.1. OGMA Targets (ha) Report" (pg. 32 LUPG, 1999) 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 6.1%.

F) Robson Valley Enhanced Forest Management Pilot Project (EFMPP)⁷

The Robson Valley EFMPP performed spatial modelling of four "learning scenarios" using 2000 TSR II 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 III 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, 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 OGMA's will be a reduction to the Crown Forest landbase as an area based constraint in the definition of THLB for TSR III.

⁷ 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).

Appendix 3B

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

Timber Supply Review (TSR) III is currently underway for the Robson Valley and there is hope that a product will be available by the end of fiscal 2005. As a result, some parties have expressed discomfort around the establishment of legal objectives for enhanced riparian reserve/wildlife corridor areas (henceforth referred to as “enhanced riparian corridor”). These objectives are outlined in the Order⁸ attached in Appendix 6B-1 at the beginning of this document. It is the opinion of The Robson Valley – Canoe planning team that these areas are critical to achieve biodiversity goals within the area and should proceed for establishment. Preliminary analysis using the TSR II data supports the position that establishment of these corridors will not have an undue impact to the timber flow within the Robson Valley.

Analysis of the corridors has determined that the total area of Timber Harvesting Land Base⁹ (THLB) within the enhanced riparian corridors is 11,098 ha, of which 10,344 ha is spatially unavailable due to other constraints. Total Non-contributing¹⁰ Land Base (NCLB) within the enhanced riparian corridors is 6,248 ha, of which 5,735 ha is covered by other constraints. THLB impacted by the enhanced riparian corridor is 754 ha and equates to 1.5% reduction in the THLB area¹¹ within the plan boundary.

It is important to note that the enhanced riparian area applied by the corridor objective does not necessarily preclude harvesting. Up to 30% of each segment outside the enhanced riparian area (THLB and NCLB) can be at or under 3m green-up height at any one time. It is also recognized

⁸ Appendix 6B-1: *Order to Establish the, East Kinbasket, West Kinbasket, Hugh Allan, Foster and Dawson Landscape Unit Objectives* – includes a table of waterbodies with details of total Forest Practices Code (FPC) riparian management area requirement and any enhanced area to be added for the purpose of the objective

⁹ 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.

¹⁰ 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.

¹¹ Area of timber harvesting land base by LU as defined by the TSR III process – this area has been reduced since TSR II. For the plan area the THLB equates to 50,258 ha.

that historical disturbance and existing road networks impact the enhanced riparian corridor networks. Those areas currently in a state of reclamation / rehabilitation will be considered towards the 30% impact; however, those road networks permanently in place will be excluded areas. During the process of corridor placement, the planning team considered many factors and would like to provide the following rationale.

A) Process

- 5) Total corridor area was calculated for each Landscape unit by intersecting the corridor polygons with the lup_overlay¹² for each LU.
- 6) The UWR Caribou High was applied and where corridor occurs within the boundary of the UWR it was removed from analysis as being “non-impact”.
- 7) OGMA areas were overlaid and the area of corridor that occurs within these features was removed from analysis as being “non-impact”.
- 8) As outlined in Table 1 of the *Order to Establish the Canoe and Kiwa-Tete Landscape Unit Objectives*, the enhanced riparian corridor defaulted to minimum FPC riparian requirements along three of the streams within the plan area. Because the base case analysis for TSR II accounts for the impact of FPC requirements, the enhanced riparian reserve/wildlife corridor areas that have defaulted to the FPC value have been removed from the analysis as “non-impact”.
- 9) TSR II base case analysis accounts for riparian reserve impacts by applying a spatial netdowns to forest cover polygons. Average riparian reserve area was determined during TSR II based on mapsheet assessment and assumptions as outlined in pages 16 – 17 of the *Robson Valley Timber Supply Area Timber Supply Review: Data Package, 1998* (Appendix 6B-2). Utilizing this process, the a spatial netdown was translated to a spatial constraint of riparian reserve area for specific waterbodies identified in Table 1 *Order to Establish the Canoe and Kiwa-Tete Landscape Unit Objectives*. This spatial exercise was overlaid on the enhanced riparian corridor and areas of overlap were removed from analysis as “non-impact”.

¹² The lup_overlay data set for each LU is a collection of select spatial information used during TSR II analysis and includes conclass, inclusion factor and calculated THLB and NCLB area.

- 10) The remaining area was analysed to determine total THLB and NCLB area that is not constrained by other values. This area will be constrained by objective that: “no more than 30% of a corridor segment... in less than 3 metre green-up condition at any one time” and equates to 754 ha over the entire area covered that has enhanced riparian/wildlife movement corridors.