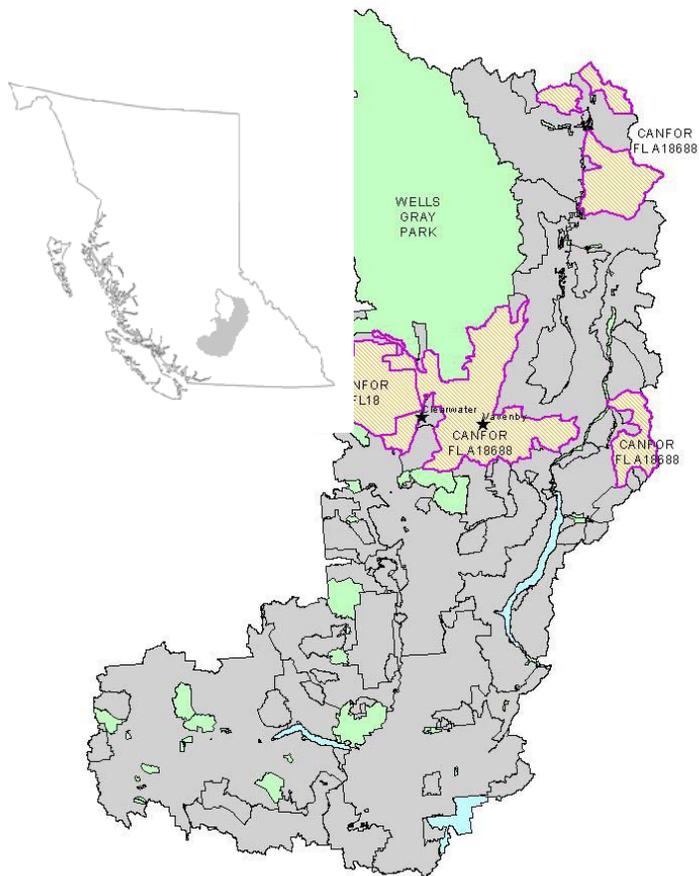


Sustainable Forest Management Plan for the Canfor-Vavenby Division Defined Forest Area



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Vision Statement

The Sustainable Forest Management Plan will foster forest management practices - based on a balance of science, professional judgment and local and First Nations input - that sustain the long-term health and productivity of forest ecosystems while contributing to a strong economy and thriving communities throughout the Kamloops Timber Supply Area.

Executive Summary

Between February and June 2000 the forest tenure holders ("licensees") operating in the Kamloops Timber Supply Area worked with a group of public and First Nation representatives (the SFM Advisory Group) to develop a Sustainable Forest Management Plan (SFM Plan) for the Kamloops TSA. This SFM Plan has since been updated (January 2005) to address changes in forest condition and local community values.

The initial development and subsequent changes to the SFM Plan have all been established through the working relationship with the Kamloops SFM Advisory Group. Members of the SFM Advisory Group represented a cross-section of local interests including recreation, tourism, ranching, forestry, conservation, water, community, and First Nations.

The resulting SFM Plan includes a set of values, objectives, indicators and targets that address environmental, economic and social aspects of forest management in the Kamloops TSA. The Plan is based on the Canadian Standards Association (CSA) Sustainable Forest Management; Requirements and Guidance, which is one of the certification systems currently being used in British Columbia. The CSA system sets performance objectives and targets over a defined forest area to reflect local and regional interests. Consistent with most certifications, the CSA standards expect compliance with existing forest policies, laws and regulations.

Following the structure, content and guidance of the Kamloops TSA SFM Plan, Canadian Forest Products Ltd. (Canfor) has designed an SFM Plan for the Canfor-Vavenby Defined Forest Area (DFA). This SFM Plan localizes the implementation and monitoring of the indicators.

The SFM Plan is an evolving document that will be reviewed and revised on an annual basis with the SFM Advisory Group. Canfor-Vavenby is committed to the achievement of the SFM Plan and each year the SFM Advisory Group will review an annual report prepared by Canfor-Vavenby to assess achievement of performance measures. This monitoring process will provide Canfor-Vavenby, public and First Nations with an opportunity to bring forward new information and to provide input concerning new or changing public values that can be incorporated into future updates of the SFM Plan, both at the DFA and TSA level.

1.0 Introduction and Overview

Due to the increasing worldwide demand for certified wood products a number of forest products companies have been moving towards various certification systems. These certification systems are to provide assurance to consumers that timber has been produced using environmentally and socially responsible forest practices.

The Canadian Standards Association (CSA) Sustainable Forest Management Standard (Z809-02) is one such certification system currently being used in British Columbia. The CSA system sets performance objectives and targets over a defined forest area to reflect local and regional interests. The process of CSA certification includes advisory committees composed of a range of public, First Nations, and stakeholder interests.

Forest licensees in the Kamloops Timber Supply Area (TSA) have been working with the public to develop responsible forest management plans for over 20 years. These planning processes include development of strategic and operational plans, analyses, setting of standards, monitoring and public review. Licensees prepare Forest Development Plans that incorporate the direction provided through these various planning processes. Standards and operating plans are continuously updated as new information comes forward.

In addition to these plans, the Kamloops TSA licensees have developed and continually revised the Kamloops Sustainable Forest Management Plan (SFM Plan – 2005) based on the CSA certification system. That SFM Plan provides management direction to all licensed forest lands in the TSA, Tree Farm Licenses (TFLs) 35 and 18 and subscribing Woodlot Licensees. The Kamloops TSA SFM Plan and subsequent licensee SFM Plans is an example of the commitment of licensees to adapt their management practices in response to changes in society's values.

The localization of the Canfor-Vavenby SFM Plan will allow forestry operations within the DFA to meet the public participation requirements of the national certification standard. This SFM Plan will serve as a “roadmap” to current and long-term management in the Canfor-Vavenby DFA, setting performance targets and management strategies that are reflective of the ecological and social values across the DFA. It will be consistent with the Kamloops TSA SFM Plan and the Kamloops Land and Resource Management Plan (LRMP), which was developed from 1992 - 1995 by a cross-section of local stakeholders, interests groups and members of the public.

This SFM Plan includes three sections:

- Section 1.0 Introduction and Overview
- Section 2.0 The Plan Area
- Section 3.0 Indicators and Indicator Matrices

Additionally, the plan includes a Glossary of Terms and three appendices:

- Appendix 1 Canfor-Vavenby Defined Forest Area Map
- Appendix 2 Identified Wildlife Management Species

Appendix 3 SFM Plan Reporting Format

The values, objectives, indicators, targets, and guiding principles described in this document adhered to those documented in the TSA SFM Plan. Similar to the Kamloops TSA SFM Plan, this is an evolving document that will be revised on an annual basis following review of the TSA SFM Plan with the SFM Advisory Group to reflect changes in forest condition and local community values.

Table 1 provides website information on the background and status of SFM initiatives within the Kamloops TSA and within Canfor's operations.

Table 1: Website Information

For more information:		
Kamloops TSA	Certification process, Sustainable Forest Management Planning, meeting summaries, annual reporting and maps	Kamloops TSA Certification Website www.for.gov.bc.ca/dka/TSA/SustainableForestry.htm
Canfor	Company's certification process and achievement	Canfor's Website: www.canfor.com
Canfor	Extensive information on sustainable forest management and supporting projects	SFM Portal Website: www.sfmportal.com

2.0 The Plan Area

2.1 Area Description

The Defined Forest Area (DFA) for Canfor-Vavenby SFM Plan is located in the southern interior of British Columbia. The DFA resides wholly in the Headwaters Forest District of the Southern Interior Forest Region.

The DFA includes Crown land within Canfor's Forest Licence A18688 (FL A18688), as well as Tree Farm Licence 18 (TFL 18). Woodlot Licences, as well as all private land are excluded. The DFA includes areas that are not available for harvesting; those include parks, inoperable areas and non-productive areas. Table 2 provides a breakdown of the landbase within the DFA. A map of the DFA, including both FL A18688 and TFL 18 is found in Appendix 1.

Table 2: DFA Landbase Summary

DFA Land Base	DFA Area (ha)	TFL #18 Area
Total TSA	2,666,375	74,542
Crown Ownership – approx. 67%	1,773,481	74,542
Crown Forested Land Base (CFLB) – approx. 53%	1,409,110	67,315
Non-Productive / Private, inoperable... – approx. 14%	368,250	6,575
Timber Harvesting Land Base (THLB) ¹ – approx. 39%	1,040,860	63,812

Biophysical Information

This DFA is found in the northern portion of the Kamloops TSA. In this portion, the North Thompson River is bounded by the high peaks of the Monashee and Cariboo Mountains. These mountains – part of the Interior Wet Belt – experience wet to very wet conditions, with high snowfalls. The valley bottoms are covered in dense cedar-hemlock forest, changing to spruce-balsam at higher elevations.

Biogeoclimatic Ecosystem Classification (BEC) & Tree Species

The DFA includes six biogeoclimatic zones that are listed and described in Table 3.

¹ The timber harvesting land base (THLB) is the portion of the management unit where forest licensees under license to the province of BC are expected to harvest timber. The THLB excludes areas that are inoperable or uneconomic for timber harvesting, or are otherwise off-limits to timber harvesting. The THLB is a subset of the crown forested land base.

Table 3: BEC Zones in the DFA

Biogeoclimatic Zones (Elevation)	Location/Description
Interior Douglas-fir (IDF) zone (between 350 and 1450 m)	Dominates the lower to mid-elevations and generally occurs between the Ponderosa Pine Zone and the Montane Spruce Zone
Montane Spruce (MS) zone is found at mid-elevations (between 1300 and 1650 m)	Often between the Interior Douglas-fir Zone and the Engelmann Spruce-Subalpine Fir Zone in the southern half of the TSA.
Interior Cedar-Hemlock (ICH) zone (1400 to 1450 m)	Generally in the northern and central parts of the Kamloops TSA above the IDF zone.
Sub-Boreal Spruce (SBS) zone (1000 to 1450 m)	Occurs at middle elevations in central portions of the TSA on the Nehalliston Plateau, generally below the Engelmann Spruce-Subalpine Fir zone.
Engelmann Spruce-Subalpine Fir (ESSF) zone (from 1500 to 2050 m)	This is the uppermost forested zone in the Kamloops TSA - generally above the ICH, SBS or MS zones, below the Alpine Tundra zone.
Alpine Tundra (AT) Zone (above 2000 m in the south, 2200 m in the north of the TSAP)	Lies above the ESSF Zone, and is by definition treeless although stunted (or krummholz) trees are common at the lower elevations of this zone. Overall, this zone is dominated by rock, ice and grassy meadows. The Alpine Tundra (AT) zone occurs at the highest elevations, above the ESSF zone.

Parks

Portions of the DFA are adjacent to Wells Grey Provincial Park. Taweel Park occupies 282 ha in the southern portion of TFL 18. Several campsites and recreation areas are also located in TFL 18 as well as 2 forest recreation campsites in FL A18688.

Wildlife & Wildlife Habitat

The diverse forests of the DFA host a wide variety of wildlife species including grizzly bear, black bear, moose, mule deer, goat, California bighorn sheep and marten. Appendix 2 provides a listing of identified wildlife management species (IWMS) that exist within the DFA.

The TSA overlaps the range of a provincially important and viable herd of mountain caribou. Due to winter conditions, these caribou require sufficient canopy cover, provided by mature forests, to move between feeding areas, which requires attention during planning of forest development activities.

Riparian

The DFA contains numerous fish bearing lakes, (particularly in TFL 18) and salmon-producing streams, as well as many additional fish-supporting streams. These waterbodies support some of the finest inland fisheries in B.C. Species of high recreational or economic value include rainbow trout, steelhead, kokanee, brook trout, and Dolly Varden. The Thompson, North Thompson, South Thompson and Adams rivers and their tributaries support a significant population of anadromous fish — steelhead and sockeye, coho, chinook and pink salmon. The North Thompson River also contains most of the wild stocks of rainbow trout within the TSA.

Socio- Economic Description

According to the 2001 census, the population of the Kamloops TSA was 101,148, a 1 percent decrease from 1996. Almost 80 percent of the TSA's residents live in the City of Kamloops. Other communities include Ashcroft, Cache Creek, Savona, Chase and Logan Lake in the south, and Avola, Barriere, Blue River, Clearwater, Little Fort and Vavenby in the north. The population for the Canfor-Vavenby DFA is concentrated in Clearwater and Vavenby with a combined population of approximately 5,000.

Tenure Description

The Canfor-Vavenby DFA is comprised of Forest Licence A18688 and Tree Farm Licence 18. These replaceable licences grant Canfor the right to harvest an allowable annual cut (AAC) of Crown timber each year, which is specified in cutting permits and road permits. The tenure allows Canfor to harvest, process, sell and distribute wood products derived from the forest area in the Kamloops TSA. Canfor retains the reforestation responsibility until trees are free growing and has responsibility for road construction and maintenance.

Current AAC

In British Columbia, the annual allowable cut (AAC) for all TSAs and TFLs is established every five years by the Chief Forester or Deputy Chief Forester of the province. The current allowable annual cut of the Kamloops TSA is 2 679 180m³ effective July 2001, up from the previous level of 2 393 180m³. This current AAC consists of three components: a regular or conventional allowable harvest of 2 361 900 cubic metres; a partition of 200 000 cubic metres per year for old cedar and hemlock stands; and a partition of 86 000 cubic metres per year for Pulpwood Agreement 16.

TFL 18 is a replaceable area-based forest tenure issued by the government of British Columbia to Canfor. It grants the Company the right to harvest an allowable annual cut (AAC) of 167,150 cubic metres of Crown timber each year, during the term of Management Plan #9 which is 2000 - 2005. In addition, 10,500 m³ annually is allocated to BC Timber Sales (BCTS). The AAC is scheduled for review based on Management Plan #10 at the end of 2005.

Replaceable forest licenses account for 72% of the apportionment of the AAC. Canfor has rights to 269,638 m³ attached to its replaceable forest licence, accounting for 10.1% of the current AAC in the TSA. The specific boundary of the FL A18688 is contained within Canfor's GIS and agreed to by all Licensees and the Government within the TSA (Appendix 1). Table 4 presents the current apportionment and commitments for the Kamloops TSA.

Table 4: Kamloops TSA AAC Apportionment and Commitments (m³ & % of AAC)

Licensee by Form of Agreement	m³/year	% of AAC
Forest Licences Replaceable	1,935,065	72.2
<i>Tolko Industries Ltd.</i>	641,088	23.9
<i>Weyerhaeuser Company Ltd.</i>	456,276	17.0
<i>Canadian Forest Products Ltd.</i>	269,638	10.1
<i>International Forest Products Ltd.</i>	249,594	9.3
<i>West Fraser Mills Ltd.</i>	209,124	7.8
<i>Ainsworth Lumber Co. Ltd.</i>	109,345	4.1
Forest Licences Non-Replaceable	182,000	6.8
BCTS Timber Sale License/License to Cut	402,544	15.1
Timber Sale Licences	1,813	0.1
Woodlot Licences	44,453	1.6
Forest Service Reserve	27,305	1.0
Pulpwood Agreements – PA 16	86,000	3.2
2001 Determined Annual Cut²	2,679,180	100.0
Pulpwood Agreement for areas outside of PA 16	20,000	
Innovative Practices and Activities within the Adams Lake IFPA area	14,870	
Exclusion of woodlot licences issued since the 1996 determination	-31,280	
2003 Determined Allowable Annual Cut	2,682,770	
Fire-Damaged Timber salvage	670,000	
Mountain Pine Beetle NRFL	1,000,000	
2004 Determined Allowable Annual Cut	4,352,770	
Tree Farm Licence #18	167,150	

Source: Ministry of Forests, Revenue Tenures and Engineering Branch

Employment & Services

Canfor is the fourth leading forest industry employer in the TSA, after Weyerhaeuser Ltd.(Weyerhaeuser), Tolko Industries Ltd. (Tolko), and West Fraser Mills Ltd. Canfor owns a dimension lumber mill at Vavenby and has rights to approximately 10% of the TSA's AAC, in addition to the 167,150m³ AAC from TFL 18. In addition to the volume obtained from Canfor licences in the DFA Canfor purchases approximately an additional 200,000m³ to meet the needs of the Vavenby mill.

Including harvesting, planning, transportation, and timber processing from both FL A18688 and TFL 18 Canfor generated an average of 191 person years of forest industry employment involved with harvesting and processing its' Kamloops TSA Forest Licence and Tree Farm timber over the 1997-2000 period.

Canfor's dimension lumber mill in Vavenby has an annual capacity of 150 million board feet of lumber. It produces high quality dimension lumber and is one of the only mills in the provinces interior specializing in long length lumber (18' to 24') to meet market demand for a higher value

product. Residual chips are currently shipped to Weyerhaeuser Pulp in Kamloops. Hog fuel is currently burnt in Canfors beehive burner. Trials have been ongoing with shipping hog fuel to a Weyerhaeuser Co-generation plant in Kamloops. This is expected to continue with the eventual de-commissioning of the beehive burner.

Table 5 presents recent harvesting and employment results for Canfor in the Kamloops TSA.

Table 5: Canfor annual average harvests and employment, 1997-2000

Canfor Harvest / Employment	Result from TSA and TFL Landbase
Harvest	Timber volume (m3)
Allowable Annual Cut (AAC)	269 638
Annual average harvest, 1997-2000	210 390
2000 harvest	292 329
Employment	Person-Years (PYs)
Harvesting, planning & administration	104
Timber processing	87
Total	191

Source: Ministry of Forests, survey of licensees and TSR 3 Analysis Report

Community Dependence

The Kamloops TSA timber harvest provides roughly 13% of the basic employment in the TSA. The volume harvested from FL A18688 and TFL 18 provides a significant contribution to employment in the local area.

Non Forestry Tenures & Interests

Other tenures within Canfor's DFA include traplines, guide outfitters, range tenures, domestic and irrigation water licences.

2.2 Mountain Pine Beetle

Overview

Mountain pine beetle is severely impacting mature lodgepole pine stands in the southern part of the Kamloops TSA. A summary of the current situation is described based on excerpts from:

- Timber Supply And The Mountain Pine Beetle Infestation In British Columbia, Ministry Of Forests Forest Analysis Branch October, 2003
- Oct. 30, 2003 Ministry Of Forests Backgrounder; Timber Supply Analysis Mountain Pine Beetle Infestation
- Kamloops Timber Supply Area Rationale For Allowable Annual Cut (AAC) Determination Effective January 1, 2004

The mountain pine beetle (MPB), *Dendroctonus ponderosae* Hopkins (Coleoptera: Scolytidae), is the most damaging insect attacking lodgepole pine forests in BC. Mountain pine beetles exist

naturally in mature lodgepole pine forests, at various population levels, depending on pine availability and weather conditions. They play an important role in the natural succession of these forests by attacking older or weakened trees, which are then replaced by younger, healthy forests. The beetle population levels in British Columbia's interior have been increasing steadily since 1994 with an exponential increase seen in 2004 as a result of the 2003 beetle flight.

Area Affected

Thirty-one percent of the area in the TSA has lodgepole pine (Pl) as the leading species. Beetle susceptibility models would suggest that the majority of the Pl stands in the TSA will have MPB populations within them in the next eight years. Recently, both the rate of spread and the attack intensity have increased. The 2004 aerial overview surveys for the Kamloops TSA resulted in classifying about 124,401 ha as red attacked. This represents a 4.4 fold increase in area affected in the Kamloops TSA from 2003 to 2004. Red-attacked trees are those that were attacked and killed in the previous year.

The Canfor Vavenby DFA contains a smaller percentage of Pl stands than the TSA average. Susceptible stands are mainly concentrated in the southern portion of the DFA in both TFL 18 and FL A18688. As with the remainder of the TSA there has been a significant increase in beetle populations over the past two years.

Strategy and Response

Given the economic importance of lodgepole pine and the potential impact of the current beetle infestation on forest-dependent communities in BC's interior, the forest industry and government jointly created the Mountain Pine Beetle Emergency Task Force in 1999 to manage and reduce the impact of the infestation. The Task Force has helped to ensure that management strategies are well-planned and as effective as possible. These strategies have been aggressive and have been successful in making a difference in reducing the spread of the infestation and limiting the amount of killed timber in some areas.

Due to the lower percentage of Pl stands in Canfors' DFA salvage efforts to date have been successful in removing infected stands before a significant reduction in timber quality is realized.

The Ministry of Forests and the forest industry have been actively trying to control and manage the mountain pine beetle infestation in the TSA. Licensees have been dedicating a significant portion of their harvest to management efforts aimed at the infestation. In the fall of 2003 the Chief Forester of BC allocated a three million cubic meter uplift to the Kamloops TSA to help address the building problem.

Factors Influencing the Severity of Attack

Two key factors contributing to the recent expansion of the mountain pine beetle infestation are the large amounts of older lodgepole pine on the land base and the relatively warm weather conditions experienced in recent years in the interior of the province. Both fire and insects have historically played an important role in the natural disturbance and replacement of lodgepole pine forests in much of the province's interior. Forest management policies, i.e. patch size and

fire control have contributed to an accumulation of old pine forest above historical levels. Once lodgepole pine trees are mature (generally older than 80 years), they are highly susceptible to attack by the pine beetle, particularly during times of prolonged favourable weather conditions. Experts concur that moderated climate conditions coupled with the increasing amount of susceptible, mature lodgepole forests has led to the current, unprecedented mountain pine beetle outbreak.

Environmental impacts of the beetle infestation

Before extensive fire suppression, BC's central interior forests naturally underwent large-scale stand replacing events brought on by wildfire and insect outbreaks.

Fires and insect outbreaks have been a part of normal ecosystem dynamics in BC, most likely for many thousands of years. However, much more of the province is now occupied by older pine forests than historically has been the case. With the epidemic population of mountain pine beetles and the abundance of susceptible mature pine, the rate of conversion from older to younger forested habitats will be increased, by insect attack followed by eventual blowdown, or by harvesting to control the rate of spread and salvage the attacked timber. Even with harvesting, both live and dead stands unaltered by harvesting will remain on the landscape. Nonetheless, both the epidemic beetle population and timber harvesting, either for insect control or for salvage, will result in complex consequences for pine forests and associated wildlife habitats in BC's interior.

Outlook

There is no indication the spread of the infestation will slow significantly without sufficiently cold weather to kill the developing beetle brood. Temperatures need to reach -30°C in the early fall or late spring when the beetles are not fully in their "over-wintering state" or have sustained winter temperatures of less than -40°C to kill the brood. If the beetle is not stopped due to climatic conditions, populations will only collapse when they encounter a shortage of acceptable, mature pine. Additionally, there is evidence which would suggest that 30 year and older pine plantations are starting to be impacted by MPB, specifically when adjacent to high beetle populations in the mature pine.

As the impact to the SFM plan from the MPB are better understood, further refinements to this plan may be required.

3.0 Indicators and Indicator Matrices

Indicators and targets provide the performance measures that are to be met through on-the-ground forest management activities. This section provides the targets, variance, current condition and responsibilities for each indicator, as they apply to the Vavenby DFA. Full compliance is required for many targets (i.e. there is no variance). Where full compliance may not be achievable, an acceptable level of variance is indicated for the target. A detailed description of each of the indicators and targets, including monitoring procedures, can be found

within the Kamloops TSA SFM Plan. The annual report format that is used by all licensees within the TSA is provided in Appendix 3.

Objectives, Indicators and Targets

The Kamloops TSA SFM plan process served to refine the information and concerns of the public local in the TSA. The Canfor-Vavenby incorporates the results of that planning process within this SFM Plan and further localizes with refinements and results at the indicator level – specific to the Canfor-Vavenby DFA.

Indicator

The incorporation of the TSA level concerns and ideas into Canfor-Vavenby operations through the established performance measures and ongoing monitoring will ensure long term sustainability of the forest resource. The indicators established in the Kamloops TSA SFM Plan and applicable at the local DFA level are as included below.

Target & Variance

Some of the targets in the SFM that refer to full compliance with existing regulations also make reference to exceeding regulations (e.g. indicator 2). In these cases, compliance is the performance baseline and exceeding the requirement is a goal that Canfor-Vavenby strives for as conditions permit.

Current Status of Indicators

This section of the Indicator Matrix reflects the current condition for Canfor-Vavenby as summarized in the 2004 monitoring report.

Responsibility for Implementation, Monitoring & Reporting

Canfor staff that are responsible the implementation of strategies, monitoring and subsequent reporting of indicators are provided below.

Legal Requirements

Awareness of legal requirements is essential when considering suitable Objectives for an Element, and determining appropriate Indicators and Targets. The Kamloops TSA SFM Plan contains applicable Acts and Regulations in the Indicator Tables as noted in the “Legal Requirements” section. Specific Sections/Subsections of these Acts and Regulations have not been identified to avoid having to manage the ongoing changes to forest legislation.

Although not included within the Canfor-Vavenby SFM Plan, the company ensures that specific legislation related to Objectives, Indicators and Targets is known and complied with by staying current with legal requirements. The company subscribes to a commercial service called “Natural Resource”.

Table 6: Indicator Matrices for Indicators 1 – 29

Indicator	(1) Achievement of the TSA's old forest strategy.
Target	Operations will respect the LRMP's objectives for retaining old forest as a component of seral stage distribution by landscape unit.
Means of achieving objective and target	A draft strategy is in place to ensure that these targets are implemented. Protected areas are identified on Licensee maps Draft OGMAs are identified on Licensee maps based on LRMP biodiversity emphasis options
Variance	None.
Current status of indicator	Canfor has met the intent of the Kamloops LRMP for old forest retention.
Responsibility for Implementation, Monitoring & Reporting	Forestry & Planning Superintendent

Indicator	(2) Level of conformance to riparian management area and lakeshore commitments contained within plans³.
Target	100 percent conformance to riparian and lakeshore commitments made within plans.
Means of achieving objective and target	Licensees will attempt to identify small and unclassified wetlands and will take measures to minimize impacts to these features. All commitments are included and highlighted in Licensee plans
Variance	Minus 5 percent. Variance to accommodate nonconformance to plans that have little or no impact to the environment and/or to the social and ecological objectives of lakeshore areas. ⁷
Current status of indicator	Of a total of 1,549.1 hectares of cutblock and right-of-ways harvested, there was 0 nonconformance.
Responsibility for Implementation, Monitoring & Reporting	Forestry & Planning Superintendent Operations Superintendent

Indicator	(3) Level of FPC compliance with caribou strategies.
Target	Full compliance with FPC & LRMP caribou strategy.
Means of achieving objective and target	LRMP strategy is incorporated into Licensee plans
Variance	As provided for within the legal framework. The statutory decision maker may approve variances from standard requirements provided adequate rationale is provided and long-term objectives continue to be met.
Current status of indicator	Canfor operated within 207.5 hectares meeting caribou management strategies. A total of 219.0 hectares were harvested within the caribou resource management zones. (R170 (12.5 ha) did not meet strategies due to salvage requirements but variance applied for and approved by DM)
Responsibility for Implementation, Monitoring & Reporting	Development Superintendent

³ Plans prepared by licensees are in accordance with legal and LRMP requirements

Indicator	(4) Percent of cutblocks greater than 5 hectares that have individual wildlife trees/stubs and/or associated wildlife tree patches upon completion of harvest.
Target	Provision for the location and distribution of patches or individual wildlife/leave trees by ensuring 80 percent of cutblocks greater than 5 hectares will have individual wildlife trees/stubs and/or associated wildlife tree patches.
Means of achieving objective and target	During forest development planning, licensees incorporate strategies for maintaining diversity of structure and function within cutblocks including wildlife/leave tree retention. Retention of wildlife trees/stubs in cutblocks is subject to worker safety considerations. Value should be optimized both through the variety of tree types (e.g., species, size, live and dead, etc.) retained, and the amount of trees retained.
Variance	Acceptable range is between 70 percent and 100 percent. Variances are provided for within the <i>Provincial Wildlife Tree Policy and Management Recommendations</i> (February 2000).
Current status of indicator	42 cutblocks with WTPs and a total of 51 were harvested – 82 %
Responsibility for Implementation, Monitoring & Reporting	Forestry & Planning Superintendent

Indicator	(5) Percent of cutblocks consistent with coarse woody debris requirements in plans.
Target	100 percent of cutblocks will be consistent with coarse woody debris requirements contained in plans.
Means of achieving objective and target	Companies will refer to provincial utilization standards and broad regional guidelines in preparing Forest Development Plans, which will subsequently be approved by the Ministry of Forests District Manager. Licensees achieve the target by the setting of related objectives within their plans ⁴ .
Variance	None
Current status of indicator	A total of 58 cutblocks were harvested during the reporting period. All cutblocks followed coarse woody debris strategies.
Responsibility for Implementation, Monitoring & Reporting	Forestry & Planning Superintendent Operations Superintendent

Indicator	(6) Average regeneration period from time of harvest.
Target	Regeneration established within three years or less on average from time of harvest.
Means of achieving objective and target	Licensees will follow guidelines specifying tree species that are most suited ecologically to maintain natural forest composition in an area. Silviculture regime and forward plans schedule activities consistent with established key dates contained within plans.
Variance	12 months beyond the 3-year target
Current status of indicator	Average regeneration delay was 24 months (2.0 years).
Responsibility for Implementation, Monitoring & Reporting	Forestry & Planning Superintendent

⁴ Plans prepared by licensees are in accordance with legal and LRMP requirements

Indicator	(7) Level of compliance with management strategies for all known rare ecosystems.
Target	Full Compliance with management strategies for all known rare ecosystems.
Means of achieving objective and target	If a licensee identifies a unique feature (e.g. nesting site, rare habitat, unique landform, etc.) at anytime, best efforts will be made to incorporate the feature into planned operations. Protected areas are identified on Licensee maps
Variance	None
Current status of indicator	Rare Ecosystems have not currently been made known for the Forest Development Plan process in the TSA.
Responsibility for Implementation, Monitoring & Reporting	Forestry & Planning Superintendent

Indicator	(8) Level of conformance with management strategies for all identified wildlife (under IWMS).
Target	100 % conformance with management strategies for those species identified in the Identified Wildlife Management Strategy.
Means of achieving objective and target	The Kamloops LRMP directs resource managers to prepare appropriate local level plans for threatened and endangered species and habitats. Direction provided by a local level plan is incorporated in licensee plans.
Variance	None
Current status of indicator	Canfor harvested 0 hectares in 2004 in areas requiring IWM Strategies..
Responsibility for Implementation, Monitoring & Reporting	Forestry & Planning Superintendent

Indicator	(9) Age class distribution for coniferous species and percent of land base for broad leaf species.
Target	No net loss for broad leaf species.
Means of achieving objective and target	Maintain broad leaf species through individual tree and patch retention and through natural regeneration in harvested areas. Maintain natural diversity of coniferous species through stocking and natural regeneration.
Variance	5% reduction in broad leaf species (uncontrolled events associated with licensee operations: forest pests etc)
Current status of indicator	37,878 hectares or 2.7 % of the landbase are leading in broadleaf species. (TSR 2 – 2001). This value is recalculated every five years through the TSR.
Responsibility for Implementation, Monitoring & Reporting	SFM Representative

Indicator	(10) Annual percent of harvested areas in permanent access structures (e.g. roads and landings).
Target	Less than 6 percent, on average, of harvested areas will be in permanent roads and landings.
Means of achieving objective and target	Loss of the landbase to access structures can be minimized with <ul style="list-style-type: none"> • careful access planning to minimize the length of road required for harvesting and the number of landings • and use of proper road construction and maintenance procedures
Variance	None
Current status of indicator	The percentage of roads and landings within the total harvested area averaged 2.7 percent.
Responsibility for Implementation, Monitoring & Reporting	Forestry & Planning Superintendent

Indicator	(11) Annual harvest level relative to annual allocation.
Target	Harvest the annual cut allocation for the year consistent with the Cut Control Regulation and Policy.
Means of achieving objective and target	Licensees contribute to the sustainable harvest level by adhering to their apportioned harvest volume within the TSA. Cut control regulations dictate the short-term harvest flexibility.
Variance	According to the Cut Control Regulation and Policy
Current status of indicator	The volume harvested in 2002 was 496,542 cubic meters, which is 110.2 percent of the allocated volume of 450,695 cubic meters.
Responsibility for Implementation, Monitoring & Reporting	Operations Superintendent

Indicator	(12) Incorporation of traditional knowledge, non-timber resources, and cultural and spiritual values in forest planning, where available.
Target	12a: Open communications with local First Nations during Operational Plan reviews will include consideration of and will manage for, where appropriate traditional knowledge, non-timber resources, and cultural and spiritual values. 12b: TSA Licensees respond to all written requests for communication from First Nations 12c: Incorporation of traditional knowledge, non-timber resources, and cultural and spiritual values in forest planning, where available.
Means of achieving objective and target	Open communications with local First Nations during Plan reviews. Written requests for communication are responded to. Traditional knowledge, non-timber resources, and cultural and heritage values are appropriately managed for and protected in licensee plans.
Variance	None
Current status of indicator	Canfor had 6 meetings that resulted in meaningful communication. As well, 1 cutblock required specific actions and taken.
Responsibility for Implementation, Monitoring & Reporting	Forestry & Planning Superintendent Development Superintendent

Indicator	(13) Level of conformance to soil conservation commitments contained within plans.
Target	100 percent conformance to soil conservation measures contained within plans.
Means of achieving objective and target	Maximum planned levels of soil disturbance are assigned to all cutblocks based on related field data. Site preparation is generally beneficial to soil productivity, creating suitable growing conditions and beneficial microsites for crop establishment, mixing and aerating the soil, and minimizing opportunities for growth of competing vegetation. Expeditious re-establishment of new stands can assist in preventing erosion and other forms of soil displacement.
Variance	None
Current status of indicator	Soil disturbance objectives were met on all 1811.2 hectares of harvested cutblocks with no incidences of non-compliance.
Responsibility for Implementation, Monitoring & Reporting	Forestry & Planning Superintendent Operations Superintendent

Indicator	(14) Number of months for road cut and fill slope seeding application.
Target	All planned road cut and fill slope seeding application carried out within 12 months of completed road construction on suitable sites
Means of achieving objective and target	Timely revegetation of exposed soils on newly constructed road cut and fill slopes is completed per licensee plans.
Variance	3 months
Current status of indicator	Road cuts and fill slopes were seeded or planted on average in 6 months of disturbance, compared to a target of 12 months.
Responsibility for Implementation, Monitoring & Reporting	Operations Superintendent

Indicator	(15) Percent of status roads inspected in accordance with schedule.
Target	Manage water quality and erosion control by ensuring that 100 percent of status roads (temporary and permanent) are assessed for level of risk and that the frequency of inspections occurs at planned levels commensurate with level of risk.
Means of achieving objective and target	Proactive development of maintenance or deactivation plans for forestry roads will prevent or mitigate short- and long-term impacts of roads as they are developed. Maintenance and deactivation plans include an assessment of risk and subsequent road inspections are undertaken commensurate with the risk.
Variance	Minus 2 percent for high risk rated roads, minus 10 percent for moderate risk and minus 20 percent for low risk.
Current status of indicator	1415.5 kilometers of status roads within Canfor's operating area and all have been assigned a risk rating for the purpose of inspection. However, they did not track the number of inspections by high/med/low but all roads were inspected at least once.
Responsibility for Implementation, Monitoring & Reporting	Forestry & Planning Superintendent Operations Superintendent

Indicator	(16) Level of participation in the annual reporting of results and the number of advisory group meetings held annually.
Target	100 percent participation in the SFM Plan monitoring process and hold at least one meeting per year with the SFM Public Advisory Group to review results.
Means of achieving objective and target	All Licensees: Schedule meeting and attend
Variance	None
Current status of indicator	Canfor contributed to the annual plan and attended meetings with the SFM Advisory Group.
Responsibility for Implementation, Monitoring & Reporting	SFM/FMS Representative

Indicator	(17) Number of registrations to a recognized third party certification.
Target	Maintain and/or increase the number of registrations to a recognized third party certification.
Means of achieving objective and target	Licensees maintain a TSA SFMP that facilitates individual licensees interested in registering to their own Plan. Licensees support those seeking registration.
Variance	None
Current status of indicator	Canfor is in the process of obtaining third party certification (CSA).
Responsibility for Implementation, Monitoring & Reporting	SFM Representative

Indicator	(18) Protected Ecosystems
Target	12% protected areas. (This indicator is reported at the TSA level)
Means of achieving objective and target	The forest licensees participated in the Kamloops LRMP which delineated a series of protected areas and special natural, cultural heritage and recreational features and special management zones within the TSA. This achieved the geographic and ecological goals of the provincial Protected Areas Strategy. Protected areas, including Wells Gray Park, are shown on the overview map. Cultural and spiritual areas of importance will be protected or managed for in the future through implementation of the Archaeological Overview Assessment (AOA) process (refer to Indicator 25). Identification of rare ecosystems (Indicator 7) will lead to protection or management.
Variance	None
Current status of indicator	632,423.1 ha are maintained as protected areas. (TSR 2 – July 2001) This is 23.7% of the Kamloops TSA Landbase
Responsibility for Implementation, Monitoring & Reporting	SFM Representative

Indicator	(19) Percent of affected ranchers with whom meetings are held.
Target	Where forest operations are planned within range units, the forest licensee will meet annually with the rancher to help ensure forest operations will not adversely affect existing animal unit months (AUMs).
Means of achieving objective and target	Where a rancher may be affected by a planned forestry operation, forest licensees commit to meeting range tenure holders every year to discuss any issues and concerns that the ranchers may have and considering those concerns in forest development planning.
Variance	Minus 10 percent of 90 percent target
Current status of indicator	One hundred percent of ranchers affected by planned operations were communicated with during the reporting period compared to a target of 90 percent.
Responsibility for Implementation, Monitoring & Reporting	Forestry & Planning Superintendent Development Superintendent Operations Superintendent

Indicator	(20) Level of conformance to strategies in plans designed to achieve preservation, retention and partial retention of visual quality objectives.
Target	100 percent conformance to strategies contained in plans.
Means of achieving objective and target	Visual impact assessments are completed by licensees for operations proposed in scenic areas with established VQOs at the planning stage. They are used to estimate the potential visual impact of proposed operations on scenic resources and to assess whether the VQOs would be achieved. If visual quality objectives are not met, remedial action can often be undertaken to minimize visual impact.
Variance	Minus 5 percent.
Current status of indicator	24 of 24 cutblocks harvested met visual quality objectives.
Responsibility for Implementation, Monitoring & Reporting	Development Superintendent

Indicator	(21) Mean Annual Increment (MAI)
Target	Maintain the long term productivity of the forest as measured by the mean annual increment (m ³ /ha/yr) for Lodgepole pine.
Means of achieving objective and target	Mean Annual Increment can be influenced by: <ul style="list-style-type: none"> ▪ Climate, elevation soil conditions, forest age and forest practices. ▪ Using effective silviculture practices to increase growth rates (prompt regeneration, superior seed, effective site preparation etc.)
Variance	None
Current status of indicator	Current mai is 1.86 m ³ /ha/yr (data to come from current TSR).
Responsibility for Implementation, Monitoring & Reporting	SFM Representative

Indicator	(22) Forest age class distribution
Target	Maintain a stable forest age class distribution on the timber harvesting land base. Each age class to 100 years old [1 (0 to 20), 2 (21-40), 3 (41-60), 4 (61 to 80) and 5 (81 to 100)] occupies at least 8.5% of the timber harvesting land base.
Means of achieving objective and target	Maintain current harvest priority: Forest health management – harvesting attacked and susceptible stands (generally older stands) “Available” stands with the most years beyond culmination (maximum mean annual increment) Immediate implementation.
Variance	Attaining age class balance earlier a benefit. Later – 20 years.
Current status of indicator	All age classes except age class 1 have less than 8.5% area representation. Age classes 1 to 5 average only 6.3% reflecting the disproportionate area in over mature classes. This target will be achieved over time. (TSR2 – 2001)
Responsibility for Implementation, Monitoring & Reporting	SFM Representative

Indicator	(23) The number of working relationships with applicable First Nations.
Target	Maintain and/or increase the number of working relationships (partnerships, joint ventures, cooperative agreements, memorandum of understanding, or business contracts) with First Nations.
Means of achieving objective and target	Licensees engage in building mutually beneficial relationships with Aboriginal peoples.
Variance	None
Current status of indicator	There is 1 working relationships with First Nations in the DFA.
Responsibility for Implementation, Monitoring & Reporting	Forestry & Planning Superintendent Development Superintendent

Indicator	(24) Number of classroom or field visits by licensees to elementary, secondary, and post-secondary school levels.
Target	The TSA Licensees will maintain educational support to forestry programs at the elementary level, secondary and post-secondary levels that lead to a balanced and broad-based understanding of forestry. Target 40 actions per year (visits, field trips, information provision, etc).
Means of achieving objective and target	Licensees will be involved with educational support to ensure the importance of resource management is conveyed.
Variance	None
Current status of indicator	There were 0 classroom visits by Canfor.
Responsibility for Implementation, Monitoring & Reporting	Forestry & Planning Superintendent Development Superintendent Operations Superintendent

Indicator	(25) Participation with First Nations to implement and improve upon the revised Archaeological Overview Assessment model and process.
Target	TSA Licensees will participate with First Nations to implement and improve upon the revised Archaeological Overview Assessment model and process.
Means of achieving objective and target	Licensees participation with First Nations to develop and improve upon the revised Archaeological Overview Assessment model and process.
Variance	None
Current status of indicator	64 cutblocks had AOAs and 63 included a field site
Responsibility for Implementation, Monitoring & Reporting	Development Superintendent

Indicator	(26) Participant satisfaction survey
Target	26a. 80% of responses “3” or better 26b. All written comments, and all line responses averaging less than 3 become action items
Means of achieving objective and target	Licensees provide all Advisory Group members, and interested public who have shown notable interest (written comments or SFMP meeting attendance) during the year, a feedback form at the first meeting called to review the previous years monitoring report. At least one question in the survey will address the effectiveness of information delivery (Indicator (27)).
Variance	None
Current status of indicator	Survey response was an average of 3.9 out of 5. There were 14 respondents to the survey.
Responsibility for Implementation, Monitoring & Reporting	SFM Representative

Indicator	(27) Public awareness of the SFMP
Target	27a: Licensees will keep members of the public informed of TSA strategies being developed, and planning occurring by: <ul style="list-style-type: none"> • Maintaining a website • Circulating SFMP and other information to the public at least annually (news release/leaflet/open house/LRUP etc.) 27b: TSA Licensees respond to all written requests from the public for communication within 30 days of their receipt.
Means of achieving objective and target	Licensees cooperatively manage a web site dedicated to providing the latest SFMP information. The site also provides topical forestry information either by maintaining the information on the web site or providing links to applicable sites. Licensees develop and distribute SFMP and other information to the public at least annually
Variance	27a: None 27b: None
Current status of indicator	27 a The SFM website is maintained and available to the public. The website address was advertised in local newspapers in conjunction with the Annual Report notification 27b Canfor had 0 written requests for information during 2004
Responsibility for Implementation, Monitoring & Reporting	SFM Representative Forestry & Planning Superintendent

Indicator	(28) Number of opportunities/ avenues for public participation in decision-making processes.
Target	<p>28a: TSA Licensees will provide opportunities/avenues for public participation in decision-making processes through participation in:</p> <ul style="list-style-type: none"> • LRMP committees (strategic level); • 70 percent of Local Resource Use Plan meetings (local level); • Forest Development Plans (FDPs) (operational level) (number of meetings); and, • Community meetings (number of meetings). <p>28b: TSA Licensees respond to all written requests from the public for communication within 30 days of their receipt.</p>
Means of achieving objective and target	<p>Licensees are committed to work with members of the public on forest management issues and to improve the effectiveness of public processes.</p> <p>Licensees will provide opportunities/avenues for public participation in decision-making processes through participation in committees, meetings, and plan discussions.</p> <p>Licensees respond to all written requests from the public for communication.</p>
Variance	<p>28a: No variance in meeting targets for LRMP involvement;</p> <ul style="list-style-type: none"> • Minus 10 percent or plus 30 percent variance of the 70 percent target for attending LRUP meetings; • No variance for Forest Development Plans⁵; and • No variance for community meetings⁶. <p>28b: None</p>
Current status of indicator	<p>28a:</p> <ul style="list-style-type: none"> • Canfor's interests were represented at LRMP meetings. • Canfor attended 100% of LRUP meetings. • A total of 4 FDP review meetings were attended. • A total of 1 community meetings were attended. <p>28b: Canfor had no written requests from the general public. The only reviews were verbal with Ranchers. Community forest and woodlot discussions are not included in this number.</p>
Responsibility for Implementation, Monitoring & Reporting	Forestry & Planning Superintendent

⁵ Forest Development Plans (FDP) meetings are held by licensees to present information to the public or may be held at the request of the public to address a specific resource management issue related to the FDP.

⁶ All integrated resource management (IRM) meetings proposed by licensees or where licensees are requested to attend IRM meetings by local community interests.

Indicator	(29) Report on number of research and extension initiatives licensees have participated in.
Target	29a: TSA licensees will participate in research and extension activities. 29b: Identify priorities for reinvestment in the forest sector through the TSA committee annual review and support of research programs and strategies.
Means of achieving objective and target	Research and extension initiatives summarized, compiled and distributed as part of annual SFMP performance reporting. Licensees will meet annually to review and prioritize proposed research and extension initiatives.
Variance	None
Current status of indicator	Canfor is directly or indirectly represented on the Southern Interior Forest Extension and Research Partnership Committee.
Responsibility for Implementation, Monitoring & Reporting	Operations Superintendent

Glossary of Terms

Glossary of Terms

The following definitions were taken from the CAN/CSA-Z809 02, the *Forest Practices Code of British Columbia Act*, the Ministry of Forests Glossary of Resource Planning Terms (April, 1996) and from discussions with the SFM Advisory Group.

Aboriginal Rights: are recognized and affirmed by *Sec. 35(1) of the Constitution Act, 1982*. Aboriginal rights involve practices that were integral to the aboriginal society before contact. For example, Aboriginal rights may include (but are not limited to) fishing, hunting, gathering, trapping, and the use of land and resources for social, medicinal, spiritual and ceremonial purposes (*Sparrow Decision, Guerin Decision, Calder Decision, Jack Decision*). Generally the priority set in the Courts is conservation first, aboriginal rights to carry on an activity and/or practice next. (SFM Advisory Group)

Aboriginal Title: (*Delgamuukw Decision*): is an Aboriginal right recognized and affirmed in Section 35(1) of the *Constitution Act, 1982*. Aboriginal title is right to the land itself and encompasses the right to exclusive use and occupation of the land held pursuant to that title for a variety of purposes, which need not be aspects of those aboriginal practices, customs and traditions which are integral to distinctive aboriginal cultures (Para 177). Aboriginal title also encompasses within it a right to choose to what ends a piece of land can be put (Para 168). (SFM Advisory Group)

Adaptive management: a learning approach to management that recognizes substantial uncertainties in managing forests and incorporates into decisions experience gained from the results of previous actions. (CAN/CSA-Z809-02)

Biological Diversity: means the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (UN Convention on Biological Diversity).

Cultural and spiritual resources and values: To assist readers and users of the plan in understanding the nature of resources and values, the following examples are provided. It should be understood that there are many more cultural and spiritual resources than these few examples. (SFM Advisory Group)

	Resource	Value
Cultural	<ul style="list-style-type: none">▪ Thompson River salmon▪ Deer▪ Berries	<ul style="list-style-type: none">▪ Fishing▪ Hunting▪ Gathering
Spiritual	<ul style="list-style-type: none">▪ Sacred medicinal plants▪ Spiritual site	<ul style="list-style-type: none">▪ Spiritual medicines (herbs/weeds)▪ Vision quest

Defined Forest Area (DFA): a specified area of forest, including land and water (regardless of ownership or tenure) to which the requirements of this Standard apply. The DFA may or may not consist of one or more contiguous blocks or parcels. (CAN/CSA-Z809-02)

Forest resources: all resources and values associated with forests and range including, without limitation, timber, water, wildlife, fisheries, recreation, tourism, botanical forest products, forage, and biological diversity. (*Forest Practices Code of British Columbia Act*)

Indicator: a variable that measures or describes the state or condition of a value (see Figure 5 of Standard). (CAN/CSA-Z809-02)

Licensee SFM Plan: An SFM plan specific to the DFA for a licensee seeking or having acquired CSA Z09 certification.

Known information: a feature, objective or other thing that is contained in a higher level plan or is otherwise made available by a district manager or designated environment official at least four months before the Licensee plan is submitted for approval. (*Forest Practices Code of British Columbia Act*)

Objective: a broad statement describing a desired future state or condition of a value (see Figure 5 of Standard). (CAN/CSA-Z809-02)

Old growth management area: means an area established under a higher level plan which contains or is managed to replace structural old growth attributes. (*Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation*)

Plans: There are a variety of plans that apply to forest management including the following.

Regional and subregional plans – apply to large areas of the Crown land base (i.e. 500,000 to 5 million hectares). These plans establish direction for land use in the form of general resource management objectives that are applied consistently across the plan area and area specific resource management zones that provide objectives for a defined portion of the plan area.

Sustainable resource management plans – translate broad ‘strategic’ land use plans (i.e., regional and sub-regional plans) into more specific and tangible resource management direction that is needed for operational planning and day-to-day resource management decisions at a landscape or watershed level. SRMPs define resource objectives in precise terms that are measurable, geographically specific, and clearly communicate the intended resource integration or trade-offs.

Forest stewardship plans – Forest stewardship plans describe the approaches that the licensee will use to achieve the results specified in resource management objectives, but do not specify the planning and forest management prescriptions that will be applied to achieve the target results for the objectives

Site plans – are required for any cutblocks or roads prior to harvesting on the cutblock or harvesting in relation to the road construction. A site plan must identify the approximate location of cutblocks and roads, be consistent with the forest Stewardship Plan and identify

how the intended results or strategies described in the forest stewardship plan apply to the site.

Woodlot licence plan – must specify intended results and strategies and be consistent with objectives set by government for a defined set of resource values

Licensee plans – detail the logistics for forest and range development in particular locations. Methods, schedules and responsibilities for accessing, harvesting, renewing, and protecting the resources are set out to enable site specific operations to proceed. Licensee plans include forest development plans, range use plans, silviculture prescriptions and site plans. (*Forest Practices Code of British Columbia Act*)

Permanent access structures: are roads, landings, borrow pits, gravel pits, and quarries that are required to be used or provide access for timber harvesting or other forest management activities and whose continuous or periodic use will continue for a long enough time to prevent the re-establishment of forested vegetation. Permanent access structures are not part of productive landbase. (*Forest Practices Code of British Columbia Act*)

Rare ecosystem: is an ecosystem (site series or surrogate) that makes up less than 2 percent of a landscape unit and is not common in adjacent landscape units. (*Forest Practices Code of British Columbia Act, Biodiversity Guidebook*)

Seral stage distribution: the stages of ecological succession of a plant community (e.g., from young stage to old stage). The characteristic sequence of biotic communities that successively occupy and replace each other by which some components of the physical environment become altered over time. (*Glossary of Resource Planning Terms*)

Sustainable forest management: management to maintain and enhance the long-term health of forest ecosystems, while providing ecological, economic, social, and cultural opportunities for the benefit of present and future generations. (CAN/CSA-Z809-02)

Sustainable forest management system: the structure, responsibilities, practices, procedures, processes, and time frames set by a registrar for implementing, maintaining, and improving SFM (see Figure 2 of Standard). (CAN/CSA-Z809-02)

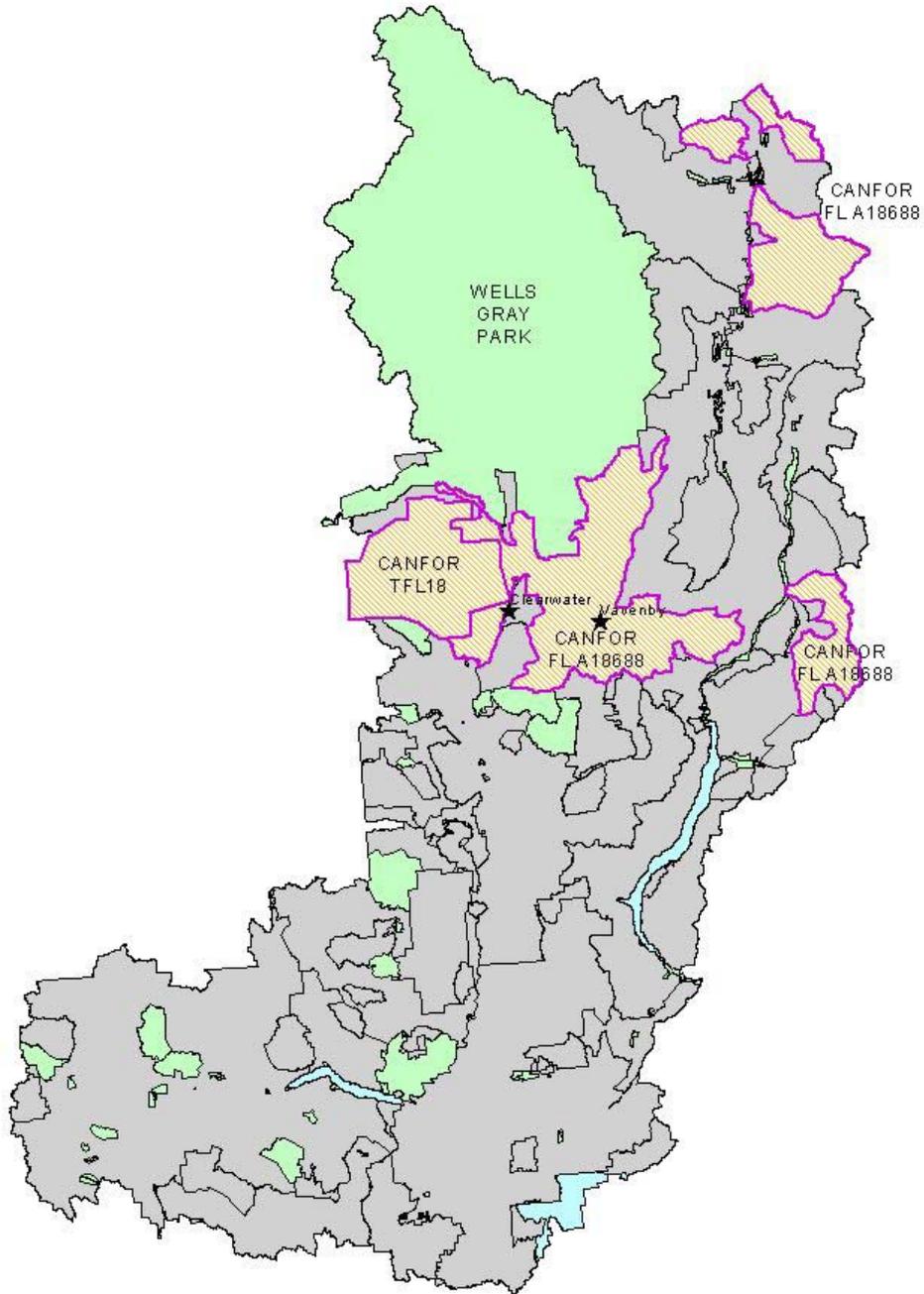
Target: a specific statement describing a desired future state or condition of an indicator. Targets should be clearly defined, time-limited, and quantified, if possible (see Figure 5 of Standard). (CAN/CSA-Z809-02)

Appendix 1

Canfor Vavenby

Defined Forest Area Map

Appendix 1: Canfor Vavenby Defined Forest Area Map



Appendix 2

Identified Wildlife Management Species

Appendix 2: Identified Wildlife Management Species

Identified Wildlife Management Species for the Canfor-Vavenby Defined Forest Area are shown in the following table.

Species	BC Status
Lewis's Woodpecker	Blue
Long-billed Curlew	Blue
Badger	Red
Grizzly Bear	Blue
Wolverine	Blue
Mountain Caribou	Red

Appendix 3

SFM Plan Reporting Format

Appendix 3: SFM Plan reporting format

Following is the format that licensees will use when reporting the results of monitoring the SFM Plan. Licensees provide the information required in the form annually. Information from individual licensees is compiled into a TSA Annual Monitoring Report. The Monitoring Report contributes to an annual review to confirm that the CSA performance measures are being met. The SFM Advisory Group reviews and comments on the Monitoring Report.

Kamloops TSA Sustainable Forest Management Plan Annual Report

Name of licensee: _____

Reporting year: _____

Tar #	Monitoring parameter	Monitoring results
1	Have Licensees respected and are they living up to the intent of the direction set forth in the LRMP relating to old forest retention?	Yes _____ No _____
2	Licensees will report the number of riparian and lakeshore related non conformances to plans occurring during the reporting year as compared to the gross area of cutblocks that were harvested that had riparian management areas within or adjacent to them. Variance: To accommodate non conformance to plans that have little or no impact to the environment and/or to the social and ecological objectives or lakeshore areas.	Number of riparian and lakeshore non conformances to plans _____ Gross area of cutblocks harvested having RMAs within/adjacent: _____
3	Area (ha) harvested meeting LRMP caribou strategies against the area harvested within the LRMP caribou strategy area during the reporting year. Variance: As provided for within the legal framework. The statutory decision maker may approve variances from standard requirements provided adequate rationale is provided and long-term objectives continue to be met.	Number of hectares meeting caribou strategies _____ Area harvested within caribou resource management zones _____

Tar #	Monitoring parameter	Monitoring results
4	<p>For cutblocks greater than 5 hectares, the number of cutblocks with wildlife tree patches within or parented to the cutblock and/or individual trees/stubs within the cutblock, versus the total number of cutblocks greater than 5 ha in size upon completion of harvest, during the reporting year.</p> <p>Variance: Acceptable range is between 70 percent and 100 percent.</p>	<p>Number of cutblocks with WTPs _____</p> <p>Total number of cutblocks harvested _____</p>
5	<p>Number of cutblocks where the Coarse Woody Debris (CWD) requirements contained in Licensee plans were followed compared to the number of cutblocks harvested, during the reporting year.</p>	<p>Number of cutblocks where CWD requirements were followed _____</p> <p>Number of cutblocks harvested _____</p>
6	<p>The average time (weighted by area) for regeneration establishment on areas where regeneration delay was declared during the reporting period.</p> <p>Variance: 12 months beyond the 3-year target</p>	<p>Average time for regeneration establishment⁷ (months) _____</p>
7	<p>The number of known rare ecosystems in the operating area versus the number of known rare ecosystems where management strategies were followed.</p> <p><i>*Where no activity or planned activity occurred in/around a known rare ecosystem, management strategies are considered to be "followed".</i></p>	<p>Number known rare ecosystems in the operating area _____</p> <p>Number known rare ecosystems where management strategies were followed* _____</p>

⁷ For natural regeneration, average age of trees from the first survey and for artificial regeneration, date of initial planting.

Tar #	Monitoring parameter	Monitoring results
8	<p>The area harvested within IWMS areas, whether the harvest areas had strategies to manage for the identified wildlife in plans, and whether the plan was followed.</p> <p>Did harvest areas have strategies to manage for the identified wildlife in plans?</p> <p>Was the plan followed?</p> <p><i>*Where no activity or planned activity occurred in/around IWMS cutblocks, management strategies are considered to be "followed".</i></p>	<p>Area (ha) harvested within IWMS areas _____</p> <p>Yes _____ No _____</p> <p>Yes _____ No _____</p>
9	<p>Age class distribution for coniferous species.</p> <p>Percent of the land base for broad leaf species.</p>	<p>See Indicator 22 information</p> <p>Land base ha. and broad leaf ha. (data to come from current TSR).</p>
10	<p>Area (ha) of permanent roads and landings identified in Licensee plans over gross block area (ha) for cutblocks harvested during the reporting year, using information contained within Licensee plans.⁸</p>	<p>Number of hectares of roads and landings within harvested areas _____</p> <p>Gross block area (ha) _____</p>
11	<p>Harvest level allocated for each licensee and harvest level cut (cut control volume) for the past reporting year.</p> <p>Variance: According to Cut Control Regulation and Policy.</p>	<p>Allocated harvest level _____</p> <p>Cut control volume _____</p>

⁸ If Ministry of Forests inspection reports the plan number has been exceeded, the actual number will be used in the report.

Tar #	Monitoring parameter	Monitoring results
12	<p>Licensees will report:</p> <ul style="list-style-type: none"> • Number of meetings and meaningful communications with First Nations that included management and protection of traditional knowledge, non-timber resources, and cultural and spiritual values; and, • Number of cutblocks where specific actions were requested and were taken, using traditional knowledge where available, to manage for and/or protect non-timber resources, and cultural and spiritual values. • Licensees will report on the number of written requests for communication from First Nations versus the number of responses made to First Nations. Reporting is on a one to one ratio (one response for each request) 	<p>Number of meetings and meaningful communications _____</p> <p>Number of cutblocks where specific actions were requested taken _____</p> <p>Number of written requests for communication _____</p> <p>Number of responses made _____</p>
13	<p>Licensees will report the net area (hectares) where soil disturbance commitments were achieved as compared to the total net area of cutblocks that were harvested during the reporting year.</p> <p>Licensee performance will be guided by internal and MOF inspections. Reports will use DM determinations or violation tickets, to confirm whether soil disturbance levels were met.</p>	<p>Number of hectares where soil disturbance commitments were achieved: _____</p> <p>Total net area of cutblocks harvested during the reporting year (ha): _____</p>
14	<p>Average time for road cut and fill slope seeding application on areas of new road construction during the reporting year.</p>	<p>Average time for application (months) _____</p>

Tar #	Monitoring parameter	Monitoring results
15	Total number of kilometers of status roads and the number of those that have been assigned a risk rating for the purpose of inspections. Licensees will also report on the number of road inspections made against the plan for high, moderate and low risk.	Total number of kilometers of status roads: _____ Of the above, how many kilometers of status roads have been assigned a risk rating for the purpose of inspections: _____ Number of road inspections made against the plan for high _____, moderate _____ and low risk _____.
16	Did you contribute to the annual plan? Did you participate in a meeting with the SFM Advisory Group?	Yes _____ No _____ Yes _____ No _____
17	Number of registrations to a recognized third party certification that apply over the TSA area for the reporting period.	Number of registrations to a third party certification _____
18	Licensee report the current Protected Area status as last reported by a Timber Supply Review	Number of hectares maintained as Protected Areas (data to come from current TSR).
19	Percent of ranchers affected by planned operations that were communicated with during the reporting period. Variance: Minus 10 percent of the 90 percent target	Number of affected ranchers _____ Number of affected ranchers communicated with during reporting period _____
20	Number of harvested blocks that achieve the visual intent as described in plans versus the number of blocks harvested within the past year that had preservation, retention or partial retention visual quality objectives.	Number of blocks with preservation, retention or partial retention achieving visual intent _____ Number of blocks harvested with VQOs: _____

Tar #	Monitoring parameter	Monitoring results
21	<p>Licensee report the current mai as last reported by a Timber Supply Review. For all pine leading stands:</p> <ul style="list-style-type: none"> ▪ develop a report of hectares by age class for each pine leading analysis unit at time 0 and time 100 years out ▪ determine mai for each age class for each analysis unit at time 0 and time 100 ▪ calculate an area weighted average mai for each analysis unit ▪ calculate an area weighted average mai for the total area of pine leading stands (combine the analysis units) 	<p>Current mai in m3/ha/yr (data to come from current TSR). _____</p> <p>Forecast (100 yr) mai in m3/ha/yr (data to come from current TSR). _____</p>
22	<p>Licensee report the current age class distribution as last reported by a Timber Supply Review</p>	<p>Age class as percent of timber harvesting land base (data to come from current TSR).</p>
23	<p>Number of working relationships with applicable First Nations (partnerships, joint ventures, co-operative agreements, memorandums of understanding, or business contracts* over \$5,000 or over 500 cubic meters in volume) during the reporting year.</p> <p><i>*Examples of a business contract include a work agreement or a direct timber sale with a First Nation Band or First Nation Contractor. For consistency in reporting, count multiple work agreements with one band or contractor or direct sales with one band or contractor as a single business contract. For example, multiple work agreements or multiple direct sales would count as a single business contract if they occurred with the same band or contractor.</i></p>	<p>Number of working relationships _____</p>
24	<p>Number of classroom or field visits during the reporting year.</p>	<p>Number of classroom or field visits in current year _____</p>

Tar #	Monitoring parameter	Monitoring results
25	<p>Licenseses will report on the number of cutblocks where an AOA was conducted.</p> <p>Licenseses will report on the number of cutblocks where the AOA included a field visit.</p>	<p>Number of cutblocks where an AOA was conducted. _____</p> <p>Number of cutblocks where the AOA included a field visit. _____</p>
26	<p>Survey responses coded 1 (poor), 2, 3 (satisfactory), 4, 5 (well done)</p> <p>Results of feedback form compiled and reported as part of annual monitoring program.</p>	<p>Response average ____</p> <p>Results of feedback form compiled and reported ____ yes ____ no</p>
27	<p>27a: Licenseses will report a yes/no answer as to whether the web site is being maintained, and whether SFMP and other information was made publicly available in the last year. Similar to Indicator 28</p> <p>27b: Licenseses will report on the number of responses sent out by licenseses compared to the number of written requests for communication. Report the average timeline for response. Indicator 28</p>	<p>Web site is being maintained ____ Yes, ____ No</p> <p>SFMP and other information was made publicly available in the last year ____ Yes, ____ No</p> <p>Number of written requests for communication _____</p> <p>Number of responses ____</p> <p>Average timeline for response ____ days</p>

Tar #	Monitoring parameter	Monitoring results
28	<p>28a)</p> <ul style="list-style-type: none"> Were licensee interests represented at LRMP meetings? Number of LRUP meeting attended against the number held within their operating area. <p>Variance: Minus 10 percent to plus 30 percent of the 70 percent target</p> <ul style="list-style-type: none"> Number of FDP review meetings attended Number of community meetings held or attended for the reporting period. <p>28b) Number of responses sent out by licensees compared to the number of written requests from the public for communication. Include average time for response.</p>	<p>Yes _____ No _____</p> <p>Number of LRUP meetings attended _____</p> <p>Number of LRUP meetings held _____</p> <p>Number of FDP review meetings attended _____</p> <p>Number of community meetings attended _____</p> <p>Number of responses from Licensee _____</p> <p>Number of written requests from public _____</p> <p>Average response time (in days)..... ..</p>
29	<p>29a) Are licensees directly or indirectly represented on the Forest Research Extension Partnership?</p> <p>29b) Are TSA wide research results shared with members of the Public Advisory Group on an annual basis?</p> <p>Describe the type of research undertaken and its value and applicability to sustainable forest management (emphasize projects where operational use of research has been\will be initiated).</p>	<p>Yes _____ No _____</p> <p>Yes _____ No _____</p> <p>Research: _____</p> <p>Type of research and value and applicability to SFM:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>

Appendix 4 2002-2006 FOREST DEVELOPMENT PLAN

Appendix 4: 2002-2006 FOREST DEVELOPMENT PLAN

Following is the 2002-2006 Forest Development Plan for the Vavenby DFA which includes TFL 18 and FL A18688. This outlines the strategies that Canfor – Vavenby will follow in Forest Development Planning for the defined timeframe as amended from time to time or until replaced by a subsequent Forest Development Plan or Forest Stewardship Plan

FOREST DEVELOPMENT PLAN

2002 – 2006

Clearwater Forest District,
Kamloops T.S.A., Supply Block 1

Slocan Forest Products Ltd.

Forest License A18688 and Tree Farm License 18

Vavenby Division

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1. Introduction

This document is Slocan Forest Products – Vavenby Division’s Forest Development Plan (FDP) for Forest License (FL) A18688 and Tree Farm License (TFL) 18 located in the Clearwater Forest District of the Kamloops Timber Supply Area (TSA). The allowable annual cut of FL

A18688 is 269,638 cubic meters (m³), while the allowable annual cut of TFL 18 is 158,131 m³⁹. This plan proposes harvesting and road construction activity for a period of four to five years¹⁰; a full five year period requiring that minimum 1,348,190 m³ of timber on the FL, and 790,655 m³ on the TFL be identified in proposed and approved Category A blocks.

Slocan Forest Products is a publicly held company with its' corporate offices located in Richmond, British Columbia. From the head office in Richmond, the company manages forestry and timber processing operations in locations throughout the interior of BC.

The Vavenby division is located approximately 24 km east of Clearwater and includes a sawmill, planer mill, and woodlands group. Employment, which may vary due to market cycles, includes 193 full time employees and 300 full and part time contractors and consultants.

Plan Objectives

The goal of this plan is to provide complete and comprehensive information on FL A18688 and TFL 18 proposed harvesting and road development activities for the period January 1, 2002 to December 31, 2006 inclusive. This goal will be accomplished by proposing development consistent with provincial forest management direction for the integration and management of forest resource values as defined by the Forest Act, Forest Practices Code of British Columbia Act (FPC), and regulations.

Factors influencing the plan text, volume, spatial distribution and size of blocks proposed in this plan include:

Consistent with Kamloops Forest Region professional reliance training initiative of August, 2001, this plan provides clear direction to the prescribing forester on specific management issues, while providing for the integration of resource management objectives through flexibility in on-site decision making.

Direction from resource agencies to minimize overlap of proposed blocks in the 2002 FDP with draft Old Growth Management Areas,

On-going discussion regarding changes to the KLRMP Special Resource Management Zone boundaries for Caribou,

Uncertainty regarding substantive changes proposed for British Columbia forest law, regulation, and policy,

Implementation of resource management objectives for biodiversity, with emphasis on patch sizes and the spatial and temporal distribution of harvesting across the landscape.

⁹ Ministry of Forests. File: 19700-70/TFL-18, March 19, 2002; modified to 158,936 m³ due to MoF recalculation.

¹⁰ Refer to section 5.1 for variance from 5 year period.

This plan will meet the following general objectives:

Proposals will describe consistency with the goals, objectives and strategies of the Kamloops Land and Resource Management Plan (declared Higher Level Plan, January 31, 1997).

The proposed FDP will illustrate and document proposed harvesting, road construction, road maintenance, and road deactivation (first 3 years) for the period of the plan.

The public, provincial and federal resource agencies and First Nations will be provided with 60 days to review and provide written comment on the development proposals contained in the plan.

The FDP will promote, through specific objectives, silviculture systems and harvest methods designed to maintain the long-term timber growing capacity of the site.

The proposed FDP will describe how measures to protect forest resources have been or will be incorporated into operational plans.

The proposed FDP will identify and explain where plan amendments may be required, and how these amendments may or may not be subject to public review.

This plan has been developed based on information provided by government agencies four months in advance of advertising the plan for public review and comment. The information and details presented are based on the most accurate information available at the time of writing.

Plan Amendments

From time to time Forest Development Plans are subject to amendment. These amendments are submitted at the discretion of the Licensee when changes occur “on the ground”, or information is obtained that may change the results of the plan. Amendments to a FDP may be significant (e.g. Adding new blocks and/or roads), minor amendments (e.g. Adjustments in existing boundary locations) or emergency amendments (e.g. Salvage of pest infestations). The final decision on approval of any FDP amendment rests with the District Manager or person authorized by the District Manager. In specific instances the Designated Environment Official is also required to make a determination on plan amendments.

Section 43(1) of the FPC allows the District Manager or person authorized by the District Manager to approve a minor amendment to the plan *without having the amendment made available for public review and comment* if they determine the amendment

Otherwise meets the requirements of the Act, the regulations, and the standards,

Will adequately provide for managing and conserving the forest resources of British Columbia for the area to which it applies, and

Does not materially change the objectives or results of the plan.

Section 42(1) of the FPC allows the District Manager, in accordance with the regulations, to approve an amendment to the plan *without having the amendment made available for public review and comment* if they determine the amendment

Otherwise meets the requirements of the Act, the regulations, and the standards, and

Is necessary to enable measures to be taken to address an emergency.

Any amendment that does not meet the conditions above requires advertising and will have a public review and comment period prior to submission for approval. Slocan encourages the public to provide written comment on any part of the plan that may be a concern. The written comments will be considered in any modification to the proposed plan, and will also be considered by the District Manager or their designate when making a determination on a proposed plan amendment.

Referral Summary

This FDP text and the associated maps are the documents used for public review and comment. Letters have been sent to individuals, interest groups, and agencies notifying them of the review period and the opportunity to provide written comment. A listing of those receiving “invitation to comment” letters is outlined below, with copies of the letters sent listed in Appendix 7.2. Written comments received are also indexed and enclosed in Appendix 7.2. Any revisions to the plan as a result of comments received are identified in Appendix 7.3, which notes any changes to maps or text. The plan is advertised in the North Thompson Times at the start of the review and comment period.

Activity	Date (yyyy/mm/dd)	Location (and media with respect to Public Review)	Comments received Y/N	Date (yyyy/mm/dd)
Submission of FDP				
MOF	02/04/29	Clearwater Forest District	Y	May 30, 2002
MSRM (letter only)	02/04/29	Kamloops Office	N	
MWLAP (letter & digital only)	02/04/29	Kamloops Regional Office	Y	May 30, 2002
DFO	02/04/29	Clearwater Office	Y	May 30, 2002
First Nations				

Activity	Date (yyyy/mm/dd)	Location (and media with respect to Public Review)	Comments received Y/N	Date (yyyy/mm/dd)
North Thompson Indian Band	02/02/15 02/04/16 02/04/29	Refer to Appendix 7.2.2		
Canim Lake Indian Band	02/02/15 02/04/16 02/04/29	Refer to Appendix 7.2.2	Yes	
Adams Lake Indian Band	02/02/15 02/04/16 02/04/29	Refer to Appendix 7.2.2		
Neskonlith Indian Band	02/02/15 02/04/16 02/04/29	Refer to Appendix 7.2.2		
Little Shuswap Indian Band	02/02/15 02/04/16 02/04/29	Refer to Appendix 7.2.2		
Lheidli T'enneh Nation	02/02/15 02/04/16 02/04/29	Refer to Appendix 7.2.2	Yes	
Others				
	02/04/29	Refer to Appendix 7.2		
Public Review				
Advertising	02/04/29	North Thompson Times		
Public Viewing Forum(s)	02/05/07	Well Gray Inn, Clearwater		
Comments Deadline (60 days from the date of first publication, <i>unless otherwise extended</i>)	02/06/28			

Activity	Date (yyyy/mm/dd)	Location (and media with respect to Public Review)	Comments received Y/N	Date (yyyy/mm/dd)
Proposed Agency Meeting(s)				
DFO MoF MWLAP MSRM	02/05/30	Ministry of Forests, Clearwater Offices	Y	May 30, 2002
Final Submission for approval (if necessary)	02/07/02			
Expected Approval	02/08/01			

Others

Refers to trappers, guide outfitters, other forest and range tenure holders, or persons who may have an interest or be effected by the operations proposed in this plan. With regard to trappers and guide outfitters the names of these individuals or companies are not to be used. The Licence number is to used in place of individuals or company names.

Dates

Some flexibility is expected in the time frames and dates specified in this table.

Expected Approval: This date is generally 30 days following submission of the final plan.

This table should be revised as part of the final plan submission.

1.2 Referral Process

The proponent may discuss the referral process the plan was subject to, including: review of the plan by other licencees, other tenure and rights holders, the public and First Nations. This section should be completed following the review period, as part of the final submission. The section may also elaborate on issues and initiatives regarding the public and First Nations involvement.

Subject to the district manager’s discretion, completion of this section is optional.

Unless otherwise directed by the District Manager in accordance with the Forest Practices Code, this proposed plan is the only opportunity provided to the public to comment on operational

plans. Within the 60-day review period, the public is strongly encouraged to obtain clarification on any aspects of the proposed plan. *Written comments specific to proposed Category A blocks and roads* are invited and will be reviewed and considered in any revisions to the proposed plan prior to submission for approval.

Should members of the public be interested in discussing details of assessments or operational plans that have not yet been detailed, they are strongly encouraged to document their interests or discuss them with the author of this plan during the referral period.

2. Strategic Plans

2.1 Higher Level Plans

2.1.1 List of Higher Level Plans

Under Section 10 (1)(d)(i) of the Forest Practices Code of British Columbia Act (FPC Act), an FDP must be consistent with any higher level plan (**HLP**) covering the area of the FDP. A higher level plan is an objective for a resource management zone, landscape unit, sensitive area, recreation site, recreation trail, or interpretive forest site.

The proponent should list the higher level plans that apply to the FDP and where these plans may be viewed. Duplication of HLP objectives is not required as specific direction effecting operations is discussed in the following section.

The Kamloops Land and Resource Management Plan (KLRMP) was declared a Higher Level Plan in January 1996¹¹. The KLRMP resource management zones, objectives, and strategies provided guidance in developing this proposed plan.

As required in Section 10(1) of the FPC this plan is consistent with the KLRMP. All proposed and approved Category “A” blocks brought forward in this plan are consistent with Section 20(1) and (2) of the Operational Planning Regulation (OPR).

Copies of the KLRMP documents are available for viewing at Slocan’s Vavenby Division or the Clearwater Forest District offices.

2.1.2 Measures to Address Higher Level Plan Objectives

As per Section 20(1)(b)(iv) Operational Planning Regulation (OPR), the plan must describe for proposed Category A cutblocks, the measures to achieve HLP objectives. For example, an HLP

¹¹ March 13, 1996 Letter of Transmittal from Province of British Columbia.

may state a wildlife objective pertaining to grizzly bear habitat. Relative to this, the FDP may state:

Cutting Permit A, proposed category A Cutblocks: 109 to 115 – an alternative silvicultural system (clearcut with reserve) has been proposed to allow for protection of spring grizzly bear habitat.

Measures to address higher-level plan objectives are identified in the measures to protect section (Section 3) of this plan and/or in the Category A Block issues section of this document (Section 7.4).

2.2 Other Plans

Discuss other plans which have influenced the preparation of the FDP, including: range use plans, other agreement holder's FDPs, or other plans of district or regional significance. A brief description of these plans and how they have been accommodated by the FDP should be given. Further details may also be discussed in the following section.

Other plans that have influenced the development of this plan are listed below.

TFL 18 Management Plan #9 (MP 9):

TFL 18 is subject to the guidance provided by Tree Farm License 18 Management Plan No. 9 approved on September 28, 2000.

MP 9 documents are available for viewing at Slokan's Vavenby Division offices.

Lakes Local Resource Use Plan (Lakes LRUP):

This plan developed by the Lakes LRUP Committee, was given effect by the District Manager – Clearwater Forest District on December 1, 2001. The purpose of the Lakes LRUP is to “provide guidelines for resource activities within lakeshore areas in Clearwater Forest District in consideration of other resource values such as fisheries, wildlife, recreation, tourism, and visual quality¹²”. The plan provides classification for specific lakes in the Clearwater Forest District, and guidelines for the management and integration of resource values within the Lakeshore Management Zone (LMZ) for each lake class. It is available for viewing at the Clearwater office of the Ministry of Forests.

Where development proposals encroached on the Lakeshore Management Zone, or plan commitments are made, it is noted in either Section 3.3, 3.4, or 3.6.

If operational information requires that the Lakes LRUP guidelines be revisited for any reason, Slokan will modify plans and seek approvals consistent with Section 3.3, items 31 and/or 32.

¹² August 1, 2001; Page 1, Clearwater Forest District Lakes Local Resource Use Plan

Other Licensee Forest Development Plans:

There are numerous forest licensees with operations adjacent to those of Slocan Forest Products. Within Slocan’s FL operations there are also partition cut non-replaceable forest licenses (NRFL’s) whose operations may influence Slocan’s planned developments.

Table 2.2-1: Adjacent Licensees

<i>Adjacent Licensee</i>	<i>FL A18688</i>	<i>TFL 18</i>
Tolko Industries	X	X
Gilbert Smith F.P.	X	X
Small Business Program	X	X
Interfor – Adams Lake	X	
Weyerhaeuser	X	
Gilbert Smith FP – NRFL	X	
Meeker FP – NRFL	X	
Simpco Development - NRFL	X	
Bell Pole	X	
Weldwood of Canada		X
Slocan – Valemount	X	

Approved plans of these adjacent licensees are considered in the development of this proposed plan. Potential development conflicts are reviewed in advance of the referral plan and/or resolved during the referral period.

Internal Plans:

Slocan Forest Products has internal planning tools to assist in locating blocks and roads to meet integrated resource management objectives. These plans may include total chance plans, visual resource assessments, 20-year timber supply plans (TFL 18), watershed assessments, hydrologist reviews, access management plans, and other resource documents. While these plans do not form part of this proposed plan, they are used in addition to agency policy and direction as background information for assessing and integrating resource management values in the placement of roads and blocks.

3. Measures to Protect Forest Resources

Section 10(1)(c)(ii) of the FPC Act states that the forest development plan must specify measures that will be carried out to protect forest resources. The definition of forest resources, without limitation, is provided under Section 1 of the FPC Act.

Discuss the various forest resources for the planning area, identify issues that pertain to those resources, and state the objectives, management strategies and measures to protect the resources, as required under the FPC Act, and subsections 18(1)(t) - (x) and 20(1)(b)(iv) of the OPR. Note, in accordance with the regulation, not all resources require statements regarding management strategies or objectives. However, in accordance with the FPC Act, measures to protect should be specified for each forest resource, applicable to the area of the plan.

In specifying these measures the proponent should avoid statements that reflect compliance mandated by the legislation or regulations and focus on providing direction to the silviculture prescription.

The following format should be used for each forest resource listed below.

- a) Identify and describe the resource and its protection issues
- b) Discuss the objectives, strategies or measures as required in the OPR, only where indicated
- c) Specify measures and action that will be taken to address the issues (and management objectives or strategies, where stated) as required in the FPC Act

For example:

Water

Issues

Resource protection issues associated with water are centred on preservation of water quality for the various areas of operation proposed in this plan. There are no community watershed areas under this plan.

Measures to Protect

Timber

Issues - Forest Health

Recent forest insect and disease surveys (FIDS) have shown an active spruce beetle infestation in the valley bottom spruce stands of the X Creek drainage.

Management Measures

As follow-up to the forest health survey (FIDS) work, a forest health assessment completed this past field season for the X Creek drainage. This assessment has led to the following management measures to address this spruce beetle infestation:

Harvesting priorities will be first on spruce stands where the beetles are active, and second adjacent susceptible stands; [cutblocks 192 - 195, and 218 - 221, respectively]

Salvage harvesting will also be done on stands that no longer have living broods, [cutblocks 202 and 203]

The silviculture system will be clearcut harvesting, with partial cutting used for sanitation harvesting of smaller isolated outbreaks, etc.

3.1 Timber

Introduction

The Timber objective specified in the Kamloops LRMP is:

Maintain and/or enhance the sustainable supply of timber.

The FDP illustrates and documents proposed harvesting, road construction, road maintenance, and road deactivation (first 3 years) for the period of the plan. In addition, measures to protect an array of forest resources are described. The measures outlined throughout this plan are developed with the goal of meeting the objective above in addition to other objectives detailed in other sections.

This section of the plan describes issues, management measures and measures to protect the timber resource from destructive natural agents. It has been expanded to cover four primary forest health concerns and one general category. At the end of the section is an outline of how Slokan proposes to process and prioritize salvage operations.

Blocks proposed in this plan that have forest health issues associated with them, at the time of plan development, are listed below.

Table 3.1-1: Blocks with Identified Forest Health Issues

<i>Block</i>	<i>Location</i>	<i>Confirmed Forest Health Concern</i>	<i>Suspected Forest Health Concern</i>
N113	Mt. McClennan	IBM – green attack, IBB, Snow breakage, Windthrow.	Armillaria, IBD – green attack
L103	Skwilatin Mtn.	IBM – red attack	IBM – green attack, IBD, Armillaria
R111	Molliet Cr.	IBM – red attack, Windthrow	IBD – green attack, Armillaria
D103	Canimred Cr.	Windthrow	IBS – green attack
M102	Canimred Cr.	Windthrow	IBS – green attack

S223	Chuck Cr.	Windthrow, IBD – green/red/grey attack, Armillaria	
R150	McClennan Mtn.	Windthrow, snow snap,	
R149	Raft River	Windthrow, IB	
D101	Franks Farm	Windthrow	IBS – green attack
M128	Moose Creek	Windthrow	
M133 M103	Moose Creek	Windthrow	
S155	Reg Christie	Armillaria	
B103	Wylie Creek	IBD – red attack	IBD – green attack, Armillaria, IBM – green attack.

To date cooperative efforts with the Ministry of Forests on the management of forest health issues has not required the District Manager to provide direction on forest health assessments. Risks to the timber resource as a result of forest health issues are outlined below followed by management and protection measures to reduce those risks. Management of forest health risk is important not only to protect the timber resource, but all forest resources. If left unmanaged, forest health factors can negatively affect a wide range of forest resource values (old growth, mule deer winter range, etc..) and jeopardize the ability to achieve the results of stand level operational plans.

Management and detection of forest health issues on TFL 18 is the responsibility of Slokan, while management of these issues on the FL is shared between Slokan, the Ministry of Forests, and other Licensees.

Issues – Forest Health; Insects

Discuss the issues related to forest health and protection.

Slokan’s FL and TFL operating areas contain an array of biogeoclimatic sub zones and tree species. While the mixed stands generally result in low overall risk for wholesale stand mortality due to forest health insects, on-going stand mortality levels do have the potential to reduce stand volumes to a point where they become uneconomic to harvest and regenerate.

On TFL 18, the primary risks to timber result from windthrow focused in the western portions of the TFL. Windthrow events are generally followed by an infestation of spruce bark beetle, which can spread and result in increased mortality in healthy spruce dominated stands. The focus of forest health management in the TFL is to manage windthrow risk and maintain a control program to check the spread of spruce bark beetle. Spruce bark beetle infestations are currently considered to be at a relatively low level, and the on-going trap tree program to target residual populations is being maintained on TFL 18.

On the FL, there are currently two forest health issues that play a dominant role in management regimes at the stand level.

First, an increase in the incidence of Douglas fir bark beetle has resulted in targeting forest management efforts in susceptible and infected stands of Douglas fir in the Interior Douglas Fir (IDF) and Interior Cedar Hemlock (ICH) biogeoclimatic zones; this is evident in the recent harvesting history in Sawfly Hills, Noblequartz Creek, Montanna Creek, and the Lolo Lake areas. An aggressive 2001 control program addressed the more heavily infested areas and early indications are it was successful in managing the populations and reducing the risk of epidemic infestation. The program will be continued in a more moderated form for the term of this plan.

Second, mountain pine beetle is being monitored on an on-going basis on the FL. While increasing in population to the north and west of the Clearwater Forest District, it is not a substantial threat to forest stands in Slocan's operating area at this time. Early detection of infestations and the implementation of control strategies are important to keep this forest health risk from becoming epidemic. To assist in this, mountain pine beetle susceptibility mapping is used to target stands for survey of potential infestation as well as to identify stands that may be prioritized for harvest due to stand susceptibility and proximity to existing infestations. Currently, a number of isolated endemic infestations are identified and managed through a salvage and control program based on strategies developed using on-site reconnaissance information.

Of lesser significance is Western Balsam Bark Beetle, which occurs in both license areas and is considered a low to moderate risk for population expansion. While populations are a concern, the rate of spread is relatively slow in comparison to other beetle species. This insect is more complicated to manage, as the wood properties and higher elevations normally associated with the Balsam fir host can lead to marginal economics in salvaging infected stems.

White Pine, or Spruce weevil is present in regenerating stands throughout Slocan's southern FL and TFL operations. While the presence has some influence on the silviculture system or harvest options for a site, the regeneration strategies implemented play a key role in managing this forest health risk. Management of this pest may have important implications on the long-term potential site productivity of regenerating stands with a high component of spruce.

Finally, Western Hemlock Looper populations have cycled down to endemic levels from the epidemic proportions seen in the early 1990's. Regional forest health specialists have stated that there are indicators this population is again on the rise, other than targeting susceptible stands no specific management issues are known at this time.

Management Measures – Forest Health; Insects

In accordance with Section 18(1)(t) of the OPR, where significant risks are disclosed by a forest health assessment under Section 13 of the OPR, provide the management measures to address the identified risks.

Assessing landscape level forest insect detection information is the first step in developing stand level management strategies. This initial assessment involves a review of the information with

the Ministry of Forests, and agreement on the division of responsibilities for identified sites. Through a series of steps, landscape level information is then refined to assess the risk to forest resources at the stand level. Where the collection of stand level information indicates an unacceptable risk from forest insects, detailed strategies for management are developed. These strategies may include immediate disposition of the infested timber through burning or salvage as outlined in under the Salvage section. Where the site treatment requires a prescription under the Forest Practices Code, strategies will be detailed in the Silviculture Prescription (SP). Strategies in the SP will be clear and measurable, giving direction to the type of treatment and timing.

The development of strategies to address forest health insects will consider provincial and regional direction, district guidelines and will include an assessment of the risk to the timber and other forest resources for the array of possible treatment options. The assessment of risk to the timber resource will include mapped stand susceptibility to insect attack, consideration of the cost/benefit of treatment, the rate of spread of the forest health concern, and implications of treatment on long term stand growth.

To determine stand level forest health risks, Slocan completes an assessment of each area of responsibility identified as a forest health concern. This assessment may be an informal field check to confirm the presence or absence of forest health factors, or may be formalized with a documented survey. In some extreme cases specialists may be contracted to complete detailed assessments and provide treatment options.

Measures to Protect – Forest Health; Insects

Provide measures to protect the timber resource and address the identified issues.

The protection of the timber resource from depletion due to forest insects will accomplish the following objectives:

Manage mature stands to reduce the risk of endemic infestations reaching epidemic proportions,

Manage the risk to regenerating stands from mortality and growth loss due to forest insects.

These objectives will be accomplished through implementation of the following strategies:

Detect forest health indicators early and input them into Slocan's annual forest health monitoring program. This will include:

Bi-annual forest health overview flights on TFL 18 to identify forest insect infestations,

Integration of Clearwater Forest District and Kamloops Forest Region forest health information into an annual monitoring program,

Integration of forest health information brought forward by Slocan staff during day-to-day activities, and

Close liaison with the Clearwater Forest District forest health officer in defining actions and monitoring responsibilities.

Utilize available information during forest development plan organization to assist in planning to address forest insect infestations.

Target susceptible stands of economic timber in the forest development plan,

Track progress in identifying, classifying, and acting on identified forest insect concerns.

Where recommended as a result of on-site assessment, expedite the development and execution of operational plans targeting the salvage of infested timber.

Where harvest cannot occur prior to flight, implement control measures that limit the spread of the infestation. This may include managing trap trees, bait trees, and/or single tree disposal.

Manage the harvest and transportation of beetle-infested timber to minimize the spread of emerging adult beetles.

Specifically for White Pine weevil:

Avoid regenerating stands to pure spruce,

Minimize brushing in stands prone to infestation,

Within seed transfer guidelines, move planting stock up in elevation and avoid moving it down in elevation,

In regenerating stands that are prone to infestation allow a higher component of deciduous species as acceptable for stocking.

Where the Ministry of Forests believes that forest health issues are not being addressed in a timely manner, they have the option under Section 106 of the Forest Practices Code of British Columbia Act (FPC) to order measures to be undertaken to control the forest health concern.

Issues – Forest Health; Root Rot

Two root rot species are prevalent throughout Slocan's operating area. *Armillaria* and *Phellinus* species have been assessed by the Ministry of Forests specialists as having a high probability of occurrence on mesic sites in certain biogeoclimatic sub zones. In addition to the two main species of concern *Tomentosus* root disease is a species of concern in spruce stands throughout Slocan's license area.

Subsurface identification of the extent of an *Armillaria* or *Phellinus* infestation is difficult, as the majority of infestations do not fully express themselves through above ground indicators. It is estimated that above ground indicators will reveal only 25% of the total of an infestation in the ICH, and 50% in the IDF biogeoclimatic sub zones.

The identification of these root rot infection centers plays a significant role in determining silviculture systems for the site, as the retention of individual and groups of stems in an infected stand can retain inoculum on the site, negatively influencing the long term productivity and ability to meet free growing objectives.

Management Measures – Forest Health; Root Rot

In accordance with Section 18(1)(t) of the OPR, where significant risks are disclosed by a forest health assessment under Section 13 of the OPR, provide the management measures to address the identified risks.

Management measures for root rot are directed by the current known probability of occurrence of root rot within local biogeoclimatic sub-zones. Table 3 below identifies these known probabilities. The forest development plan provides biogeoclimatic information on new blocks that will be used with Table 3 to define an initial assessment of risk to the stand for root rot infection.

Table 3.1-2: Probability of Root Disease Occurrence

<i>Biogeoclimatic sub-zone</i>	<i>Probability of root disease occurrence</i>	<i>Biogeoclimatic sub-zone</i>	<i>Probability of root disease occurrence</i>
ICHmw3	High	SBS (all)	Moderate
ICHwk1	Moderate	MS (all)	Moderate
ICHvk1	Low	IDF (all)	High
ICHmk2	High	ESSF (all)	Low

The prescribing forester will use the above information in determining the need for a more detailed assessment of the likelihood that a stand is subject to root rot infection. Assessments may range from a cursory field review of a stand to identify larger scale indicators of root rot infection, to increasingly detailed and structured surveys where the expression of root rot infection is difficult to determine, and that methodically records identified root rot infection centers.

Measures to Protect – Forest Health; Root Rot

The protection of the timber resource from depletion due to root rot will accomplish the following objectives:

Reduce the risk of growth loss in mature and regenerating stands that could be attributed to root rot infection.

This objective will be achieved through implementation of the following strategies:

Target stands expressing root rot symptoms in forest development planning,

Prior to the on-site assessment use Table 3 to assess the likelihood of the presence of root rot,

At the stand level identify the presence of any root disease and estimate the level of infestation,

Where root rots are present, avoid the retention of stems and partial cutting prescriptions. If retention is required, retention of stems in groups rather than individual trees is preferred.

When integrating other forest resource values develop prescriptions that cost effectively reduces the inoculum in the soil and minimize the potential for root rot to infect the regenerating stand. This may include one or more of the following options:

Prescribe stumping of infected sites,

Encourage the planting of a species mix,

Promote the retention of deciduous species as acceptable species in stocking the site,

Promote the planting of commercial species with less susceptibility to root rots¹³,

Reduce stocking density as appropriate.

Where other plan objectives are determined by the prescribing forester to override strategies to reduce inoculum levels, develop prescriptions that recognize the potential risk in meeting the requirements for a free growing stand.

Issues – Forest Health; Windthrow

Windthrow is an on-going issue with the primary areas of concern being TFL 18 and the southern portions of the FL. Management of this issue is important to meet forest health insect objectives, to minimize the cost of repeated stand entries, and to ensure other forest resource plan objectives can be met. Windthrow in this section includes stem breakage as a result of heavy snows followed by wind events.

The TFL is situated on a large plateau. The prevailing winds are known to be unpredictable and localized extreme wind events have occurred. As a result, windthrow was historically a naturally occurring event within mature stands; most evident on the wetter site series and in mature spruce stands. The risk associated with these stands blowing down is increased when openings are created.

The southern portion of the FL includes a wide range of topographic features that can increase the risk of windthrow events when openings are harvested on or near these features. As with the

¹³ Page 19, Table 1. Detection, Recognition and Management of Armillaria and Phellinus Root Disease in the Southern Interior of British Columbia. FRDA Report 179. September, 1991.

TFL, natural events have occurred, although usually less severe in scale. The wind patterns on the FL are more predictable than on TFL 18, and while windthrow does need to be managed, particularly in the Sawfly and McCorvie Lakes area, it is of relatively lower risk than TFL 18.

Management Measures – Forest Health; Windthrow

In accordance with Section 18(1)(t) of the OPR, where significant risks are disclosed by a forest health assessment under Section 13 of the OPR, provide the management measures to address the identified risks.

Management measures to address windthrow are implemented at two different stages.

After windthrow has occurred detection of the event is the critical to the timely implementation of control strategies. Slocan has combined management measures for windthrow detection into its annual forest health monitoring system. In conjunction with monitoring forest health insect issues, any windthrow event detected during flights or day-to-day field activities is placed in the system and addressed consistent with paragraph 1 of the Forest Health; Insects section.

The development of strategies to address windthrow events will consider provincial and regional direction, district guidelines and will include an assessment of the risk to the timber and other forest resources for the array of possible treatment options. The assessment of risk to the timber resource will include consideration of the cost/benefit of treatment, the rate of spread of any associated forest health concern, and stand susceptibility to further windthrow.

In addition to identifying existing events, Slocan also assesses windthrow risk at the stand level. Windthrow risk is assessed and management strategies developed during development of the SP.

Measures to Protect – Forest Health; Windthrow

The protection of the timber resource from depletion due to windthrow will accomplish the following objectives:

Manage activities in and adjacent to windthrown stands to reduce the risk of endemic insect infestations reaching epidemic proportions,

Minimize the risk of windthrow occurrence in new harvest openings.

These objectives will be accomplished through implementation of the following strategies:

For detection of windthrow events:

Detect windthrow events early and input them into Slocan's annual forest health monitoring program. This will include:

Bi-annual forest health overview flights on TFL 18 to identify windthrow events,

Integration of information brought forward by Slocan staff during day-to-day activities,

Close liaison with the Clearwater Forest District forest health officer in identifying issues, and defining actions and monitoring responsibilities.

Track progress in identifying, classifying, and acting on identified forest insect concerns, and

Where recommended as a result of on site assessment, expedite the development and execution of operational plans targeting the salvage of infested timber.

For addressing stand level windthrow risk, the following strategies are utilized in block location at the FDP stage and in SP's during development.

☐ In areas of high or moderate windthrow risk incorporate strategies to reduce this risk¹⁴. These may include:

Orient block edges to minimize the amount of edge exposed to known prevailing winds,

Locate block edges in drier well-drained soils,

Utilize natural internal features such as rock outcrops or slope breaks to locate windfirm boundaries, and

Avoid boundaries that have sharp corners or edges jutting into the block.

Review internal individual tree or patch retention strategies to ensure the risk of in-block windthrow is minimized.

In windthrow susceptible areas retain species a higher proportion of deciduous stems to minimize the risk of insect attack should windthrow occur.

For salvage of existing windthrow, assess the windthrow risk of the stand and place the salvage boundary at a location that reduces the potential for future windthrow to occur.

Measures to Protect – Forest Health; Other

White Pine Blister Rust is active in the ICH zones that contain a component of White Pine, primarily in the Raft River drainage. Infected mature White Pine mortality is high in these stands, however the risk to a reduction in overall stand volume is low as this species is a minor component. The presence of this forest health pathogen in a stand is important in identifying successful Silviculture Prescription regeneration strategies, and assessments are conducted at the SP stage to determine its' presence in a stand and the implications on regeneration strategies.

Spruce budworm has been identified in the central and western portions of TFL 18. This insect is a defoliator and, except in extreme cases of infestation, does not result in high levels of mortality. Primary species infested include Balsam fir and Spruce. Stands will be monitored and

¹⁴ Reference Windthrow Handbook for British Columbia, Research Program Working Paper 9401, 1994.

if the infestation exceeds levels acceptable to Slocan, control measures will be discussed with the Ministry of Forests.

Salvage

The objectives of the salvage program are:

To economically recover timber that is in imminent danger of being lost, degraded, or destroyed, or that should otherwise be harvested to control the spread of forest health insects, and

To plan salvage activities to minimize the likelihood of repeated stand entries as a result of similar forest health circumstances.

Subject to the timing and availability of detection and management information this objective will be achieved through prioritizing salvage harvest as follows:

Priority 1: Trees that are attacked by insects where the infestation will not only kill the infected trees but, if not harvested, the infestation will intensify and spread to a larger area.

Priority 2: Windthrow trees and other damaged trees that are highly susceptible to insect attack.

Priority 3: Trees that are damaged but where pest control is not the objective.

For areas that are harvested as minor salvage without a silviculture prescription the terms and conditions outlined in the Clearwater Forest District Policy¹⁵ will be followed. In any circumstances where activities are inconsistent with the policy the Clearwater Forest District will be notified of the difference and activities will not proceed until the variance from the policy is approved.

To achieve overall plan objectives, harvesting may incorporate undamaged timber adjacent to the salvage area, particularly where boundaries need adjustment to reduce further windthrow risk. Harvesting of salvage timber may not be subject to public review in certain circumstances. Where amendments to this plan are required, circumstances that would not be subject to public review are outlined in the Plan Amendment section on page 2 of this document.

Strategies implemented that harvest volume less than 2,000 m³ may be used to manage forest health issues. Harvest areas and the access associated with these strategies are not generally shown on the FDP and may not be subject to public referral. These areas may be proposed to manage small and scattered trap tree patches, the falling and burning of infected stems, or salvage of damaged or infested trees.

Fire and Fuel Management

¹⁵ Clearwater Forest District Policy, “*Terms and Conditions for Minor Salvage in Sensitive Ecosystems in Areas without a Silviculture Prescription*”, September 16, 1998.

Issue

Fire plays an important role in renewing and maintaining natural ecosystems. Prescribed fire may also be used as a site preparation tool or to reduce overall fuel loading in an area. Effective fuel management also assists in reducing the risk of non-recoverable timber losses as a result of unwanted or unplanned wildfire.

Measures to Protect

Within 30 days of completion of harvesting of a block, or when recently harvested blocks become snow free, a walk-through survey will be conducted to determine the level of fire hazard and associated risk. The assessment will be conducted in accordance with Section 30(1) of the FPC Forest Fire and Suppression Regulation. Unless debris piles from logging or site preparation activities are reserved for wildlife or other purposes, they will be burned within one year or when sufficiently cured. All burning will be conducted under the Ministry of Forests Burn Reference Number System.

3.2 Water

Issues

State the water management issues for the area under the plan, including community watersheds and domestic water supply concerns.

The Kamloops LRMP identified specific water resource and community watershed objectives to address issues important to the public. These objectives suggest that the maintenance of water quality and management of water quantity are the important issues in the integration of water and forest management activities. Management to achieve water related objectives are addressed in this section and the Fisheries and Riparian sections of this plan.

Slocan's operating area includes only two designated community watersheds, and no new operations are proposed in these drainage's at this time. Of the two, the Gill creek community watershed has been deregistered and an amendment to this effect has been put forward from the KLRMP to the provincial Cabinet. This watershed is being risk managed with the understanding that it no longer has community watershed status.

Water Quality Objectives

Where applicable, state the known water quality objectives for community watersheds, as per Section 18(1)(x) of the OPR.

At the time of development of this plan, the District Manager or Designated Environment Official had made no water quality objectives known. As a result, no specific water quality objectives are stated for the area under the plan. However, the Kamloops LRMP has stated water quality objectives specifically for Community Watersheds as follows:

The primary objectives for Special Resource Management - Community Watershed Zones are to:

- *maintain the quality and quantity of community water supply;*
- *minimize risk to lives and property from flooding and erosion; and*
- *maintain natural stream flow regimes within acceptable limits.*

Watershed Assessment

Describe briefly any completed watershed assessment required under Section 14. As per Section 18(1)(y)(i) of the OPR, the FDP must contain a statement that it is consistent with the results and recommendations of the assessment.

Note, where the FDP is inconsistent with a watershed assessment, a statement explaining this inconsistency as per Section 18(1)(y)(ii) of the OPR should be included under Section 5.1 - FDP Variances.

The Clearwater Forest District has developed a series of Tables providing District Manager direction for the completion of watershed assessments (WAP). The most recent listing, dated November 29, 2001, identifies watersheds in which Slokan is responsible for completing formal assessments or other defined processes. Where a watershed is listed for a formal assessment and it has not yet been completed, Slokan may apply for a variance if operations are planned in that watershed. All variance applications are in FDP Variance, Section 5.2.

Where Slokan has operations that fall within a watershed where responsibility for an assessment lies with another Licensee, Slokan is involved in the assessment process and uses the results of that work in any proposed operations in those watersheds.

Watershed assessments completed to date are listed in the following table. Where they are required to undergo some form of review or update, the date of review is noted.

Table 3.2-1: Summary of Watershed Assessments

<i>Watershed Assessment Area</i>	<i>Date of Recommendation</i>	<i>Three Year Anniversary</i>	<i>New Operations Proposed (Y/N)</i>
Brookfield Creek – TFL/FL	April, 1999	April, 2002	N
Canimred Creek – TFL	February 2001	February 2004	Y
Mann Creek – TFL/FL	October, 1999	October, 2002	Y
Gill Creek – TFL/FL	May, 2000	May, 2003	N
Lemieux Creek – TFL	May, 2000	May, 2003	N
Maury Creek – TFL	February, 2000	February, 2003	Y - minor

Avery/Foghorn Creek – FL	November, 2000	November, 2003	N
Candle Creek – FL¹⁶	March, 2002	March, 2005	N
Raft River – FL¹⁷	January, 1999	January, 2002	Y
Spahats Creek – FL	November, 2000	November, 2003	Y – road ch.
Lute, Jones, and Baker Cr. – FL	April, 2001	April, 2004	N
Reg Christie Creek – FL	January, 2002	January, 2005	Y – minor
Bone Residual – FL	November, 2000	November, 2003	N
Roberts Creek – FL	November, 2000	November, 2003	N
Burton Creek – FL	April, 2002	April, 2005	Y ¹⁸
Russell/Hasckaek & McDougall Creeks CW	April, 2002	April, 2005	N

Where operations are proposed in the watersheds listed above, this plan is consistent with the results and recommendations of the watershed assessments, unless a specific variance is requested in the FDP Variances section.

Measures to Protect

Specify measures to protect the water resource by addressing the identified issues and any water quality objectives for community watersheds

Measures to protect the water resource include activities directed at maintaining water quality and reviewing the potential influences of forest management operations on the timing of stream flows and the quantity of water.

Blocks that have specific water resource management issues and their measures to protect this resource include:

Table 3.2-2: Block Specific Water Resource Management Strategies

<i>Block – License</i>	<i>Status</i>	<i>Issue</i>	<i>Action</i>
TFL - I104, I105, I106	A	Aqua Creek – water resource issue	Hydrologist field assessment and report completed 2001

¹⁶ Draft completed – Recommendations not final.

¹⁷ Channel Assessment completed April 2002

¹⁸ Reference correspondence section; discussions to take place with other licensees during referral period.

		resource users	report completed 2001.
FL - N113	PA	Review proposal for any hydrology issues	Hydrologist preliminary field assessment completed 2002.
FL - R111	PA	Confirm downslope sensitivity of Raft River	Hydrologist review completed in 2002.
FL – S209	PA	Multiple licensee operations.	Through referral period meet with Licensees to coordinate approach to development.

At the broader landscape scale, watersheds may be assessed through the Watershed Assessment process to determine if there are any critical issues and/or to put in place a system to monitor future development. Critical issues are site-specific issues that require some form of treatment; an example of this would be a sediment source that requires vegetation or mechanical treatment that reduces sediment inputs. Subject to funding and responsibility, site-specific treatments are conducted during the course of normal operations.

As a forward-looking measure to direct forest management in watersheds a system may be put in place that creates an indicator threshold. If the threshold is exceeded, more detailed assessment work may be required prior to conducting operations. In most cases this threshold is developed through the WAP, which sets an equivalent clearcut area¹⁹ number. Forest operations proposed above this arbitrary number may result in an increased risk to water quality and/or quantity. In cases where this threshold is exceeded, Slocan will review the requirement for further assessments with Ministry of Forests staff.

Table 3.2-3: ECA Forecast for Watersheds with “red-flag” number

<i>Watershed</i>	<i>New Operations Proposed (Y/N)</i>	<i>Red Flag ECA</i>	<i>Forecast ECA from 2000 Plans</i>	<i>Forecast ECA (2006)</i>
Mann Creek North	Y	32%	30%	32%
Mann Creek West	Y	30%	30%	35%
Mann Creek Residual	Y	30%	26%	29%
Brookfield Creek	N	30%	25%	25%
Canimred Creek	Y	35%	32%	33%

¹⁹ Equivalent Clearcut Area (ECA) is the area that has been harvested, cleared or burned, with consideration given to the silviculture system, regeneration growth, and location within the watershed.

Maury Lake	Y- very minor	40%	30%	30%
Gill Creek	N	25%	19%	19%
Goodwin Lake	N	30%	12%	12%
Lemieux Creek	N	35%	20%	20%
Raft River	Y	25%	18%	18%
Avery	N	30%	27%	27%
Baker	N	30%	27%	27%
Bone Creek Residual	N	35%	26%	26%
Foghorn Creek	N	25%	24%	24%
Jones Creek	N	30%	30%	30%
Lute Creek	N	30%	37%	37%
Reg Christie Creek	Y	30%	28%	28%
Robert Creek	N	30%	26%	26%
Spahats Creek	N	20%	8%	8%
Burton Creek²⁰	Y	35%	26%	-
Russell/Hasckaek & McDougall Creeks CW	N	20/25/20%	12/24/17%	12/24/17%

Mann Creek North and Mann Creek West have proposals that result in the “red flag” ECA being exceeded²¹. Prior to submitting Silviculture Prescriptions for certain blocks²², Slocan will retain the services of a qualified hydrologist to complete a review of the two sub-basins and the implications on water resource objectives resulting from exceeding the “red flag” ECA. Detailed prescriptions for the blocks identified will be consistent with the recommendations of the hydrologist’s report.

The objective for protection of water resources is:

²⁰ Draft report completed - Recommendations are not final.

²¹ Forecast ECA in bold print.

²² Refer to Section 5.1 for specific block references.

To maintain water quality and manage water quantity within a management framework that safeguards human life, property and adequately manages and conserves aquatic ecosystems

In addition to WAP recommendations listed above and strategies outlined in the Riparian Management section, strategies that will be considered for application in developing prescriptions to protect the water resource include:

At the discretion of the prescribing forester, utilize the expertise of qualified professionals to assist in integrating complex forest management/hydrologic interactions in SP's,

Conduct road and trail activities in a manner that maintains natural surface drainage patterns,

Utilize low ground pressure equipment or prescribe seasonal restrictions in areas having wet or sensitive soils,

Prescribe “machine free” zones adjacent to sensitive moisture receiving sites and streams,

As required under FPC for operations, or as identified by Slocan staff, conduct field terrain assessments in terrain with indicators of instability upslope from streams,

As funding and priorities permit, carry out site-specific treatments in watersheds, and prioritize treatments that will contribute to meeting the stated objective, and

Monitor progress toward completion in carrying out site-specific treatments.

In addition to the above strategies, there are instances where domestic water licenses may be affected by proposed operations. Slocan relies on the public referral process to bring forward the concerns of domestic water licensees. In addition to this, there are instances where the prescribing forester identifies issues related to the integration of forest management and domestic water use. In these instances, the prescribing forester will engage in direct discussion with the domestic licensee on site-specific plans with the goal of integrating any domestic water licensee concerns into the final prescription.

3.3 Fisheries

Issues

Describe briefly the fisheries resource and identify fisheries related issues within the area under the plan.

Within the area under the plan there are a number of streams and lakes that are important fisheries resources. Fish species generally associated with the North Thompson River and its' tributaries include chinook salmon, coho salmon, sockeye salmon, rainbow trout, dolly varden, and bull trout. Fish species important to the recreational lake fisheries include rainbow trout, brook trout, kokanee, and bull trout.

Forest management issues associated with fisheries values include management of riparian resources (section 3.4), sediment control, water quality, quantity, temperature, and timing of flow (section 3.2 and 3.4); all of which can have some influence on the quality of fish habitat.

Bull trout, a “Blue-listed” species of fish, has been designated a Regionally Important fish species, and bull trout concentration sites are part of the Identified Wildlife Management Strategy (Vol. 1). To date no concentration sites are pending for designation as Wildlife Habitat Areas. On May 3, 2002 the federal Committee on the Status of Endangered Wildlife in Canada (COSEWIC) announced that the Interior Fraser coho, which includes the Thompson coho, have been listed as endangered.

Measures to Protect

Specify measures to protect this resource.

Higher-level plan objectives for fish specified in the Kamloops LRMP that directly influence this section of the plan include:

For inland fisheries:

Maintain or increase the natural production of spawning streams through habitat protection measures (i.e. streamside management) and enhancement activities.

For anadromous fisheries:

Avoid irreversible human-made changes to fish-producing habitats, and

Maintain the physical and biological diversity of fish habitats.

Measures to achieve these objectives will include those measures outlined below, and outlined in the Water, Riparian, and Recreation sections.

The Clearwater District Stream Classification Maps (default stream classification maps MoELP, March 2000) will be used as riparian assessments for stream classification at the FDP planning stage. These classifications are represented on the associated 1:20000 FDP maps. Although default stream classifications will be used in forest development planning, streams will be managed consistent with field-confirmed stream classifications as outlined in the Local Area Agreement (as amended from time to time) presented by MoELP on June 14, 2000. Variances from the default classification will be noted in the riparian classification associated with the silviculture prescription.

In addition to the above, strategies which may be implemented to protect the fisheries resource include:

Consulting with the Department of Fisheries and Oceans (DFO) and the Ministry of Water, Land, and Air Protection (WLAP) on development that could potentially impact known fish habitat adjacent to or downstream of proposed developments.

Taking all reasonable measures to avoid sediment entering streams that are associated with harvesting, road construction, maintenance, deactivation, and silviculture activities by:

Planning works to minimize sediment input into streams,

Avoiding works during periods of high seasonal peak flows,

Maintaining natural surface water drainage patterns,

Curtailing operations during periods of high precipitation, or

By implementing proven sediment control measures during work activities.

When installing stream crossings on fish-bearing stream reaches ensure the crossing does not constrict the stream flow or the installed structure does not result in barriers to fish.

Install stream crossings within the work windows specified in the document “Establishment of Instream Work Windows and Terms”, September 5, 2000. Should any variance to the work windows be required, it will be submitted in accordance with that document.

Management for fish bearing lakes is addressed in Section 3.6 Recreation.

3.4 Riparian Management

Riparian management covers several resource issues including wildlife, water quality and fisheries.

Issues

Discuss the riparian management issues affected by the operations presented in the plan.

Riparian management practices can affect a wide variety of forest resource management values associated with streams, wetlands, and lakes. Refer to sections associated with windthrow, water, fisheries, wildlife, and biodiversity for more information on these values.

Riparian management influences water quality and as a direct result, can have an affect on the health of the fisheries resource and the supply of potable water. Stream channel stability may also be influenced by riparian prescriptions depending on management strategies for such things as windthrow, large woody debris input, its’ recruitment, and maintenance of stream bank stability.

Riparian management areas also tend to exhibit a higher diversity of plant and animal species, making them important habitat contributors to stand and landscape biodiversity. The management of riparian systems in relation to the surrounding landscape influences the spatial distribution of biodiversity values and can affect species movements.

An important issue raised previously by the Department of Fisheries and Oceans (DFO), has recently been brought forward for further discussion. The original direction from DFO was to

change management on S4 streams and S5 and S6 direct tributary to fish bearing streams, from practices currently recommended in the Riparian Management Area Guidebook to those that DFO believes will best manage for the resources under their mandate. This issue is substantive and complex, and requires further discussion at Regional and/or Provincial levels. Any change to management strategies adopted as a result of these discussions will be considered in the development of future operational plans.

Issues related to management flexibility in these riparian systems for non-riparian values include operational cost and constraints, forest health concerns, safety, and range values.

General Objectives

Within this section, the proponent must state the general objectives for riparian management zones, including the range of basal area retention by riparian class, as per section 18(1)(v) of the OPR.

The Kamloops LRMP objective for riparian management areas is:

Maintain and/or restore the integrity and function of streamside riparian vegetation to provide for bank and channel stability, long-term supply of large organic debris, suitable stream temperatures and input of nutrients.

Slocan has expanded the scope of riparian management in this section and the general objective for all riparian management areas in Slocan's operating area is:

To mitigate the influence of forest management on streams, wetlands and lakes, adjacent vegetation, fish, fish habitat, wildlife, and wildlife habitat.

As stated in the Riparian Management Area Guidebook (December 1995), "Given the high degree of variability in site conditions within riparian management areas, it is not possible to provide a single prescription suitable for universal application. Site-specific decisions must be made regarding the appropriate level of retention within riparian management zones and the types of trees to be retained. Such factors as (other plan objectives), topography, (operational constraints), and windthrow hazard will determine the best management practice on a site-specific basis²³".

Basal area²⁴ retention levels in riparian management zones will be managed for the forest development plan area in its entirety, not on an individual block basis. The maximum level of basal area retention for each riparian class within and immediately adjacent to cutblocks is listed below and based on the Riparian Management Guidebook (December 1995). The suggested guidebook levels of basal area retention are considered maximum levels and are not used as target retention levels by block.

²³ Page 31. Riparian Management Area Guidebook, 1995.

²⁴ For the purposes of this document basal area is defined by stems >12.5 cm diameter at 1.3 m.

Table 3.4-1: Basal Area Retention

Stream	S1	S2	S3	S4	S5	S6	All wetlands & lakes combined
Maximum Basal Area Retention (0% to ..%)	50%	50%	50%	25%	25%	5%	25%

These maximum landscape levels were developed for broad application across the province. Local variation may occur as a result of District Manager direction or recommendations from a hydrologist.

Measures to Protect

Indicate the measures to protect the riparian management areas relative to the issues identified and the general objectives for the riparian management zones.

The specific objectives of Slokan Forest Products in Riparian Management Areas with reserve zones are to:

Reduce the risk of windthrow or other damage to vegetation within the riparian reserve zone, and to

Retain important wildlife attributes including wildlife trees, wildlife habitat features, and coarse woody debris.

The specific objectives of Slokan Forest Products in Riparian Management Areas without reserve zones are to:

Retain sufficient vegetation along streams to provide shade, organic material inputs, maintain natural channel and stream bank stability, and to

Retain important wildlife attributes including wildlife trees, large trees, wildlife habitat features, and coarse woody debris.

Variables affecting the levels of retention in the Riparian Management Zone include, but are not limited to the following:

Windthrow risk

Forest Health

Fisheries values

Local climate

Licensed water users

Large woody debris needs

Wildlife habitat features

Tree species present

Stand structure

Actual basal area will vary with site conditions and consideration of factors such as fish presence, terrain hazard, risk of sediment delivery, stream temperature sensitivity, stream bank stability, cutblock size, silviculture system, and wildlife habitat.

Consideration will be given to locally higher levels of retention adjacent to high value fisheries streams, tributaries to high value fish streams, streams where shading or retention is important for fish habitat, and where stream bank destabilization is a concern.

Riparian management prescriptions will be guided by the *best management practices* as defined in the *Riparian Management Area Guidebook, 1995*. Due to the natural variability associated with the different locations of the riparian management areas, each will be assessed and managed on a site-specific basis. Silviculture prescriptions will contain pertinent site-specific information concerning proposed target retention levels in riparian management areas. Measures to protect riparian values can include:

Directional felling

Creek cleaning of debris

Establishment of 5 meter no machine buffers

Designating stream crossings

Balancing cross-stream yarding operations with road construction options to minimize the overall impact of operations on riparian values.

In the Canimred watershed on TFL 18, Slokan has committed to a short-term variance from S6 stream retention levels. In this watershed S6 streams will be managed consistent with S4 stream retention strategies as identified in the Clearwater Forest District Policy/Procedure – July 15, 2000.

Retention within riparian management areas associated with lakes classified through the Lakes LRUP will be managed consistent with commitments in the Recreation section (Section 3.6) of this document.

3.5 Wildlife

Issues

Describe briefly the wildlife resources including forage and associated issues for the area under the plan.

Wildlife and their associated habitats are found throughout Slocan's operating area. While wildlife resource values range from microscopic to large mammal species, forest management activities give special consideration to the larger mammals and identified species at risk. For additional considerations on management for wildlife habitats, refer to the Fisheries, Riparian, and Biodiversity sections.

Wildlife species identified in the Kamloops LRMP as the focus for forest management planning are red & blue listed species, regionally important species, Mountain Caribou, Mule Deer, and Moose. The provincial Identified Wildlife Management Strategy has been implemented and provides direction for management of listed species. At the time of writing of this plan no Wildlife Habitat Areas have been established in the Clearwater Forest District that would require management in accordance with the Identified Wildlife Management Strategy.

In addition to the species listed above, there are species of interest locally that do not have management objectives specified through the LRMP. These species include Grizzly Bear, Northern Goshawk, Mule Deer and Moose (outside General Management Zones), and Mountain Goat. Management for these species will focus on site-specific measures developed in consultation with wildlife biologists, measures listed below, and/or strategies described in the SP.

Objectives for Known Ungulate Winter Ranges

In accordance with Section 18(1)(w) of the OPR, the proponent must state the known objectives for ungulate winter ranges within the area under the plan.

The Kamloops LRMP provides objectives for specific wildlife species through the mapped identification of general management zones (GMZ's) and special management zones (SMZ's). These maps are available for viewing as described in Section 2.1.

In Slocan's FL operating area there are two GMZ areas identified as Critical Mule Deer Winter Range encompassing low elevation south aspects in the Clearwater – Vavenby Thompson corridor, and lower reaches of the Raft River. The HLP objective for this zone is to:

Maintain or enhance forage production and habitat requirements in critical deer winter range.

For GMZ's that overlap both TFL and FL boundaries, the objective for Critical Moose Winter Range is:

Maintain thermal and visual cover for moose, and enhance browse production.

In certain instances, wildlife values warrant added emphasis. In these cases Special Resource Management Zones (SRMZ's) were created. For Special Resource Management Zones, the overall objective for habitat and wildlife management areas is to:

Maintain or enhance identified wildlife habitat areas.

In Slocan's operating area there are two SMZ's; one for North Thompson Caribou and one for Moose in the Skwilatin mountain area.

The overall objective for the North Thompson Caribou Habitat Resource Management Zone is to:

Maintain a viable population of caribou within defined ranges, while maintaining ecosystem health.

The objectives for management within the Skwilatin Wildlife Habitat Resource Management Zone are to:

Maintain the natural diversity of plant and animal life.

Maintain or enhance forage production and habitat requirements in critical moose winter range.

Measures to Protect

Discuss the measures to protect the wildlife resources and associated issues.

If there are any known ungulate winter range areas under the plan in accordance with Section 20(1)(b)(v) of the OPR, the proponent must state the measures for the management of these areas. List the proposed Category A cutblocks impacted by known ungulate winter range areas and state the measures or actions that will be taken to uphold the objectives for these areas.

Management prescriptions for those species associated with a management zone in the Kamloops LRMP are required to follow the strategies outlined in the LRMP document. Wildlife management outside these areas is not similarly restricted, and the prescribing forester may develop alternative strategies to achieve wildlife management objectives. These strategies may include:

Minimizing all season access opportunities after harvest,

Scheduling activities to minimize the amount of open road on ungulate winter range during the winter months,

Where high value foraging habitat is identified and visible from a planned mainline or secondary road, consider implement strategies that screen the habitat from the road,

Within ungulate winter ranges retain thermal cover in proportions and locations appropriate for the species being managed,

Spatially distribute thermal/snow interception cover throughout a winter range in a way that provides maintenance of forage opportunities across the range over time,

Within ungulate winter ranges consider partial cut silviculture systems,

Encouraging mixed conifer and deciduous regeneration,

Minimizing brushing activities in winter range areas,

Consultation with wildlife biologists on site-specific management issues, and

Focusing retention adjacent to riparian areas while ensuring inter-patch distances for wildlife tree patches is maintained.

Blocks that fall within the known ungulate winter ranges and are subject to management consistent with Kamloops LRMP strategies are identified in the following table, along with measures for management of these areas.

Table 3.5-1: Proposed Blocks with Higher Level Plan Management Measures

<i>License and Block</i>	<i>Management Zone</i>	<i>Measures for management</i>
FL - L103	Skwilatin – Moose	Patch size & location, road deactivation, utilizing strategies in measures to protect
FL – R111	Raft – Moose	Patch size & location, road deactivation, utilizing strategies in measures to protect
FL – S155	Chuck Cr. – Moose	Road deactivation, measures to protect.
FL – CP 402 Blk. 1	Raft – Moose	Road deactivation, measures to protect, roadside screening.
FL – R149; windthrow	Raft – Moose	Road deactivation, measures to protect.
TFL – M103/M128/ M133, M107	Mann Cr. – Moose	Road deactivation, measures to protect.

In addition to specific winter range objectives, the Kamloops LRMP identifies general objectives for wildlife. These objectives are:

Ensure habitat needs of all naturally occurring wildlife species are provided for. Special attention will be paid to those red- and blue- listed species, as defined by BC Environment, and species designated as regionally important (e.g. Mule Deer).

Manage wildlife populations to meet both consumptive and non-consumptive demands within IRM goals and land capability.

Maintain hunting opportunities.

In a letter dated April 7, 1998 the Ministry of Environment, Lands, and Parks (MoELP) provided guidelines for the management of Grizzly Bear (blue-listed) and Mountain Goat (regionally important). The intent of these guidelines was that they are to be interim until more detailed

inventory and habitat assessment work was complete. In a second letter dated September 13, 1999, MoELP provided a list of drainages with grizzly bear activity and it is understood that the April 7th guidance is for application to these drainages. Where Grizzly Bear or Mountain Goat winter range or kidding habitat is identified through the FDP referral process, or where sites series identified in the letter are encountered, Slokan will consider the recommendations of the letter for incorporation into the SP.

Blocks having wildlife management issues as outlined in the previous paragraph include:

Table 3.5-2: Blocks with Specific Wildlife Management Measures

<i>License and Block</i>	<i>Species</i>	<i>Measures for management</i>
CP 186 – 1 and Block U109	Grizzly Bear	Prompt road deactivation to minimize mortality risk due to displacement and poaching. Bridge removal after primary silviculture activities is completed.

At the time of plan development, no specific red or blue listed species management issues other than those listed in this section, were noted. Where red or blue listed species are identified during field operations prescriptions will be developed that incorporate scientifically defensible management strategies for that species. A listing of red and blue listed species is available from the Conservation Data Center web site at <http://srmwww.gov.bc.ca/cdc/>

Wildlife Habitat Features

Issues

Discuss wildlife habitat features for the area under the plan respecting any sensitivity to location disclosures.

A wildlife habitat feature may include:

A significant mineral lick or wallow,

An active nest of a bald eagle, osprey, or great blue heron, or

Any other localized feature agreed to by the District Manager and Designated Environment Official.

A number of wildlife habitat features have been identified in Slokan’s operating area. These features remain unmapped at the request of the Ministry of Water, Land, and Air Protection. A number of these sites are inhabited with species listed in the Identified Wildlife Management Strategy, while others are specific features of importance, such as mineral licks.

Measures to Protect

Indicate the measures to protect these wildlife habitat features and their respective species.

When a wildlife habitat feature is made known or identified in the field, management strategies will be developed consistent with level of protection required for the feature. To date the strategies employed most frequently have been to incorporate the feature into the wildlife tree patch retention strategy for the cutblock or to adjust the road location to avoid the feature.

NOTE: Wildlife Habitat Areas are **NOT** to be mapped or described in detail if the district manager or designated environment official make it know the location is not to be disclosed. In this case only the name of the identified wildlife should be discussed.

3.6 Recreation

Issues

Describe the recreation resources for the area under the plan and issues associated with those resources. Recreation resources are defined in the Act as a recreation feature, recreation facility, scenic or wilderness feature or setting that has recreational significance or value. Issues pertaining to scenic areas may be discussed under Section 3.11 Other - Visual Resource Management.

TFL 18 provides the most intensively used all season recreation resource area in Slokan’s operating area. Wide ranges of opportunities exist, and use is enhanced by the proximity of the area to Clearwater and ease of access by an extensive network of logging roads. Recreation opportunities most common to the area are fishing, camping, hiking, hunting, mountain biking, horseback riding, cross-country skiing and snowmobiling.

There are currently 22 recreation sites on the TFL that are managed by the Ministry of Forests. These sites are indicated on the FDP maps. There is one fishing lodge located on Rioux Lake in the central portion of the TFL. This camps long history and ongoing dialogue with the owner ensures forest management activities are harmonized with their interests. Mahood Lake residents also make use of the TFL recreation resource on a regular basis and Slokan meets with this group annually to discuss recreation and forest management issues generally. There is also public use cabins located in various areas of the TFL. Slokan relies on the public referral process and on-going dialogue with local clubs to identify any proposals that may conflict with use of these facilities.

Slokan’s FL operating area contains similar recreation opportunities as the TFL, although more dispersed. In addition to the recreation sites under Ministry of Forests management, there are a number of public cabins used and maintained by local clubs.

<i>Location</i>	<i>Club</i>	<i>Use</i>
Clemina Creek Cabin	Sno-goers	Snowmobiling
Clemina Creek Cabin	Yellowhead Outdoor Recreation Association	General Recreation

Allan Creek Cabin	Sno-goers	Snowmobiling
Raft Mountain Cabins (2)	Clearwater Sno-drifters	Snowmobiling
Granite Mountain Cabin	Clearwater Sno-drifters	Snowmobiling

There is also a licensed commercial recreation presence throughout the FL area. Commercial operators and some of their activities include:

<i>Location</i>	<i>Commercial Operator</i>	<i>General Description</i>
FL – North	Mike Wiegler Helicopter Skiing	Heli-skiing, Heli-hiking, Hiking, Fishing
FL – South	Wells Gray Backcountry Chalets	Backcountry skiing and hiking
FL – North	Canadian Mountain Holidays	Heli-skiing, Heli-hiking
FL – South/TFL	Star Lake Resort	Fishing, Boating, Camping
FL – South	Taweel Resort Owners	Fishing, Boating, Camping

In addition to the public referral process and follow-up dialogue Slokan participates with members of the public in the Lakes LRUP. The LRUP provides direction to operations within the lakeshore management zones of classified lakes.

The primary issues arising from recreation interests and commercial operators are related to access management, timing of forest operations, and management of the visual landscape.

Measures to Protect

Indicate the measures to protect the recreation resources and address associated issues.

The objectives for general management of the recreation resources as defined by the Kamloops LRMP are:

Maintain or enhance opportunities for a diverse range of recreational values and uses across the biophysical settings of the Kamloops LRMP area.

Maintain and enhance ecological integrity in areas subject to resource impacts from recreational use.

For the Recreation and Tourism Resource Management Zone the additional objective is

To maintain and enhance tourism opportunities.

In reviewing the strategies associated with these objectives, appropriate local level planning is described as the approach supported to achieve these objectives. For the purposes of this plan appropriate local level planning will include:

Working through the public referral process to obtain comments and concerns on proposed plans from commercial operators, recreation users, and recreation clubs,

Working with these recreational resource users to identify strategies that successfully integrate recreational activities and harvest operations,

Manage the visual landscape consistent with commitments in Section 3.11,

In the Recreation and Tourism Resource Management Zones identified for remote access, work with the recreation and/or tourism users of the area to design access management plans that meet this objective.

Continue participation in the Lakes LRUP and with implementation of the plan.

Slocan’s participation and continued support for the Lakes LRUP meets the Kamloops LRMP objective for inland fisheries, that states:

Maintain a mosaic of angling opportunities within the recreational spectrum (i.e., walk-in lakes, drive-to lakes, trophy lakes).

Proposed and Approved Category A blocks that are within the lakeshore management zone of a classified lake are listed in the following table:

Table 3.6-1: Lakes with Development within Management Zone

<i>Mapsheet</i>	<i>Location</i>	<i>Tenure</i>	<i>Block</i>	<i>Lake Name</i>	<i>Lake Class</i>
82M051	Joseph Lk.	FL	F110	L3	D
82M053	Graffunder Lk.	FL	S156	L3	D
82M072	Silence Lk.	FL	CP 402 – 1	Silence Lk.	B
92P078	Windy Lk.	TFL	M120	Windy Lk.	A
92P078	Windy Lk.	TFL	M120	Earl Lk.	C
92P078	Windy Lk.	TFL	M120	White Lk.	C
92P078	Windy Lk.	TFL	M120	Smith Lk.	C
92P078	Windy Lk.	TFL	M120	Maggie Lk.	C
92P078	Windy Lk.	TFL	M120	Neil Lk.	C
92P078	Windy Lk.	TFL	M120	Long Lk.	D

92P088	Kitty Ann Lk.	TFL	D100	Kitty Ann Lk.	C
92P088	Johnson Lk.	TFL	I108	Johnson Lk.	C
92P089	Ejas Lk.	TFL	I107	Ejas Lk.	C
92P089	East Maury Lk.	TFL	CP 210 – 7	East Maury	B
92P089	Goodwin Lk.	TFL	CP 210 – 2	Goodwin Lk.	C
92P089	John Lk.	TFL	CP 210 – 2	John Lk.	C

If operational information requires that the Lakes LRUP guidelines be revisited or modified for any reason, Slocan will put forward the proposal and seek approvals consistent with Section 3.3, items 31 and/or 32 of the Lakes LRUP document.

3.7 Botanical Forest Products

Issues

Discuss briefly any botanical forest products for the area under plan and associated issues.

The Ministry of Forests, through the Forest Practices Code Section 104, regulates the collection and sale of botanical forest products²⁵. At the time of development of this plan, no resource management issues are known and no specific Crown collection activities have been identified for the area under the plan.

Measures to Protect

Indicate the measures to protect any botanical forest products and identify associated issues.

In the absence of known species and location information, specific botanical forest products do not have protection measures prescribed in this plan. General protection measures are provided through the spatial and temporal distribution of harvesting, combined with landscape level seral stage retention strategies. These strategies ensure a varied distribution of early, mid, and late seral herb, forb, and shrub communities across the landscape over time.

3.8 Range

Issues

Where applicable discuss the range resources including forage and identify pertinent issues for the area under the plan.

²⁵ defined in the FPC as “a prescribed plant or fungus that occurs naturally on Crown forest land”

There are currently 20 range permit holders licensed to use rangelands on portions of Slocan's operating area in TFL 18 and FL A18688.

Issues important to the management of the range resource and the interaction of range use and forest management include:

The interaction between range and forest licensee activities, and how these activities maintain and enhance the range resource while minimizing damage to regeneration from concentrations of cattle,

The removal of natural barriers to cattle movement as a result of forest operations,

The management of range fencing, including the installation and maintenance of range fences and cattle guards,

The invasion and spread of noxious weeds,

Deactivation and/or rehabilitation of roads systems useful to range tenure holders for range operations, and

Harmonizing harvesting, grass seeding, and reforestation activities with grazing use.

Measures to Protect

Specify the measures to protect this resource and address the issues described.

The Kamloops LRMP objective for the range resource applicable to this plan is:

Minimize tree/grass/cattle conflicts through integrated management practices.

Slocan cooperates with range tenure holders in joint planning of activities to minimize conflict between forest operations and grazing activities. The FDP public referral process is used to solicit comments from range tenure holders on issues associated with proposed development²⁶. In addition, Slocan staff maintains on-going informal dialogue with range tenure holders on issues as they arise. Range Use Plans are also referred to Slocan for review and comment.

Slocan employs the following strategies in managing expressed concerns:

Installation and maintenance of cattle guards and wing fences where natural barriers are removed as a result of forest management operations,

Repair and/or replacement of range improvements damaged as a result of harvesting or silviculture activities,

²⁶ In the past Slocan has referred SP's, however, this practice has changed as outlined in referral letters to the ranching community.

Block design strategies to assist in management of cattle movements,

Timing grass seeding of roads, landings, and right-of-ways to control noxious weeds,

Proposing harvest in areas where there is an identified benefit to the range tenure holder for short term use as rangeland, and

Contacting the range tenure holder when it is identified that cattle damage to plantations has reached levels unacceptable to Slocan, and working cooperatively to reduce the likelihood of continued damage.

Biological Diversity

Biological diversity is planned for incorporation into managed stands at both the landscape and stand level. At the landscape level, biological diversity is managed through the designation of Landscape units having an emphasis option²⁷ and objectives. Emphasis options provide increasing levels of older seral stage reserves from low, moderate to high emphasis. Within each option designation, the levels of old seral retention vary by natural disturbance type (NDT), which is determined by the natural processes that create stand-replacing disturbances within an area.

Natural disturbance types also relate information on the scale of disturbance. The patch size distribution varies by NDT, and directs the size and spatial distribution of forest development. In turn, the spatial distribution of forest development activities over time, combined with old seral retention and other management reserves, creates broad scale connections across the landscape.

At the stand level, biodiversity is managed through the implementation of wildlife tree, wildlife tree patch, coarse woody debris, and post harvest treatment strategies.

The Kamloops LRMP objective for Biodiversity is:

To conserve the diversity and abundance of native species and their habitats throughout the Kamloops LRMP, following upon direction provided by the Forest Practices Code Biodiversity Guidebook.

This objective will be met through management measures outlined in the Landscape and Stand level biodiversity sections below. Also reference the Riparian Management, Wildlife, and Fisheries sections of this plan.

Issues – Landscape Level

Discuss issues related to biological diversity for the area under plan.

²⁷ An emphasis option is a low, medium, or high designation given to a land area, which provides for varying degrees of risk associated with losing elements of the natural diversity of that landscape.

Issues related to Landscape level biodiversity stem from the direction specified in the KLRMP. The KLRMP has directed that to preserve the diversity and abundance of native species, management for biodiversity must follow the direction provided by the Forest Practices Code Biodiversity Guidebook. To date, only the Biodiversity Emphasis Options listed in appendix 5 of the document have been developed and by their inclusion in a higher-level plan, impact the development opportunities and objectives of this plan.

While Landscape Unit plans are in development, the Ministry of Forests has provided two interpretation letters directing how licensees are to consider draft Old Growth Management Areas (OGMAs) in their planning. Until objectives have been developed for landscape units, management for landscape level biodiversity will remain complex and to some degree interpretive. With the recent changes in Agency mandates, and the shifting of land use implementation to the Ministry of Sustainable Resource Management (MSRM), there has been a renewed interest in completing Landscape Unit plans for priority biodiversity elements. This process is expected to be completed in March 2003 and will provide greater certainty and flexibility to future forest development planning.

Management Measures – Landscape Level

Seral Stage Distribution

The Clearwater Forest District has published interpretations, policy, and procedures used to guide management for landscape level biological diversity until such time as they are incorporated into landscape unit planning. In the short-term, management measures for timber are directed to avoid compromising options for managing old growth while these plans are being developed.

Specific direction has been given to avoid placement of blocks in areas that may result in draft OGMA conflict. This was done to minimize OGMA trade issues while development of landscape unit plans is underway. This plan was developed following that direction, and few draft OGMA conflicts exist²⁸. As the on-going Landscape Unit planning process is scheduled for completion soon, these conflicts are put forward for approval without replacement, subject to conditions outlined below.

Table 3.9-1: Blocks having conflict with draft OGMA’s

<i>Map</i>	<i>Block – License</i>	<i>Status</i>	<i>OGMA area (ha)</i>	<i>Rationale for overlap</i>
82M 055	H106 – FL	PA	26.4	Development economics.
92P 080	B103 – FL/TFL	PA	81.2	OGMA Trade option to be addressed.

²⁸ There was no 2001 updated information provided for OGMA “trades”, so this information is based on the most recently published digital data from government agencies.

92P 079	M131 – TFL	PA	28.0	To facilitate operations.
82M 052	S218 – FL	PA	15.6	Recommendation from MoF/MoE 2001
82M 053	S159 – FL	PA	38.4	Recommendation from MoF/MoE 2001
Total:			189.6	81.2 subject to trade discussions

Blocks listed above contain draft OGMA’s. On completion of the current LRMP OGMA placement process, if these OGMA’s are removed from the block, that area will be open to normal harvest operations. If the OGMA’s within the block are retained for permanent establishment, these areas of the block will not be included in the block harvest area.

Some blocks may fall adjacent to draft OGMA’s but not be in conflict with them. During the March 14, 2001 agency roundtable for a previous plan, the reviewing agencies agreed that minor differences ($\pm 25m$ outside reserves) in mapped draft OGMA locations and field verified locations are acceptable variations. This plan proposes to maintain this interpretation, and in addition, proposes that should sound integrated forest management practice require adjustments to the draft OGMA boundary, these boundary adjustments will be rationalized in lower level operational plans. The intent of such adjustments would be boundary modification for such factors as windthrow and operational constraints, without reducing the overall size or intent of the retained draft OGMA area.

Patch Size

Patch size distribution is managed through the location and size of proposed blocks in this plan. Guidance is provided from the Ministry of Forests in the seral patch size target tables attached to a letter dated October 16, 2001. This interim guidance is deemed by the District Manager to be consistent with the Kamloops LRMP objective, and it is anticipated that more accurate and detailed information will be published on completion of Landscape Unit planning.

On TFL 18, forest estate modeling (FORUM – Forest Ecosystems Solutions) has been used to develop a twenty-year timber availability plan^{29,30}. This planning tool utilizes an optimization algorithm to test the interaction between competing objectives. The Clearwater landscape unit patch size distribution information was used in developing a spatial distribution of future block locations designed to move the landscape toward the desired future patch condition. The results of this modeling have been incorporated into this plan, subject to modifications for new or changed landscape conditions.

²⁹ Reference Chief Forester acceptance of model as providing a reasonable projection of timber supply. Page 10, October 25, 2000 Rationale for Allowable Annual Cut (AAC) Determination.

³⁰ Reference 20 Year plan document and Option 3 map, and also Page 38, October 25, 2000 Rationale for Allowable Annual Cut (AAC) Determination.

Blocks up to 80 hectares are proposed in some areas, and due to scale relative to larger patches, require consideration of a more limited set of factors than blocks exceeding this size. Blocks exceeding 80 hectares are placed and oriented in consideration of:

Higher Level Plan wildlife management objectives,

Hydrology resources and uses,

Terrain stability,

Ability to reduce open road densities after harvest,

Visual resources,

Adjacent harvest patterns and localized opportunities to reduce fragmentation,

Internal block species, structure, and land features, and

Landscape constraints that limit patch size options.

Issues – Stand Level

At the stand level there are three key biological diversity elements that are used in managed stands to meet the Kamloops LRMP objective. The elements addressed in this plan include implementation of wildlife tree, wildlife tree patch, coarse woody debris, and post harvest treatment strategies.

Management Measures

General objectives and measures to protect are specified for coarse woody debris and wildlife trees in the sections that follow. In addition to these elements, it is important to consider post-harvest stand treatments and how they influence biodiversity values in the short term and longer term. The following stand management strategies will be considered for implementation in the development of SP's and in planning regeneration and stand tending.

Avoid large scale vegetation management treatments, and focus on creating variability in stand structure and species within the regenerating stand,

Avoid extensive conversion of species (early to late seral species and visa versa),

Promote the planting of mixed species where site suitability permits,

Avoid site preparation in sensitive sites, and consider changes to stocking standards for such sites, and

Retain a component of standing deciduous species.

General Objectives - Coarse Woody Debris

As per Section 18(1)(u) of the OPR, the proponent must state the general objectives respecting the target levels for retention for coarse woody debris and wildlife trees for the area under the plan.

Consistent with OPR 18(1)(u) the KLRMP General Resource Management Zone section 2.1.3 guides the general objectives for Coarse Woody Debris³¹ (CWD). Specifically, the following objective and strategy relate to CWD:

Objective: Maintain natural stand attributes in managed forests.

Strategy: Employ stand-level biodiversity practices such as wildlife tree management.

In addition to the above, the KLRMP references the Forest Practices Code Biodiversity Guidebook (Biodiversity GB). This guidebook contains reference to the importance of CWD, and provides some recommendations for management.

At a lower level of planning, CWD objectives have not yet been set for Landscape Units (LU) identified through the KLRMP. In the absence of LU objectives guidance is taken from the Biodiversity GB, forest region, and forest district documents in developing general objectives and strategies for CWD.

For the Slocan Forest Products license areas, the General Objectives for CWD are:

In stands where harvesting activities are planned, manage the stand to retain coarse woody debris on site at volumes that consider the natural stand level dynamics in the Biogeoclimatic sub-zone being harvested.

In stands where harvesting activities are planned, manage the stand for the recruitment of coarse woody debris material over time through stand level retention of stems and groups of stems distributed consistent with direction provided in the Biodiversity guidebook.

Measures to Protect

To achieve the first objective, considerations in developing prescriptions include:

Retention of CWD is preferred as a random distribution of both large and small piece sizes across the block area. This is beneficial for diversity, as different organisms can benefit from different piece sizes in varying stages of decay.

A proportionally higher volume of CWD is preferred in riparian areas. CWD naturally deposited in streams provides in-channel structure beneficial to stream geomorphology and fish habitat.

³¹ For the purposes of this plan Coarse Woody Debris is defined as woody material in all stages of decay greater than 7.5 cm in diameter, and includes above ground logs, exposed roots, and large branches.

Larger piece sizes are preferred to smaller ones. Larger piece sizes generally take longer to decay, hold more moisture, and provide structure for a greater number and diversity of organisms.

A mix of species is preferred on site. Coniferous species provide preferred long term CWD structure, while deciduous species provide important short-term ecological site benefits.

It is preferable to retain CWD on site through harvest practices and also plan for recruitment of material over time through the on-block retention of standing live and dead trees singly, or in groups. Management for CWD should be planned in conjunction with other retention strategies (Wildlife trees, patches, and riparian management areas).

Variability of retention levels between stands is preferred at the landscape level. Consideration should be given the stand biogeoclimatic zone, natural disturbance pattern, tree species present, and stand history.

Retention of debris on site in piles will be considered in lieu of burning if the retention of this material does not create an unacceptable risk of wildfire or remove significant areas of forest land from production.

The objectives will be achieved with due consideration given to the following constraints:

Merchantable timber losses due to forest health will not be put at unacceptable risk through implementation of CWD retention strategies.

Stands will not be placed at an unacceptable increased risk for wildfire as a result of implementation of CWD retention strategies.

Regeneration objectives will not be compromised through implementation of CWD objectives.

Operational considerations that would assist in ensuring CWD objectives are met include:

Uneconomic wood resulting from harvest activities (breakage, limbs, tops, short pieces, or grade 3 or 5 logs) may be retained on site.

Non-merchantable snags felled as part of on-going harvest operations will be retained on site.

Stub trees may be created at varying densities through harvesting.

Rotting logs that are already on the forest floor will be left after harvesting.

Measures to recruit coarse woody debris in managed stands are outlined in the Riparian Management section and the Wildlife Tree Retention section.

General Objectives – Wildlife Tree Retention

Slocan Forest Products general objective for wildlife tree retention is:

To establish wildlife trees and wildlife tree patches consistent with the direction on retention levels, by Landscape Unit and biogeoclimatic sub-zone, provided in the Clearwater Forest District Policy “Wildlife Tree Patch Requirements and Procedures”, dated September 2, 1998.

Measures to Protect – Wildlife Tree Retention

Wildlife trees and wildlife tree patches will be planned for retention on a block-by-block basis. In planning retention strategies, the following strategies will guide location and distribution:

Retention strategies will be guided by the Biodiversity Guidebook, 1995 in developing distributions that link³² to each other using those landscape connectivity features important in the natural disturbance type,

Retained areas will be approximately 500 meters distant from each other. Patches and trees will be preferentially located adjacent to unique landscape or wildlife features,

Retention strategies will be designed to ensure forest health is not compromised and the likelihood of future salvage operations is minimized,

Preferred tree retention order is deciduous, uncommon species, wolf trees, deformed or damaged stems, and other species,

For cable harvest systems stem retention is preferred in clumps rather than individual stems, and

When a WTP is approved in a silviculture prescription, the information is placed on Slokan’s FDP maps to reduce the risk that an approved WTP will be harvested.

3.10 Cultural Heritage Resources and Archaeological Sites

Issues

Discuss issues related to cultural heritage resources and archaeological sites. Do not disclose locations of sensitive archaeological sites.

The Forest Act³³ defines the cultural heritage resource as an object, a site or the location of a traditional societal practice that is of historical, cultural or archaeological significance to British Columbia, a community or an aboriginal people.

The critical issues related to management for cultural heritage resources includes:

The development of strong, enduring working relationships with First Nations with regard to the sharing of information and on-going management of cultural heritage resources

³² Linkages are not meant to be mature corridors, but features that are distributed across the landscape as “building blocks”. They may include constrained and harvested areas.

³³ Forest Act, Chapter 157, Ministry of Forests' Consolidation – December 18, 2000

A coordinated and efficient government led process for working with First Nations to identify, document, and share information related to cultural heritage resources.

The timely identification of cultural heritage resource values and information for incorporation into operational plans.

Measures to Protect

Specify the measures to protect cultural heritage resources and archaeological sites.

Slocan Forest Products maintains direct and indirect relationships with First Nations through ongoing formal and informal meetings and discussion with Band representatives having an interest in Slocan's operating area. In addition, information is disseminated through a variety of formal licensee activities including Timber Supply Area, Forest District, and meetings with specific Band and/or government representatives.

Specific information regarding cultural heritage resources incorporated into this plan comes through two main sources. First, a number of bands in Slocan's operating area have completed Traditional Use Studies in their area of interest. This information is reviewed and considered in developing silviculture prescriptions.

Secondly, this plan is referred to First Nations for their specific input. The objective of this referral is to provide the First Nations with an opportunity to provide input concerning site-specific cultural heritage resource values and recommendations to the prescribing forester on how these values may be managed to ensure they are not adversely affected. This input will be considered in the context of other resource values and traditional interests. Modifications agreed to as a result of discussions will be incorporated into the final plan submission. Correspondence from the First Nations is included with the final plan submission so prior to making a determination on plan approval, the statutory decision maker is aware of this input and how it was incorporated.

In addition to the above, the Kamloops LRMP provides specific direction for management of the archaeological resource; a sub-set of the cultural heritage resource values.

The objective for cultural and heritage sites in the Kamloops LRMP is:

To protect archaeological sites in the LRMP.

The LRMP, using an archaeological overview assessment, specifies where on site field reviews are required to assess the presence of archaeological resource values. Blocks requiring such an assessment are indicated in Table 4.1 with a "Y*". If the field review recommends a more detailed survey, an archaeological impact assessment (AIA) will be completed by a qualified archaeologist. The results and recommendation of an AIA are incorporated into lower level plans such as silviculture prescriptions and road permits. These AIA's are not generally made available to the public.

Measures taken to protect cultural heritage resources also include actions at the operational level. Slocan woodlands crews attend cultural heritage resource workshops in addition to working with archaeological field crews to improve their understanding of identifiable cultural heritage features in the field. This training assists in identifying any sites that may not be identified by the processes described above. If Slocan field crews find cultural heritage features, they are assessed consistent with the Kamloops LRMP direction previously described.

Finally, any potential cultural heritage resource encountered during road construction or harvest operations will result in suspension of operations and notice of the site will be provided to the Ministry of Forests.

3.11 Other

Visual Landscape Management - Issues

The definition of forest resources is without limitation; where applicable the plan should describe other forest resources and issues for the area under the plan. For example:

Visual Resource Management

Where scenic areas have been established without visual quality objectives (**VQOs**) the person preparing the plan must identify the scenic area on the map, specify measures to protect the scenic resource (as per Section 10(1)(c)(ii) of the FPC Act). Recommended visual quality classes are not binding but may provide the licensee with an indication of what is appropriate to manage and conserve the resource.

Scenic areas with established VQOs are addressed at the silviculture prescription stage.

VISUAL LANDSCAPE MANAGEMENT IS A CONSIDERATION IN A SUBSTANTIAL PORTION OF SLOCAN'S OPERATING AREA.

ON TFL 18, A VISUAL LANDSCAPE INVENTORY HAS BEEN COMPLETED THAT PROVIDES ESTABLISHED VISUAL QUALITY OBJECTIVES FOR VISIBLE LANDSCAPES. THESE OBJECTIVES ARE ESTABLISHED AND SUBJECT TO VISUAL IMPACT ASSESSMENTS AT THE SILVICULTURE PRESCRIPTION STAGE.

LAKES ON THE TFL AND IN THE FL OPERATING AREA HAVE BEEN CLASSIFIED AS OUTLINED IN THE RECREATION SECTION. FOR THESE CLASSIFIED LAKES THERE IS A VISUAL QUALITY OBJECTIVE THAT APPLIES TO THE LAKESHORE MANAGEMENT ZONE SPECIFIC TO EACH LAKE; THE OBJECTIVE VARYING BY LAKE CLASS. THESE OBJECTIVES ARE NOT ESTABLISHED CONSISTENT WITH THE FOREST PRACTICES CODE, HOWEVER ARE BEING USED TO GUIDE VISUAL LANDSCAPE MANAGEMENT ADJACENT TO CLASSIFIED LAKES.

ON THE FOREST LICENSE OPERATING AREA, THERE ARE NO ESTABLISHED VISUAL QUALITY OBJECTIVES AT THIS TIME. VISUAL LANDSCAPES HAVE BEEN MANAGED TO DATE BY MUTUAL UNDERSTANDING BETWEEN THE LICENSEES AND THE MINISTRY OF FORESTS. IN 2001 A VISUAL LANDSCAPE INVENTORY WAS INITIATED FOR THE CLEARWATER FOREST DISTRICT. THIS INVENTORY IS DEVELOPING VISUAL QUALITY CLASSES FROM WHICH VISUAL QUALITY OBJECTIVES WILL BE DEVELOPED. THESE OBJECTIVES WILL BE MADE AVAILABLE FOR PUBLIC REVIEW AND

COMMENT, AFTER WHICH THE DISTRICT MANAGER MAY ESTABLISH THEM, SUBJECT TO THEIR CONSISTENCY WITH THE KAMLOOPS LRMP.

Measures to Protect

Specify the measures to protect the resources identified.

For the Kamloops LRMP the primary objective of management in Visually Sensitive Areas is:

To ensure that the levels of visual quality expected by society are achieved on Crown land in keeping with the concepts and principles of integrated resource management.

Measures to protect the visual resource include:

Completing visual impact assessments for areas currently within areas of established visual quality objectives, in addition to the non-established areas within the Forest District,

Using visual landscape rehabilitation techniques to re-design previously harvested landscapes,

Using landscape design techniques in putting forward proposed blocks in the Forest Development Plan,

Using landscape design principles in the development of in-block retention strategies for blocks in visually sensitive areas,

Consulting with interested parties or user groups in visual resource management issues and concerns, and

Monitoring the results of visual landscape design against the actual landscape condition after harvest.

4. Harvesting Section - Category a Cutblock Strategies

Road and block layout and design utilizes the concept of “total timber chance” planning. This planning considers road and cutblock configuration and system in developing an efficient transportation network and avoiding the isolation of timber values from future potential harvest.

Cutblock Issues Table (Optional)

This table identifies cutblocks which have notable planning or operational issues. It also outlines actions taken or proposed, to address the issues, and any critical timeframes. Completion of this table is optional. See Appendix 7.4 Cutblock Issues.

Harvest Summary Table

For the purposes of this plan, **partial cutting** means a silvicultural system in which only selected trees are harvested and includes:

- (a) seed tree,
- (b) shelterwood,
- (c) single tree selection,
- (d) group selection,
- (e) retention system, and
- (f) clearcutting with reserves

The majority of blocks proposed in this plan will likely use the **clearcutting with reserves** silviculture system. The final decision on the most appropriate silviculture system for a given site rests with the prescribing forester.

The harvest summary table catalogues block specific information required under Sections 18, 19, and 20 of the OPR. A number of entries in the table are not required components of the plan, however are included for clarity and ease of plan review.

Dates identified in the plan under the Timing “if critical” column are binding; blocks where this is not identified as a concern are open to development and harvest activities at any time on approval of this plan. Critical timing issues may be identified for any one of a number of forest resource management issues, including management for non-timber resources, forest health, access management, or watershed management. Any area noted as having critical timing issues are listed in Appendix 7.4 – Category A block issues.

Cutblocks listed in the harvest summary table are coded as either Proposed Category A (PA) or Approved Category A (A). Proposed A blocks are appearing, as defined in the table, for the first time in the plan, or have been changed in a way that requires them to be re-advertised as Proposed A blocks. These blocks are open to full public review and comment. Approved A blocks have appeared in previous plans and specific information has been carried forward unchanged from these plans. These blocks may also have an approved silviculture prescription, or may have been exempted from the requirement for one. Blocks with approved silviculture prescriptions are identified in **bold** type in the block and/or CP column of the table.

Proposed Category I blocks are also shown on this plan. These blocks are generally identified to provide the public an opportunity to review and comment on them prior to further development work being conducted. Comments received on all category I blocks do not have an influence on approval of this plan, however are considered in any work that may bring the block forward as a proposed category A block in the future.

Blocks proposed to address a specific forest health issue are identified in the table in brackets adjacent to the block status. These blocks may appear as Proposed A Salvage PA(PS), or Approved A (S) in the table. The same standards for review and comment apply to proposed A salvage blocks as other proposed A blocks.

The Harvest Summary Table itemizes by cutblock the information requirements of Sections 18, 19, and 20 of the OPR. Some of the entries presented in this table are not requirements of the regulation but make good business sense and are labeled as such in the End Notes .

Legend										For approved Category A Cutblocks on most recently approved FDP			
Current Category Status		Joint Approval MOF/ MOELP		Forest Cover	Harvest Method		Clearcut		Sec. 16/17 Terrain stability Field Assessments		Section 37 Assessments Completed? (indicate Y/N, NR for the following assessments)		
I	Information	HL P	Higher Level Plan	Best available information. For example, cruise or forest cover,	A	Aerial	Y	Yes	Y	Yes	T	Terrain Stability Field Assessment	
PA	Proposed A	CW	Community Watershed	Enter Species and Species Percent for up to five Species	C	Cable	N	No	N	No	R	Riparian	
A	Approved A	M	Mutual		GB	Ground Based			NR	None Required	V	Visual Impact	

			Consent									
C P	Cutting Permit Issued (A)	N	No		- / -	combination of more than one method					A	Archeological Impact Y* indicates a field assessment will be completed. If further assessment is recommended, it will be conducted as an AIA.
P S	Proposed expedited major Salvage (PA)										P	Pest Incidence Survey
S	Approved expedited major Salvage (A)										G	Gully

* NOTE: For new blocks proposed in Table 4.1, the assessment section has been completed for the proposed boundary location. The requirement for assessments may change based on final block boundary location.

5. Forest Practices Code Variances and Exemptions

This section highlights and explains variances from standards as allowed for in the legislation and regulations. The section is divided into three parts..

5.1 FDP Variance (or major portion of)

Provide rationale or explanation of variances that apply to the FDP in general or a major portion thereof. For example:

The statement required under Section 18(1)(y)(ii) of the OPR;
When the FDP is not consistent with the results and recommendations of a watershed assessment the proponent must explain the inconsistency and justify why the plan should be approved, in spite of the inconsistency.

FDP variances provided for in higher level plans, Section 9.1 and 10 of the FPC Act; and

Variance from the standard five year planning period, Section 3(3) of the OPR.

Act, Reg, HLP Reference	Variance & Rationale
FPC OPR 3(3)(d)	Variance from the requirement to place a full five years of timber volume into the Forest Development Plan for the period of the plan. Both Licenses propose in excess of four years of allowable annual cut in this plan. The current Old Growth Management direction and the location of "draft" OGMA's created a constraint on timber development, and to access these areas would have compromised longer term forest resource management options. With the completion of Biodiversity planning scheduled for October 2002 if this plan results in operational constraints, amendments can be submitted at that time. It is expected that a substantial area of Timber Harvest Landbase will be free from OGMA conflict after this process is complete.
FPC OPR 18(1)(y)(ii)	The Forest Development Plan is inconsistent with the results and recommendations of a watershed assessment; specifically recommendation #1 for West Mann Creek and North Mann Creek sub-basins which states "proposed harvest plans in the Mann Creek sub-basins are acceptable provided the following Red-flag ECA levels are not exceeded....West-sub Basin : 30%, North sub-basin 30%". Slocan has committed to proceeding with a hydrologist review of proposed new blocks M105, M106, M107 (west), M108, M109, M131 and M136 (north) and will be consistent with the recommendations of that review. In addition, in the Mann Creek drainage, Slocan has completed \$315,000 of mitigating watershed restoration work, ranging from assessments, deactivation, to fish restoration works.
FPC OPR 18(1)(y)(ii)	The Forest Development Plan is inconsistent with the results and recommendations of a watershed assessment; specifically the recommendation regarding a 30% Red Flag ECA in Lute Creek. This variance was approved in the 2000 – 2004 Forest License Development Plan, and no new proposals have been brought forward in this plan in the Lute Creek watershed.

5.2 FDP Exemptions

Provide rationale or explanation of variances that apply to the FDP in general or a major portion thereof. For example:

The statement required under Section 18(1)(y)(ii) of the OPR;
When the FDP is not consistent with the results and recommendations of a watershed assessment the proponent must explain the inconsistency and justify why the plan should be approved, in spite of the inconsistency.

FDP variances provided for in higher level plans, Section 9.1 and 10 of the FPC Act; and
Variance from the standard five year planning period, Section 3(3) of the OPR.

Act, Reg, HLP Reference	Exemption & Rationale
FPC Section 28(1)(a)(i)	Exemption from the requirement to identify areas in a Forest Development Plan, amendment, or the requirement for a Silviculture Prescription where trees will be felled and removed to eliminate a safety hazard. Through on-going operations trees will be felled along road rights of way and within cutblocks to comply with Workers Compensation Board regulations. Trees will be removed from areas adjacent to active operations, but felling and removal of such hazard trees will be limited to 1.5 tree lengths from the edge of the block or road right-of-way. No roads will be constructed to facilitate danger tree removal. No notice of these activities will be provided to the Ministry of Forests. This exemption request does not apply to riparian reserve zones or wildlife tree patches.
FPC Section 28(1)(a)(ii)	Exemption from the requirement to identify areas in a Forest Development Plan, amendment, or the requirement for a Silviculture Prescription where trees will be felled to facilitate the collection of seed. For the purpose of this exemption any seed collection operations will be limited to 1 hectare or less in size and not be contiguous with any other exemptions under FPC Section 28. No roads will be constructed within the collection area and where felled trees pose a forest health risk if retained on site, they will be removed. Any cone collection work will receive the written approval of a Forest Officer prior to proceeding. Activities under this exemption will comply with "Terms and conditions for Sensitive Ecosystems".
FPC Section 28(1)(a)(v)	Exemption from the requirement to identify areas in a Forest Development Plan, amendment, or the requirement for a Silviculture Prescription where trees will be felled to facilitate the entrapment of pests. This exemption is to provide flexibility in development of a trap tree program for the management of bark beetle infestations in advance of harvest approvals. The trap tree program will receive the approval of the Clearwater District Forest Health officer prior to implementation. For the purpose of this exemption any trap decks will be less than 1 hectare in size, less than 500 m ³ by volume, and not be contiguous with any other exemptions under FPC Section 28. Trap trees will be felled in the spring prior to the targeted beetle flight, and removed either when decks have reached pest holding capacity or prior to the following years beetle flight. Activities under this exemption will comply with "Terms and conditions for Sensitive Ecosystems".
FPC THPR 3(1)(a)	Exemption from the requirement to mark in the field wildlife trees and wildlife tree patches that are greater than 0.25ha. This exemption is to apply to wildlife tree patches identified in the silviculture prescription as lying outside of the proposed cutblock.
FPC Section 28(1)(a)(v)	Exemption from the requirement to identify areas in a Forest Development Plan, amendment, or the requirement for a Silviculture Prescription for harvesting of beetle attacked trees, windthrow, or high-risk windthrow trees that are within 1.5 tree lengths of a block boundary or road right-of-way. Such trees would be felled, subject to forest officer approval, on a site-specific basis. The volume harvested will be less than 500 m ³ on a specific block and the area would remain stocked after harvest. No new roads will be constructed to access trees felled. Activities under this exemption will comply with "Terms and conditions for Sensitive Ecosystems". Approval of the DEO would be obtained prior to the felling or removal of trees within the 1.5-meter tree length that may fall within a riparian reserve zone.

FDP Provisions

Act, Reg, HLP Reference	Block	Provision and Rationale
FPC OPR 11(3)(b)(ii)	TFL blocks: D102, D104, D105, M131, M136, M105, M106, M107, M108, I107, I110, M122	Blocks proposed are consistent with the spatial and temporal distribution of natural openings as defined by Tables from the Ministry of Forests, and dated October 16, 2001.
FPC OPR 11(3)(b)(ii)	FL blocks: H107, N113, S156, S159, S199, S209, B103, M120 and D100 additions ³⁴	Blocks proposed are consistent with the spatial and temporal distribution of natural openings as defined by Tables from the Ministry of Forests, and dated October 16, 2001. Rationales are provided where appropriate.
FPC THPR 9(2)(g)	R150, R149, D103, M128, S223, S155, D101, M102, M128, M103, M133, R111, L103, M123, M124, M125	Blocks proposed are located and designed to recover timber that was damaged by insects, wind, and other similar events. Where windfirm boundaries permit, these blocks will incorporate retention strategies that provide for the structural characteristics of natural disturbance. Reference section 3.1 for objectives for management for forest health.
FPC THPR 9(1)	S112	Block is revised from an approved A partial cut – patches to partial cut. It has been reduced in size to 40 hectares from 55. Block revision is to address concerns with originally proposed silviculture system and armillaria.
FPC OPR 11(3)(b)(i) (B) and THPR 9(2)(b)	CP 402 – Block 1	Block is proposed as category A, as the current prescription cannot be achieved and remain consistent with other objectives (windthrow, stand productivity goals, insect management). The block has already been partially harvested. The prescription for the stand will retain 40% or more of the pre-harvest basal area within the proposed boundaries and it will be evenly distributed throughout the block (even distribution meaning individual trees and patches strategically placed throughout the area to address other forest resource values).
FPC THPR 9(2)(f)	S209	Block is proposed consistent with the spatial and temporal distribution of openings as defined in Clearwater Forest District Policy. Harvest may be conducted if adjacent stand to east is not greened up.

5.3 Harvesting Variance

In this table provide an explanation of variances in standards that involve harvesting practices at the cutblock level.

For example:

³⁴ TFL 18 - M120 and D100 approved portions where approved under distribution associated MoF tables in 2001.

cutblock size (Section 11 of the OPR),

greened-up (Sections 18(1)(s) and 68 of the OPR), and the terrain stability requirements of Section 20(3)(c)(ii).

State the reasons for not having met the requirements of Section 20(3)(c)(i) of the OPR, and rationale as to why the FDP should be approved, in spite of not meeting those requirements

Licence No: [Enter]

CP/TSL	Cutblock ID	Act, Reg, HLP Reference	Variance & Rationale
[Enter]	[Enter]	[Enter]	[Enter]

5.4 Access Variance

Provide rationale for variations from standards that pertain to road construction activities and practices as permitted in the legislation and regulations.

No access variances are requested in this plan.

6. Access Management

Issues

Access management is becoming an increasingly important part of forest development planning. The development of access for forest management has the potential to influence the use and values associated with other forest resources.

The objective of access management is to:

Balance the requirement to access the land base for forest management while minimizing the influence of open access on other forest resource values.

6.1.1 Road Maintenance, Construction, Modification, and Assessment Table

Roads information requirements of the OPR are presented in tabular form in Table 6.1.1 for ease of review. These roads are also linked to the FDP maps. Roads are shown as Category I (I) Proposed A (P) or Approved A (A). Roads appearing in previously approved development plans and have not been constructed yet are shown as (A). Proposed A roads are subject to public review and comment, while Proposed I roads are provided for information only, and not subject to approval as part of the plan. A number of elements of Table 6.1.1 are not regulatory requirements³⁵, but are provided to facilitate the review of the plan.

Legend									
Type of Road		Type of Work		Bridge Type		Road Category		For roads approved on last FDP, Assessments under Section 4 and 5 of Forest Road Regulation Completed?	
RP	Road Permit Road	C	Construction	T	Temporary	I	Information	Y	Yes
FSR	Forest Service Road	M	Modification	P	Permanent	P	Proposed	N	No
						A	Approved A	NR	None Required

³⁵ * NOTE: For new roads in Table 4.1, the requirement for assessments may change based on final road location.

			Y*	Archeological Impact Y* indicates a field assessment will be completed. If further assessment is recommended, it will be conducted as an AIA.
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6.1.2 Interim Road Deactivation Table

Deactivation work is generally shown on the maps; however roads that require multiple levels of deactivation during the first three years of the plan are presented in the following table. The highest level of deactivation is to be shown on the map with further deactivation information provided in this table.

All road deactivation measures proposed for completion within the next three years are shown on the associated 1:20000 scale forest development plan maps. The highest proposed level of deactivation is shown on the maps and considers the timing of access likely for operations over the next three years. As the maps provide the currently proposed level of deactivation, no interim deactivation table is provided with this plan.

Generally, all roads will be deactivated within 3 years of harvest, so as annual harvest schedules change, deactivation planning also changes. Any deactivation change is reflected in future forest development plans.

On larger blocks, prompt deactivation is encouraged to manage wildlife values. The use of structures (gates/lock blocks) is discouraged in favour of prompt implementation of deactivation prescriptions.

The delay in completing deactivation work allows silviculture activities to be scheduled and completed on logged areas prior to implementation of the deactivation strategy. The level of deactivation reflects the needs of roads for future use, not only for forest management, but other resource uses including mining, ranching, forest health, recreation, and other forest uses.

All proposed deactivation will have the required deactivation prescriptions prepared and approved as identified in the Forest Road Regulation.

6.1.3 Level of Access Type

Section 18(1)(n)(v) of the OPR requires that the plan indicate the type of vehicle usage for the roads deactivated in the first three years of the plan. Vehicle usage following deactivation of the roads may be presented as follows:

Permanently deactivated roads: generally no vehicle usage will be possible following permanent deactivation.

Semi-permanently deactivated roads: will be left in a state generally suitable for all-terrain vehicles.

Temporarily deactivated roads: may be used by all-terrain vehicles, four-wheel drive vehicles and other vehicles as conditions permit.

Proposed Road Closures

From time to time, to manage resource user interests, it may be required to temporary or permanently block a road system from access. While this is normally accomplished with normal deactivation measures, there are occasions when a blocking structure is required. These proposed road closures are shown on the attached map set with permanent or temporary closure symbols.

6.2 Access Maintenance

Section 18(1)(m) of the OPR requires the road maintenance responsibility of the proponent to indicated using either a list or use map notation. These obligations generally pertain to roads that the licensee has under permit, either for its own operations or Forest Service roads. The appropriate method of submitting this information will be provided by the district manager.

It is suggested that if a list is the method of indicating road maintenance responsibility is to be used an extra column could be included in Table 6.1.1.

6.3 Seasonal Use Roads

Section 18(1)(l)(iii) of the OPR requires that the proponent indicate whether an existing road is the licensee's responsibility to maintain whether the road is intended for seasonal use only. Seasonal use refers to the design of the road as opposed to the actual time the road is to be used. If a road is designed for winter use this should be stated in this section of the plan. Roads should be considered as all season roads unless listed as winter roads.

The proponent should include a statement in the plan, for example, all roads for which the licensee is responsible to maintain are all season roads except for the following winter roads listed here.

All roads maintained by Slocan are considered all season roads unless otherwise noted on the maps. Some roads, primarily in-block roads shown on the maps may be built in the summer or winter dependent on harvest scheduling. If constructed in winter these roads are built using snow to minimize ground disturbance and they will be impassable during the summer months. Confirmed winter roads are shown as such on the attached map set.

Many of the roads shown on the attached maps may not be passable during the winter months unless snow is removed from the running surface. Snow removal will only occur where roads are

³⁶ To the best of the proponent's knowledge, this is a full and complete list of roads that are the proponent's responsibility to maintain.

tributary to winter harvest activities. Finally, to ensure the integrity of the road running surface is maintained, some roads may be closed on a seasonal basis; particularly in the spring. This is normally done to ensure the road surface does not become rutted and channel spring run-off down the road surface, resulting in the transportation of sediment to stream systems.

7. Appendix

Advertisements

As per the FPC OPR Section 30(a), the FDP must include a copy of the notices that were published under OPR Section 25, advertising the availability of the plan for public review and comment.

<i>Document Number</i>	<i>Document Name</i>	<i>Document Date</i>
1	Advertisement of proposed plan in North Thompson Times	April 29, 2002
2	Advertisement of Open House in North Thompson Times	Prior to Open House
3	Advertisement of proposed plan in North Thompson Times	May 6, 2002

Insert copies of newspaper advertisements (notices).

As per Section 30(a) of the OPR, the FDP must include a copy of the notices that were published to advertise the availability of the FDP for review and comment.

Review and Comment / Documentation and Referral

The following people, agencies, or groups have received notification of the availability of the proposed plan for public review and comment. The list includes interested members of the general public, other licensed tenure holders (ranchers, trappers, etc.), water resource interests, other forest licensees, government agencies, and others. Copies of the proposed plan have been provided to those shown with bold text.

Table 7-2.1 Referral letters for Slocan Forest Products FDP for TFL 18 and FL A18688

As per Section 30(b) of the OPR, the FDP must include a copy of each written comment received.

7.2.1 Letters

Document comments received in letters.

As per the FPC OPR Section 30(b), the FDP must include a copy of each written comment received with respect to the forest development plan. Copies of written correspondence received and responses to the concerns raised are indexed below.

<i>Document Number</i>	<i>Document Name</i>	<i>Document Date</i>
1	Gilbert Smith response to referral of blocks L103 and L104	April 10, 2002
2	Sample of referral letter to grazing tenure holders	April 29, 2002
3	Adams Lake Lumber request for feedback on blocks S209 and S223	April 16, 2002
4	Sample of referral letter to public/interest groups	April 29, 2002
5	Sample of referral letter to Adjacent Licensees	April 29, 2002
6	E-mail communication response from Adams Lake Lumber on blocks S209 and S223.	April 25, 2002
7	Referral to Gilbert Smith of blocks L103 and L104.	April 9, 2002
8	Sample of referral letter to licensed trappers.	April 29, 2002
9	Gilbert Smith response to discussions with Slocan on adjacency to Taweel operating area.	May 29, 2002
10	Response from Slocan to Hugh Graffunder, Warren McLennan and Jim Jackson documenting discussions and commitments related to block N113	June 5, 2002
11	Response from Mike Wiegeler Helicopter Skiing to office review of 2002 Forest Development Plan	June 25, 2002
12	Response from Wells Gray Chalets & Wilderness Adventures Ltd. to office review of 2002 Forest Development Plan	June 28, 2002
13	e-mail documentation of coordination of harvesting proposals in Burton Creek watershed.	June 28, 2002
14	Open House comments from Don Geiger	May 7, 2002
15	Open House comments from Don Shook	May 7, 2002

7.2.2 First Nations

Document comments received from First Nations.

As per the FPC OPR Section 30(b), the FDP must include a copy of each written comment received with respect to the forest development plan. To assist the Ministry of Forests in addressing consultation obligations, this section includes all correspondence sent to First Nations as well as comments received and Slocans response to the issues of concern.

<i>Document Number</i>	<i>Document Name</i>	<i>Document Date</i>
1 – 6	Introductory letter to inform Bands of pending submission of FDP	February 15, 2002
7	E-mail follow-up to telephone conversation with Jane Calvert (Lheidli T'enneh) regarding submission of digital data.	March 19, 2002
8	Initial response from Melvin Paul (Canim Lake Band) regarding interests in overview mapped proposals. Expression of interest in meeting May 8 th , 2002	April 11, 2002
9 – 14	Fax notice to First Nations regarding delay in FDP submission.	April 16, 2002
15 – 20	Cover letter to First Nations with interests in Slocan's operating area regarding FDP referral documents.	April 29, 2002
21	Fax letter from Lheidli T'enneh Band concerning referral of Slocan FDP.	May 31, 2002
22	Fax header to Ministry of Forest copying Lheidli T'enneh Fax to their offices.	June 3, 2002
23	E-mail note from Ministry of Forests confirming roles and responsibilities for responding to Lheidli T'enneh Fax	June 7, 2002
24	E-mail request for clarification of any standing agreement with Little Shuswap Band.	June 11, 2002
25	Summary of contacts made with Bands during FDP referral period.	June 26, 2002 & July 2, 2002

7.2.3 Agencies

Document comments received from agencies.

As per the FPC OPR Section 30(b), the FDP must include a copy of each written comment received with respect to the forest development plan³⁷.

<i>Document Number</i>	<i>Document Name</i>	<i>Document Date</i>
1	Submission cover letter of referral document to Reviewing Forester, Ministry of Forests.	April 29, 2002
2	Submission cover letter of referral document to DFO.	April 29, 2002
3	Submission of digital information to Ministry of Water, Land, and Air Protection.	April 29, 2002
4	Notice of Forest Development Plan referral period to Ministry of Sustainable Resource Management.	April 29, 2002
5	Notice of Forest Development Plan referral period to BC Parks.	April 29, 2002
6	Initial pre-roundtable comments from DFO (letter and spreadsheet) – no response from Slocan as they are captured in roundtable and supplemental spreadsheet.	May 27, 2002
7	Original of May 30, 2002 Roundtable meeting minutes	May 30, 2002
8	Supplemental e-mail and spreadsheet from DFO (with responses from Slocan)	June 4, 2002
9	MS Word documentation of May 30 th Roundtable minutes and actions taken by Slocan resulting in changes to the plan.	May 30, 2002
10	Clarification comments from Fire Protection Officer – no changes to the plan required but consider during plan development.	June 3, 2002
11	E-mail clarification of retention requirements and association to Biodiversity Guidebook Tables.	June 3, 2002

³⁷ Referral to Parks was done with standard referral letter.

It is recommended that all written comments received regarding a draft FDP be responded to in writing explaining the response to the issue or issues raised in the letter. These issues should also be outlined in tabular form with the response for the statutory decision makers review. A table for this has been provided on the next page.

7.2 Acknowledgement and Response to Comments Received Table

Comment Submitted by	Name: Hugh Graffunder – April 30 th , 2002 Address:
Issue	Discussed Block N113 in relation to interests in Woodlot and cattle. Clarified that “partial cut” did not equate to small patches, but large opening with wildlife tree patches.
Response	<i>1:20000 map provided to Hugh for review. Provided contact number if there were any questions. Follow-up meeting held. See document #10.</i>
Comment Submitted by	Name: George Briggs – May 6 th , 2002 telephone conversation. Address: Upper Clearwater River
Issue	Requested whether the proposed plan had any operations proposed on the west face of the Trophy Range.
Response	<i>Informed George that no current plans were proposed for that area, and that T101 was the only proposal close to his area of concern. Discussed potential for future development related to that area, but uncertain how it would be handled with the "results based" approach and legislative change.</i>
Comment Submitted by	Name: Sandra Lee (- daughter of Roger Devooght) ; May 9 th , 2002 telephone conversation. Address:?
Issue	Called to ask questions about forest development plan, obtained clarification on process. Asked some general questions of Chuck Creek area.
Response	<i>Informed Sandra that when she came to town she should contact me to discuss plans, and if timing fell outside of 60 day referral process, then we would treat</i>

	<i>any comments informally and forward to Development staff.</i>
Comment Submitted by	Name: Jim McWilliams, Mahood Lake Residents Assoc. ; May 14 th , 2002 telephone conversation. Address: Mahood Lake, BC
Issue	Jim requested an update on all blocks in 2002 plan that may affect Mahood Lake resident interests.
Response	<i>Informed Jim of logging completions, remaining logging, SP approvals on 3 CP 210 blocks, and status of development of I104 – I108, I110. Informed Jim of commitment in Category “A” block issues section to review SP for I104 – I106 with Mahood Forestry Committee prior to submitting SP for approval. Jim will be using this information to update the Mahood Lake Community and will get back to Slocan with a date for Forestry Committee meeting in July so any development feedback or other broader issues can be discussed.</i>
Comment Submitted by	Name: Sandra and Tom Lee – new holders of Roger DeVooght range tenure. Meeting in Slocan Offices June 26, 2002 8:30AM. Address: Box 43, Vavenby, BC, V0E 3A0
Issue	Sandra and Tom wanted to familiarize themselves with Slocan proposals in the area of their tenure between Baker and Lute Creeks. There was discussion on cattle management/reforestation obligations, grass seeding of blocks, range barriers, and general integrated management issues.
Response	No new blocks are proposed in the plan in their area of interest. To assist in managing cattle and harvest interactions there was agreement to notify Sandra and Tom of any harvest operations prior to start-up. This commitment is listed in the Category A block issues section.
Comment Submitted by	Name: Ian Eakins – Wells Gray Chalets. Reviewed plan in Slocan offices; June 28 th , 2002 Address: Wells Gray Chalets Adventures, Box 188, Clearwater, BC
Issue	Concerns with snowmobile accessibility and deactivation related to Block T101, trail to Trophy cabin, and future harvesting proposals within the area of T100 (Category I).

Response	<p>Concern for snowmobile accessibility is addressed in Category A Block issues table.</p> <p>Commitment to locate trail to cabin and future planning in the area of T100 will include Ian's interests when block T100 moves forward to Proposed Category A status.</p>
Comment Submitted by	<p>Name: Don Geiger</p> <p>Address: Box 407(?), R.R.#7, Clearwater, BC</p>
Issue	<p>Lake Access; Concern expressed that access should be provided to lakes that do not currently have access and are not subject to Section 105 closure, in order to balance fishing pressures on accessible lakes. See Section 7.2.1 Document #14.</p>
Response	<p>No changes to the plan are proposed, however comment will be considered in the development of future plans.</p>
Comment Submitted by	<p>Name: Don Shook</p> <p>Address: Vavenby, BC</p>
Issue	<p>Range management and silviculture prescription interactions. See Section 7.2.1 Document #15.</p>
Response	<p>Blocks and actions listed in Category A block issues table for follow-up through SP development process.</p>

7.3 Summary of Revisions

As per Section 30(c) of the OPR the proponent of the plan must submit a summary of all the revisions made to the proposed FDP at the end of the review and comment period.

The proponent of the plan examines the comments received from the agencies, public, etc., and as considered appropriate makes changes to the FDP, summarizes these changes and submits the plan for approval.

As per the FPC OPR Section 30(c), the FDP must include a summary of all revisions made to the proposed plan under Section 29(1). Changes are summarized and submitted with the plan for approval in July.

Revisions Table

To be developed on completion of plan referral and consideration of comment received.

Revisions to plan are noted in red print in a copy to the Ministry of Forests with “changes highlighted” function of MS Word turned on. The final submission is submitted with “changes highlighted” function turned off.

The proponent may wish to summarize the revisions to the plan following the review and comment period using the following optional table.

Cutblock or Road	Revision	Reason for the revision
[Enter]	[Enter]	[Enter]

Category A Cutblock Issues

The following table identifies proposed and/or approved blocks that have notable planning issues associated with them. It also outlines any actions to be taken, or follow-up required addressing the identified issue. To assist in review, the **bold** font is added to distinguish between new proposals (including approved blocks with changes), and approved A blocks.

Table 7-4: Block Issues Table

List any issues together with any action taken to meet objectives on a block by block basis in this optional table. Also list any time frames for completion if critical.

License	Cutblock	Issue	Action(s) & Timeframes
TFL 18	M120 <u>Proposed A</u> <u>Approved A</u>	Consistency with Lakes LRUP G/L's.	Approval in principle to vary from LRUP; from Lake LRUP committee. Meetings with LRUP committee – field trip to address windthrow required; to be done Spring 2002. Review of retention strategy with prescribing forester, and if requested, MWLAP representative. Refer SP to DFO prior to submission.
TFL 18	D100 <u>Proposed A</u> <u>Approved A</u>	Retention strategy within larger block.	Prescribing forester to review detailed retention strategy with reviewing forester prior to SP submission.
TFL 18	I104, I105, and I106 <u>Approved A</u>	Retention strategy to address hydrology concerns of SDM.	Professional hydrologist report completed in 2001 Review of plan with Mahood Lake residents association to be completed prior to SP submission. Focus retention strategy within Aqua Creek riparian corridor. Prescribing forester to review detailed retention strategy with reviewing forester prior to SP submission.
FL A18688	L104	Access and hiding cover	Develop access management system to minimize access to block on completion of planting (show deactivation strategy in future plan). Utilize placement of Wildlife Tree Patches to benefit hiding cover opportunities within block.

TFL 18 / FL A18688	B103 <u>Proposed A</u>	Retention within larger block. Forest health issue adjacent to park.	Forest Health: Coordinate Douglas fir trap decks within block prior to Douglas fir beetle flight.
FL A18688/ TFL 18	L103 <u>Proposed A</u>	Retention within larger block. Skwilatin Critical Moose Winter Range	Ensure roads are constructed to minimize disturbance in season of harvest and provide for effective and efficient deactivation to limit post-planting access. Utilize placement of Wildlife Tree Patches to benefit hiding cover opportunities within block. Confirm retention strategy with Planning Forester prior to initiation of fieldwork.
FL A18688	N113 <u>Proposed A</u>	Retention within larger block. Licensed Water users	Follow-up with further fieldwork recommended by professional hydrologist prior to SP submission.
FL A18688	R111 <u>Proposed A</u>	Hydrology and access control.	Address issues highlighted in Integrated Woods Services hydrology review document in SP. Ensure roads are constructed to minimize disturbance in season of harvest and provide for effective and efficient deactivation to limit post-planting access. Use in block retention to provide hiding cover in areas of high moose use
FL A18688	S209 <u>Proposed A</u>	Watershed review recently completed	Participate with other licensees in developing harvest strategy as it relates to S209 and potential conflict with other licensee proposals. June 2002.
FL A18688	U109 & CP 187-1 <u>Proposed A</u>	Grizzly Bear	Installation of temporary structure, prompt deactivation of road on completion of harvest and planting activities.

FL A18688	U112, U113, U114, U115 <u>Approved A</u>	Trapper concerns Caribou management	Confirm any block configuration concerns with the licensed trapper for the area prior to finalizing SP for submission. Minimize road widths to these blocks.
FL A18688	U111 <u>Approved A</u>	In-Block retention	Commitment from 2000 plan to harvest openings within boundary as between 2 and 12 ha, harvesting roughly 35% of the area within the larger boundary.
FL A18688	U101 <u>Approved A</u>	Opening size	Commitment from 2000 plan to limit total opening size to less than 40 ha.
FL A18688	U101, U102, U111, U103, U104, A015, A106, A107, G102, G103, G104, G105, U105, U113, U113, U115 <u>Approved A</u>	Timing of harvest and internal block configuration.	Commitment from 2000 plan for U101, 102, and U111 to time harvest activities to avoid conflict with spring skiing (schedule harvest after late April). Meeker has interest in utilizing U111 access. Review SP's with Wiegele heli-skiing prior to submission.
FL A18688	A100 <u>Approved A</u>	Caribou habitat	Block straddles LRMP general management zone and late winter caribou habitat. 28 ha opening that has 12ha overlap with later winter habitat is accepted.
FL A18688	C107	Fisheries	Assess management of backchannel habitat in Albreda and direct tributary. Important salmon habitat.
FL A18688	H100 <u>Approved A</u>	In-Block retention Windthrow	Windthrow areas existing within block are to be targeted for removal. Area is susceptible to windthrow Harvest approximately 35% of gross area within block.

			<p>In late winter habitat, harvest 50% of openings as clearcut up to 8 ha, and remaining 50% in small groups (10-12 stems/group)</p> <p>In early winter habitat use clearcut openings 5 – 15ha, and manage northern boundary of clearcuts for windthrow.</p>
FL A18688	<p>F103 and F189</p> <p><u>Approved A</u></p>	Water Quality and riparian management	<p>Commitment from 2000 plan to:</p> <p>Retain 20 meter riparian reserve on 2 Mile Creek</p> <p>For F189 maintain natural drainage patterns and minimize forest floor displacement.</p> <p>Contact CID prior to any road construction or modification.</p> <p>Use clear span or steel pipe to cross diversion ditch. CID to stop flow while span installed.</p> <p>Complete forest health assessment prior to SP development and configure patches to address forest health issues.</p> <p>Both blocks are to be developed with a “two pass” approach on the area within 1:200000 mapped boundaries. This is to be done to best meet visual quality objectives.</p>
FL A18688	<p>F110, F112, F113, F116</p> <p><u>Approved A</u></p>	In Block Retention	<p>For block F110, 2000 plan commitment is to harvest using clearcut up to approximately 38 ha with remaining area to be harvested as small groups, retaining more than 40% of the basal area.</p> <p>For blocks F112, F113, and F116 the area is to be harvested using small groups, retaining more than 40% of the basal area.</p> <p>For block F112, confirm stream class in field; possible S4.</p>

FL A18688	T101 <u>Approved A</u>	Timing of Harvest, Access, Visuals, Parks	<p>Winter harvest will be completed by December 15th.</p> <p>Jointly develop any access control measures with Parks and Wells Gray Chalets.</p> <p>Snow berms will be breached on completion of operations to allow snow cat access.</p> <p>Determine viewpoints for any visual analysis with Wells Gray Chalets.</p> <p>Review SP with Parks Branch prior to submission.</p> <p>Prescription to target approximately 35% of area for harvest, using dispersed patches of approximately 1 ha.</p>
FL A18688	S102, S113 <u>Approved A</u>	In Block Retention	Prescription to target approximately 35% of area for harvest, using irregular shaped openings 0.5 – 5.0 ha (average approx. 2 ha).
FL A18688	S125B, S131B, S132B <u>Approved A</u>	In Block Retention	SP to address retaining more than 40% of the basal area within the block.
FL A18688	S141 <u>Approved A</u>	In Block Retention	Prescription to target approximately 35% of area for harvest, using openings ranging up to approximately 1 ha.
FL A18688	S141, S144, S145, S146, S212 <u>Approved A</u>	Range Management	<p>Confirm fencing location by L2590 – likely mapped incorrectly.</p> <p>Timing of harvest on S212 needs to be reviewed with Don Shook, as it is early range from May 15 – June 7.</p> <p>Review SP's with Don Shook for range management concerns prior to submission.</p>
FL A18688	F104B, F107, F108	In Block Retention	Prescription to target approximately 35% of area for harvest, using openings ranging

	<u>Approved A</u>	Green-up	up to approximately 7 ha. This is to apply to F107 and F108 only if green-up on adjacent openings is not achieved. Confirm opening 335, 336, and 337 green-up prior to SP submission for F107 and F108.
FL A18688	F109 <u>Approved A</u>	Block size	Commitment in the 2000 plan to ensure opening size is >40 hectares net area.
FL A18688	F106 <u>Category I</u>	Terrain Stability	Block moved back to "I" status to assess harvest and terrain stability issues.
FL A18688	S155 <u>Proposed A</u>	Forest Health	Block has been moved from Approved A to Proposed A to address forest health objectives.
FL A18688	S112 <u>Proposed A</u>	Forest Health, Timber objectives	Block has been moved from Approved A to Proposed A to address forest health issues and reduce risks associated with timber production from those outlined in previous plan.
FL A18688	J176, J179 <u>Approved A</u>	In Block Retention	For J176, SP to address retaining more than 40% of the basal area within the block. Area of harvest falling within Jones Creek not to exceed 30 hectares. For J179, SP is to address targeting approximately 35% of area for harvest.
FL A18688	S198 <u>Approved A</u>	Opening size	Opening will target size of 14ha.
FL A18688	S200 <u>Approved A</u>	Opening size Green up	No constraints on silviculture system if opening 339 is greened up. If opening 339 is not greened up, retention is to ensure opening is not contiguous with adjacent opening.
FL A18688	S204 <u>Approved A</u>	In Block Retention	Greater than 40% of the basal area is to be retained adjacent to opening 707.
FL A18688	S130, S151	Ranching	Joint field trip required with Don Shook

	<u>Approved A</u>		<p>prior to SP submission. Issues are:</p> <p>Avoiding skid trail access /natural barrier to water source conflict near S151.</p> <p>Potential removal of cattle barrier in vicinity of S130.</p>
FL A18688	CP 402-1 <u>Proposed A</u>	Referral of SP and discussion with landowners	<p>SP is to be referred to DFO prior to submission.</p> <p>SP changes from original plan are to be reviewed with tenured cabin interests at Silence Lake.</p>
FLA18688	All blocks in DeVooght Range Tenure (Lute Baker area)	Range Management	Notify range tenure holders prior to initiation of harvest, road construction, or silviculture activities to allow range tenure holder to manage cattle to minimize conflict.
FL A18688	CP 200-10 Proposed A	Access Management	Confirm value of avalanche chutes crossed by access to block as grizzly habitat. If habitat value is high, implement strategy for deactivation that minimizes displacement of grizzly from habitat.
TFL 18	M105 Proposed A	Riparian	Refer SP to DFO prior to submission.
TFL 18	M122 Proposed A	Riparian	Confirm stream class in field; possible fish bearing.
TFL 18	M125 Proposed A	Fisheries	Refer SP to DFO prior to submission.

TFL 18	M106 Proposed A	Fisheries	Refer SP to DFO prior to submission.
TFL 18	D102 Proposed A	Fisheries	Refer SP to DFO prior to submission.
TFL 18	D129 <u>Approved A</u>	Access	Ensure access management control, as identified on mapsheet, is implemented on completion of silviculture activities.

7.5 Amendment Log

Amendments made to the approved plan during the course of the year may be recorded and tracked for future reference in this section. These may occur as a result of changes to the silvicultural system, harvest method or location of the cutblock, etc.

Date Submitted (yyyy/mm/dd)	Date Approved (yyyy/mm/dd)	Reason
[Enter]	[Enter]	[Enter]

8. Sources of Information

The purpose of this section is to ensure that the best information available is used. Note the date of that information and respect the four month rule for the benefit of the proponent. This section of the plan should outline some of the key sources of written or graphic information used to prepare the plan.

Date Four Months Prior to Submission for Approval: ***December 29, 2001***

All data used in the development of this plan was acquired from the Ministry of Sustainable Resource Management web site. Adjacent Licensees provided information on adjacent blocks.

Old Growth Management polygon information used to identify overlaps did not include exchanges made since the release of the latest digital files. Exchange updates were to be provided March 1, 2002 however they remain unavailable at the time of plan development.

Some of the other information used in the development of this plan includes:

Table 8-1: Additional Sources of Information

Information Source	Date of publication
Davis & Company's British Columbia Forestry Law	1996 + amendments
Forest Practices Board Special Report #4	?
Kamloops Land and Resource Management Plan	1995 + amendments
MoF Resource Tenures & Engineering Branch – Administration of Forest Operational Plans	January 20, 1999
C & E Bulletin #4 – Application of Section 41(1)(b) of the FPC	July 14, 2000
Forest Development Plan Template Supplement	January 1999 – revised April/01
Tolko Industries Ltd. – Thompson Woodlands FL A18686 draft FDP	March, 2002
Gorman Bros. Lumber Ltd. – Westbank Division FL A18671 FDP	2000/2001

Interfor - Adams Lake Lumber Division FL A18693 FDP	2001
Ainsworth Lumber Co. Ltd. – Lillooet Division FL A18700 FDP	2000
Timber Supply and Twenty-Year Plan Analyses – TFL 18	January 24, 2000
Clearwater Forest District Policies provided in digital form	2002
Professional Reliance Kamloops Forest Region	August 22, 2001
TFL 18 Management Plan #9	September 28, 2000
TFL 18 Visual Inventory Maps	-
Small Business Forest Enterprise Program FDP (Clearwater)	1999
Small Business Forest Enterprise Program FDP (Sunshine Coast)	2001

Sensitive information (eg. Wildlife habitat areas and archaeological information) provided by the various agencies was used in the development of this plan, however due to the sensitive nature of the information it is not available for public review.

This plan is consistent with the intent of the Clearwater Forest District *draft* December 19, 2001 Forest Development Plans policy.

Maps

Section 10 of the FPC Act, and the operational planning regulation require some forest development plan information be shown on maps. Maps are a key component of this plan.

Section 10 of the FPC Act as well as the operational planning regulation require some FDP information to be shown on the maps. Maps are a critical component of the FDP.

Status Maps

Operations are clearly delineated at two levels in the proposed plan. Status maps provide a broad scale overview of Slocans operating area, proposed block information, and mappable forest resource values. These maps are available for review on request.

Slocan as 2 sets of 4 1:50000 scale Status Maps for the proposed plan:

<i>Resource Value</i>	<i>HLP Status Map</i>	<i>Tenure Status Map</i>
Critical Mule Deer Winter Range	X	
Critical Moose Winter Range	X	

Wildlife RMZ's	X	
Recreation RMZ's	X	
Community Watersheds	X	
Proposed Visual Management ³⁸		X
Trappers Licenses		X
Guide/Outfitters Territory		X
Watershed Boundaries		X
Important Deer Winter Range	X	
Adjacent Licensees	X	X
Early/Late Winter Caribou	X	
Caribou Corridors and Moratorium	X	
Parks and Protected Areas	X	X

At a more refined level, Slocan submits a series of 1:20000 scale maps which detail various proposed and completed harvesting, road construction, and deactivation activities.

Operating areas must be clearly defined by the plan proponent. Key maps may be attached to the base FDP maps as a location reference.

9.2 List of Maps

The proposed plan includes the following mapsheets at 1:20000 scale. Not all mapsheets include new development, however, Slocan has submitted information for the entire operating area to ensure comprehensive and complete information is available.

92P 099	92P 088	92P 089	92P 090	92P 078
92P 079	92P 080	92P 068	92P 069	92P 070
92P 060	82M 081	82M 092	82M 082	82M 083

³⁸ Visual information for the TFL is unavailable in digital form. It may be viewed on request.

82M 071	82M 072	82M 061	82M 062	82M 063
82M 064	82M 065	82M 051	82M 052	82M 053
82M 054	82M 055	82M 045	82M 046	83D 065
83D 054	83D 055	83D 056	83D 045	83D 035
83D 036	83D 025	83D 026		

Appendix 5

TFL 18 MANAGEMENT PLAN #9

Appendix 5: TFL 18 MANAGEMENT PLAN #9

Following is Management Plan #9 for TFL 18 which covers a portion of the DFA. This outlines the strategies that Canfor – Vavenby will follow in Forest Management Planning or Forest Stewardship Planning for the defined timeframe (2000-2005) after which time the Management Plan will be replaced with Management Plan #10 as approved by the Chief Forester.

SLOCAN FOREST PRODUCTS LTD.
VAVENBY DIVISION
TREE FARM LICENCE #18

MANAGEMENT PLAN #9
FOR THE PERIOD
JANUARY 1, 2000 TO DECEMBER 31, 2004

Submitted: January 14, 2000

SLOCAN FOREST PRODUCTS LTD
VAVENBY DIVISION

David K. Poole

Area Supervisor

TFL #18

Richard Burkholder R.P.F.

Woodlands Manager

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INTRODUCTION

PURPOSE OF THE PLAN

The purpose of this Management Plan is to state how Slocan intends to manage and integrate timber and other resource values in the TFL. This includes a detailed perspective of the next twenty years of planned operation based on a 200 year analysis of timber supply.

CONTENT OF THE PLAN

The Management Plan consists of three volumes. Volume 1 sets out the management principles for TFL 18 through management objectives, strategies and commitments. This volume includes the Timber Supply Analysis and presents a proposed annual allowable cut (AAC) for the period of this plan. Volume II contains the Twenty Year Plan, and Volume III is the map folio section of the Management Plan.

DESCRIPTION OF THE TFL

TFL #18 is situated immediately northwest of Clearwater B.C. and approximately 30 km west of Slocans mill in Vavenby B.C. The licence encompasses approximately 74,620 hectares. The terrain is gently rolling with an elevation range of only 800 metres. As a result, the majority of the TFL is easily accessible by road. The landbase contains numerous small lakes and swamp complexes. Biogeoclimatic zones are predominately SBS and ESSF with a small amount of ICH in the southern extremities.

HISTORY

Tree Farm Licence 18 was awarded on November 2, 1954 to Clearwater Timber Products Ltd. Slocan Forest Products Ltd. purchased Clearwater Timber Products Ltd. in 1987 and became the holder of Tree Farm Licence 18.

The area of the Tree Farm has remained essentially unchanged since its inception. The Taweel protected area was recently established through the Kamloops LRMP. Approximately 220 ha of this area overlaps the southwest corner of the TFL. A legal description of the TFL boundary is provided in Appendix 13.1.

DESCRIPTION OF LICENCE HOLDER

CORPORATE

Slocan maintains its corporate head office in Richmond B.C. with a staff of 50 employees. Slocan is a publicly traded company listed on the Toronto Stock Exchange. The company consists of 10 sawmills, including Vavenby, throughout the interior of B.C. in the following locations:

MILL	
Tackama Division, Fort Nelson	1 sawmill
Mackenzie Division, Mackenzie	2 sawmills
Valemount Division, Valemount	1 sawmill
Plateau Division, Vanderhoof	1 sawmill

Slocan Division, Slocan	1 sawmill
Quesnel Division, Quesnel	2 sawmills
Radium Division, Radium	1 sawmill

Other Slocan operations include:

a pulp mill Taylor

an oriented strand board and plywood mill in Fort Nelson.

Uneeda Wood Products Division in Chilliwack - Specialty wood products

DIVISIONAL

Slocans' Vavenby operations sawmill and office are located approximately 24 km northeast of Clearwater B.C. along Hwy #5 in the North Thompson. Vavenby is a rural community of approximately 700 residents and is supported mainly by the forest industry. The division holds two tenure licences, TFL #18 and FL A18688 for a current combined A.A.C. of 446,138 m³. The two licences provide access to a diverse timber profile in both size and species distribution.

SOCIO-ECONOMICS OF DIVISION

Vavenby division operations, including the sawmill, planer mill and woodlands, directly employ 193 people full time. This is subject to minor variations due to seasonal or market demands as Vavenby operates two to three shifts in the sawmill and planer mills. Slocan also employs 300 full and part time contractors and consultants.



Figure 1: Vavenby Mill Site and Surrounding Community

MILL DESCRIPTION

The Vavenby sawmill complex consists of the sawmill, planer mill and three dry kilns. The sawmill contains three production lines, one head rig line for large diameter wood and two other high speed lines for smaller diameter wood. The planer mill was upgraded in 1997 making it one of the more efficient planer mills in Canada.

The mill processes approximately 630,000m³ of timber annually. Production was lower at approximately 552,000m³ in 1998 due to U.S. lumber quota restrictions. The volume of timber processed over quota is obtained primarily from log purchases within B.C.

MARKET PRODUCTS

The mill produces dimension lumber in sizes from 2x3 to 2x12 and specializes in longer lengths of 18 to 24 feet, which are longer lengths than most interior mills produce. Species include Douglas fir, spruce pine and balsam fir. A specialty "J" grade is also produced for the Japanese market.

COMMUNITY INVOLVEMENT

Slocan, Vavenby supports numerous local non profit organizations and societies through donations. Bursaries and scholarships are also provided to the local high school. The division also supports many local events put on by community interest groups. In addition, annual company sponsored events are held each year for company staff and other community members.

RESOURCE INVENTORIES

TIMBER

A re-inventory of the TFL was completed during 1991-1992. The inventory was assessed by Kamloops region during 1993 and accepted in February of 1994. An audit was initiated by resource inventory branch during 1996 and completed in February 1997. The audit indicated that the mature component and post stratified data in the operable forest area was statistically accurate. Audit results for the immature component also indicate an acceptable level of accuracy for site index assignment in young stands. Assessment of the non-forest classification indicates that it did not meet provincial standards. This is due to the result of changes to the inventory classification standards in non productive forest vs. non forest types from original inventory to audit. Results of the audit indicate this had no effect on the forested area available for harvesting.

Slocan uses an ARC INFO Geographic Information System (GIS) to complete annual updates to the inventory. All map sheets are on the Terrain Resource Information Management (TRIM) map base in NAD 83 format.

A proposed re-inventory is addressed in section 2.3: Vegetation Resource Inventory.

GROWTH AND YIELD

An FRBC funded multi year Growth and Yield plot establishment project was initiated in 1996. The following plots have been established to the end of 1998:

23 plots

26 plots

15 plots

Sites have been selected by compiling area summaries by Growth and Yield matrix cell strata (BEC [Biogeoclimatic Ecosystem Classification], species, age class, site index class). The Forest Productivity Council's Biogeoclimatic based sampling matrix was then used to determine the number of samples that would be required. Individual polygons were then identified that could provide potential sample locations. Ministry of Forests staff, Kamloops Region, indicate that the plots established to date give sufficient

coverage of unmanaged stands on the TFL. Slocan will work with Regional staff during MP #9 to identify potential for additional growth and yield studies.

Slocan is also reviewing data from plots established in the 50s to 70s. Attempts to locate and re-establish these plots have met with little success due to insufficient marking of the original plot locations. This data will be reviewed with MOF Region staff to determine the viability of resurrecting some of this data.

VEGETATION RESOURCE INVENTORY

Slocan has participated in the development of a VRI sampling plan for the Kamloops and Clearwater Forest Districts (Kamloops TSA) initiated by Resources Inventory Branch in 1997. TSA stakeholders gave verbal sign off of a VRI sampling plan in November 1997. The sampling unit will be the TSA with 100 full VRI plots to be established. This will result in approximately 5 full VRI plots to be established in TFL 18. In order to meet a precision target of $\pm 10\%$ for timber volume in the TFL, additional timber emphasis plots are proposed. Up to 245 sample clusters are proposed to achieve this objective. In addition, both the gross and net volume adjustment factor (NVAF) will be developed.

The objective of the VRI will be to improve upon the existing inventory and provide more detailed information on associated stand attributes such as vegetation complexes.

Due to this initiative, and the approved audit on the existing TFL 18 inventory, Slocan has not embarked on completing an independent re-inventory nor is one proposed during Management Plan #9. We intend to participate fully in the TSA based VRI once it is implemented. No timeframes have yet been established. If the VRI does not go ahead during MP #9, Slocan proposes to use the existing inventory for the next Management Plan.

TERRESTRIAL ECOSYSTEM MAPPING

An FRBC funded TEM project was initiated in TFL 18 in September 1998. Three phases are proposed for this project:

Phase 1: TEM Mapping

Phase 2: Wildlife Habitat Capability/Suitability

Phase 3 Site Index based on Biogeoclimatic Ecosystem Classification
(SIBEC)

Phase 1 will produce a base 1:20,000 TEM mapping for the entire TFL. Field sampling will be completed to a Survey Intensity Level 4 as defined by Resource Inventory Committee (RIC) standards. The objective is to provide detailed Biogeoclimatic and bioterrain mapping at the site series level. Phase one, scheduled for completion in March 2000, will form the base for completion of phase 2 and 3.

Phase 2, proposed for 2000, will use the TEM base map to provide a detailed assessment of wildlife habitat capability and suitability at the ecosystem level. The objective will be to produce a planning tool to better address the requirements for wildlife on the TFL.

Phase 3 is proposed for 2001. Using the TEM base a sampling strategy will be designed to facilitate collection of SIBEC data for the TFL. The intent will be to improve existing SIBEC data for the subzones on the TFL which currently have a low reliability due to limited sampling to date. This information will provide us with a statistically accurate alternative method for estimating site index on the TFL.

All phases of the TEM project will be referenced in any VRI work that is undertaken. It is hoped that sampling can be reduced somewhat where duplication of data is evident. Other proposed uses of the TEM product will be an improved planning tool for development work and consideration of other resource values such as biodiversity objectives.

RECREATION

A recreation inventory was completed for the TFL in 1993 with the following phases included:

Recreation Opportunity Spectrum Inventory

Recreation Features Inventory

Recreation Facilities Inventory

An FRBC proposal to update the inventory was initiated by Clearwater District in 1996, as part of a district wide recreation inventory update proposal, including both the Recreation Features Inventory and the Recreation Opportunities Spectrum. The project was completed in 1998. The recreation inventory for the TFL has remained largely unchanged since completion in 1993. The recreation opportunity is focused mainly on the numerous small fishing lakes and associated recreation sites. The recreation opportunity is protected through the establishment of lakeshore management zones and visual quality objectives. The number and positioning of recreation sites has remained unchanged since the last inventory.

The most significant change would be in the Recreation Opportunity Spectrum (ROS) Class. The amount Roded Rural Land (RRL) has increased as previously unroded areas are accessed.

The recreation inventory will be reviewed annually to determine if significant changes have resulted that may reflect on management objectives. Where such changes occur, the inventory will be updated. Maps of the updated Recreation Opportunity Spectrum and Recreation Features Inventory are included in Appendix 13.3 and 13.4.

LANDSCAPE

A landscape inventory (Visual Resources Inventory) was completed for the TFL in 1993, updated in 1996 and approved in August 1996. The updated inventory took into account areas near the TFL boundary that were identified by the MOF district landscape inventory.

Visual quality objectives are established from the majority of lakes over three hectares in the TFL. Where lakes are classified through the lakes LRUP a visual quality objective is set based on the established lakes classification for the 200 metre lakeshore management zone. There is also an opportunity at this time to request the licensee establish visual quality objectives for the lake within the lakes viewscape where it has not previously been completed. Of the lakes classified since the last landscape update in 1996, this has not been required.

Classification of all lakes over 3 Ha. on the TFL is expected by 2001. Once completed, the lakes classified since the current landscape inventory was completed, will be reviewed to determine if the lake classification affects the current established VQO. Where this occurs, an amendment will be made to the inventory. Any required updates are proposed for completion in 2001. A map of the updated Landscape Inventory is provided in Appendix 13.5.

FISHERIES

A default stream classification was completed for all mapped streams on the TFL in 1996 through the combined efforts of Slocan, MOF and MELP staff based on actual site visitations and local knowledge. This classification identifies both fish and non fish bearing streams. Where fish presence was suspect, but not known, fish presence was assumed. When development is proposed adjacent to a creek where fish presence or absence is suspect a fish inventory of the creek is carried out. To date, these inventories have been completed on 12 streams in the TFL.

All lakes that are classified through the Lakes LRUP process (greater than 3 hectares) are inventoried for fish through FRBC or MELP funded projects prior to classification. The

majority of these lakes have now been inventoried. In addition, a number of lakes smaller than three hectares are also identified for inventory where fish presence is suspected.

WILDLIFE

No wildlife inventory has been carried out in the TFL to date. As identified in Section 2.4, a wildlife habitat capability/suitability study is proposed for 2000 as part of the terrestrial ecosystem mapping project. This inventory will identify potential or existing wildlife habitat for various identified species at the ecosystem level.

Standards and intensity that the inventory will be completed to will be developed in consultation with regional MELP staff during 1999/2000. Standards developed will also identify wildlife species to be considered during the inventory.

MANAGEMENT OBJECTIVES

TIMBER MANAGEMENT AND UTILIZATION

PROPOSED HARVEST RATES

The proposed harvest rate for the period of Management Plan #9 is

187 000 m³/yr. The Timber Supply Analysis Report in Volume 2 provides the supporting data and analysis results which led to the recommended harvest level.

RATIONALE FOR RECOMMENDED AAC

Based on the timber supply analysis and twenty-year harvest plan, it was shown with some certainty that the current AAC can be maintained for the next 15 years. It is clear that following this period there will be some decrease in the harvest level if no action is taken. Based on the assessment of alternative timber flows this scenario provides the best socio-economic transition to second-growth harvests especially given the uncertainty with future yield gains. While the actual harvest level decrease is uncertain, it does require immediate action. Slocan has shown its commitment to a series of mitigation strategies and management tactics that are expected to prevent the predicted decrease in timber supply and maintain a sustainable future harvest.

SBFEP

The Small Business Forest Enterprise Program (SBFEP) has an allocated annual cut of 10,500 m³AAC on the TFL as established in 1988 under section 32(2) of Bill 28. This volume has been historically allocated to SBFEP on a permit by permit or even block by block basis through annual negotiations. This has resulted in restricting long term planning flexibility for both parties. As a result, a specific operating area for SBFEP was finalized in 1997. This allows SBFEP to carry out long term planning and limits conflict with Slocans' operations on the remainder of the TFL.

PLANNING

HIGHER LEVEL PLANS

The Kamloops Land and Resource Management Plan (KLRMP) is a higher level plan approved by order in council on January 31, 1996. This plan was declared as a higher

level plan under the Forest Practices Code of British Columbia Act. The KLRMP covers the Kamloops TSA which consists of the Kamloops and Clearwater Forest Districts. It also covers TFLs, which includes TFL 18, woodlots and private land managed as part of a TFL or woodlot. This constitutes the KLRMP area.

Slocan commits to the goals of the KLRMP and the objectives and strategies for each Resource Management Zone (RMZ).

The KLRMP identifies seven RMZ's and provides goals that give direction to all six management zones. Objectives and strategies are also defined that are specific to each management zone. There are three resource management zones within the TFL which include:

General Resource Management

Protection Resource Management

Special Resource Management - Community Watersheds

The strategies and objectives identified under General Resource Management apply to all Resource Management Zones except Protection. For Resource Management Zones other than General, additional objectives and strategies apply. Approximately 99% of the TFL is covered by the General Resource Management Zone. The objectives and strategies for this zone provide for the management of the following resources:

Water	Ecosystems
Biodiversity	Agriculture
Range	Minerals
Wildlife	Timber
Cultural and heritage sites	Traditional Native Land Use

Visuals

Heritage trails

The Protection Resource Management Zone includes the Taweel Protected Area in the Southwest of the TFL. The intent of this management zone is protect areas for their natural, cultural, heritage and/or recreational values. Logging, mining and energy exploration are prohibited from these protected areas. Taweel Protected area was established to protect the semi primitive recreational experience in the area surrounding Taweel Lake.

In addition, the Clearwater River Corridor protected area is immediately adjacent to the southeast corner of the TFL. While no portion is actually in the TFL, this protected area will be taken into consideration at the landscape unit planning level. This protected area was established to protect the unique features of the river valley as well as the recreational and fishery values.

The Special Resource Management Zone - Community Watershed includes a portion of the Gill Creek Community Watershed. This watershed is no longer used as a community watershed and was de-registered in July of 1999. Gill creek remains as a Special Resource Management Zone under the Kamloops LRMP. The watershed is part of an amendment package to the LRMP that was put forward to government in 1997, which is yet to be approved. In that amendment the watershed is dropped as a community watershed. Ministry of Forests staff have agreed that the watershed can be risk managed until such time as the amendment is approved.

OTHER PLANNING INITIATIVES

Landscape Unit Plans

Landscape units were identified for all areas covered by the Kamloops LRMP. The TFL falls entirely within Landscape Unit 18, which covers 127,200 Hectares making it the second largest of the 29 Landscape units in the KLRMP area. LU 18 has been assigned a preliminary biodiversity emphasis option of low. Landscape Units were ranked according to a set of criteria that took into account the current biological diversity of each landscape unit.

The TFL makes up approximately 58% of LU 18. The remainder of the area consists primarily of Slocans' operating area under Forest Licence A18688. Also included are a SBFEP operating area, various woodlots, a portion of Weyerhaeusers' Forest Licence operating area and the town of Clearwater. As Slocan retains the GIS dataset for the majority of the Landscape Unit, a unique opportunity existed for considering the biodiversity impacts and integration of resource uses over the entire landscape unit.

In the absence of an approved Landscape Unit Plan, the KLRMP, the Biodiversity Guidebook and District policies for managing biodiversity were used as a guide in implementing the objectives for biodiversity for LU 18. The Landscape Unit Planning Guide was also referred to extensively in determining the appropriate objectives and strategies. While priority was given to the establishment of old growth management areas and wildlife tree retention, the requirements for seral stage and patch size distribution, landscape connectivity and species composition were also considered.

The objectives for biodiversity focused mainly on the TFL for the purposes of this plan but requirements for the entire landscape unit were considered. Due to time constraints only preliminary analysis and spatial outputs were completed for the landscape unit. Slocan commits to continue with this process, working closely with the MOF as a landscape unit plan is produced for L.U. #18.

LAKES LRUP

A Lakes Local Resource Use Plan (LRUP) was developed for the Kamloops Region in 1991. This is the only active LRUP on the TFL. A lakes committee was established to classify all lakes in the Clearwater Forest District according to LRUP objectives. Slocan is an active participant on this committee and commits to the recommendations of the committee. The committee considers recreation opportunities, fisheries values, water quality, biological features, visual quality and harvesting in establishing the appropriate classification to each lake. This classification sets the management objectives for a 200 metre lakeshore management zone unless otherwise specified. This zone may vary depending on the unique features of each lake.

TWENTY YEAR PLAN

The Twenty Year Plan identifies the area and timber volumes, in 5 year periods or quartiles, to be harvested from the TFL between 1999 and 2019.

The objective of the plan is to provide a long term planning tool that will supplement, and guide, the Forest Development Plan. The plan considers harvesting objectives as well as the requirements for other resource values. While the plan focuses on activities within the TFL, the impact on biodiversity requirements within the entire landscape unit are also considered.

The Twenty Year Plan is tied spatially and temporally to the Timber Supply Analysis. By using this approach, the impact on timber supply can easily be determined for any change to the plan. The use of GIS technology also allows for more efficient updates to the Twenty Year Plan, both spatially and graphically. The Twenty Year Plan will be updated along with Forest Development Plan updates to reflect changes as a result of field confirmation..

Volume 2 of the Management Plan presents the Twenty Year Plan terms of reference and the Twenty Year Plan in detail along with the Timber Supply Analysis. The plan includes detailed harvest summaries and a spatial representation of harvesting, access requirements and interaction with other resource objectives including old growth management areas

The Twenty Year Plan, as presented in volume 2 shows that the currently approved annual allowable cut of 187,000 m³/year, can be maintained over the term of Management Plan #9. This level includes an allocation of 10,500m³/year for the SBFEP.

ROADS

CONSTRUCTION

Slocan has a well developed main and secondary road system which provides access to all areas of the TFL. As a result, no major access structures will be required over the term of Management Plan #9. Figure 2 shows the location of major roads on the TFL.

Figure 2: TFL 18 - Main Access Roads

All access structures will be built in accordance with the Forest Road Regulation and be guided by the Ministry of Forests Engineering Manual and the Forest Road Engineering Guidebook.

The objective of road construction will be to minimize disturbance through:

use of alternative harvesting techniques that minimize road construction

appropriate road construction techniques in unstable or potentially unstable terrain

rehabilitation of temporary roads

Slocan has developed, in consultation with the Ministry of Forests, a road classification system. The classification results in six road classifications including various levels of permanent, temporary and on block roadside structures and details construction techniques. This procedure results in:

less degraded area due to overbuilding of roads

easier and more effective rehabilitation on temporary structures

lower risk in areas of potential instability

The construction techniques used comply fully with Forest Practices Code Act standards.

Slocan intends to build approximately 195 km of road over the term of Management Plan #9.

A bridge was constructed over the Clearwater River during 1997, which replaces a condemned structure. This structure allows for the routing of TFL logging traffic around the Clearwater town centre addressing both safety and road maintenance concerns in the community.

MAINTENANCE

Slocan commits to carrying out road maintenance in accordance with the FPC Act. Road maintenance on the TFL is enhanced through an intensive patrol of roads to identify potential areas of concern, particularly during periods of spring runoff. This proactive approach generally identifies areas of concern before they become a problem. Areas of concern include:

Plugged culverts and ditch lines

Channeling or puddling of water on road surfaces

Tension cracks or other signs of fatigue in the road prism

Road construction techniques also consider the inclusion of self-maintaining structures such as fords in place of or as a failsafe for culverts and depressions or dips in the road surface at watercourses. In sloping or outslipping of the road surface on temporary roads is also considered to minimize the degree of maintenance required.

The maintenance required, and potential impact on new or sensitive roads is minimized through access control at critical times such as spring runoff.

The objective of road maintenance on the TFL is to:

Minimize sedimentation, erosion and potential impact on downstream values

Control water

Minimize degradation of road surfaces

Minimize the amount of maintenance required by building self maintaining structures into the road during construction.

DEACTIVATION

Deactivation is carried out through implementation of a comprehensive access management plan scheduled through the Forest Development Plan and identified through access management recommendations as a result of watershed assessments.

Level of deactivation is determined based on condition, future need and level of access required for the road and includes temporary, semi permanent and permanent.

The general public, agencies and first nations provide input on the level of deactivation through forest development plan reviews and/or access management plan presentations. This input is invaluable due to the degree of recreational and other resource use within the TFL.

Priorities for deactivation on existing roads are based on condition of the road and the potential for road failure.

The objective of deactivation in the TFL is to:

Minimize maintenance required by putting the road in a self-maintaining state.

Establish or re-establish natural drainage patterns

Minimize potential for sedimentation and road failure

Maintain or enhance water quality

Ensure public, agency and First Nations concerns are addressed when determining level of deactivation

Future road deactivation will be identified as part of an access management plan for all roads in the TFL.

ACCESS MANAGEMENT

Access is controlled on the TFL for three main reasons:

Protection of wildlife or fisheries values

Protection of a recreation opportunity

Protection of sensitive roads

Protection of fish or wildlife values is usually at the request of MELP. Roads into the affected areas are blocked using gates or other form of blockage. Access for hunting or fishing is then designated as walk in. Lakes are recommended for walk in status by the Lakes LRUP committee and approved by the District Manager. A walk in status is designated to protect either the fishery or the recreation opportunity. The intent is to protect this unique opportunity as the majority of fish bearing lakes in the TFL have motorized access.

Road blockages for wildlife on the TFL are primarily for the protection of moose or deer habitat where MELP feels the added pressure of motorized access will adversely impact these species.

Where motorized access will result in excessive damage to the road, temporary or seasonal blockage will be considered. This may occur on newly constructed roads or in adverse weather conditions where water control is an issue. Restriction to access may also be imposed during periods of extreme fire hazard.

An access management plan will be developed during 2000 that will coordinate road deactivation, road rehabilitation, access management and future harvesting requirements. The Twenty Year Plan will be used to confirm the longer term access requirements.

ROAD SIGNS

All roads in use are numbered and have distances in kilometers posted each kilometer. Radio frequencies are indicated at the beginning of each road and where frequencies may

change on a road. Warning signs are posted where active logging is taking place. Where road deactivation has occurred signs are posted to indicate road conditions applicable to the level of deactivation.

RADIO USAGE

For safety, all actively used roads on the TFL are radio controlled. The entire TFL has radio reception, both within the TFL and to emergency services or the Vavenby office by radio repeater. Radio frequencies include: Ch 1 - 152,390 Mhz, Ch 2 - 152.240 Mhz, Ch 4 - 153.170 Mhz.

Vehicles equipped with radios systematically call out their location by kilometers. There are a number of mandatory call points indicated on mainlines at major road junctions, blind corners or narrow sections of road.

Due to the heavy recreational use and through traffic in the TFL, vehicles without radios are quite common. Signage encourages such vehicles to follow a radio-controlled vehicle or travel during inactive hours. Radio equipped vehicles indicate the location of vehicles travelling without radios.

HARVESTING

HARVEST PATTERNS

BLOCK SIZE

Cutblock size, until recently, has remained relatively small with a maximum clearcut area of 40 hectares and an average block size of approximately 25 hectares. Cutblock size has been dictated by such factors as:

Wildlife provisions

Windthrow protection

Ecological site factors affecting treatment and stocking

Green up consideration

Recreation

Visual Quality Objectives

Forest health concerns

These factors combined with total chance planning initiatives guided by the twenty-year plan for MP #8, have played a major role in dictating block size.

During the latter part of Management Plan #8, biodiversity objectives including old growth management strategies and wildlife tree retention have been taken into account in block size rationale.

This direction, as well as seral stage and patch size distribution identified in the Biodiversity Guidebook, will play a major role in determining harvest pattern over the term of Management Plan #9.

The intent is to reduce fragmentation caused by smaller blocks by developing a variety of patch sizes that mimic natural disturbances. This will result in a number of blocks greater than 40 hectares either individually or through aggregation with existing openings.

Along with larger openings there will be corresponding larger reserves as the patch distribution identified in the biodiversity guidebook is intended to be represented over all age classes. Windthrow is a concern on the TFL as previously mentioned but proper patch size distribution will allow for greater flexibility in identifying appropriate windfirm boundaries naturally present on the landscape. The seral stage maps provided with the 20 Year Plan/Timber Supply Analysis show that fragmentation can be reduced over time by committing to recommended patch size distribution.

TIMBER PROFILE

The TFL has a profile of both tree species and timber size that is well suited to the requirements of the Vavenby mill. Harvest patterns during Management #8 reflected the entire timber profile. Variations occur annually to reflect priorities such as market values and forest health concerns. Full utilization of the profile will also be the objective in considering harvest patterns over the term of Management Plan #9.

TERRAIN PROFILE

TFL 18 is situated on a plateau with gently rolling terrain. 90% of slopes are less than 30% and all areas of the TFL are operable. The objective during MP #9 will be to harvest the full range of terrain profiles during MP #9. Conventional harvesting methods will generally be utilized on slopes less than 30%. Cable harvesting or helicopter will be used on steeper slopes.

The bioterrain portion of TEM proposed for completion in 2000 will be used as a tool to assist in identifying sensitive, unstable or potentially unstable terrain. This information will aid in ensuring the most appropriate objectives are planned for a given terrain profile.

SEASONAL

Harvest patterns are also affected by seasonal constraints. Determining factors include harvest priority, site sensitivity due to soil and moisture, silvicultural objectives and requirements of other resource values. Winter harvesting generally occurs in the higher elevation ESSF biogeoclimatic zone and in wetter ecosystems of the SBS and ICH.

SILVICULTURAL SYSTEMS

The primary silviculture system utilized on the TFL has been clearcutting combined with varying degrees of retention. Retention strategy has generally included wildlife tree patches combined with individual wildlife trees and riparian reserves or management zones. True select harvesting has been utilized primarily within riparian management zones and along block edges to promote windfirmness. Patch cutting and group select harvest has been used fairly extensively with approximately 20% of timber volume removed in recent years. This system has been used to address visual quality and wildlife concerns.

During the term of Management Plan #9, biodiversity objectives will play a major role in determining appropriate silviculture systems. Modified clearcut or variable retention systems, which maintain varying percentages of timber for wildlife, old growth retention and riparian protection, will form the largest percentage. Use of this silviculture system will aid in reducing fragmentation on the TFL while addressing other resource values.

The main focus initially in select systems will be to concentrate on and improve upon current select harvesting practices in riparian areas and in windthrow prone stands. Other opportunities will also be explored where select harvest is the appropriate silviculture system. Candidate stands include higher elevation spruce balsam and areas where partial volume removal can still maintain old growth attributes. True select harvest will also be combined with group select or small patch harvest where a variation in stand structure is desirable.

STAND HARVEST PRIORITIES

Stand harvest priorities will focus on minimizing loss of productive forest while considering other resource values and economic issues. A number of factors are taken in to consideration when setting harvest priorities including stand age and condition, site productivity, forest health and biodiversity objectives. Harvesting priorities will be considered as follows:

Stands where action is required to address insect and disease outbreaks

Salvage of windthrown or fire damaged timber to minimize the potential for insect outbreaks and reduce unrecovered losses.

Target stands that will help in achieving the desired spatial distribution of old growth management areas over the landscape unit, in the shortest time frame possible, while minimizing the impact on timber supply and other resource values.

Target stands that will help in achieving the desired patch and seral stage distribution over the landscape unit, in the shortest time frame possible, while minimizing the impact on timber supply and other resource values.

Decadent or stagnated stands which are not required for old growth management where harvesting will improve site productivity.

Other healthy, vigorous mature stands.

SPECIFIC STAND MANAGEMENT STRATEGIES

PROBLEM FOREST TYPES

MID EAST SIDE TFL BACKGROUND

A Total Chance Plan (TCP) was developed for 14,000 ha on the mid east side of TFL 18 in 1994. This plan identified 5800 ha that had previous logging history. This occurred in the mid 40s through mid 60s via diameter limit and intermediate utilization (I.U.) timber sales.

At the lower elevations the more desirable species such as Spruce, Douglas Fir, White Pine, and good quality Cedar and Balsam were logged. At the mid to upper elevations spruce was the primary species. In all cases, the logging left many of the least desirable species/quality combinations. Stems less than the diameter limit (often 30cm) were left. This practice left a residual stand composed largely of smaller diameter balsam with scattered larger, poorer quality spruce and balsam.

Blocks were often logged in the winter resulting in less mineral soil scarification and thus less natural regeneration. No site preparation or planting was done.

This initial development skirted the more isolated and/or more difficult logging chance portions of the TCP. These remain as small patches or as larger units. They are typically age classes 8 and 9 and predominantly over-mature and decedent.

Above 1300m Spruce and Balsam dominate. Below 1300m the stands include Cedar, Hemlock, White Pine, and Fir. They have significantly deteriorated where adjacent to the 50s logging due to blowdown and windshake. The TCP identified 3,900 ha in this condition. The TCP identified the following objectives for these stands:

To identify areas, via intensive surveys, where mechanical site preparation (MSP) and planting in I.U. stands would improve the Mean Annual Increment (MAI).

To identify, via intensive surveys, where the existing regeneration should be left to form the next crop.

To choose species and stock types that would optimize MAI.

To identify other management activities such as quality slashing that would improve stem quality and MAI.

To identify and to harvest the merchantable timber via small patch clearcutting or selective harvesting.

INCORPORATION INTO MANAGEMENT PLAN #8

These objectives were basically incorporated into Management Plan #8 and acted on as follows:

Objective

To harvest and /or rehabilitate much of this area deemed sub optimal for MAI. Consideration would need to be given for wildlife and other values. A detailed harvest and rehab plan was required.

Action

A 3-pass harvest schedule was developed and submitted in 1996 for the mature undisturbed stands. This was subject to review of other resource value and biodiversity interests. Approximately 55,000m³ have been harvested. An additional 54,000m³ is in cutting permit (CP) or approved in the Forest Development Plan (FDP). As these blocks have been photo and field checked, many stands identified as undisturbed mature are actually disturbed. Thus, many of these blocks may be dropped from the development plan and portions identified as OGMAs. Proposed OGMAs will be confirmed on the ground to ensure they meet the desired characteristics representative of old forest within the given NDT.

Objective

To intensively survey disturbed stands that meet objectives 1-3 noted above.

Action

Intensive surveys were completed on 700 ha in 1997 - 1999 to the full extent of FRBC funding.

Results

Stands that meet objectives 1-3 are, on average, stocked with $\pm 1,000$ well spaced stems in the 7.5 cm+ layers. The 7.5-22.5cm range is typically 80% balsam and 20% spruce, good quality sawlogs. The average dbh is 15cm and the average height 15m. This is the valuable future sawlog component of the stand in 40 to 60 years.

These stands were further broken into three types:

Those on better SI sites, with better stocking/ diameter/ height growth. These have potential for pre-commercial thinning.

Those on average to lower SI sites with average stocking/ diameter/ heights, slightly lower sawlog percentages and higher pulp log percentages. There's little potential for pre-commercial thinning.

Those on any SI sites with heavier pulp components. There's little potential for pre-commercial thinning. These stands may have significant biodiversity values from individual wildlife trees or as old growth management areas. Stand attributes will be confirmed where old growth management areas are proposed.

Lower elevation stands (Rd 1) have Spruce, Balsam, Cedar, Hemlock, Douglas Fir and Lodgepole Pine components.

Mid to higher elevation stands have Balsam, Spruce and Lodgepole Pine components.

The 22.5cm+ layers are typically heavy to pulp quality balsam and sawlog quality spruce (.7 sawlog recovery). However, the volumes are typically less than 50m³/ha and thus not economically harvestable. These stands do not show as currently available merchantable timber as they are below the 150m³/ha limit for merchantable stands as identified in the timber supply analysis report. This layer provides excellent biodiversity characteristics and should be retained as such.

Excellent opportunities exist for Old Growth Management Areas (OGMAs).

Objective (Item 4 above)

To identify management activities that would improve MAI.

Action

4 I.U. logged areas that were spaced in 1981 were surveyed to evaluate stem response to spacing.

Discussions were held with foresters familiar with spacing in these stands.

Results

These stands have high degrees of variability due to numerous factors. The surveys did not identify significant differences in stem response to spacing when compared to adjacent unspaced stands. The study showed site indices were higher than mapped.

Discussions with other foresters concluded that there was little quantitative data to support benefits vs. costs of spacing in these 40 year old stocked stands. Future work should focus on Site Index mapping that would help prioritize any management activity, and preliminary identification of stands more likely to be NSR for survey prioritization purposes.

GOALS, OBJECTIVES, & STRATEGIES for MP #9

DISTURBED STANDS - STOCKED

Goals

To manage the current uneven aged stands to rotation.

To maintain existing biodiversity.

Objectives

To manage the current uneven aged stand of Bl, Sx through to harvest of sawlogs (typically stems currently between 7.5 - 22.5cm) and pulp logs (typically stems >22.5cm) in 40-60 years.

To manage the stand for clearcutting with reserves and to establish an even aged stand there after.

To maintain the existing biodiversity in species, age, height, stocking, and wood quality through to harvest.

To maintain a portion of the stand with old growth attributes into the 2nd rotation by retaining individual stems, wildlife tree patches and designating OGMAs.

On better SI stands, evaluate commercial thinning in \pm 25 years.

Strategies

Surveyed Areas

Establish ± 3 , 2-5 ha spacing trials in 1999 to evaluate response to spacing in stands of this age. Identify adjacent control stands that will remain untreated that have similar stand attributes. These trials will be established in the different stand types identified through intensive surveys.

Monitor the adjacent spacing trial controls in 10 years to confirm the sawlog portion of the stands are progressing towards the management objectives. The preliminary recommendations can be made on the suitability for commercial thinning.

Complete broad Site Index (SI) mapping in 2000 as a tool for future prioritization of any management activity. This would incorporate:

The height/ age data collected in 1998 on the 1981 spaced stands.

Correlation with elevations, soils and BGCZ and site series (Terrestrial Ecosystem Mapping).

Confirming height vs. age on a representative sample of sites.

On the better SI stands, evaluate commercial thinning potential in 2020.

Non-surveyed Areas

Photo identify stocked area (in 1999)

Confirm via low intensity walk-throughs in 1999. Write Stand Management Prescriptions (SMPs) during 1999/2000 based on those developed for the representative stands, identified through intensive surveys (1997-1998).

DISTURBED STANDS - NSR

Goals

To establish stands and manage to rotation.

Objectives

To identify the need for, then propose MSP and/or planting

Strategies

Photo identify NSR in 1999

Confirm on ground in 1999

Develop MSP and/or planting schedules in 1999

UNDISTURBED STANDS

Goals

To harvest and then manage an even-aged stand.

To maintain existing structural diversity.

Objectives

To confirm planned development

To identify OGMA stands with connectivity where appropriate

To retain wildlife trees and wildlife tree patches at the stand level.

Strategies

Photo identify planned cut block development and confirm on the ground (in 1999) for inclusion in the next FDP.

Photo identify OGMA's with connectivity, confirm on the ground and produce a final map in 1999.

Identify and maintain appropriate stand attributes during development and harvesting.

In addition, Slocan will model various scenarios for the management of these stands during MP #9 to determine the long and short term impact on timber supply and other resource values. Management strategies to be modeled will include but are not limited to:

Conversion of varying percentages of existing IU logged stands through stand rehabilitation.

Comparison of leaving existing stocked IU stands to rotation versus harvesting and starting over.

DECIDUOUS STANDS

All deciduous leading stands are deducted from the timber harvesting landbase. Deciduous species include cottonwood, birch, aspen and sitka alder. There is a total of 586 ha. of deciduous leading stands on the TFL.

Slocan intends to retain the majority of deciduous leading stands for their contribution to biodiversity, wildlife habitat and aesthetics. Where favourable market conditions exist, a portion of the deciduous leading stands may be harvested where their contribution to other resource values is minimal.

While the long term viability of deciduous stands is less than coniferous stands they do form an important component of the natural landscape and landscape diversity.

The deciduous component in merchantable conifer leading stands (primarily birch and aspen) is utilized when markets are available. This deciduous volume is not included in the total available merchantable volume as identified in section 6.9 of the approved Information Package. The majority of this volume is currently being processed at an oriented strandboard (OSB) plant in 100 mile house.

OPERABILITY LINE

Operability lines represent the boundary of the operable and non-operable land area and are a function of economic, technological, environmental and social constraints. The gentle physiography of the TFL is such that operability lines are not required. The few and relatively small, isolated inoperable areas are identified in forest cover as alpine, alpine forest or rock.

UTILIZATION STANDARDS

Utilization standards will conform to those specified in the "Interior Utilization Standards."

Table 7 - Utilization Standards - Interior

ITEM	DIAMETER (CM)
Maximum stump height	30
Top diameter (Cw >140 years)	15
Top diameter (all other conifers)	10
Minimum DSH - lodgepole pine	15
Minimum DSH - (all other conifers)	20

Slocan commits to utilizing timber to these standards as a minimum for all operations. Slocan will work closely with MOF staff to ensure bucking specifications meet these standards.

Scheduling will minimize harvesting when deep snow conditions exist. The climatology of the TFL is diverse enough to easily accommodate this. Feller-bunchers will be used in areas where hand falling may result in high stumps due to safety concerns. Snow shoveling may also be used to ensure proper utilization while complying with WCB standards.

SITE DEGRADATION

CAUSES

Site degradation can be segmented into two categories, that resulting from permanent access structures and dispersed, on block disturbance.

Permanent access structures include permanent roads and landings. Dispersed, on block disturbance includes skid trails, backspar trails and similar ground based activities required for harvesting.

MINIMIZING DEGRADATION AND REHABILITATION

Slocan minimizes degradation caused by roads by building roads to lower standards where the use is temporary while meeting forest practices code requirements. Top soil is also placed for easy retrieval during rehabilitation. This allows for easier and more successful reforestation of these areas. All temporary roads on the TFL are fully rehabilitated. Slocan is committed to this practice over the term of Management Plan #9. Rehabilitation of previously constructed roads is subject to:

Future harvesting requirements.

Chance of rehabilitation success based on previous construction techniques.

Requirements to reduce environmental impacts. Deactivation vs. rehabilitation.

Access requirements of other resource users.

Deactivation of previously constructed roads will be identified through watershed assessments and provided for comment through the Forest Development Plan or Access Management Plan.

Slocan minimizes degradation due to landings through construction techniques that provide for selective placement of topsoil to facilitate effective rehabilitation. All temporary landings are rehabilitated within two years of completion of harvesting. Permanent landings are not scheduled for rehabilitation. This includes landings required for future passes including group select, true select or patch cut silviculture systems. Permanent landings constitute approximately 10% of currently non rehabilitated landings on the TFL.

All old landings have been inventoried to determine the potential for rehabilitation. A five year plan has been developed for the rehabilitation of these landings with completion expected in 2002. Full rehabilitation was carried out on 84.7 ha of old landings from 1995 - 1997 through FRBC. Approximately 35 ha of backlog landings remain to be rehabilitated.



Figure 3: Landing Rehabilitation

Rehabilitation potential is subject to future needs for the landing and chance of success in bringing the site back into production. The objective is to bring these areas back in to the productive landbase. Initial conifer growth shows promising results, however long term performance is not known. The timber supply information package has identified a 10% volume reduction on rehabilitated landings to account for this uncertainty. Landings will be reviewed over the term of Management Plan #9 to determine performance in relation to adjacent plantations. The results of this performance will be reported in the next Management Plan.

Dispersed on block site disturbance within the Net Area to Reforest (NAR) is minimized through harvesting sensitive sites in favourable conditions such as frozen or dry soil

conditions and through the use of sensitive site harvesting equipment. In addition, all temporary bladed structures are rehabilitated.

Although 100% of the NAR is reforested on the TFL, Kamloops Region has determined through surveys that an average of 2.6% dispersed site degradation occurs on currently harvested areas and that a further 1.4% should be assumed for future dispersed disturbance.

However, this dispersed area should not be considered as a 100% net down as many dispersed disturbances still support conifer growth although research has indicated growth may be somewhat retarded due to compaction. As identified in the Information Package, any loss of productivity due to dispersed disturbances should be adequately accounted for by Opening Adjustment Factor (OAF 1) which considers dispersed small non-productive openings. The 2.6% current degradation and 1.4% future degradation has still been modeled through a sensitivity analysis.

SILVICULTURE

HISTORY AND ACHIEVEMENTS

Silviculture activities over the term of Management Plan # 8 focused on:

Reducing the amount of current (I/A) NSR and eliminating all backlog (I/O) NSR.

Encourage a diversity of species.

Enhancing stands to realize maximum productivity for the site.

Developing a plan for the management of balsam residual stands.

Reducing regeneration delay.

Achieving faster green up through various techniques.

I/A NSR was at 914 ha at the end of 1998. This has been reduced from the 1,460 Ha identified in Management Plan #8.

An aggressive program to eliminate 2,811 of I/O NSR was implemented over the term of Management Plan #8. This resulted in 339 ha remaining to be reforested at the end of 1997.

Fill planting was also carried out on 386 ha of marginally stocked stands to improve the overall chances for success.

Planting of NSR areas focused on achieving a diversity of species in the plantations. This was achieved through planting mixed species, wherever possible, including the use of alternate species in experimental trials and natural fill in.

Site preparation moved progressively away from broadcast burning to mechanical site preparation. Improvements in site preparation techniques, with an emphasis on mimicking preferred natural microsites has been a recent initiative. Initial results show a significant improvement in plantation survival and vigour, especially in adverse site conditions.

The amount of "plant as is" has also increased with an emphasis on proper microsite selection.

Other intensive and basic silviculture achievements included:

Pruning

Juvenile and sanitation spacing

Fertilization trials

Brushing

Reforestation of rehabilitated landings

Pruning was completed on 604 ha during Management Plan #8. Pruning activities were limited to select stands that exhibited the best opportunity for improvement in tree quality.

Juvenile and sanitation spacing occurred on 574 ha. Spacing focused on improving stand quality and improving growth in suppressed stands.

Fertilization trials were carried out on a number of spaced and pruned stands where foliar sampling indicated a deficiency in nitrogen levels.

Brushing activities occurred both on younger plantations to improve survival due to competition and on older stands where free growing status was impeded by competing brush. Brushing techniques included manual and sheep grazing.

Intensive surveys and research was carried out in balsam residual stands to determine appropriate management techniques. This process provided valuable insight into existing stand potential and helped to identify appropriate management of these stands in the short and long term.

OBJECTIVES

The silviculture objectives for the term of Management Plan #9 are to focus on activities that have the potential to increase timber supply and improve wood quality. These objectives are to:

Regenerate all harvested forestlands promptly to take advantage of productive growing capacity and reduced competition.

Substantially eliminate I/O NSR and keep the level of I/A NSR to a minimum.

Aggressively monitor stands to ensure plantation success especially in problem or backlog stands.

Ensure harvested lands are regenerated towards target stocking within the prescribed regeneration delay period.

Encourage a diversity of species in all plantations.

Continue with activities that will reduce stand density and competition in suppressed stands.

Continue with activities that will aid in achieving free growing and green up status in the shortest possible time frame.

Continue with activities that will improve overall wood quality.

Improve overall stand potential in marginally stocked or poor performing SR stands.

Continue with management of problem forest types as per the identified objectives for these sites.

Improve overall performance in identified nutrient deficient stands.

STRATEGIES

The following strategies will be implemented over the term of this plan to achieve the above objectives:

Planting of all harvested areas that are part of the net area to reforest will take place within 2 years of harvesting at a maximum. Where conditions allow, planting will take place the year following harvest.

Eliminate I/O NSR through an aggressive planting program. Monitor stands to ensure plantation success especially in identified problem stands.

Monitor stands through walkthroughs and surveys to ensure plantation success, especially in identified problem stands.

Plant a mixture of species wherever possible and continue with experimental trials of alternate species.

Encourage natural fill in on plantations, including deciduous species, where forest health or stand performance can be improved

Use genetically improved stock (disease/insect resistant or improved growth), where available, to improve stand performance and increase chance of plantation success.

Juvenile and sanitation space areas that are suppressed due to stand density or competing vegetation to realize full site potential.

Space to levels that will reduce competition or suppression while allowing for future commercial thinning opportunities and minimizing forest health risks such as root rot.

Identify select high quality productive stands for pruning to improve overall wood quality.

Fill plant marginally stocked or poor performing SR stands to prescribed target stocking levels. Focus on achieving a diversity of species where a lack of diversity exists.

Perform spacing trials in problem forest types to determine potential for increased stand productivity.

Identify problem forest types through photo interpretation and surveys that may be marginally stocked or poorly performing. Implement appropriate treatments that aid in achieving site potential.

Continue with fertilization trials in potentially highly productive sites where foliar sampling indicates nutrient deficiencies.

Perform intensive silviculture investment analysis, on various intensive silviculture scenarios, through computer modeling techniques to determine potential for gains in timber supply.

NSR

Reforestation of the I/O NSR will be completed in 2000. This program is ahead of the original schedule that identified completion in 2001. Activities during MP #9 will focus on monitoring these stands closely to ensure plantation success, as many of these sites are problem areas due to competition or adverse site conditions.

There are currently 914 ha of current NSR on the TFL. The Information Package identifies a schedule for the reduction of this amount by 2001. The goal will be to reduce current NSR to a level which more closely reflects the annual rate of harvest.

BASIC SILVICULTURE ACTIVITIES

SEED COLLECTION

Slocan monitors cone crops on the TFL annually for seed potential. Cones are harvested as required to maintain an adequate Class B seed inventory. At present, approximately 50% of stock planted on the TFL comes from locally collected seed.

Slocan will use orchard, or Class A seed, if available for planting obligations on the TFL. Particularly where genetically improved stock is available.

SILVICULTURE PRESCRIPTION

The Silviculture Prescription (SP) provides site-specific strategies for integrated forest management that are consistent with the broader objectives stated in the forest development plan.

The SP is the most detailed and final operational plan designed to describe and prepare individual areas for harvesting and identify post harvest silviculture standards for stocking and free growing.

The SP on the TFL is used in conjunction with an in house logging plan which identifies detailed harvest patterns and site requirements. An in house treatment regime form provides site specific detail on proposed silviculture treatments including planting, site preparation and stand tending.

SITE PREPARATION

Site preparation methods to be considered will include broadcast burning and mechanical methods including debris piling, scarification, mounding, stumping and disc trenching. Where suitable natural microsites exist many areas will be planted as is.

The use of broadcast burning will continue to play a minor role in site preparation due to its incompatibility with current harvest practices and the requirements for biodiversity and wildlife. Broadcast burning is still considered a valuable site preparation tool and will be utilized where appropriate.

Objectives for site preparation will be to:

Create favourable microsites for planting where natural spots are insufficient.

Minimize the time frame between harvest, site preparation and planting to maximize the potential for plantation success.

Strategies to achieve these objectives include:

Reduce competition due to brush.

Reduce excessive slash loads and unacceptable planting mediums that reduce favourable microsites.

Create favourable microsites where cold, wet or compacted soils will inhibit tree growth.

Schedule site preparation activities to occur as soon as possible after harvesting is completed.

PLANTING AND REGENERATION

All areas harvested on the TFL within the net area to reforest as identified on prescriptions will be planted. Table 8.9 in the Information Package identifies how existing Analysis Units will be regenerated after harvesting and the expected regeneration delay period.

The main objective in planting is to ensure a site is reforested as quickly as possible following harvest and site preparation. This will give the plantation the best chance of survival by reducing the potential for competition. Proper microsite selection is also extremely important to ensure adequate root and shoot growth in the first year of establishment.

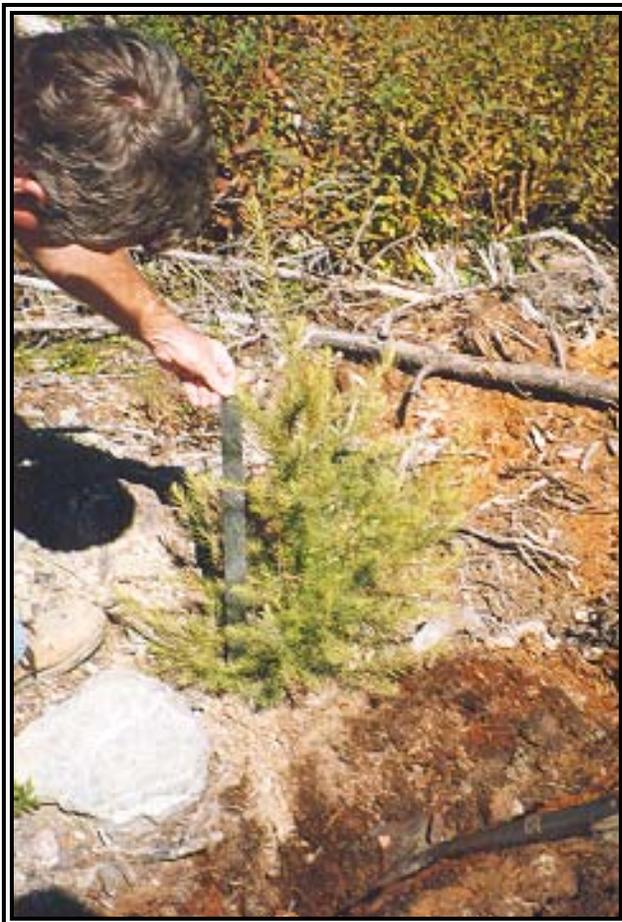


Figure 4: Planted Two Year Old Siberian Larch

SURVEYS AND ASSESSMENTS

SURVIVAL AND REGENERATION SURVEYS

Silviculture surveys will be carried out on all plantations, current and I/O, according to the following schedule:

A survival survey will be conducted one growing season after planting.

A stocking survey will be carried out two growing seasons after planting.

The stocking survey will identify the stocking status and make recommendations for any stand tending treatments, fill planting or subsequent surveys.

Specific schedules may be altered to ensure survey before the regeneration delay date.

FREE GROWING SURVEYS

Free growing surveys will be conducted on all harvested areas within timeframes identified in silviculture prescriptions. The objective will be to meet free growing by the early free growing date. Surveys will be completed to current MOF standards. Current draft standards are approved for use that allow for encroachment of some deciduous and brush species, where they do not impede the growth of conifers. Slocan will use these procedures in future free growing surveys.

STAND TENDING SURVEYS

Stand tending surveys will be completed where a potential need for treatment to reduce competition is identified during previous walkthroughs or surveys. The objective will be to improve stand performance and quality and achieve free growing status in the shortest time frame possible.

Stand tending surveys may also be carried out after free growing status is achieved where a potential for pruning to improve quality is identified.

OTHER ASSESSMENTS

Slocan intends to conduct surveys during the term of this plan to improve the reliability of Operational Adjustment Factor 1 (OAF 1). OAF1 is an estimated factor used to reduce stand yield to account for the small stocking gaps that typically occur in a stand.

Due to lack of an appropriate survey method to determine the OAF1 factor, 15% has been typically used in timber supply analyses. This is the amount assumed in the Information Package.

A survey procedure was developed and released in December 1998 that will be used to complete these surveys. The results will be used in considering an appropriate OAF1 for the next management plan.

MAXIMUM DENSITY SPACING

The objective of spacing will be to reduce stand suppression due to overstocking where the stems per hectare are greater than 10,000. Spacing operations during the term of this plan will concentrate on leaving higher densities post treatment than in the past. The intent will be to provide for commercial thinning opportunities while minimizing forest health concerns such as root rot in root rot prone ecosystems.

Spacing will concentrate on the most productive sites first.

BRUSHING

Brushing will be carried out to reduce competition from herbaceous and woody vegetation. Treatments to be considered include manual, chemical and biological. Sheep grazing has been used successfully in the past and will be considered in future.

Retention of some deciduous stems will be considered where they prove beneficial to stand performance and still allow for a free growing stand.

INTENSIVE SILVICULTURE ACTIVITIES

SPACING

Spacing will be considered where the stems per hectare are below maximum densities. This may include sanitation spacing to eliminate diseased or damaged stems that are providing competition to potential crop trees. While higher densities will be encouraged for the reasons identified in basic silviculture, intensive spacing will be considered where a benefit to the stand is anticipated based on survey results.

PRUNING

Pruning activities will continue to concentrate on the most productive sites where overall stem quality is expected to improve through to rotation.

Pruning will concentrate in Douglas fir and lodgepole pine leading stands where large branch size is most prevalent.

COMMERCIAL THINNING

Commercial thinning will be considered where an opportunity exists to harvest a percentage of sawlog volume in a stand prior to rotation, while retaining the remainder of the stand for harvest at ages as identified in Table 10.6 of the Information Package. Requirements for other resource, social and economic values will be considered on a site specific basis when setting objectives for commercial thinning. Objectives for commercial thinning are to:

Improve stand quality.

Improve growth potential of remaining stems.

Provide flexibility in timber flow.

Obtain volume from a stand that would otherwise become an endemic loss.

Strategies for achieving these objectives include:

Removal of diseased, deformed or dead merchantable stems while considering biodiversity requirements.

Reduce competition due to crown closure and available growing space.

Target stands where a growth response can be expected in the remaining stems.

Target stands that would be otherwise constrained due to greenup, wildlife, visuals or other values.

Limiting factors include:

Forest health concerns such as root rot.

Risk of blowdown.

Commercial thinning potential will also be considered during the stand tending phase. Where applicable, stands will be spaced to higher densities in preparation for a commercial thinning once the stand reaches a merchantable size.

FERTILIZATION

Fertilization will be considered to improve growth where high site productivity is expected and trees exhibit signs of nutrient deficiency not attributable to other factors. Foliar sampling in the TFL has identified that sites receiving hot burns through broadcast burning or wildfires generally exhibit deficiencies in nitrogen and trace elements. This generalization along with future foliar sampling and silviculture survey results will be considered when identifying candidate stands for fertilizing.

Fertilized stands will also be monitored to determine the effectiveness of treatment.

FIRE PROTECTION

FIRE PREVENTION

Slocans' policy is to minimize losses of forest and range values to fire. Industrial activities will be carried out in a manner that will minimize the potential for fire.

Potential hazards created as a result of industrial activities will be abated in a timely manner.

Designated recreational areas will be monitored during fire season to ensure use of fire by the public is consistent with regulations and fire hazard.

Slocan employees and contractors will actively participate in the detection and prevention of fires.

FIRE PREPAREDNESS

Slocan will submit a fire preparedness plan prior to April 1 of each year consistent with Section 27 and 28 of the Forest Fire Prevention and Suppression Regulation.

Slocan maintains a standby roster of trained personnel during fire season , who are available for initial detection, suppression and coordination of fire fighting activities. The location of proposed industrial activities for the fire season is identified in the fire preparedness plan and amended as required throughout the season.

During periods of extreme fire hazard additional patrols are carried out on major roads and recreational sites in the TFL.

FIRE SUPPRESSION

The Forest Fire Prevention and Suppression Regulation will be complied with in all fire suppression activities. Slocan will ensure that initial attack and suppression crews take action all identified fires on the TFL.

PRESCRIBED BURNING

Prescribed burning activities on the TFL have been substantially reduced over the term of Management Plan #8. This practice will continue over the term of this plan. Prescribed burning will be generally limited to pile burning although broadcast burning will still be considered where appropriate.

Prescribed burning activities will account for appropriate burning conditions and proximity to adjacent fuels.

FIRE FUEL MANAGEMENT

Slash levels will be minimized where not required for coarse woody debris/biodiversity. Coarse woody debris objectives take into account fire hazards created by slash and provide strategies for minimizing the hazard.

Juvenile spacing, pruning, brushing and other fuel management problem areas are identified in the TFLs GIS mapping. This information is used to identify areas of high hazard.

Logging debris piles are burnt as soon as possible after harvesting is completed.

SMOKE MANAGEMENT

All prescribed burn activities, broadcast burn or pile burning, will follow the Clearwater District Smoke Management Plan (1993). This plan takes into account venting indices, visual quality and time of year in determining appropriate burning windows. This approach will minimize the potential for excess smoke levels in identified surrounding population centres.

FOREST HEALTH

DETECTION AND TREATMENT

Slocan carries out reconnaissance flights twice annually to review forest health concerns on the TFL. Additional flights are conducted where a need is identified due to higher incidence levels of insects or disease. These flights are complemented by ongoing ground observations during timber development activities. Where a problem is identified, ground truthing is initiated combined with surveys or probes where required. The TFL GIS is invaluable for identifying high risk stands so that surveys can be focused on potential problem areas.

All activities are closely coordinated with MOF District and Region priorities and plans. As most areas of the TFL are well roaded, detection and subsequent treatment is generally easily achieved in a timely manner.

Objectives of the forest health program on the TFL are to:

Detect and treat forest health concerns in a timely manner through an aggressive detection program.

Minimize unrecoverable losses.

Maintain productivity of the landbase on the TFL

In order to achieve these objectives Slocan has developed a coordinated plan to deal with each identified forest health concern as it occurs. Where a pervasive or epidemic condition exists, a detailed strategy is implemented to treat the condition. The following sections identify insects, disease and related forest health concerns and provide strategies for treatment where applicable.

INSECTS

The following insects have been detected on the TFL or in the immediate vicinity during the term of Management Plan #8:

Spruce Beetle (*Dendroctonus rufipennis*)

An epidemic level of spruce beetle attack was detected in the southwest portion of the TFL in late 1997. Extensive beetle probing was carried out to determine the extent of

infestation. Varying levels of attack were identified over a 600 hectare area. A salvage plan was implemented in consultation with MOF and MELP staff which identified 420 hectares of beetle attacked timber to be harvested. The plan incorporated significant wildlife tree reserves in areas of minimal infestation.

An extensive trap tree program was implemented in spring 1998 encompassing an area of approximately 5,000 ha in the vicinity of the infestation. The program was extremely successful with heavy attacks in most trap decks and negligible attack in surrounding standing timber. Beetle probes carried out over 600 hectares of susceptible stands adjacent to the salvage area showed insignificant levels of new attack.

The trap tree and survey program was continued during 1999 with the expectation of bringing the beetle population substantially under control. Additional surveys and control measures are proposed for 2000 based on the results of the 1999 program.

Mountain Pine Beetle (*Dendroctonus ponderosae*)

Mountain pine beetle populations on the TFL are currently at endemic levels. Only solitary trees have been noted with no indication of increasing populations. Epidemic levels to the south in Kamloops district and to the west in 100 mile district are a concern. These populations will be closely monitored where they approach the TFL.

Susceptible pine stands are identified through our GIS and monitored during pest incidence flights and during ground activities. Areas showing increased activity will be surveyed to determine the extent and status of attack. Treatment will consist of pheromone baiting and salvage or fall and burn in isolated attacks where access is difficult.

Balsam Bark Beetle (*Dryocetes Confusus*)

Attack levels associated with this insect are generally quite low but scattered throughout the TFL in individual trees or small groups of trees associated with spruce and balsam stands. Many stems are harvested through normal cutting permit development. Susceptible stands are monitored annually and infested areas will be salvaged where feasible and practical. Where epidemic levels are identified or anticipated, appropriate

control measures will be taken including baiting and monitoring of populations through surveys.

Spruce Budworm (*Choristoneura biennis*)

Spruce budworm activities were identified in the central and southwestern portions of the TFL during 1998. Defoliation levels were moderate but predominately limited to understory balsam and spruce. Growth may be affected in the short term in these stands but little mortality is expected. Monitoring of susceptible stands will continue and salvage and control measures implemented as required.

White Pine Weevil (*Pissodes strobi*)

The white pine weevil is a problem in many of our spruce plantations. Historic planting of spruce as the only species has resulted in many of these plantations being attacked, especially below 1,400 metres where spruce is most susceptible. Through research and planting trials Slocan has developed a strategy for the management of the white pine weevil.

Avoid pure spruce plantations below 1,400 metres. Use caution at 1,400 to 1,500 metres.

Delay spacing in stands with high percentages of spruce and no alternative leave species.

Reduce the percentage of spruce during stand tending in stands below 1,400 metres. Leave up to 800 well spaced deciduous trees per hectare.

Plant genetically improved weevil resistant spruce where available. Encourage seed collection efforts and testing of resistant spruce seedlots.

Interplant established weevil attacked spruce plantations with alternate species. Encourage natural deciduous species. Consider interplanting in high risk areas where weevil attack is anticipated.

Lower elevation seedlots generally have greater resistance to weevil. Move spruce seedlots up in elevation and avoid moving spruce seedlots down in elevation.

Continue with projects carried out during MP #8:

Monitor populations

Conduct density trials

Test resistance of different families and progeny from seed orchard seed.

Continue monitoring of permanent sample plots established in plantations with expected weevil resistance.

Maintain communication with recognized experts.

Consider other projects:

Trap weevils with semiochemicals.

Test introduction of natural predators and pests.

Systemic insecticide injections on a trial basis.

DISEASE

ROOT ROT

Both Armillaria root rot (*Armillaria osteyae*) and Laminated root rot (*Phellinus weirii*) have been identified on the TFL in the SBS and ICH biogeoclimatic zones. Incidence levels appear to be low in the SBS and high in the ICH.

Root rot is initially identified at the landscape level by identifying susceptible ecosystems. The Terrestrial Ecosystem Mapping project will provide a valuable tool in further refining this information. Potential for infestation is also determined through identification of infestations in mature stands and plantations through reconnaissance and surveys.

Treatment for root rot infested stands is identified at the silviculture prescription stage. Treatments used on the TFL include stumping of infected areas, mixed species planting and planting of more resistant species.

WINDTHROW

Windthrow or blowdown is an historic problem on the TFL. Uniform stand ages and structure, wetter sites and unpredictable prevailing winds pose a challenge in windthrow management. Windthrow is most common adjacent to harvested stands within two years of harvest but also occurs in unharvested areas. Slocan has enlisted the help of recognized experts in the field to assist in developing a comprehensive management strategy to minimize windthrow. The following strategies have been implemented when considering block design and addressing existing blowdown:

Position block boundaries in drier well drained ecosystems where trees are deeper rooted

Locate boundaries along natural windfirm timber type breaks such as treed swamps where a gradual decrease in tree size or "stepped effect" exists.

Use other natural windfirm boundaries such as rock, slopes breaks or brush.

Orient blocks to minimize the impact of prevailing high winds. Use historical weather station data where available.

Feather prone block edges by removing larger stems to disperse the wind and mimic the structure of natural openings.

Where terrain is uniform or windfirm boundaries are lacking smaller openings will be considered. Where this conflicts with patch size distribution guidelines and may result in further fragmentation, larger openings can be created over time allowing time for edges to become windfirm.

In stands with existing blowdown the following strategies are used in producing a new windfirm boundary:

Where the blowdown has occurred in a wetter ecosystem identify a drier area or natural windfirm feature to establish the new boundary on.

Determine if the stand is windfirm as a result of the windthrow. Where this occurs, careful extraction of the windthrown timber should be carried out to minimize the potential for destabilizing standing trees.

Consider leaving the windthrow if a windfirm boundary has been created, volume is low, salvage presents a risk of further destabilizing the stand and there is low risk to forest health.

To minimize the potential for deterioration of wood quality and unrecovered losses due to windthrow, Slocan continually monitors for windthrow through ground confirmation and during semi-annual forest health flights.

UNSALVAGED LOSSES

Unsalvaged losses are losses in timber volume due to natural or unnatural disturbances at the epidemic level. Endemic losses are accounted for in yield calculations for timber supply. These disturbances are usually due to fire, epidemic insect or disease incidence, or windthrow. This type of loss is kept to a minimum on the TFL due to excellent access on the extensive road network.

In order to determine the expected levels of unsalvaged losses, historical information from past events on the TFL were used to approximate the volume losses due to windthrow, insects and fire. This data was also compared to similar information collected in the surrounding Kamloops Timber Supply Area. A summary of the assumptions made is included in section 9.0 of the Information Package.

Slocan will continue to take an aggressive approach to facilitate the timely harvest of damaged timber. Recent streamlining of the approval process for small volumes of damaged timber will aid in this endeavor. Approximately 25,000m³ of damaged timber is harvested annually on the TFL.

INTEGRATED RESOURCE MANAGEMENT

RANGE MANAGEMENT

BACKGROUND

TFL 18 has two cattle grazing licence holders. These licences authorize 842 AUMs per year. During the summer months, the western and eastern portions of the TFL are used for grazing by the licensees shown in Table 2 below. The boundaries of the Grizzly and Plateau pastures were updated in 1998. A map of all the range areas is included in the map folio. Up until 1998 the TFL also had a temporary sheep grazing licence. The license area is currently in dispute between interested parties and has not been renewed in 1999.

Table 8: Grazing Licences on the TFL as of July 1999

District	Licence No.	Animal Unit Months (AUMs)	No. and Class of Livestock	Pasture or Area
Clearwater	885-9 (1050)	187	120 cow/calf 5 bulls	Plateau
Clearwater	885-9 (1050)	187	120 cow/calf 5 bulls	Grizzly Lake
100 Mile	RAN070746	468	200 cow/calf 8 bulls	Franks Farm

The TFL has capacity for increased grazing in unallocated areas. Should additional grazing permits be issued Slocan would require advance notice so that consideration can

be given to the impact on other resource values. The MOF periodically receive expressions of interest for increased grazing rights.

The control and prevention of knapweed infestations is a major grazing concern. During the term of Management Plan #8, Slocan has ensured prompt grass seeding has been carried out on disturbed areas such as trails, roadsides and landings. This process appears to have successfully impeded the spread of this weed.

Range activities on the TFL have taken place in harmony with forestry activities throughout the term of M.P. #9. Minor conflicts that have arisen regarding access control have been mutually resolved.

OBJECTIVES

In order to continue with the current effective management of the range resource while minimizing the impact on forestry activities, Slocan will implement the following objectives during MP #9.

Co-operate with proposed and current range management activities.

Participate in planning and co-ordination of forestry and grazing activities.

Continue with activities to minimize the spread of weeds detrimental to forage production, biodiversity and other resource values.

Promote forage production while trying to minimize the impact of livestock on regenerating plantations.

Maintain natural barriers.

Ensure reasonable access to range areas is maintained or provide mutually acceptable alternatives.

Minimize impact of livestock in new plantations.

STRATEGIES

In order to achieve the above objectives the following strategies will be implemented.

Liaison with affected range tenure holders and agency range personnel to openly address concerns and develop effective strategies to address issues.

Co-ordinate logging and livestock movements to minimize conflicts.

Schedule harvesting to ensure a reasonable flow of forage is available to each grazing area.

Continue with prompt grass seeding of disturbed areas to promote forage production and minimize the spread of noxious weeds, particularly knapweed.

Co-ordinate access management activities with range licensees to ensure a reasonable level of access to grazing areas is maintained.

Ensure alternative measures are implemented, such as the relocation or placement of cattleguards, where natural barriers to livestock movement are breached.

Co-ordinate grazing activities to minimize the impact on new plantations. Delay entries where livestock activity may impede plantation establishment. Promote range use in areas where vegetative competition will restrict seedling growth.

RECREATION MANAGEMENT

BACKGROUND

TFL 18 provides a wide range of recreational opportunities, many of which have been enhanced through the improved access gained along the extensive network of logging roads and trails. The main recreational activities on the TFL include boating, summer and winter angling, camping, hiking, hunting, dogsledding, horseback riding, cross country skiing and snowmobiling.

A significant percentage of the recreational user days on the TFL are centered around the numerous fishing lakes. There are 21 recreation sites established at 19 of these lakes. A recreation map showing the location of recreation sites and associated activities is provided in the map folio. In spring 1999 a number of lakes on the TFL were proposed as

walk in only to provide a variety of recreational opportunities, and in some cases, reduce fishing pressure.

There is one fishing lodge, Moose Camp, located on Rioux lake in the central portion of the TFL. This lodge makes use of a number of lakes within the TFL for their fishing activities. Communication with the owners of this lodge is maintained throughout the year to keep them informed of proposed harvesting and silvicultural activities that may impact their operations.

Star Lake Resort is located outside, but immediately adjacent to the TFL boundary. This resort makes use of Walter, Frank and Lolo lakes, which are within the TFL, for their fishing operations. Permits which may affect these operations will be discussed with the respective lodge owners.

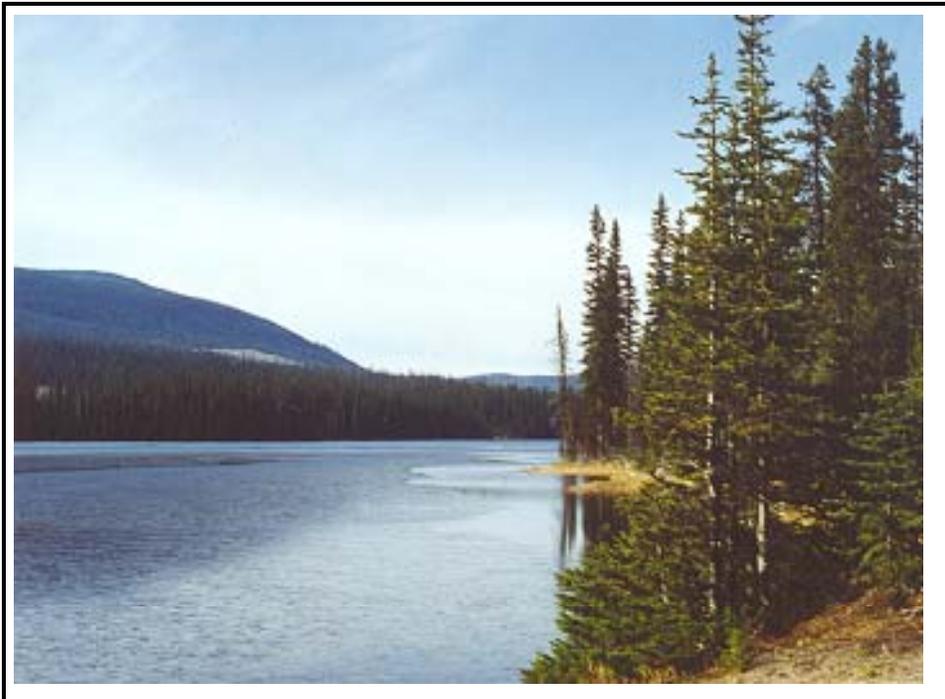


Figure 5: Reflector Lake

OBJECTIVES

The recreation resource is an important component of the day to day operations on the TFL. Slocan actively participates in any activity that serves to maintain or enhance this

resource. The following objectives and strategies will be implemented during Management Plan #9 to aid in the protection of recreational values.

Manage recreation resource values through integrated resource management in accordance with MOF policies and procedures.

Minimize conflict between recreational and other resource values.

Provide adequate protection of the numerous recreational values surrounding fishing lakes.

Co-operate with recreational user groups in proposals for recreational pursuits.

Ensure the public is aware of the recreational opportunities on the TFL.

STRATEGIES

Refer to MOF recreation manuals, FPC guidebooks and recreation inventories when considering areas for recreation potential to ensure all resource values are considered.

Ensure recreational user groups are informed of activities that may impact recreational values through notification and meetings.

Utilize GIS technology to model the interaction of all resource values to ensure a sustainable recreational resource.

Participate in the lakes classification committee to ensure all significant lakes are classified to provide strategies for the protection of recreational features unique to each lake.

Schedule forestry activities to minimize the potential for conflict on recreational pursuits.

Establish information signs and provide recreational maps of the TFL to assist recreation users in accessing the TFL.

VISUAL MANAGEMENT

BACKGROUND

The Landscape inventory completed in 1996 provides an excellent tool for managing the visual quality in the TFL. Where harvesting is proposed in identified visually sensitive areas, various tools are used to ensure the applicable visual quality can be met. Slocan uses the visual quality matrix provided in the Kamloops LRMP as a guide for achieving visual quality objectives. In addition, a detailed visually effective greenup (VEG) has

been calculated for TFL 18 to better reflect the unique topography of the area. This data is detailed in the information package.

The timber supply analysis base case indicates a significant impact on timber supply due to visual green up requirements in areas with visual quality objectives. As the spatial modeling in these areas is 2 dimensional the model is unable to adequately account for mitigating factors such as visual screening, landscape design techniques and alternative silviculture methods. These mitigating factors, as well as 3-D modeling in visually sensitive areas will be undertaken over the term of MP #9.

The gentle topography prevalent in the TFL provides for a significant amount of flexibility in achieving identified visual quality objectives. The majority of visually sensitive areas are associated with the many lakes on the TFL. In many cases, the visual screen provided through the objectives identified for the lakeshore management zone, is adequate to meet the visual objectives for the majority of the visual polygon.

The implementation of the following objectives and strategies during MP #9, should effectively eliminate the potential impact visual quality objectives will have on timber supply.

OBJECTIVES

Meet with established visual quality objectives while eliminating the potential impact on timber supply.

STRATEGIES

Use established landscape design techniques, considering line and form, which will allow for increased percent harvested, while still meeting the objectives outlined in the KamloopsLRMP.

Use alternate silviculture systems, where applicable, to minimize the visual impact.

Carry out landscape rehabilitation on existing openings, while meeting other resource objectives, to improve the existing visual quality.

Use terrain modeling techniques, appropriate for the given visual sensitivity, to simulate proposed harvesting in the perspective view.

Use computer models such as FORUM, to model proposed harvesting spatially and temporally in the planimetric view.

Perform computer modeling in the perspective or 3-D view, on representative visual polygons, to show how visual quality objectives can be met over time.

FISHERIES MANAGEMENT

BACKGROUND

TFL 18 contains a healthy population of rainbow and eastern brook trout in the numerous lakes and streams. The rainbow population consists of both stocked and wild fish. Mann creek is the largest watershed in the TFL and provides for an important coho rearing habitat approximately 6 miles south of the TFL boundary at the confluence with the North Thompson.

The fisheries inventory of many of the lakes on the TFL has provided valuable information on fish habitat and rearing potential in many of the lakes and streams. Fish Habitat Assessments have been carried out in the Mann and Canim Red watersheds which are the main stream systems on the TFL covering approximately 60% of the entire area. These assessments identified areas where rehabilitation or enhancement could improve the quality of fish habitat. The following objectives and strategies layout a framework for ensuring the continued quality of fish habitat.

OBJECTIVES

Maintain water quality in fish bearing streams and lakes.

Maintain or enhance fish habitat

STRATEGIES

Schedule harvest activities to minimize sedimentation in fish bearing streams and lakes. Curtail harvesting during adverse conditions.

Consider projects to enhance or rehabilitate fish habitat where assessments indicate the need.

Schedule instream works on fish streams within established instream work windows whenever possible.

Take preventative measures to minimize sedimentation when carrying out forestry activities.

WILDLIFE MANAGEMENT

BACKGROUND

TFL 18 is located on a mid elevation plateau and provides habitat for a diverse range of wildlife species. A healthy population of deer, moose, black bear and cougar are found throughout the low to mid elevations. In addition to large mammals, the TFL provides habitat for a variety of smaller mammals and birds. Bird species include raptors such as bald eagle and red tailed hawk.

No critical deer winter range was identified on the TFL through the LRMP while moose winter range was identified in the southwest corner. The wildlife portion of the Terrestrial Ecosystem Mapping project will be to refine habitat areas providing a tool for more precise management of identified wildlife species.

Trappers and guide outfitters with interest or knowledge of TFL 18 will be encouraged to provide input to the annual reviews of the forest development plans. Information they provide concerning wildlife management areas will be considered in harvesting and development plans.

Numerous red and blue listed flora and fauna have been identified as potentially residing within or in the immediate vicinity of TFL 18 as shown in the following table

Red and Blue Listed Species

Scientific Name	Common Name	Provincial Listing
<i>Carex comosa</i>	bearded sedge	Blue
<i>Carex heleonastes</i>	Hudson Bay sedge	Blue
<i>Carex vulpinoidea</i>	fox sedge	Blue
<i>Dryopteris cristata</i>	Crested wood fern	Blue
<i>Epilobium leptocarpum</i>	Small-flowered willowherb	Blue

Scientific Name	Common Name	Provincial Listing
<i>Epilobium Oregonense</i>	Oregon willowherb	Blue
<i>Galium trifidum ssp trifidum</i>		Blue
<i>Impatiens capensis</i>	Spotted touch-me-not	Blue
<i>Juncus stygius</i>	bog rush	Blue
<i>Aeronautes saxatalis</i>	White-throated swift	Blue
<i>Ardea herodias</i>	great blue heron	Blue
<i>Asio flammeus</i>	short-eared owl	Blue
<i>Botaurus lentiginosus</i>	American bittern	Blue
<i>Buteo Swainsoni</i>	Swainson's hawk	Blue
<i>Haliaeetus leucocephalus</i>	bald eagle	Blue
<i>Numenius Americanus</i>	long-billed curlew	Blue
<i>Gulo gulo ssp luscus</i>	Wolverine	Blue
<i>Martes pennanti</i>	Fisher	Blue
<i>Myotis septentrionalis</i>	northern long-eared myotis	Red

Identified wildlife potentially residing on the TFL as indicated in the Identified Wildlife Management Strategy include American bittern, Northern Goshawk ssp. *Atricapillus* and fisher.

OBJECTIVES

The Identified Wildlife Management Strategy Guidebook identifies management strategies for the wildlife indicated above. Where these species are confirmed on the TFL, guidebook procedures will be followed in reporting and managing for the species at risk. In addition, the following objectives and strategies will guide the management of all wildlife on the TFL.

Provide more comprehensive, detailed information on wildlife habitat and develop appropriate management strategies.

Minimize conflict between wildlife and other resource users.

Incorporate wildlife habitat values into log term harvest strategies.

STRATEGIES

Identify habitat capability/suitability and develop management strategies through wildlife surveys as a part of Terrestrial Ecosystem Mapping.

Schedule harvesting and road construction activities during periods that minimize disturbance of wildlife.

Work with MELP staff in developing management strategies for key wildlife.

Consider alternative silviculture systems in identified habitat where there is a demonstrated benefit.

Follow biodiversity guidelines for the management of habitat distribution and dispersal at the landscape level.

Use computer modeling techniques to show how habitat requirements can be met spatially over time.

Establish wildlife tree reserve and coarse woody debris objectives that provide a benefit to wildlife habitat.

WATER RESOURCES

BACKGROUND

TFL 18 contains a highly diverse network of streams, lakes and wetland complexes. Water quality is extremely important for the continued health of aquatic and terrestrial wildlife. Downstream users, outside the TFL, also use the water resource for irrigation and livestock.

Water quality is addressed at the landscape level through review and assessment of watersheds within the TFL.

The TFL has been divided into 14 watersheds either fully or partly within the TFL. These watersheds delineate specific drainages or sub drainages. During management plan #8 all watersheds received initial assessments to determine overall watershed condition. This information was used by MOF and MELP to develop a priority list for further detailed assessments as per the Interior Watershed Assessment Procedure (IWAP). Following completion of assessments a roundtable review is held between agencies, the reviewing hydrologist and Slocan to reach consensus on recommendations for management of the watershed. The following table indicates the priority watersheds and completion dates for roundtables.

Table 9: PRIORITY WATERSHED LIST

WATERSHED	ROUNDTABLE DATE
Maury	Completed 1999
Wylie	Completed 1999
Brookfield	Completed 1998
Gill	Completed 1999
Mann Creek Residual	Completed 1999
North Mann Creek	Completed 1999
West Mann Creek	Completed 1999
Goodwin	Proposed 2000
Robinson	Proposed 2000
Sock	Proposed 2000
Italia	Proposed 2000
Canim Red	Completed 1998

Once completed, the recommendations from the roundtable will provide a framework for ensuring the continued health of the watersheds and overall water quality. The following objectives and strategies take into account management strategies identified through the IWAP as well as issues specific to the TFL.

OBJECTIVES

Maintain or improve water quality and quantity.

STRATEGIES

Complete assessments and roundtables on priority watersheds.

Implement recommendations of watershed roundtables.

Carry out harvesting and road construction during periods that minimize sedimentation.

Be proactive with road maintenance to ensure that proper drainage is maintained.

Carry out road deactivation as identified through the access management plan and deactivation prescriptions.

Ensure access is controlled on sensitive roads during adverse conditions.

Use best management practices for harvest prescriptions in riparian areas.

CULTURAL HERITAGE VALUES

BACKGROUND

Cultural values on the TFL may include archaeological and historical sites as well as areas of traditional use such as hunting, gathering or areas of spiritual significance. Two local first nations bands, the Canim Lake Indian Band and North Thompson Indian Band, claim historic use of the lands within TFL 18.

An archaeological overview assessment was completed as part of the Kamloops LRMP which identifies areas of archaeological potential. Where an area proposed for development indicates high or moderate potential a more detailed assessment is carried out to determine if evidence of historic use can be found. Local band members are hired to participate in all archaeological field surveys that occur on the TFL. To date approximately 35 areas have been surveyed with no sites identified. If any sites are found, the MOF, the Archaeological Branch of Small Business, Tourism and culture and local bands will be contacted immediately. If previously unidentified sites are excavated during operations, Section 51 of the FPC Act will be followed. Development around newly discovered sites will be suspended until a proper assessment of the site has been completed. Efforts are currently underway to develop an improved modeling tool to predict the occurrence of areas of cultural significance in the Kamloops Region. Slocan is represented on a sub-committee to provide input into this process.

Local bands have also identified the importance of traditional use in their interest areas. While both bands have initiated traditional use studies, this information is not complete. Where information is available the protection of indicated traditional use values is fully incorporated into all proposals for harvest. In addition, Slocan openly refers proposed

activities to both bands, particularly at the forest development plan stage when band members can provide additional information where studies completed to date may be lacking. A copy of the Forest Development Plan will be forwarded to bands that include the TFL as part of their interest area. Slocan will document discussions with the bands and made available to the District Manager upon request. Slocan extends and invitation to the district MOF whenever meetings are scheduled with First Nations.

The following identifies the bands that have indicated interest areas within TFL 18 and the contact person:

North Thompson Indian Band - Harry Jules: Natural Resources Co-ordinator

Canim Lake Indian Band - George Pete: Natural Resources Co-ordinator

Slocan commits to the MOFs “Aboriginal Rights and Title Policy” (June 1999) and the Clearwater Forest District “Communications with First Nations Policy” (Oct 1999)

Cultural values also include areas of more recent historic use. Slocan has identified the location of old sawmill sites, and historic cabins and trail systems within the TFL. This information will be recorded spatially within the GIS.

Objectives and strategies for the management of cultural values are:

OBJECTIVES

Identify and protect areas of cultural significance.

Ensure development proposals do not adversely affect identified cultural values.

STRATEGIES

Carry out assessments as the need is identified through predictive models.

Participate in initiatives to improve cultural site predictive models.

Implement recommended strategies for the protection of archaeological sites where they are identified.

Foster open communications with local first nation bands.

Refer all proposed development to identified cultural resource users.

BIODIVERSITY

BACKGROUND

Biodiversity and old growth management are recognized as important provincial issues. Biodiversity management on the TFL during MP #8 has been guided by the biodiversity guidebook, the Kamloops LRMP and district policies for wildlife tree retention and OGMA management.

Due to the absence of a landscape unit plan to address the landscape level component of biodiversity, the majority of efforts have been focused on achieving recommended stand level objectives. Wildlife tree patch reserves and individual wildlife trees are retained in or adjacent to the majority of cutblocks. All wildlife tree patches are tracked with data such as size and stand attributes recorded. This data is valuable in ensuring a diversity of stand level attributes are well distributed at the landscape level.

MELP personnel have developed a draft old growth management strategy for all landscape units within the Clearwater District. In the absence of other initiatives at the landscape level this has been a valuable first approximation of old growth requirements. These draft old growth areas were taken into consideration in the most recent forest development plan for the TFL. The intent of these draft OGMAs was to meet full biodiversity requirements for old growth over the landscape unit at this point in time as identified in District policy for old growth management.

The positioning of the draft OGMAs was considered when developing the 20 year plan. The twenty year plan was used to guide the block placement for the proposed 2000 Forest Development Plan (FDP). Blocks were selected for the FDP where there was little or no conflict with proposed OGMAs or blocks were modified to accommodate them. Slocan will work with agencies over the term of MP #9 to determine the best placement for OGMAs using field verification and tools such as T.E.M and FORUM. The 20 year plan will be updated as improved information is made available.

The draft old growth management areas (OGMAs) were modeled as static or non replaceable over time in the base case with an indicated impact on timber supply of approximately 12% in TFL 18. While this only represents a small portion of the TSA, it

still provides a valuable comparison with other possible scenarios for old growth management. The entire landscape unit was considered in modeling old growth but only initial runs were completed at the landscape unit level due to time constraints. Other scenarios modeled included:

Optimizing for biodiversity using dynamic or replaceable OGMAs, using current management practices, including adjacency rules and no patch or seral stage objectives.

Optimizing for biodiversity using dynamic or replaceable OGMAs, considering patch size distribution criteria and seral stage objectives.

The results were modeled both spatially and temporally. This provided a visual indication of the effect of various management practices over time. The maximum recommended impact on timber supply was not exceeded.

The Clearwater landscape unit has a biodiversity emphasis option of low that allows for up to 2/3 draw down in requirements for old growth. The requirements for old growth can be met over time where the objectives cannot be met without exceeding the maximum recommended impacts on timber supply. While this was considered during modeling, the intent was to meet and sustain the old growth objectives in the shortest possible timeframe.

Implementing current management practices resulted in a highly fragmented landscape when viewed at the 100 and 200 year planning horizon. Old growth percentages were met immediately in natural disturbance type 3 while 120 years was required to achieve the objectives for NDT 1.

By implementing objectives for patch and seral stage distribution, in addition to achieving old growth requirements, a more desirable scenario was created across the landscape. This is the preferred option.

Biodiversity objectives and strategies to be implemented during MP #9 are derived from direction set forth in the biodiversity guidebook, the Kamloops LRMP, the Landscape Unit Planning Guide and District policies for managing biodiversity. The twenty year

plan also provides guidance by showing spatially how biodiversity objectives can be met over time.

OBJECTIVES

Achieve targets for old growth and wildlife tree retention while minimizing impact on timber supply.

Achieve targets for seral stage and patch size distribution to reduce fragmentation and emulate natural disturbance patterns.

Maintain old growth and ecosystem connectivity across the landscape.

Ensure requirements for biodiversity on the TFL are consistent with objectives in the remainder of the landscape unit.

Ensure biodiversity is maintained at both the landscape and stand level.

STRATEGIES

Use computer modeling and analysis to show spatially, how old growth objectives, seral stage requirements and patch size distribution can be achieved and maintained over time.

Propose development, as guided by the twenty year plan, that will minimize fragmentation by considering size pattern and distribution in cutblock design.

Utilize constrained areas such as riparian management areas or lakeshore management zones to ensure connectivity.

Encourage species diversity through mixed species planting and natural fill in.

Develop coarse woody debris strategies that will provide stand level diversity while addressing other resource concerns.

Ensure open communications with adjacent licensees in considering biodiversity objectives at the landscape level.

SOILS AND TERRAIN MAPPING

BACKGROUND

Protection and conservation of soils is an important consideration in the management of forest land on the TFL. Soil degradation as a result of access construction and harvesting can result in a significant loss of productive forest land.

During MP 8, Slocan has minimized disturbance through the rehabilitation of temporary access structures including on block trails and landings. In addition, to minimize the potential for soil compaction, site specific objectives are identified in the Silviculture Prescription. Where sensitive soils or steep slopes are encountered, appropriate harvest systems and season of operation are considered to minimize the potential for degradation.

Approximately 92% of the TFL has slopes less than 30% so areas of high terrain hazard or soil instability are infrequent. The majority of these areas are limited to non-productive problem forest types such as alpine forest or rock. Areas of potential terrain instability on the TFL are currently identified through ESA mapping derived from forest cover polygon labels. Bioterrain mapping is currently underway as a component of the TEM project and scheduled for completion in 2000. This process will provide a valuable planning tool by providing detailed information on topography, terrain and soils. Detailed terrain stability assessments have been carried out during MP 8 where steep slopes or areas of potential instability have been identified in areas proposed for development. During MP 9, the following objectives and strategies will be implemented to protect or conserve soils and retain site productivity.

OBJECTIVES

Minimize soil degradation and resultant loss of site productivity.

Return non-productive sites to productivity where possible.

Complete more detailed assessments to identify areas of potential instability and soil sensitivity.

STRATEGIES

Conduct harvesting operations during appropriate seasons or with site sensitive equipment where soils are sensitive.

Rehabilitate all temporary access structures on completion of harvesting and site preparation activities.

Complete bioterrain mapping and carry out appropriate levels of detailed terrain assessments where a potential for instability exists.

Identify existing roads and landings that are no longer required, for rehabilitation, where they can be returned to the productive landbase.

TRAPPING AND GUIDING

BACKGROUND

The TFL is covered by two registered trapping licenses that encompass the entire landbase. Trapping activities focus mainly on small fur bearing mammals such as marten, lynx and wolverine. There are currently no registered guide outfitters that make use of the TFL for hunting. The two fishing resorts do provide guiding services for fishing opportunities.

Trappers and guide outfitters with interest or knowledge of TFL 18 are encouraged to provide input during forest development plan and management plan reviews. Information they provide concerning wildlife management is considered in development plans and harvesting proposals. Objectives and strategies for the management of the trapping and guiding resource include:

OBJECTIVES

Protect and enhance wildlife habitat.

Incorporate stand and landscape level wildlife habitat values into development planning.

Encourage open communications with trappers and guide outfitters.

Develop more detailed information on wildlife habitat in the TFL.

STRATEGIES

Identify stand and landscape level attributes that are important to species identified as significant to trappers and guide outfitters. Incorporate these attributes into development proposals.

Continue to encourage input from trappers and guide outfitters into development proposals through referrals and consultation.

Identify location of active trap lines and schedule development proposals to accommodate.

Complete wildlife habitat capability and suitability study to provide more detailed information on habitat that is important to trappers and guide outfitters.

MINERAL RESOURCES

BACKGROUND

Six mineral claims exist within the TFL as identified by the Ministry of Energy and Mines. Four in the vicinity of Maury Lake in the North central portion of the TFL and two along the south boundary adjacent to the Taweel protected area. Where active claim posts are identified during layout efforts are made to protect them or the claimant will be

identified where removal is required. Maps indicating active mineral claims is included in Appendix 13.6.

OBJECTIVES

Protect active mineral claim posts.

Identify where active claims exist within the TFL.

STRATEGIES

Where active claim posts are identified in areas proposed for development all reasonable efforts will be made to preserve them. Where removal is required for road construction or other activities the affected party will be contacted.

Periodically obtain updated maps and associated data showing active mineral claims within the TFL.

SPECIAL PROJECTS

Terrestrial Ecosystem Mapping

As identified in section 2; Resource Inventories, Slocan has initiated a Terrestrial Ecosystem Mapping project on TFL 18. This project has three proposed phases which include:

Table 10: TEM Schedule

Phase	Scheduled Completion
1:20,000 Terrestrial Ecosystem Mapping	March 2000
Wildlife Habitat Capability/Suitability Inventory	March 2001
Site Index/Biogeoclimatic Ecosystem Classification (SIBEC)	Pending

Phase one is well under way and on time for completion in 2000. This will form the basis for phase 1 and two of the project and will be an invaluable planning tool for future development. In Management Plan 8 a commitment was made to work with MELP to develop a wildlife inventory and biophysical habitat analysis as well as guidelines for habitat management. The wildlife component of the TEM will fulfill this commitment. Slocan will work closely with MELP staff in determining the parameters and species to be considered in the inventory.

Permanent Sample Plots

Sixty-four permanent growth and yield plots were established on the TFL during MP 8. An additional 15 are proposed for 2000. Slocan will continue to work with the MOF in determining future need for additional growth and yield plots.

White Pine Weevil Research

A research project was initiated in 1997 to determine weevil resistance in spruce plantations in the TFL. The intent of the project was to:

Identify suspected weevil resistant seedlots and establish permanent sample plots in these stands to monitor resistance over time.

Conduct an analysis of all spruce plantations on the TFL to identify potentially high risk stands to weevil attack.

This project is proposed to continue during MP 9 and consist of:

Fill planting in identified high-risk plantations with alternate species.

Reassessment of permanent sample areas to determine on going weevil resistance.

Planting of identified weevil resistant seedlots.

Landing rehabilitation and Inventory

A landing inventory was initiated in 1997 to identify both backlog and appraisal landings that had potential for rehabilitation. The intent is to return these landings to productivity. Once identified, a plan was initiated for rehabilitation. This is proposed for completion in 2002. All landings are ripped, topsoil replaced where available and planted. In addition, various other site enhancement activities were implemented including fertilization, planting alternate conifer species, planting or seeding alder to fix nitrogen, and grass seeding of legumes such as clover.

These sites will be monitored during MP 9 to determine the effectiveness of various treatments and determine overall productivity of the sites.

FOREST DEVELOPMENT PLAN

A Forest Development Plan (FDP) shall be submitted as required by the District Manager. During MP 8 a development plan was submitted annually. The objective for MP 9 will be to work towards a submission every two years. The FDP will be prepared in accordance with regional guidelines and any District Manager directives.

The FDP incorporates the objectives and strategies of the Management Plan into an operating plan giving detailed information on proposed development. It also draws on the Twenty Year Plan in considering proposed development and interaction with other resource values. The FDP provides guidance for the Silviculture Prescription (SP), the most site specific operational plan.

CONTRACTING

In accordance with Part 16.0 of the replacement document for the TFL, at least 50% of the volume harvested each year must be harvested by persons under contract with the licensee.

During MP 8 100% of the volume harvested was carried out by persons under contract. Slocan commits to contracting at least 50% of the volume harvested each year over the term of this plan.

REVISION

Revisions to the Management Plan shall be made in accordance with the following conditions as set forth in Paragraph 2.34 of the Tree Farm Licence Document.

If the Chief Forester considers that

damage to timber in the Licence Area as a result of fire, flood, wind, insects, disease or other causes,

a determination by the Chief Forester that operations conducted in accordance with the management plan are causing or could cause serious damage to the natural environment, including soils, fisheries, wildlife, water, range and recreation resources,

establishment, variance, cancellation or replacement of a higher level plan

interference with an aboriginal right

a change in the annual allowable cut as a result of a determination by the chief forester under the *Forest Act*, or

other special circumstances,

have rendered the management plan in effect under this licence inadequate, the Chief Forester, in a notice given to the licensee, may require that the management plan be amended.

ANNUAL REPORT

An annual report documenting the activities and accomplishments of the previous year, is submitted annually to the Chief Forester, Regional Manager and District Manager in an approved format by April 1st of each year. The annual report will no longer be a standard requirement upon issuance of the next TFL 18 replacement document effective June 1, 2001. The annual report will be submitted when required by the Regional Manager. The annual report outlines how management objectives and requirements of the management plan approval letter have been met over the year and specify goals for the next calendar year.

PUBLIC INVOLVEMENT

Consultation with Other Resource Users

Slocan maintains liaison with other agencies, and other resource users, through open house viewing of the SMOOP, Management Plan and Forest Development Plans. Letters are also mailed to agencies, resource users or representative groups inviting review and comment of these plans. Where specific issues arise, Slocan will meet with the potentially affected user to negotiate or present a proposal that will accommodate the users needs.

TFL 18 falls within territories claimed by the North Thompson and Canim Lake Indian Bands. Slocan maintains ongoing communications with both bands regarding any proposed development. Both bands have expressed concerns about the limited people and resources they have to review plans in a timely fashion. Slocan has taken the following steps to ensure open and timely communications on development proposals and ongoing activities on TFL 18:

Established a band contact person for review of proposed plans including the Management Plan and Forest Development Plan.

Agree to refer and present plans to band members at a time and place of their choosing.

Involve band members in surveys directly related to sustenance or areas of historical potential including Archaeological field surveys.

A follow up to referrals in writing to show how Slocan has accommodated their concerns.

Attend regular communications meetings hosted by the North Thompson Indian Band to ensure issues are addressed in an open and timely manner.