

**Weyerhaeuser/Tolko/Gorman Bros./BCTS
Okanagan Operations**

Sustainable Forest Management Plan



January 2008

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Vision Statement

The Weyerhaeuser/Tolko/Gorman Bros./BCTS Okanagan Sustainable Forest Management Plan will foster forest management practices based on science, professional experience and local public and First Nations input that contribute to the long-term health and productivity of forest ecosystems and related forest economies

Executive Summary

Between May 2000 and March 2001 Weyerhaeuser Okanagan Falls and Lumby, and the Ministry of Forests Small Business Forest Enterprise Program¹ (for the area of Tree Farm License 35) worked with a group of local public (the SFM Advisory Group) to develop a Sustainable Forest Management (SFM) Plan.

When the SFM process was initiated the public, including First Nations, were invited to participate in the process. The SFM Advisory Group that was established involved individuals with backgrounds related to recreation, ranching, forestry, conservation, water and community.

Following completion of the SFM Plan, and in conjunction with its environmental management system, Weyerhaeuser applied for registration of its operating area and became certified under the CSA – SFM standard. Registration was granted following an independent third party audit by a qualified organization.

During the summer of 2003, Weyerhaeuser and Tolko (the licensees) began discussions on the benefits of working together with the SFM Advisory Group to expand and include Tolko's Lavington operating areas within the Okanagan-Shuswap Forest District. This approach was presented at the October, 2003 SFM Advisory Group field-trip and was supported in principle by the members. With this revised process Tolko invited members of the public, including First Nations that have identified resource use/interest within Tolko's operating areas, to participate in the public advisory group. The licensees and the SFM Advisory Group started implementing this new approach at their December, 2003 meeting. As a result of Tolko acquiring Riverside Forest Products Limited in late 2004, the DFA was expanded in 2006 to include the Riverside operating area, and additional members were brought into the PAG. In 2006, Gorman Bros. Lumber joined the SFM group, following the same steps as described above for the Tolko expansion/inclusion. In late 2007 B.C. Timber Sales (BCTS) also joined the Okanagan SFM Plan.

The DFA for 2008 has been expanded to include BCTS operating areas within the Okanagan TSA. The inclusion of BCTS fills a number of the gaps throughout the DFA, resulting in coverage of most of the area from the US border, north to the Trans Canada Highway.

The SFM Plan includes a set of values, objectives, indicators and targets that address environmental, economic and social aspects of forest management in Weyerhaeuser's, Tolko's, Gorman Bros., and BCTS' operating areas in the Okanagan, Arrow and Boundary Timber Supply Areas. The Plan is based on the Canadian Standards Association (CSA) Sustainable Forest Management; Requirements and Guidance, which is one of the primary 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 require compliance with existing forest policies, laws and regulations.

¹ Now Ministry of Forests and Range, BC Timber Sales

Executive Summary

The SFM Plan is an evolving document that will be reviewed and revised on an annual basis with the SFM Advisory Group to address changes in forest condition and local community values. Each year the SFM Advisory Group will review an annual report prepared by Weyerhaeuser, Tolko, Gorman Bros., and BC Timber Sales, with input from Non Replaceable Forest License holders operating within the DFA, to assess achievement of performance measures. This monitoring process provides the licensees and the public with an opportunity to bring forward new information and provide input concerning new or changing public values that can be incorporated into future updates of the SFM Plan.

Current information on the SFM Plan can be obtained by calling the licensee representatives or visiting the company websites:

- Weyerhaeuser:
 - Brian Drobe: (250) 295 4263
 - <http://www.weyerhaeuser.com/ourbusinesses/forestry/bcinterior/plan/>
- Tolko:
 - Paul Ross or Rob Kennett: (250) 547 2111
 - <http://tolko.com/sustainability/div/okanagan.php>.
- Gorman Bros.
 - Kerry Rouck or Randy Hardy: (250) 768 5131
 - www.gormanbros.com
- B.C. Timber Sales (Okanagan-Columbia Business Unit)
 - Dave Gill: (250)-558-1717
 - <http://www.for.gov.bc.ca/bcts/areas/TOC.htm>

1.0 Introduction and Overview

In recent years there has been an increasing demand worldwide for “certified” wood products. This has led to the development of a number of certification systems to provide assurance to consumers that forest products have been produced using environmentally and socially responsible forest practices.

The Canadian Standards Association (CSA) *Sustainable Forest Management; Requirements and Guidance* is one of the primary certification systems currently being used in British Columbia. The CSA system requires the development of 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 other stakeholder interests.

Weyerhaeuser Canada Ltd., Tolko Industries Ltd. Gorman Bros. Lumber Ltd., and B.C. Timber Sales are the participating entities in the Okanagan Sustainable Forest Management Plan. These organizations are commonly referred to in the plan as the “participating licensees” or “licensees”. The Licensees, with advice from the SFM Public Advisory Group, have used the CSA certification system as the basis to develop the Okanagan Sustainable Forest Management (SFM) Plan. This Plan provides management direction for all of Weyerhaeuser’s operating areas in the Okanagan-Shuswap Forest District and Boundary Timber Supply Area (TSA), Tolko’s operating areas in the Okanagan-Shuswap Forest District and Arrow TSA, and Gorman Bros., and BCTS operating areas within the Okanagan-Shuswap Forest District.

The licensees have been consulting with the public to develop responsible forest management plans for over 20 years. These planning processes include development of strategic and field plans, analyses, setting of standards, monitoring and public review. The licensees prepare Forest Stewardship Plans that incorporate the direction provided through these various planning processes. Standards and operating plans are continuously updated as new information comes forward. The SFM Plan is one component of the licensees’ commitment to adapt their management practices in response to changes in societal values.

The Sustainable Forest Management Plan is a “roadmap” to current and future strategies related to long-term performance. The performance measures have been developed using the Canadian Standards Association (CSA) *Sustainable Forest Management; Requirements and Guidance -- Z809 - 02*. This document describes the various components of the plan as it relates to the participating licensees’ Defined Forest Area in the Okanagan Boundary, and Arrow Timber Supply Areas (TSA).

The SFM Plan includes six sections:

- Section 1.0 Introduction and Overview
- Section 2.0 The Plan Area
- Section 3.0 The Planning Process
- Section 4.0 Values and Objectives

Section 5.0 Indicators, Targets and Variances

Section 6.0 Links to Other Planning Processes

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

Appendix 1 Defined Forest Area map

Appendix 2 Information for Consideration

Appendix 3 SFM Plan Reporting Format

Appendix 4 Summary of Publicly Developed Values, Objectives and Indicators

Appendix 5 SFM Plan Terms of Reference

The values, objectives, indicators and targets described in this document were developed with advice from the SFM Advisory Group. The complete list of values, objectives, and indicators is provided in Appendix 4. These values, objectives, indicators and targets will be adhered to by the licensees to achieve sustainable forest management for their respective operating areas. These same applicable indicators will be reported against by the Ministry of Forests and Range for Non-Replaceable Forest License (NRFL/Salvage NRFL) planning and operations within the plan area.

A number of suggested values, objectives, indicators and targets were not included in the SFM Plan due to either insufficient data or a means to measure the indicator. These suggestions have been included in Appendix 2 (Information for Consideration) and will be considered as part of the continual improvement process during subsequent reviews of the plan.

The SFM Plan is an evolving document that will be reviewed and revised on an annual basis with the SFM Advisory Group to address changes in forest conditions and local community values.

2.0 The Plan Area

The Defined Forest Areas (DFA) for Weyerhaeuser's operations in Okanagan Falls, Tolko's Okanagan Regional Woodlands, Gorman Bros., and BCTS-Okanagan Columbia Business Area, are located in the Okanagan, Boundary, and Arrow TSA's. The boundary of the DFA is specified in the licensees' geographic information system (GIS) inventory. A map of the area is shown in Appendix 1.

The DFA coincides with Weyerhaeuser's traditional operating areas in the Okanagan and Boundary TSAs, including Tree Farm License (TFL) 35 and Forest Licenses (FL) A18674, and A18970. The DFA also includes Tolko's traditional operating areas in the Okanagan and Arrow TSAs including TFL 49, FL's A18632, A18667, A18672, A20191, and A74912, Timber Licence T0816 and FLTC A76247. FL A18632 is managed by Tolko on behalf of the licensee, Selkirk Timber Company. A portion of Bell Pole Company Ltd's FL A18666, which is also managed by Tolko, is included in the DFA. The DFA within Gorman Bros. traditional operating area in the Okanagan TSA includes FL A18671. These replaceable licenses give the licensees the authority to harvest trees and construct roads along with the responsibility for forest planning, reforestation and road maintenance. The DFA also includes approximately 25 BCTS operating areas scattered across the DFA, ranging in size from a few hundred ha. to several thousand ha. Other Crown lands, with the exception of Woodlot Licences, are also included. Private land is excluded from the DFA. In addition to the listed licences, there may be other licences that operate within the DFA through such mechanisms as Non-Replaceable Forest Licences or Section 18 transfers. Annual reporting will occur for these licences where they are under the control of Weyerhaeuser, Tolko, Gorman Bros., BCTS or where the Ministry of Forests and Range has included the requirement for reporting in the licence document.

Table 1, on the following page, illustrates the distribution of land classes within the DFA. Approximately 33 percent of the DFA (including parks, inoperable areas, and non-productive areas) is not available for harvesting. However, these areas are included in the DFA as they play a role in biodiversity and landscape level ecosystem functions.

As of late 2007, B.C. Timber Sales is participating in the SFM Plan process and is committed to the applicable targets in the plan, and to reporting annually on its performance relative to applicable plan indicators.

Not included in the DFA are Gorman Bros. blocks within the Westbank Community Forest area. Some of these blocks are yet to be logged while others have outstanding silviculture and other obligations. Gorman Bros. is committed to achieving and reporting on SFM Plan performance measures for these areas even though they are not part of the revised DFA.

The DFA has forests with a mix of age classes and species types (Figures 1 - 5). The distribution of age classes is weighed slightly towards trees 140 to 250 years of age (25 percent of all forests). Coniferous tree species comprise 96 percent of the forest types.

Table 1: DFA Allocation for Weyerhaeuser, Tolko, Gorman Bros. and BCTS (areas in hectares)

Land Classification	Weyerhaeuser	Tolko	Gorman Bros.	BCTS	Total Area	Percent of Total Area
Parks/protected areas & Old Growth Management Areas (approved study areas / areas of interest)	19,251	58,548	18,108	22,133	118,040	8
Streams, wetlands, lakes	2,716	11,435	1,245	5,115	20,511	1
Non-contributing forest (deciduous, problem forest type, ESAs, inoperable, NP, NPBR)	24,723	78,935	35,466	22,651	161,775	11
Non Forest Land (alpine, rock, open range)	6,310	46,157	16,285	18,340	87'092	6
Timber Harvesting Land Base	145,653	595,178	94,862	195,281	1,030,974	73
Total Defined Forest Area	198,653	790,253	165,966	263,520	1,418,392	100

The Crown land portion of the DFA proposed for harvesting and related development must be referred to the public, and approved by the appropriate government agencies. All activities must be consistent with government regulations, as well as regional and sub-regional planning directions, such as the Okanagan Shuswap Land and Resource Management Plan (OSLRMP) and Kootenay Boundary Land Use Plan (KBLUP). The licensees incorporate any applicable regulation, direction and information into their Forest Stewardship Plans, which are available to the public for comment. In the case of development occurring under an approved FSP, individual cutblocks will only be referred to those stakeholders who have expressed an interest at the FSP stage, or where the licensee is aware of there being public interest in the proposed development.

Section 2.0 – The Plan Area

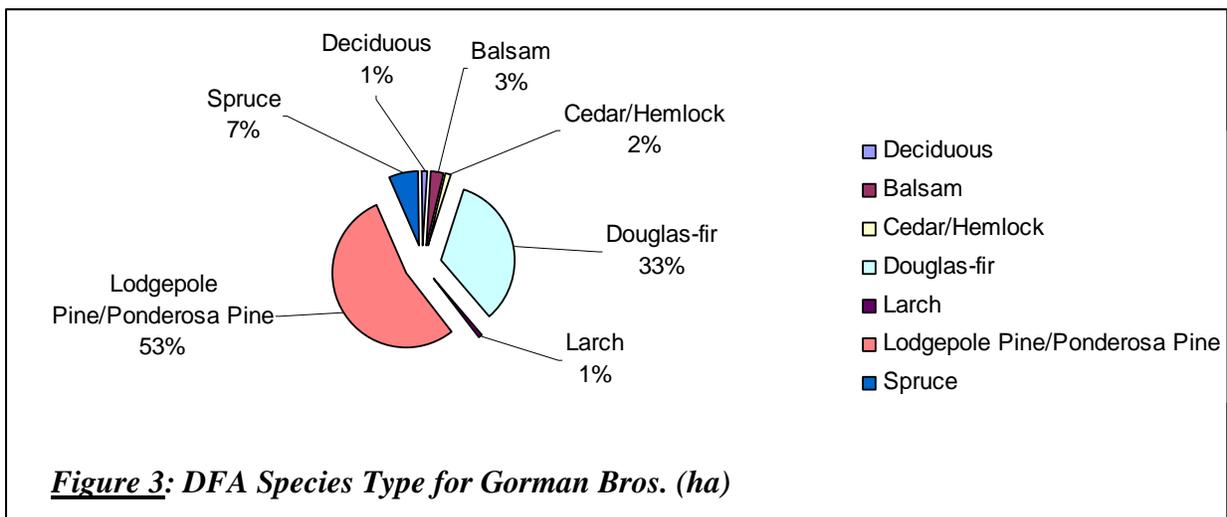
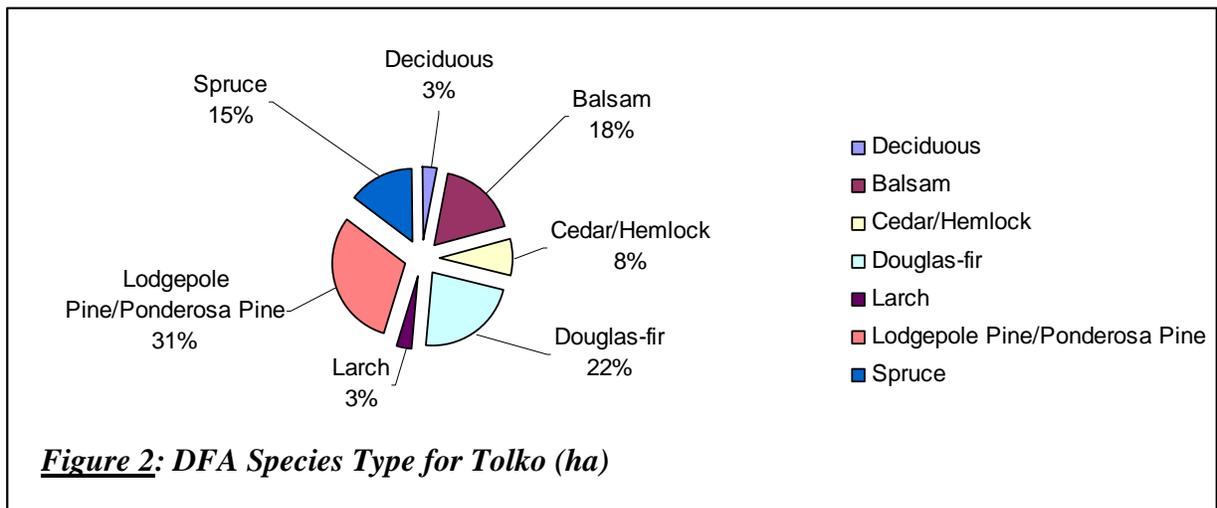
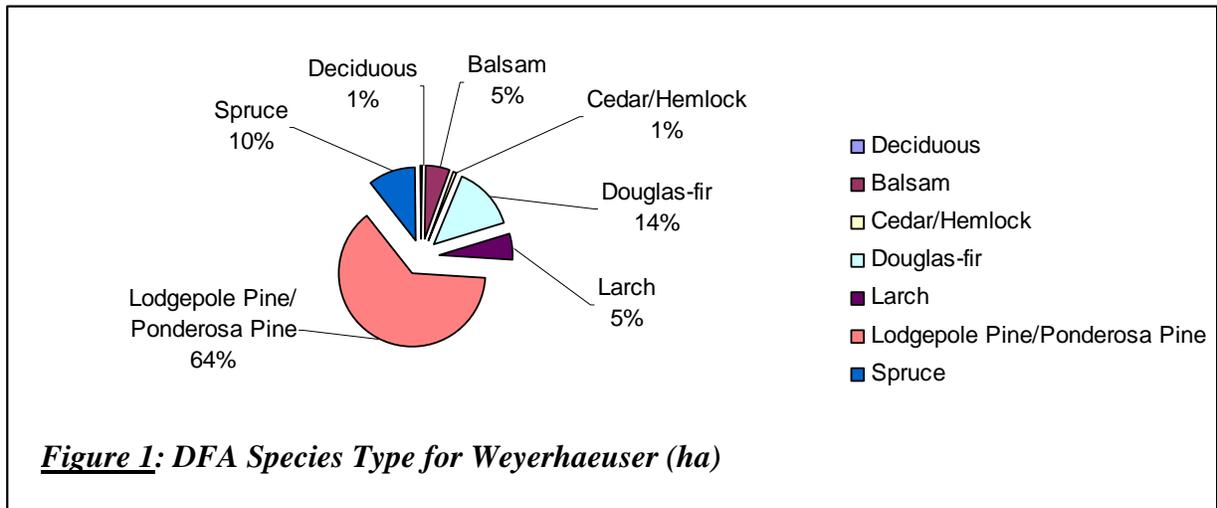


Figure 4: DFA BC Timber Sales (ha)

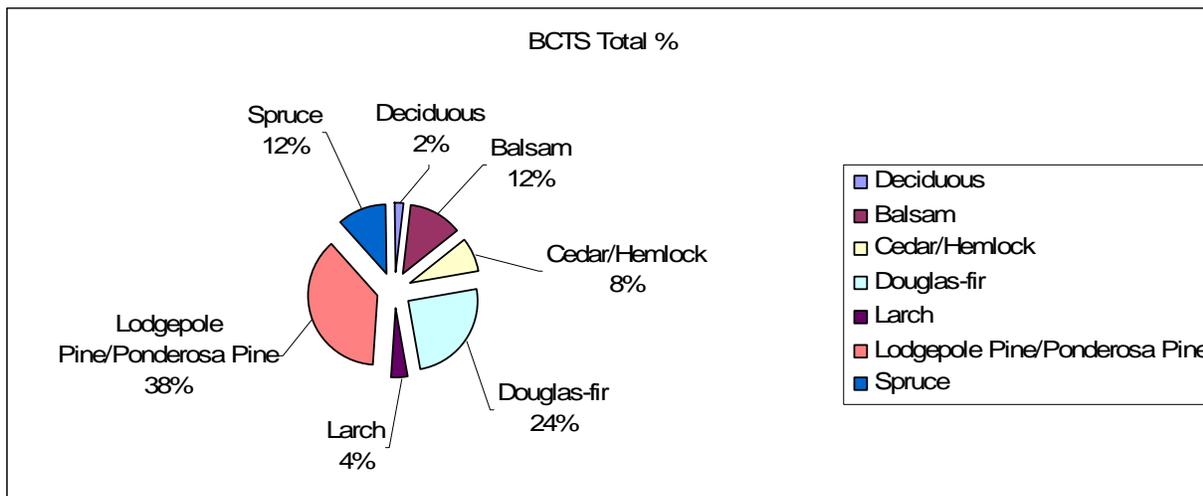


Figure 5: DFA Species Type Tolko, Weyerhaeuser and Gorman Bros. Combined (ha)

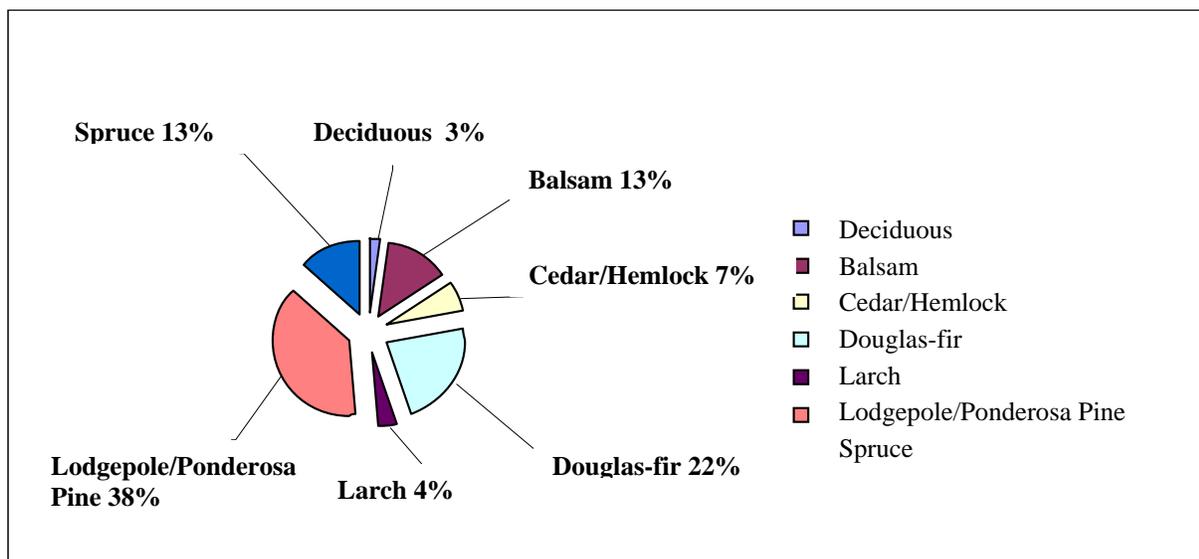
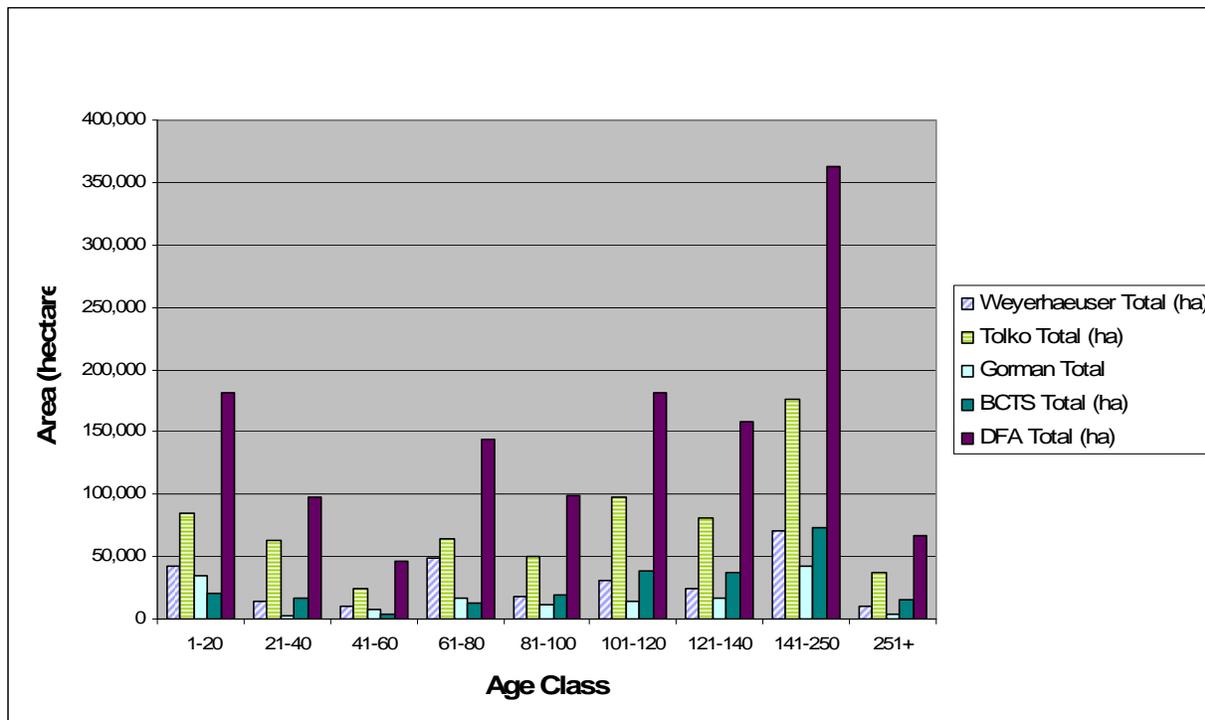


Figure 6: DFA Forest Age Class Distribution



3.0 The Planning Process

3.1 The CSA Certification Process

The Sustainable Forest Management Requirements and Guidance were developed by the Canadian Standards Association (CSA) as a voluntary tool to assist responsible forest organizations in moving towards the goal of sustainable forest management. Consistent with most certifications, the CSA standard requires compliance with existing forest policies, laws and regulations.²

Participants under the CSA certification system must address the following two components:

1. Participants must develop and achieve performance measures for on-the-ground forest management, monitored through an annual public review with the input from the advisory group; and,
2. Participants who choose to be registered to the CSA standard must internally incorporate CSA-defined systems components that emphasize an appropriate management system.

Applicants seeking registration to the CSA standard require an accredited, independent third-party auditor to verify that these components have been adequately addressed. Following registration, annual surveillance audits will be conducted to confirm that the standard is being maintained. A detailed description of these two components is as follows.

3.1.1 Public involvement: performance requirements and measures

The CSA standards include performance requirements for assessing sustainable forest management practices that influence on-the-ground forestry operations. The performance requirements are founded upon six sustainable forest management criteria:

1. Conservation of biological diversity;
2. Maintenance and enhancement of forest ecosystem condition and productivity;
3. Conservation of soil and water resources;
4. Forest ecosystem contributions to global ecological cycles;
5. Multiple benefits to society; and
6. Accepting society's responsibility for sustainable development.

Each criterion has a number of "elements" that further define the intent. The criteria and associated elements are all defined under the CSA standards and must be addressed during

² This includes compliance with the strategic direction provided in the Okanagan-Shuswap Land and Resource Management Plan and Kootenay Boundary Land Use Plan.

development of the SFM Plan. The criteria are endorsed by the Canadian Council of Forest Ministers and are aligned with international criteria.

For each set of criteria and elements, forest managers, and the advisory group must identify local values and objectives. Indicators and targets are assigned to the values and objectives to measure performance.

Values identify the key aspects of the elements. For example, one of the values associated with “species diversity” might be “sustainable populations of native flora and fauna”

Objectives describe the desired future condition, given an identified value. For example, the objective to meet the value of sustainable populations of native flora and fauna might be “to maintain a variety of habitats for naturally occurring species.”

Indicators are measures to assess progress toward an objective. Indicators are intended to provide a practical, cost-effective, scientifically sound basis for monitoring and assessing implementation of the SFM Plan. There must be at least one indicator for each element and associated value.

Targets are specific short-term (one or two year) commitments to achieve identified objectives. Targets provide a clear, specific statement of expected results, usually stated as some level of achievement of the associated indicator. For example, if the indicator is “reduction in area of the timber harvesting landbase”, a target might be “to have less than x percent of harvested areas in roads and landings.”

Values, objectives, indicators, and targets apply to socioeconomic and ecological criteria and may address process as well as on-the-ground forest management activities.

As part of the process of developing values, objectives, indicators and targets, the SFM Advisory Group also assisted in the development of forecasts of predicted results for indicators and targets. This information and interrelationship is further described in Appendix 4.

Forecasts are the long-term projection of expected future indicator levels. These have been incorporated into the SFM Plan targets as predicted results or outcomes for each target. Forecasting is further described in Section 5.

Audits and Public Review

Each year the participating licensees will compile a report that summarizes results for each of the performance measures (see Appendix 3: SFM Plan reporting format). This annual report will then be provided to the SFM Advisory Group for review and comment. Annual monitoring of the achievement of the Plan and comparison of the actual results to forecasts will enable the effectiveness of the SFM Plan to be continually improved, in keeping with CSA standards.

The achievement of performance measures (indicators and targets) will be assessed annually through surveillance audits carried out by a registered third party auditor. The audits will

determine whether the registrant has successfully implemented the SFM Plan and continues to meet the CSA Standard.

3.1.2 Internal Infrastructure: Systems Components

The CSA SFM system includes a number of processes or systems-related requirements called “systems components” as follows:

- **Commitment:** A demonstrated commitment to developing and implementing the SFM Plan.
- **Advisory Group participation:** The CSA standards require informed, inclusive, and fair consultation with the Advisory Group during the development and implementation of the SFM Plan. The Okanagan/Boundary SFM Advisory Group was established to provide advice and recommendations to the licensees regarding the development of values, objectives, indicators and targets. Local First Nations groups were invited to participate in the process and received regular updates on the development of the SFM Plan, but have had limited participation. In 2003 Tolko invited members of the public, including First Nations, that have identified resource use/interest within Tolko’s operating areas to join the process in an effort to add geographic representation to the advisory group. Additional representation was also sought in early 2006 by Tolko, and again by Gorman Bros. in late 2006 as the result of changes in the DFA. The recent addition of BCTS has again expanded the DFA, and representative participants are being sought.
- **CSA-aligned management system:** The management system is an integral part of the implementation of the SFM Plan and is designed to meet CSA standards. The management system has four basic elements: 1) Planning; 2) Implementing; 3) Checking and Monitoring; and 4) Review and Improvement. Each of Weyerhaeuser’s, Tolko’s, Gorman Bros., and BCTS management systems have the following base components:
 1. Identify environmental risks.
 2. Identify standard operating procedures or develop performance measures to address significant risks.
 3. Develop emergency procedures in the event of an incident causing environmental impacts.
 4. Review all laws and regulations.
 5. Establish procedures for training. (Providing updated information and training ensures that forestry staff and contractors stay current with evolving forest management information and are trained to address environmental issues during forestry activities.)
 6. If an incident does occur, conduct an investigation or incident review and develop an action plan to take corrective action, based on the preparation undertaken in steps 1 – 5.

- **Continual improvement:** Within the context of the management system, the effectiveness of the SFM Plan is continually improved by monitoring and reviewing the system and its components. This includes a review of ongoing planning, and public process to ensure that the management system is being implemented as effectively as possible.

3.2 The Okanagan SFM Planning Process

The initial SFM Plan was developed by Weyerhaeuser based on advice and recommendations provided by the SFM Advisory Group. The Plan was developed to be in compliance with all existing legislation and policy and consistent with the strategic direction and intent of the Okanagan-Shuswap LRMP and the Kootenay-Boundary Land Use Plan. The licensees participate in the maintenance and continual improvement of the plan.

3.2.1 SFM Advisory Group

The SFM Advisory Group was formed to assist the participating licensees and B.C. Timber Sales in developing and maintaining the SFM Plan by identifying local values, objectives, indicators and targets and evaluating the effectiveness of the Plan.

Members of the SFM Advisory Group represent a cross-section of local interests including environmental organizations, forest workers, fish and wildlife, agriculture, and research specialists. An open and inclusive process was used to establish the public advisory group. Local First Nations, TFL 35 (formerly 15) advisory table members and other interested community members were formally invited to participate. Periodic reviews of the membership have been made with the objective of seeking participants from underrepresented sectors. The Ministry of Forests and Range and the Ministry of Environment provide technical support to the SFM planning process including information and advice on land and resource and policy issues. The SFM Advisory Group developed and is guided by a terms of reference and procedures consistent with the CSA standard. Specified in the Terms of Reference and Procedures is that the process for developing the SFM Plan will be open and transparent.

During the plan development process, a number of potential indicators and targets were suggested by the SFM Advisory Group that have not been incorporated into the SFM Plan because of either a lack of data or a means to measure the indicator. These suggestions are included in Appendix 2 and will be considered as part of the continual improvement process during subsequent reviews of the plan.

The SFM Plan is an evolving document that will be reviewed and revised on an annual basis with the SFM Advisory Group to address changes in forest condition and local community values.

Each year the SFM Advisory Group will review an annual report prepared by the licensees to assess achievement of performance measures. This monitoring process will provide the 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.

3.2.2 Government and First Nations Participation

Government agencies participate in the SFM planning process in two roles: 1) as a forest licensee, and 2) to provide technical support to the planning process (see section 3.2.1). The Ministry of Environment also participated in the development of the initial Plan in a resource/support capacity. First Nations have chosen to limit their participation in the process, but have been and continue to be kept advised throughout Plan development. The Okanagan Indian Band indicated in 2006 that they wish to be involved with the Public Advisory Group, and have participated in some meetings. A representative of the Westbank First Nations Band did participate in the 2007 PAG fall field trip.

Increased Government agency and First Nations participation in the maintenance of the SFM Plan would lead to a stronger and more inclusive plan. To reflect the addition of BCTS and its Okanagan operating areas, BCTS distributed invitations to eleven First Nations, two tribal councils, and eleven other stakeholders.

3.3 Strategy Guiding the SFM Plan

3.3.1 Okanagan - Shuswap Land & Resource Management Plan & Kootenay Boundary Land Use Plan

The Okanagan - Shuswap Land & Resource Management Plan (LRMP) and the Kootenay Boundary Land Use Plan (LUP) provide broad strategic direction for the sustainable management of land and resources. These plans were developed with extensive public input and public participation.

The Okanagan-Shuswap LRMP received approval in principle in mid January of 2001 and has not been declared as a higher-level plan. Prior to approval in principle of the plan, a multiple accounts analysis was completed which assessed potential social, economic and environmental impacts relative to a set of baseline indicators. The analysis assisted the Okanagan-Shuswap LRMP table members in achieving approval in principle for the Plan. Government has embarked on a process to declare parts of the OSLRMP as a higher level plan using “land use objectives” and “orders under the Government Actions Regulation” (GAR) under FRPA. To date, winter ranges have been established for several ungulates under the GAR, while other resources have been addressed under the LUO framework. Licensees are required to amend their FSPs within a specified period of time to address the legal requirements.

The Kootenay-Boundary Land Use Plan was developed in the early 1990s based on regional land use plans developed by the Commission on Resources and Environment (CORE) for the East Kootenay and West Kootenay-Boundary regions of the province. The provincial government announced the Kootenay Boundary Land Use Plan in 1995 and approved a more detailed implementation strategy in 1997. As of January 31, 2001, the government approved the Kootenay-Boundary Higher Level Plan, which makes key parts of the plan legally binding.

These plans are intended to reflect a balance of social, economic and environmental values. They incorporate the principles of sustainability and integrated resource management into a long term, strategic vision for Crown land and resource development for the plan area, and assist statutory decision-makers in making determinations about land and resource use.

The SFM Plan is a complementary plan that demonstrates field level performance of commitments made within the Okanagan-Shuswap LRMP and the Kootenay-Boundary Land Use Plan.

3.3.2 Sustainable Forest Management Plan (SFMP) Strategy for the DFA

The Okanagan SFMP has adopted and incorporated the strategic direction of both the Okanagan-Shuswap LRMP and the Kootenay-Boundary Land Use Plan. These plans, in conjunction with Timber Supply Reviews, both guide and forecast sustainability. SFMP strategy recognizes the Goals, Objectives and Strategies in these strategic plans which support achievement of sustainable forest management. The SFMP strategy includes appropriate communication with and consideration for First Nations, Public and Integrated Resource Management interests. A SFMP strategy is to choose appropriate indicators to confirm forest management practices are aligned with the Goals and Objectives of both the Okanagan-Shuswap LRMP and the Kootenay-Boundary Land Use Plan. The SFMP utilizes indicators and targets that:

- reflect key goals, objectives and direction of the strategic plans
- address the Canadian Council of Forests Ministers Criteria and CSA defined Elements
- are within the purview of the forest industry to influence and manage

A set of strategies has been developed to achieve the SFMP objectives and targets. These strategies document the relevance of the Indicator to the SFMP and sustainability, and summarize actions required to meet the target. Applicable strategies are documented by indicator in Section 5 of the SFMP. More extensive information is provided in Section 6 for many of these strategies.

4.0 Values and Objectives

The following local values and objectives were identified by the SFM Advisory Group to address each of the criterion³ and associated elements prescribed by the CSA standards.

A number of indicators and associated targets have been developed to meet these local values and objectives. SFM Plan indicators and targets are described in Section 6. A summary table showing all criteria and elements and associated local values, objectives, and indicators is provided in Appendix 4.

Criterion 1: Conservation of Biological Diversity

Conserve biological diversity by maintaining integrity, function, and diversity of living organisms and the complexes of which they are part.

Element 1.1: Ecosystem Diversity

Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that naturally occur in the DFA.

Local Values	Objectives	Indicators/Targets
<ul style="list-style-type: none"> • Healthy, productive, well-balanced ecosystem • Well functioning, ecologically diverse ecosystem • Abundance of connected and productive habitat (i.e. distribution across the landscape) 	<ul style="list-style-type: none"> • Maintenance of a full range of seral stage distribution • Maintain full range of habitat • Retention of vertical structure for stand level attributes 	1, 2, 3, 4, 5, 6, 10, 36

Element 1.2: Species Diversity

Conserve species diversity by ensuring that habitats for the native species found in the DFA are maintained through time.

Local Values	Objectives	Indicators/Targets
<ul style="list-style-type: none"> • Sustainable populations of flora and fauna native to the DFA (including subspecies) and the abundance and distribution of species within their natural range of variation 	<ul style="list-style-type: none"> • Species native to the DFA are maintained at sustainable levels 	1, 2, 4, 7, 11, 20

³ It should be noted that the in Criterion 6 , the phrase "society's responsibility for sustainable development" was interpreted by the SFM Advisory Group to mean "society's concerns and interests with respect to sustainable development".

Element 1.3: Genetic Diversity

Conserve genetic diversity by maintaining the variation of genes within species.

Local Values	Objectives	Indicators/Targets
<ul style="list-style-type: none"> Diversity of genetic material within species Adaptability to change Sustainable populations of flora and fauna native to the DFA (including subspecies) and the abundance and distribution of species within their natural range of variation 	<ul style="list-style-type: none"> Maintain genetic diversity of all species (and subspecies) native to the DFA 	1, 2, 4, 7, 9, 20

Element 1.4: Protected Areas and Sites of Special Biological Significance

Respect protected areas identified through government processes. Identify sites of special biological significance within the DFA and implement management strategies appropriate to their long-term maintenance.

Local Values	Objectives	Indicators/Targets
<ul style="list-style-type: none"> Natural functioning ecosystems Rare physical environments 	<ul style="list-style-type: none"> Maintenance of representative natural, and known rare, functioning ecosystems 	2, 10

Criterion 2: Maintenance and Enhancement of Forest Ecosystem Condition and Productivity

Conserve forest ecosystem condition and productivity by maintaining the health, vitality, and rates of biological production.

Element 2.1: Forest Ecosystem Resilience

Conserve ecosystem resilience by maintaining both ecosystem processes and ecosystem conditions.

Local Values	Objectives	Indicators/Targets
<ul style="list-style-type: none"> Resilient forest ecosystems 	<ul style="list-style-type: none"> Forest management does not compromise ecosystem resilience 	1, 2, 3, 15, 18,

Element 2.2: Forest Ecosystem Productivity

Conserve forest ecosystem productivity and productive capacity by maintaining ecosystem conditions that are capable of supporting naturally occurring species.

Local Values	Objectives	Indicators/Targets
<ul style="list-style-type: none"> Well-functioning, biologically productive forest ecosystems 	<ul style="list-style-type: none"> Forest ecosystems that support a full range of timber and non-timber values 	8, 16, 17, 19

Criterion 3: Conservation of Soil and Water Resources

Conserve soil and water resources by maintaining their quantity and quality in forest ecosystems.

Element 3.1: Soil Quality and Quantity

Conserve soil resources by maintaining soil quality and quantity.

Local Values	Objectives	Indicators/Targets
<ul style="list-style-type: none"> Soil health and productivity <ul style="list-style-type: none"> Biological Physical 	<ul style="list-style-type: none"> Minimize physical and biological degradation of soil 	11, 12, 14, 19, 21, 22, 23, 24

3.2: Water Quality and Quantity

Conserve water resources by maintaining water quality and quantity.

Local Values	Objectives	Indicators/Targets
<ul style="list-style-type: none"> Protection and security of the water resource 	<ul style="list-style-type: none"> Stream flow regimes that provide levels of water quality and quantity within a natural range of variability Retain natural systems that support water quality and quantity (e.g., beaver) Protection of quality and quantity of water in licensed domestic watersheds 	4, 11, 13, 14, 19, 21, 22, 23, 24

Criterion 4: Forest Ecosystem Contributions to Global Ecological Cycles

Maintain forest conditions and management activities that contribute to the health of global ecological cycles.

Element 4.1: Carbon Uptake and Storage

Maintain the processes that take carbon from the atmosphere and store it in forest ecosystems.

Local Values	Objectives	Indicators/Targets
<ul style="list-style-type: none"> Balanced, well-functioning ecological processes that support healthy, productive forest ecosystems 	<ul style="list-style-type: none"> Forest management activities are conducted in ways that maintain ecological processes 	8, 17, 25

Element 4.2: Forest Lands-Conversion

Protect forestlands from deforestation or conversion to non-forests.

Local Values	Objectives	Indicators/Targets
<ul style="list-style-type: none"> Protection and security of forest land to ensure health of global ecological cycles 	<ul style="list-style-type: none"> Maintain healthy, productive forest land base 	12, 16, 21, 22, 25

Criterion 5: Multiple Benefits to Society

Sustain flows of forest benefits for current and future generations by providing multiple goods and services.

Element 5.1: Timber and Non-Timber Benefits

Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits.

Local Values	Objectives	Indicators/Targets
<ul style="list-style-type: none"> Forests contribute to the quality of life 	<ul style="list-style-type: none"> Opportunity and access to the forest resource for a variety of commercial and non-commercial uses 	11, 27, 28, 30, 31

Element 5.2: Communities and Sustainability

Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and to participate in their use and management.

Local Values	Objectives	Indicators/Targets
<ul style="list-style-type: none"> • Sustained multiple benefits from our forests • Local public involvement 	<ul style="list-style-type: none"> • Opportunity and access to the forest resource for a variety of commercial and non-commercial uses • Affected and local interested parties have input into decisions 	26, 28, 32, 35

Element 5.3: Fair Distribution of Benefits and Costs

Promote the fair distribution of timber and non-timber benefits and costs.

Local Values	Objectives	Indicators/Targets
<ul style="list-style-type: none"> • Economic benefits to society 	<ul style="list-style-type: none"> • A prosperous forest industry with sustainable supply of timber and non-timber resources 	25, 26

Criterion 6: Accepting society’s responsibility for sustainable development

Society’s responsibility for sustainable forest management requires that fair, equitable, and effective forest management decisions are made.

Element 6.1: Aboriginal and Treaty Rights

Recognize and respect Aboriginal and treaty rights.

Local Values	Objectives	Indicators/Targets
<ul style="list-style-type: none"> • Respect for Aboriginal and treaty rights 	<ul style="list-style-type: none"> • Duly established Aboriginal and treaty rights considered in forest management planning and opportunities provided for meaningful participation by First Nations in forest management and planning 	29

Element 6.2: Respect for Aboriginal Forest Values, Knowledge, and Uses

Respect traditional Aboriginal forest values and uses identified through the Aboriginal input process.

Local Values	Objectives	Indicators/Targets
<ul style="list-style-type: none"> Respect for the special and unique needs of Aboriginal peoples 	<ul style="list-style-type: none"> Participation by First Nations in forest management and planning to ensure that the special and unique needs of Aboriginal peoples are respected and accommodated in forest management decisions 	28, 29, 32

Element 6.3: Public Participation

Demonstrate that the SFM public participation process is designed and functioning to the satisfaction of the participants.

Local Values	Objectives	Indicators/Targets
<ul style="list-style-type: none"> Awareness of what is going on (knowledge/information) Ability to influence Participate in decision making 	<ul style="list-style-type: none"> Public values are incorporated in decision-making processes and fairly considered in development and maintenance of the SFM Plan Implementation of the SFM Plan will influence forest management outcomes 	33, 35

Element 6.4: Information for Decision-Making

Provide relevant information to interested parties to support their involvement in the public participation process, and increase knowledge of ecosystem processes and human interactions with forest ecosystems.

Local Values	Objectives	Indicators/Targets
<ul style="list-style-type: none"> Shared knowledge and informed decisions 	<ul style="list-style-type: none"> Adaptive forest management that is responsive to research, experience and public input 	28, 30, 33, 34, 35

5.0 Indicators and Indicator Matrices

In an SFM Plan it is the indicators and targets that provide the performance measures that are to be met through on-the-ground forest management activities. This section provides a detailed description of each of the indicators and targets in the SFM Plan. Full compliance is required for most targets (i.e., there is no variance). Where full compliance may not be achievable, an acceptable level of variance is indicated for the target.

Weyerhaeuser, Tolko, Gorman Bros. and B.C. Timber Sales monitor the achievement of targets annually on a calendar year basis. Management strategies, forecasting and current status provides further direction to the performance measures (indicators and targets) and will serve as a guide in annual monitoring activities. The format the licensees and B.C. Timber Sales use to complete annual reporting is shown in Appendix 3.

Non-Replaceable Forest Licenses (NRFLs)

Licensees holding NRFLs have a limited ability to influence achievement of Targets for some SFM Plan Indicators. These licensees are committed to reporting against Targets they do influence. These licensees will report against the targets for indicators 2 to 7, 9, 11 to 22, 24, 25, 27, 29, 31 and 36.

Additional Guidance

The licensees are guided by the regulations, laws and policies established by the federal, provincial, and municipal governments. As well, within this Defined Forest Area, the Okanagan-Shuswap Land and Resource Management Plan and Kootenay-Boundary Land Use Plan guide forest management. The licensees strive to meet the intent of these land use plans. These land use plans are derived from extensive public input and the Kootenay Boundary LUP has received official designation as a higher-level plan in accordance with the *Forest Practices Code of B.C. Act and the Forest and Range Practices Act*. The Okanagan-Shuswap LRMP has been approved by government, but has not yet received higher-level plan endorsement. Public participation and input into forest operations is a key component of the participating licensees' social license to operate on Crown land. The licensees have policies to help control and regulate their performance and guide its direction relative to environmental management, First Nations and forest management.

The direction in legislation and corporate policies (noted above) guide the licensee's strategies for managing its forest operations to provide high quality fiber over the long term. At the same time, legislation and licensee policies help to manage and balance the landscape for biological diversity, global cycles, soil, water and social responsibility. The Okanagan Sustainable Forest Management Plan public participation process has helped to further refine information and clarify concerns of the local public. Incorporating these concerns and ideas into the licensees operations through the established performance measures and ongoing monitoring will ensure long-term sustainability of the forest resource. Any indicators established in this Sustainable Forest Management Plan that are conducive to long term projections are as noted below.

Section 6.4 describes the plans, policies and management strategies that support the achievement of the targets in the SFM Plan.

Forecasting

Predicting the results of forest management indicators for the Defined Forest Area is essential for determining the probable effectiveness of management alternatives. Forecasts are the long-term projection of expected future indicator levels. Forecasts for the indicators agreed upon by the public advisory group have already been incorporated into the SFM Plan targets as predicted results or outcomes for each target.

Forecasting of many of the SFM Plan Indicators and Targets has also occurred either directly or indirectly at the provincial or regional level. The Okanagan-Shuswap LRMP and Kootenay-Boundary LUP – which apply to the Defined Forest Area – both developed targets for the general and more specific sub-zones within their respective plan areas. A good example is the connection between the desired outcomes of the Okanagan Shuswap LRMP and the SFM Plan forecast of indicators. The SFM Plan in most cases includes a predicted result or outcome for the indicator as part of the target.

Provincial Forecasting Related to the SFM Plan

A Provincial Level Timber Supply Analysis of regulatory requirements of the Forest Practices Code occurred in August, 2001. The analysis reviewed timber supply impacts of Code requirements related to: riparian management areas, biodiversity at the stand and landscape level, watershed assessment sensitivity, identified wildlife species at risk, soil conservation and visual quality management.

The harvest level impact related to biodiversity and riparian management were based on analysis using the BC Forest Service Simulation Model (FSSIM) and impact assessments related to remaining Code requirements were based on professional estimates. Analysis was then completed at both the provincial and regional levels to determine the short-term effects of the FPC requirements.

Regional Forecasting Related to the SFM Plan

Prior to the approval of the Okanagan Shuswap LRMP in January 2001, a multiple accounts analysis was completed which assessed potential social, economic and environmental impacts relative to set of baseline indicators. The analysis assisted the OSLRMP table members in achieving approval in principle for the Plan.

The Okanagan Timber Supply Area Rationale for AAC Determination, effective January 1, 2006, included sensitivity analysis around integrated resource management objectives. In 2002 the Okanagan Innovative Forestry Society (OIFS) prepared a timber supply analysis to support an application for a harvest uplift request from the regional executive director. This analysis incorporated a large amount of new data collected subsequent to TSR 2 by the OIFS under its Innovative Forest Practices Agreements. Due to the urgency the mountain pine beetle epidemic placed on the TSR 3 review for the Okanagan TSA, it was decided to use the analysis prepared by the OIFS as the basis for the TSR 3 AAC decision with additional analysis work to reflect the ministry's current understanding of the mountain pine beetle epidemic in the Okanagan TSA. The analysis was conducted using a timber supply computer model, information about the timber harvesting landbase, timber volumes and management strategies to project a future state for a period of 250 years. Prior to the Chief Forester making his determination, the public was invited to review and comment on the Timber Supply Review (TSR). Further information on the opportunities for public input can be found in the TSR discussion paper and technical reports on Timber Supply Analysis and Socio-Economic Analysis. Further information pertaining to assumptions and analysis can be found within the determination or the TSR for the Okanagan TSA.

Any indicators established in this Sustainable Forest Management Plan that are conducive to long term projections are as noted below.

Indicators

Some indicators/targets are repeated for more than one element – even when indicators/targets are not repeated, this does not imply any limitation of their applicability to other elements. Although indicators may appear several times in the SFM Plan Matrix, they will be presented only once in this section. The 'responsibility to report' for all indicators/targets will be the responsibility of either the Forestlands or Woodlands manager. Further delegation of responsibilities will be managed and recorded at the divisional level.

Status at time of Indicator Implementation

The primary source of indicator status is the first monitoring report subsequent to adoption of the indicator. In some instances reporting on a full year is required to generate a meaningful result.

Current Status

Current status of each indicator will be as reported and updated in annual SFM Plan performance reporting. To obtain current information please refer to the most recent monitoring report at the participating licensees' corporate web sites.

Legal Requirements

Adherence to federal and provincial laws assists the licensees in demonstrating sustainable forestry. Compliance with legislation, together with conformance to the SFM Plan Indicators and Targets, leads to the achievement of the SFM Plan’s vision statement.

Awareness of legal requirements, including those derived from Higher Level Plans (HLPs), is essential when considering suitable Objectives for an Element, and determining appropriate Indicators and Targets. In the following Indicator tables applicable Acts, Regulations and HLPs are 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. Forest licensees ensure that specific legislation related to Objectives, Indicators and Targets is known and complied with by staying current with legal requirements. Subscribing to commercial services such as “Forest Views” or “Quickscribe” are examples of how licensees remain current.

Section 5.0 – Indicators and Indicator Matrices

Indicator	(1) Representation of seral stage distribution by Natural Disturbance Type and Old Growth Management
Element(s)	1.1 Ecosystem Diversity; 1.2 Species Diversity; 1.3 Genetic Diversity; 2.1 Forest Ecosystem Resilience
Strategy(s) Description	In the south and central portion of the TSA where the DFA is located the forest ecosystems have been historically influenced by the presence or absence of fire as a dominant form of natural disturbance. The similarities in fire return intervals, and disturbance sizes and patterns form the basis for categorizing each of the ecosystems into natural disturbance types (NDT), which in turn is used to provide guidance for maintaining biodiversity. Biodiversity can be affected by the disruption of natural processes. Future maintenance of biodiversity is in part dependent upon the maintenance and connectivity of representative habitats and seral stages at the landscape and watershed level
Means of achieving objective and target	Okanagan-Shuswap LRMP allocated approximately 62,000 ha on the Timber Harvesting Landbase and 124,000 ha on the Non-Timber Harvesting Landbase for Old Growth Management Areas to align with the Provincial biodiversity strategy. These OGMA's have been identified in the area covered by the OKSLRMP. OGMA's have also been identified in the area covered by the KBLUP The licensees will be guided by the OSLRMP and KBLUP guidance and will look to find innovative solutions to manage for old forest attributes. There are provisions for Licensees to make changes to OGMA's, and Changes to specific OGMA's are managed through the Forest Stewardship Plans of each
Forecast (Predicted Results or Outcome)	Status in 2007. Refer to monitoring report. There is a shortage of Old Growth in NDT4 to meet the seral stage distribution targets in the Biodiversity Guidebook. Forest Management Activities will not be able to make up this shortfall in the near future until existing stands grow into the "old" age range. Maintenance/management of OGMA's will meet old growth requirements.
Forecast	Healthy ecosystems with a diversity, abundance and full range of seral stage distributions to support native species and habitats. <ul style="list-style-type: none"> ▪ Age class and seral stage distribution of forests are forecast as part of a periodic Timber Supply Review to monitor impacts on the landscape. Okanagan-Shuswap LRMP allocated approximately 62,000 ha on the Timber Harvesting Landbase and 124,000 ha on the Non-Timber Harvesting Landbase for Old Growth Management Areas to align with the Provincial biodiversity strategy. Additionally, 7500 ha is available on the Timber Harvesting Landbase for Identified Wildlife Management Strategy and "interim measures document". A forecast for these areas will be provided in the next Timber Supply Review. ▪ The Ministry of Environment (MOE) has a desire to protect old forests not currently protected by the OSLRMP but previously highlighted by the Land Use Planning Guidebook. The licensees will adhere to the OSLRMP and will look to find innovative solutions to manage for old forest attributes. <p>LRMP Analysis⁴: The plan provides for connectivity in several ways. At the regional level, the importance of maintaining connectivity between the very dry habitats associated with the Okanagan valley to the central interior of the Province was recognized. At the landscape level, the provision of additional protected areas enhances the representation of undisturbed areas. This is augmented by the available OGMA budget, which may be distributed within/across LUs to contribute towards a connectivity objective. At the stand level, the plan provides maintaining functional connectivity by planning for harvested and leave areas that maintain mature/older stands in a connected manner for as long as possible.</p>
Target	Report annually on early, mature and old seral stage distribution by Natural Disturbance Type (NDT). Licensee operations will maintain the retention of existing or replacement draft old growth management areas..
Basis for the Target	Provincial Non-spatial Old Growth Order (May 2004)
Legal Requirements	Provincial Non-spatial Old Growth Order (May 2004)
Monitoring & Measurement	
Periodic	
Annual	Licensees report the total area of draft OGMA's within their operating area and the area of net OGMA reduction as a result of their operations. Licensees will also report, for information only, the amount of early, mature, and old seral distribution by Natural Disturbance Type relative to values recommended by the Biodiversity Guidebook.
Variance	None

⁴ Okanagan Shuswap "Land & Resource Management; Multiple Accounts Analysis - Final Base Case with LRMP Analysis", 2000

Section 5.0 – Indicators and Indicator Matrices

Indicator	(2) Incidents of harvesting in rare ecosystems. Non-compliance with the Identified Wildlife Management Strategy (IWMS). Non-compliance with OSLRMP/ KBLUP strategies for identified wildlife.
Element(s)	1.1 Ecosystem Diversity; 1.2 Species Diversity; 1.3 Genetic Diversity; 1.4 Protected Areas and Sites of Special Biological Significance, 2.1 Forest Ecosystem Resilience
Strategy(s) Description	<p>Biodiversity can be affected by the disruption of natural processes. Future maintenance of biodiversity is in part dependent upon protection of known rare and endangered species and ecosystems.</p> <p>Known rare ecosystems are those of limited distribution or those that have been altered through historic land use practices, and made known by Government (“known information” is defined in glossary). In the southern part of the plan area, the very dry desert ecosystems are considered rare. Key strategies for managing known rare ecosystems include avoidance of new road construction where practicable and inclusion of known rare ecosystems as areas to be given priority for the establishment of old growth management areas.</p> <p>The OSLRMP plan area provides habitat through protected areas and OGMA’s for several rare (red and blue-listed) species and plant communities. Many of these are associated with the lower elevations of main valleys, particularly in the South Okanagan and the lower Similkameen valleys. Habitat loss or alteration of habitat has contributed to the threat to some of these species, however, many are naturally rare (they have sparse distributions or numbers, or are near the geographic limits of their distribution).</p> <p>The Identified Wildlife Management Strategy (IWMS) provides some management direction for rare species. Additional species are managed under the “Interim Measures” document developed as part of the Okanagan-Shuswap LRMP. The KBLUP also provides management direction for specific species.</p> <p>In addition to the management direction provided for wildlife management through general resource management objectives and strategies in the OSLRMP, polygon-specific resource management zones (RMZs) were established. These zones provide area specific objectives and strategies for managing the values identified in the RMZ.</p>
Means of achieving objective and target	<p>Should “known” rare ecosystems information be provided by government authorities, it will be incorporated into the licensee’s GIS database and available for forest development planning.</p> <p>OSLRMP and KBLUP direction for Identified Wildlife will be addressed in Licensee plans.</p>
Forecast (Predicted Results or Outcome)	<p>Status at time of Indicator implementation (2001)</p> <p>There was no harvesting in known rare ecosystems and none of the development activities was subject to IWMS strategies.</p>
Forecast	<p>A diversity of healthy ecosystems while maintaining “rare” attributes as well as a diversity and abundance of naturally occurring wildlife and their habitats.</p> <ul style="list-style-type: none"> ▪ Okanagan-Shuswap LRMP allocated approximately 62,000 ha on the Timber Harvesting Landbase and 124,000 ha on the Non-Timber Harvesting Landbase for Old Growth Management Areas to align with the Provincial biodiversity strategy. Additionally, 7500 ha is available on the Timber Harvesting Landbase for Identified Wildlife Management Strategy and “interim measures document”. A forecast for these areas will be provided in the next Timber Supply Review. <p>LRMP Analysis⁵: The plan specifically recognizes known rare habitats as a high priority in most circumstances for inclusion in OGMA’s and WTPs. There is also direction on avoiding disturbances to known rare ecosystems. Implementing the Interim measures for specific rare wildlife & plant communities is considered to be an enhancement to the base case.</p>
Target	<p>No harvesting in “known” rare ecosystems contained within Old Growth Management areas.</p> <p>Adhere to the IWMS and management strategies for rare species in the OSLRMP and KBLUP.</p>
Basis for the Target	Legal. Licensees must follow the intent and direction set forth in the Government’s management strategies for IWMS and for rare species in the LRMP.
Legal Requirements	Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Wildlife Act, Species At Risk Act, Forest And Range Practices Act, Forest Planning And Practices Regulation

⁵ Okanagan Shuswap “Land & Resource Management; Multiple Accounts Analysis - Final Base Case with LRMP Analysis”, 2000

Section 5.0 – Indicators and Indicator Matrices

Monitoring & Measurement	
Periodic	
Annual	<p>Should “known” rare ecosystems information be provided by government authorities (known information is defined in glossary), it will be incorporated into the licensees GIS database and available for forest development planning.</p> <ul style="list-style-type: none"> ▪ For the reporting period, the licensees will report the number of hectares harvested in known rare ecosystems within OGMAs, by utilizing their GIS database. The licensees will report the number of cutblocks approved/signed in the reporting period that were influenced by IWMS management strategies (Wildlife Habitat Areas and associated General Wildlife Measures) and report any non- conformance. ▪ Any non-conformance to OSLRMP direction impacting Identified Wildlife (Appendix 14 - interim measures as it relates to red and blue listed OSLRMP coverage, and polygon specific resource management zones for: big-horn sheep; grizzly bear; mountain caribou; mountain goat; fisher as per capability mapping) and KBLUP (grizzly bear) will be included in the report.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(3) Report on total area of clearcuts by size categories
Element(s)	1.1 Ecosystem Diversity; 2.1 Forest Ecosystem Resilience
Strategy(s) Description	In the south and central portion of the TSA where the DFA is located the forest ecosystems have been historically influenced by the presence or absence of fire as a dominant form of natural disturbance. The similarities in fire return intervals, and disturbance sizes and patterns form the basis for categorizing each of the ecosystems into natural disturbance types (NDT), which in turn is used to provide guidance for maintaining biodiversity.
Means of achieving objective and target	Licenseses' plans provide a diversity of cutblock sizes that emulate natural disturbance patterns on the landscape. Licenseses prescribe a variety of silviculture systems based on stand and site characteristics.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) The total area of clearcut for the 0 – 40 hectare size category for 2001 is 1,116 hectares. The total area of clearcut for the 41 plus hectare size category for 2001 is 175 hectares. In 2001, the breakdown of silviculture systems by area was as follows: 1221 hectares of clearcut; 129.8 hectares of clearcut with reserves; 143 hectares of patch cut; 44.6 hectares of selection
Forecast	A diversity of cutblock sizes emulates natural disturbance patterns on the landscape. Cutblock silviculture systems that meet social, economic and biological objectives.
Target	Report annually on cutblocks by size categories and silviculture systems that were Site Plan approved/signed in the reporting period.
Basis for the Target	OSLRMP guidance. Addresses the need to provide a diversity of cutblock sizes and silviculture systems to emulate natural disturbance patterns on the landscape.
Legal Requirements	NA
Monitoring & Measurement Periodic	
Annual	Report net area to be reforested for cutblocks by size class ranges (1-5, 6-40, 41-100, 101-250, >250 hectares) and silviculture system (even aged, even aged with reserves, uneven aged) for site plans approved/ signed in reporting period. Site Plan exempt areas will not be included in the report.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(4) Riparian management areas (as per the FPC, FRPA and the approved OSLRMP/KBLUP) for wetlands, lakes and streams.
Element(s)	1.1 Ecosystem Diversity; 1.2 Species Diversity; 1.3 Genetic Diversity; 3.2 Water Quality and Quantity
Strategy(s) Description	A main goal of the OSLRMP is to conserve the natural diversity of fish and fish habitat, with priority given to wild fish stocks. Key objectives for achieving this goal include protecting the integrity of critical and environmentally sensitive fish habitats and maintaining and restoring the structural and functional integrity of streams, stream channels, lakes, riparian areas and other aquatic ecosystems. There are some 43 species of fish found within the Okanagan-Shuswap LRMP plan area. Salmon are an important resource in the area and depend on the streams and lakes for migration, spawning and rearing.
Means of achieving objective and target	All riparian management area commitments are included and highlighted in Licensee plans.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) There were no DM determinations or violations for riparian management areas for harvesting activities in 2001. LRMP Analysis ⁶ : The plan recognizes the significance of riparian management and its implications to water, fish and wildlife. Management direction provided would benefit those values to a much greater extent than what current management provides. Additional protection for fish streams and larger non-fish bearing streams, 10,000 ha of enhanced riparian reserves and riparian management plans to ensure the most appropriate placement of riparian retention collectively improve the overall level of riparian management.
Forecast	Healthy ecosystems with a diversity and abundance of native species and habitats. Properly functioning riparian systems. <ul style="list-style-type: none"> ▪ Okanagan-Shuswap LRMP established an additional 10,000 ha for the TSA for enhanced riparian protection. This area will be forecast in the next Timber Supply Review. ▪ The KBLUP has established riparian management direction specific to some streams licensed for human water consumption.
Target	Zero non-conformances of plan commitments impacting values in riparian management areas.
Basis for the Target	Legal. OSLRMP guidance. Riparian management areas provide connectivity of forested cover along waterways, which are generally areas with high value for wildlife habitat and movement.
Legal Requirements	KBLUP Higher Level Plan, Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Timber Harvesting and Silviculture Practices Regulation, Forest Road Regulation, Water Act, Fisheries Act, Transportation of Dangerous Goods Act, TDG Clear Language Regulations, Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement Periodic	
Annual	Report the number of non-conformances to plan commitments impacting riparian values as reported through incident reports during the reporting period.
Variance	Five percent

⁶ Okanagan Shuswap "Land & Resource Management; Multiple Accounts Analysis - Final Base Case with LRMP Analysis", 2000

Section 5.0 – Indicators and Indicator Matrices

Indicator	(5) Percent of cutblocks requiring a site plan with associated wildlife tree retention (patches and/or individual trees). Percent of harvested cutblocks that contain an average of 2-5 stubs or standing trees per hectare, giving consideration to spatial distribution.
Element(s)	1.1 Ecosystem Diversity
Strategy(s) Description	Biodiversity can be affected by the disruption of natural processes. Future maintenance of biodiversity is in part dependent upon management for important attributes at the stand (site) level. OSLRMP strategies related to wildlife tree retention are consistent with the direction in the Landscape Unit Planning Guide with additional consideration for individual large diameter stems in NDT4.
Means of achieving objective and target	During forest development planning, licensees incorporate a number of strategies for maintaining diversity of structure and function within cutblocks. These include wildlife/leave tree retention, either in single trees or patches, as described in the <i>Landscape Unit Planning Guide</i> . During operational activities, tree species of merchantable size will be retained, where this is in keeping with safety standards of the Worker's Compensation Board.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2003) ⁷ <ul style="list-style-type: none"> • Total of 82 cutblocks harvested, each having associated wildlife tree retention (100%). • 99% of harvested cutblocks contain at least an average of 2-5 stubs or standing trees per hectare (181/182 cutblocks).
Forecast	Healthy ecosystems with retention of vertical structure for stand level attributes. <ul style="list-style-type: none"> ▪ Provincial Wildlife Tree Management Recommendations from February 2000 ensure alignment between Landscape Unit Planning guide and Timber Supply impacts. Distributions of age classes as a result of Wildlife Tree retention are forecast as part of the Timber Supply Review. ▪ The target objective for stub trees and standing trees considers worker safety and operational constraints. LRMP Analysis ⁸ : The plan provides direction on stand level biodiversity. Riparian area management (indicator 48) is enhanced and the value of WTPs is confirmed. The plan provides a two-tiered (basic and enhanced) approach to management of Coarse Woody Debris (CWD) which is an improvement over the base case because it has specific quantifiable requirements for retention. None the less, there may remain a risk to CWD in the drier ecosystems.
Target	100 percent of harvested cutblocks requiring a site plan will have associated wildlife tree retention. 80 percent of harvested cutblocks have in block stubs and/or wildlife trees with consideration given to spatial distribution.
Basis for the Target	OSLRMP guidance. Focuses on management for biodiversity at the stand level.
Legal Requirements	Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Timber Harvesting and Silviculture Practices Regulation, Strategic Planning Regulation, Workers Compensation Act, Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement	
Periodic	
Annual	To enable reporting, the following steps will occur: <ol style="list-style-type: none"> 1. An information system will be used to generate a list of cutblocks where harvesting was completed during the reporting period, as well as a list of cutblocks that contained mature reserve summary data and/or reserve trees and/or reserve stubs. 2. Remaining harvested cutblocks not identified in the information system as having reserve trees or patches associated with the harvest area, will be cross referenced with GIS databases, Forest Stewardship Plan or other plans.
Variance	None

⁷ Significant change to Indicator, new baseline

⁸ Okanagan Shuswap "Land & Resource Management; Multiple Accounts Analysis - Final Base Case with LRMP Analysis", 2000

Section 5.0 – Indicators and Indicator Matrices

Indicator	(6) Percent of cutblocks where management of Coarse Woody Debris (CWD) is consistent with plans.
Element(s)	1.1 Ecosystem Diversity
Strategy(s) Description	<p>Biodiversity can be affected by the disruption of natural processes. Future maintenance of biodiversity is in part dependent upon management for important attributes at the stand (site) level</p> <p>Coarse woody debris (i.e., downed wood) plays an important role in forest ecosystems including provision of food and shelter for invertebrates and smaller wildlife, growing sites for trees, nutrients for soils, and structure in streams to maintain channel stability.</p> <p>Excessive removal of coarse woody debris (CWD) may affect habitat needs for some wildlife species (e.g., pine marten, fisher, grizzly bear, many small mammals and snakes, some amphibians and numerous invertebrates).</p>
Means of achieving objective and target	During forest development planning, licensees incorporate a number of strategies for maintaining diversity of structure and function within cutblocks. One aspect of maintaining structural diversity within cutblocks is to retain coarse woody debris on sites after logging.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) One hundred percent of harvested cutblocks met the intent of the Regional Coarse Woody Debris policy/strategy and LRMP direction.
Forecast	<p>Healthy ecosystems with a diversity and abundance of native species and habitats.</p> <ul style="list-style-type: none"> ▪ Coarse woody debris management is in its infancy within the province. Additional research and information gathering will help improve the ability to predict desired levels and impact. Policies provide consistency with the Timber Supply Review to ensure no Timber Supply impact. <p>LRMP Analysis⁹: The plan provides direction on stand level biodiversity. Riparian area management (indicator 4) is enhanced and the value of WTPs is confirmed. The plan provides a two-tiered (basic and enhanced) approach to management of CWD which is an improvement over the base case because it has specific quantifiable requirements for retention. None the less, there may remain a risk to CWD in the drier ecosystems.</p>
Target	100 percent of cut-blocks will be consistent with the CWD requirements identified in plans.
Basis for the Target	OSLRMP guidance. Regional Coarse Woody Debris policy/strategy and LRMP direction. Addresses the need to maintain healthy ecosystems with a diversity and abundance of native species and habitats.
Legal Requirements	Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement	
Periodic	
Annual	Report on adherence to CWD strategies identified in plans for cutblocks where harvesting was completed during reporting period. To enable reporting, an information system will be used to generate a list of cutblocks where harvesting was completed and a list of cutblocks that comply with the stated CWD targets.
Variance	None

⁹ Okanagan Shuswap "Land & Resource Management; Multiple Accounts Analysis - Final Base Case with LRMP Analysis", 2000

Section 5.0 – Indicators and Indicator Matrices

Indicator	(7) Percent of harvested cutblocks having three or more tree species identified in the free growing inventory.
Element(s)	1.2 Species Diversity; 1.3 Genetic Diversity
Strategy(s) Description	The goal of the OSLRMP for timber and silviculture is to maintain or enhance the sustainable supply of economically viable timber and minimize costs while maintaining environmental standards and addressing other resource values. One of the Objectives relating to the SFM Plan is to maintain a diversity of tree species in managed forests.
Means of achieving objective and target	Licensee plans will incorporate strategies that promote multi species regeneration.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) Ninety-one percent of harvested units have three or more tree species identified in the free-growing inventory.
Forecast	Diversity and abundance of naturally occurring tree species on the landscape. Native species are maintained at endemic and sustainable levels. <ul style="list-style-type: none"> ▪ Species composition information is utilized in the Provincial Timber Supply Review.
Target	70 percent of the area of cutblocks harvested will have three or more tree species (includes conifer and deciduous comprising one percent or more of total trees) in the free growing survey.
Basis for the Target	OSLRMP guidance. Address diversity and abundance of naturally occurring tree species on the landscape.
Legal Requirements	Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement Periodic	
Annual	To enable reporting, the following steps will occur: <ol style="list-style-type: none"> 1. An information system will be used to generate a list of cutblocks that were declared free growing during the reporting period. 2. An information system will be used to track information on free growing survey (inventory label) and a summary will be generated of field survey information, showing tree species present at free growing. 3. The average (in percent) of the leading tree species for those cutblocks having three or more species, will be identified in the report.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(8) Forest age class distribution
Element(s)	2.2 Forest Ecosystem Productivity, 4.1 Carbon Uptake and Storage
Strategy(s) Description	<p>In the south and central portion of the TSA where the DFA is located the forest ecosystems have been historically influenced by the presence or absence of fire as a dominant form of natural disturbance. The similarities in fire return intervals, and disturbance sizes and patterns form the basis for categorizing each of the ecosystems into natural disturbance types (NDT), which in turn is used to provide guidance for maintaining biodiversity.</p> <p>Timber Harvesting Landbase (THLB): A balanced age class distribution within the early (~ 0 to 40 yrs) and mid (~ 41 to 100 yrs) seral stages allows for an even flow of timber values and benefits. A reduction of the current imbalance of mature to over mature stands within the THLB also reduces forest health risks. Productive forest land within the non-THLB (NTHLB) together with additional protected areas identified in the LRMP contributes to old forest in the TSA (Indicator 1).</p> <p>Forecasted forest age class distribution over time provides an indication of sustainability.</p> <p>Balanced age classes will result in a larger proportion of hectares in younger faster growing stands with a net carbon intake.</p>
Means of achieving objective and target	<p>Maintain current harvest priority:</p> <ol style="list-style-type: none"> 1. Forest health management – harvesting attacked and susceptible stands (generally older stands). 2. “Available” stands with the most years beyond culmination (maximum mean annual increment).
Forecast (Predicted Results or Outcome)	<p>Status at time of Indicator implementation (2003)¹⁰</p> <p>Age classes 2, 3 and 5 each have less than 10 % area representation. Age classes 1 to 5 average only 8.2% reflecting the disproportionate area in over mature age classes.</p>
Forecast	<p>Continuation of current harvest priorities will lead to balanced age classes on the available productive forest land. Protected Area, Old Growth Management Area (OGMA), and Wildlife Tree Patch Strategies , together with inaccessible areas, ensure retention of sufficient old growth to sustain biodiversity and ecosystem objectives.</p> <p>Progress to target will be steady:</p> <ul style="list-style-type: none"> ▪ In 50 years age classes 1 to 5 average 10.6% and three age classes meet target. ▪ Target will be achieved within 100 years.
Target	<p>Progress towards a stable forest age class distribution on the timber harvesting land base where each age class to 100 years old [1 (1 to 20), 2 (21-40), 3 (41-60), 4 (61 to 80) and 5 (81 to 100)] occupies at least 10% of the timber harvesting land base. Three age classes meet this target within 50 years.</p>
Basis for the Target	Relatively even flow of value to industry and the community
Legal Requirements	NA
Monitoring & Measurement Periodic	Current status and future forecast of age class distribution is provided as part of Timber Supply Review completed periodically.
Annual	<p>Licensee report the current age class distribution as last reported by a Timber Supply Review</p> <p>Licensees report the current age class distribution on the DFA for both THLB and gross area.</p>
Variance	Attaining age class balance earlier a benefit. Later – 20 years.

¹⁰ DFA relative to TSAs and TSRs

The DFA occupies portions of the Okanagan, Arrow and Boundary TSAs and all of TFLs 35 and 49. The DFA is predominantly within the Okanagan TSA. Targets and reporting are therefore based on Okanagan TSA current status and future forecast. TFL information will be monitored outside the SFMP process to confirm similar trends.

Timber Supply Reviews (TSRs) report current status and forecast future condition of TSA forest parameters (i.e. age class distribution). TSR information is not specific to the DFA; however it is reflective of the DFA with respect to Indicator 8 (Age Class Distribution). TSRs reflect current practices in the TSA. Practices within the DFA reflect those in the TSR. It is assumed that the DFA will parallel the TSRs current status and forecast for achievement of targets for this Indicator.

As noted, TSR reflects current practices. Although other TSA licensees are not reporting on achievement of targets, the periodic TSRs reflect and incorporate current practice. In effect, a periodic report of achievement against targets.

Section 5.0 – Indicators and Indicator Matrices

Indicator	(9) Percent of planted area for the current planting year regenerated in accordance with seed transfer guidelines.
Element(s)	1.3 Genetic Diversity
Strategy(s) Description	Seed and vegetative material transfer guidelines are intended to minimize the risks of maladaptation or growth loss associated with regenerating trees (planted from seed or vegetative material) in a different location from their source. Transferring seeds or vegetative materials beyond the limits specified in the guidelines may decrease productivity or increase susceptibility to frost, insects or disease. With respect to genetic diversity, these guidelines geographically limit the amount of natural change and spread of seed or vegetative material over the landscape
Means of achieving objective and target	The transfer guidelines must be adhered to when prescribing reforestation measures in Licensee plans.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) One hundred percent of tree seed was registered for the planting of all 2,502,807 trees.
Forecast	Predictable reforestation will enable additional resistance to pests and increased tree growing performance. Genetic diversity of native tree species represented in future forests.
Target	100 percent of planted area will be regenerated in accordance with the seed transfer guidelines.
Basis for the Target	OSLRMP guidance. Predictable reforestation will enable additional resistance to pests and increased tree growing performance.
Legal Requirements	Forest Practices Code of British Columbia Act, Timber Harvesting and Silvicultural Practices Regulation, Strategic Planning Regulation, Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement Periodic	
Annual	To enable reporting, the following step will occur: <ul style="list-style-type: none"> ▪ Report the number of non-conformances to seed transfer guidelines. For perspective, the number of trees planted in non conformance will be compared to total trees planted in the reporting period.
Variance	Variance is provided for within the legal framework.

Section 5.0 – Indicators and Indicator Matrices

Indicator	(10) Protected Ecosystems
Element(s)	1.1 Ecosystem Diversity, 1.4 Protected Areas and Sites of Special Biological Significance
Strategy(s) Description	<p>Biodiversity can be affected by the disruption of natural processes. Future maintenance of biodiversity is in part dependent upon:</p> <ul style="list-style-type: none"> ▪ the protection and connectedness of representative ecosystems as ecological benchmarks at the provincial and regional level; ▪ the maintenance and connectivity of representative habitats and seral stages at the landscape and watershed level; ▪ protection of known rare and endangered species and ecosystems. <p>The OSLRMP Protected Area Strategy has two goals. Goal 1 is to protect viable, representative examples of the natural diversity in the province, representative of the major terrestrial, marine and freshwater ecosystems, the characteristic habitats, hydrology and landforms, and the characteristic backcountry recreational and cultural heritage values of each ecosystem.</p> <p>Goal 2 is to protect the special natural, cultural heritage and recreational features of the province, including known rare and endangered species and critical habitats, outstanding or unique botanical, zoological, geological and paleontological features, outstanding or fragile cultural heritage features, and outstanding outdoor recreational features such as trails.</p>
Means of achieving objective and target	<p>The forest licensees participated in the OSLRMP 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.</p> <p>Identification of known rare ecosystems (Indicator 2) will lead to protection or management.</p>
Forecast (Predicted Results or Outcome)	<p>Status at time of Indicator implementation (2003)</p> <p>8 percent Protected Areas in the TSA</p>
Forecast	<p>Protected area within the Okanagan TSA contributes to Provincial representation by biogeoclimatic zones.</p> <p>LRMP Analysis – Indicator 42: The Plan's proposed protected area package recommends an additional 5.8 % of the plan area (121,693 ha) being set aside as provincial parks. The biogeoclimatic breakdown shows additional representation achieved as a result of the plan. In variants where the plan area is important to regional representation objectives the level of increase is variable, some increases are small, others substantial.</p>
Target	8 percent protected areas in the TSA
Basis for the Target	OSLRMP guidance. Protected Areas Strategy was established by the provincial government in 1992
Legal Requirements	Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Ecological Reserve Act, Park Act, Protected Areas of BC Act, Land Act
Monitoring & Measurement	Current status is provided as part of periodic Timber Supply Review.
Periodic	Reported on a TSA basis.
Annual	Licensee report the current Protected Area status as last reported by a Timber Supply Review
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(11) Amount of time for road cut and fill slope revegetation application (control of noxious weed).
Element(s)	1.2 Species Diversity; 3.1 Soil Quality and Quantity; 3.2 Water Quality and Quantity; 5.1 Timber and Non-Timber Benefits
Strategy(s) Description	<p>Grass seeding is carried out for three reasons: 1) noxious weed control; 2) erosion prevention; and, 3) to provide forage. The seed used for revegetation is graded by Agriculture Canada to protect against the presence of noxious weeds and other unwanted species.</p> <p>Noxious weeds are non-native plant species that can be difficult to control. They can have a significant impact on agriculture and timber production, reducing forage production for livestock and wildlife and threatening forest regeneration. They may also alter the structure of natural plant communities, threatening biodiversity.</p> <p>The most effective strategy for controlling noxious weeds is to prevent their establishment. Once established, the cost and difficulty of controlling noxious weeds increases significantly.</p>
Means of achieving objective and target	<p>The Licensees are committed to promptly re-vegetate permanent road cuts and fills in order to reduce the spread of noxious weeds.</p> <p>Licensees use appropriately graded grass seed mixes.</p>
Forecast (Predicted Results or Outcome)	<p>Status at time of Indicator implementation (2001)</p> <p>A) One hundred percent of road cuts and fill slopes (84.3 km) were seeded or planted on average within one month of disturbance, meeting the target of one month. Ninety-eight percent of road constructed during the winter (58 km of 59.1 km built) was revegetated within the 7 month variance compared to the target of 100%.</p> <p>B) Eighty seven percent of R/Ws were revegetated with grass seed that is graded “acceptable”. The remaining amount (13 percent of 3,000 kg) contained 7% clover mix graded Canada #2. The vendor confirmed that the noxious weed component was not increased from that of Canada #1.</p>
Forecast	Timely revegetation application of exposed soils on newly constructed road cut and fill slopes will reduce the potential for soil movement and sedimentation thereby contributing to the maintenance of water quality as well as limit growing space for establishment of noxious weeds.
Target	<p>A) Permanent road cut and fill slope revegetation application carried out within the current growing season of road completion under normal conditions; and for roads completed during winter, revegetation application will be completed before or during favourable germinating conditions the following spring.</p> <p>B) 100 percent of rights-of-way revegetated for noxious weed and erosion control with Canada No.1 or equivalent grass seed.</p>
Basis for the Target	OSLRMP guidance. Timely vegetation application of exposed soils on newly constructed road cut and fill slopes will reduce the potential for soil movement and sedimentation thereby contributing to the maintenance of water quality as well as limit growing space for establishment of noxious weeds. High levels of germination from quality seed during revegetation will provide less of an opportunity for noxious weed establishment.
Legal Requirements	Forest Practices Code of British Columbia Act, Forest Road Regulation, Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement Periodic	
Annual	<p>A) To enable reporting, the following steps will occur:</p> <ol style="list-style-type: none"> 1. A record of permanent road construction and application of grass seed for the reporting period will be kept. 2. The records will be used to provide a summary of timing of right-of-way revegetation application. <p>B) Units will provide a file for tracking the grass seed. Compile total amount of Canada No. 1 or equivalent seed purchased (kilograms) and compare to total seed purchased (kilograms) for the reporting period.</p>
Variance	<p>A) Maximum 7 months.</p> <p>B) None</p>

Section 5.0 – Indicators and Indicator Matrices

Indicator	(12) Annual percent of opening areas in permanent access structures.
Element(s)	3.1 Soil Quality and Quantity; 4.2 Forest Land Conversion
Strategy(s) Description	Soil productivity is vital to all forest resource interests. Objectives in the Okanagan-Shuswap LRMP are aimed at preserving soil resources, managing plant-soil systems and minimizing the potential for the contamination of water resources by naturally occurring uranium deposits.
Means of achieving objective and target	When constructing new forest development roads, minimize, where practical, site disturbance that causes permanent withdrawals from the timber harvesting land base; Commitments related to the amount of permanent access structures (i.e. roads, gravel pits) are included in site-specific plans.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) The percentage area of cutblock areas in permanent access structures was 4.1 percent.
Forecast	Productive forest soils with minimized losses to forest development. <ul style="list-style-type: none"> ▪ Permanent access structures (percent non-productive unnatural) are utilized in Provincial Timber Supply Review.
Target	Less than 6 percent of cut block areas in permanent access structures.
Basis for the Target	OSLRMP guidance. Access structures such as roads and landings compact soil, making regeneration difficult, and disrupt the natural connectivity within forest stands. The percent target refers specifically to loss to the timber harvesting landbase due to access structures within harvested areas.
Legal Requirements	Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Timber Harvesting and Silviculture Practices Regulation, Forest Road Regulation, Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement Periodic	
Annual	To enable reporting, the following steps will occur: <ol style="list-style-type: none"> 1. An information system will be used to generate a list of cutblocks where harvesting was completed during the reporting period. 2. An information system will be used to provide a summary of gross cutblock area and planned area of permanent roads and landings within these cutblocks.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(13) Managing Water Quality
Element(s)	3.2: Water Quality and Quantity
Strategy(s) Description	<p>The Okanagan-Shuswap LRMP recognizes water as a primary and fundamental resource. As a finite resource water needs to be protected and managed in order to sustain human populations and natural ecosystems.</p> <p>Indicator (13) focuses on evaluating and managing forestry operation's effect on water quality. For the purpose of this indicator, the primary water quality characteristic of interest is turbidity, which is a measure of the cloudiness of water. When forestry related disturbances generate fine sediment that is then transported to a stream, turbidity pulses occur which degrade water quality. The Water Quality Effectiveness Evaluation methodology utilized by this indicator provides a means to quantify the effect of forestry related disturbances on water quality. The assessment of turbidity takes precedence over other water quality characteristics in this evaluation system.</p> <p>Of all forest harvesting activities, construction, maintenance and use of roads carries the highest risk for impacting water quality. This is particularly true for road sections directly tied to, or in close proximity of stream channels (i.e. stream crossings, ditch lines leading directly to stream channels).</p> <p>The Water Quality Effectiveness Evaluation methodology provides forestry managers and machine operators the ability to quantify and manage their impact on water quality. It provides an opportunity to quantify the relative impact of differing road construction and maintenance options. This methodology can be used during both planning and operational phases.</p> <p>By comparing the management practices employed at a site, with an indication of sediment generated at the same site, the road manager can prioritize activities related to road planning, construction and maintenance. Based on where and how sediment is being generated, the road operator will be able to prioritize the importance of various management activities based on their effectiveness.</p>
Means of achieving objective and target	<p>Forestry supervisors and machine operators involved with road construction will be trained on how to complete the Water Quality Effectiveness Evaluation. The training is expected to improve decisions and practices.</p> <p>Machine operators or supervisors will complete the evaluation for stream crossings once completed.</p>
Forecast (Predicted Results or Outcome)	<p>Status at time of Indicator implementation (2001)</p> <p>The baseline will be established using the results of the 2007 Monitoring Report.</p>
Forecast	<p>Through the immediate feedback loop the assessment system provides to forestry managers and machine operators, road planning and construction techniques will be improved.</p> <p>Reduced water turbidity due to forestry practices</p>
Target	<ol style="list-style-type: none"> 1. 100% of newly constructed or reconstructed permanent road stream crossings in Community Watersheds have a water quality effectiveness evaluation incorporated into the planning, construction, and maintenance and monitoring phases. 2. Licensees will bench mark and report on the number of crossings rated as High, Medium and Low. 3. No "High" ratings
Basis for the Target	<ol style="list-style-type: none"> 1. This indicator represents a new direct approach to managing water quality. It also involves "grass roots" operators in its implementation and ongoing use. The target reflects the innovative, relatively challenging start up phase for this indicator. Over time (2 to 5 years) it is anticipated the target will be expanded to include additional crossings. 2. Over time (3 to 5 years) it is expected data from bench marking will lead to development of a new or amended target stipulating a number, proportion or distribution of High, Medium or Low ratings.
Legal Requirements	KBLUP Higher Level Plan, Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Timber Harvesting and Silviculture Practices Regulation, Forest Road Regulation, Water Act, Fisheries Act, Forest And Range Practices Act, Forest Planning And Practices Regulation, Drinking Water Protection Act

Section 5.0 – Indicators and Indicator Matrices

Monitoring & Measurement	
Periodic	
Annual	<ol style="list-style-type: none"> 1. Licensees report both the number of new or reconstructed permanent road stream crossings in Community Watersheds, and the number of those stream crossings that have had a water quality effectiveness evaluation completed. 2. The number of crossings rated as High, Medium and Low will be reported 3. The number of crossings rated as High excluding those where all reasonable mitigation measures were taken
Variance	<ol style="list-style-type: none"> 1. Variance 25% - training and implementation scheduling may result in some crossings not having an effectiveness evaluation completed. 2. None 3. "High" rating is acceptable if all reasonable mitigation measures have been taken.

Section 5.0 – Indicators and Indicator Matrices

Indicator	(14) Number of induced slides resulting from forest management activities (>.1 hectare) originating in or adjacent to harvested areas or inspected permanent roads.
Element(s)	3.1 Soil Quality and Quantity; 3.2 Water Quality and Quantity
Strategy(s) Description	The Defined Forest Area (DFA) has significant climatic variations from wet conditions in the north to drier conditions in the south. Steep slopes and terrain conditions in the entire DFA have the potential for landslides and surface soil erosion. Landslides are a natural and inevitable phenomenon that contributes to the evolution of the landscape. Although landslides occur in both logged and unlogged terrain, logging and road building can increase their frequency. Impacts of landslides can include acceleration of sediment delivery to streams, possible damage to fish and invertebrate habitat and productivity, loss of forest site productivity, unsightly scars and damage to roads, culverts and bridges.
Means of achieving objective and target	The Forest Practices Code has comprehensive steps to aid in the identification and mitigation of industry caused landslides ¹¹ . Since the FPC inception in 1995 all development of roads and cutblocks is consistent with the tools established in the legislative framework including assessing all sensitive terrain prior to road construction or harvesting to evaluate terrain stability and provide recommendations, inspections of drainage ditches and culverts regularly, and taking preventative measures to minimize the potential for debris flow initiation and soil erosion.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) No slides were induced in 2001 as a result of 1,657 hectares of harvesting activities.
Forecast	Decreased forest soil exposure from slides will reduce the potential for sedimentation thereby contributing to the maintenance of water quality and provide landbase for facilitating timber production.
Target	Zero slides induced from forest management activities.
Basis for the Target	Decreased soil disturbance from slides will reduce the potential for sedimentation thereby contributing to the maintenance of water quality and provide landbase for facilitating timber production.
Legal Requirements	Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Timber Harvesting and Silviculture Practices Regulation, Forest Road Regulation, Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement Periodic	
Annual	Utilize incident reports completed for the reporting year to compile the number of slides >0.1 hectare from forest management activities. For perspective, cutblock area where harvesting was completed during the reporting period and kilometers inspected of permanent roads will be provided.
Variance	None

¹¹ Guidelines were developed in 1995 therefore, the SFM plan indicator/objective refers to occurrences after 1995.

Section 5.0 – Indicators and Indicator Matrices

Indicator	(15) Percent of harvest priorities related to forest health completed by date set out in strategies.
Element(s)	2.1 Forest Ecosystem Resilience
Strategy(s) Description	In the Okanagan-Shuswap LRMP healthy forests are described as having “a condition that does not pose unacceptable risks to resources or values; characterized by biodiversity, the forest contains sustained habitat for indigenous life and meets present and future resource and value objectives”. Examples of biotic and abiotic forest health factors that impact the health of forests are fire, root rot, bark beetle, mammal, weevil, defoliators, wind, sun, drought and bacteria.
Means of achieving objective and target	Management for forest health includes both preventive action and proactive response measures. Examples may include Licensee participation in overview flights, focused reconnaissance action resulting from overview flights, strategies and coinciding action plans, communication, implementation and review. Forest health strategies available and communication documented on priority action file. Harvest priorities established in strategy are monitored and revised as new information is made available.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) One hundred percent of forest health strategies were completed as per the priority harvest plan.
Forecast	Logical priorities established and communicated to aid in control of forest health issues.
Target	Meet with government agencies (and other licensees and public where appropriate) on an ongoing basis to review forest health programs (e.g., pests, fires and windthrow) and complete 100 percent of harvest priorities by completion date set out in strategy.
Basis for the Target	OSLRMP guidance. Developing and implementing a harvesting strategy is one of the management tools used in response to certain forest health conditions. Timely, effective harvesting reduces both the rate of spread, and loss of timber value, of several forest health pests.
Legal Requirements	Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement Periodic	
Annual	To enable reporting, the following steps will occur: 1. Forest health strategies available and communication documented on priority action file. 2. Harvest priorities established in strategy are monitored and revised as new information is made available. Report percentage of harvest and/or road priorities completed during the reporting period and cross-reference with strategy. 3. List other strategies employed other than priority harvest.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(16) Percent of cutblock area planned for planting is completed before or during the second complete growing season. Percent of naturally regenerated cutblock area not meeting the natural regeneration delay.
Element(s)	2.2 Forest Ecosystem Productivity; 4.2 Forest Land Conversion
Strategy(s) Description	Prompt reforestation ensures that the productive capacity of forest landbase to grow trees is maintained. Promptness also aids in providing younger trees a head start against competing vegetation, helping to reduce the need for manual or chemical brushing treatments.
Means of achieving objective and target	Licensee plans focus on prompt reforestation.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) Ninety-five percent of cutblocks planned for planting were completed within second complete growing season One hundred percent of naturally regenerated cutblocks met natural regeneration delay.
Forecast	Prompt reforestation ensures that the productive capacity of forest landbase to grow trees is maintained. Promptness also aids in providing younger trees a head start against competing vegetation, helping to reduce the need for manual or chemical brushing treatments. <ul style="list-style-type: none"> ▪ Regeneration delay information (eventually effects age class distribution) is utilized in the Timber Supply Review. The Ministry of Forests and Range is responsible for forecasting key dates such as regeneration delay, based on specific biogeoclimatic information for each site.
Target	70 percent of cutblock area planned for planting is completed within two growing seasons. 100 percent of natural regeneration cutblock area meeting natural regeneration delay.
Basis for the Target	OSLRMP guidance. Legal requirements for natural regeneration. Sustainability (vigor, site productivity) enhanced. Reflects current performance level.
Legal Requirements	Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Timber Harvesting and Silviculture Practices Regulation, Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement	
Periodic	
Annual	To enable reporting, the following steps will occur: <ol style="list-style-type: none"> 1. An information system will be used to generate a summary of area where harvesting was completed and the time delay to have the planned cutblock area planted. 2. An information system will be used to generate a summary of area to state the percentage of naturally regenerated cutblocks, which have met regeneration delay.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(17) Percentage of cutblock area that meets free growing requirements on or before the latest date.
Element(s)	2.2 Forest Ecosystem Productivity; 4.1 Carbon Uptake and Storage
Strategy(s) Description	Prompt reforestation ensures that the productive capacity of forest landbase to grow trees is maintained. Promptness also aids in providing younger trees a head start against competing vegetation, helping to reduce the need for manual or chemical brushing treatments.
Means of achieving objective and target	Licensee plans focus on prompt reforestation.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2002) 1,118 ha in total have achieved Free-Growing status. 1,118 ha were due in the reporting period.
Forecast	<ul style="list-style-type: none"> ▪ Achievement of the earliest free growing date will help ensure that the productive capacity of the forest landbase to grow trees is maintained. ▪ Providing crop trees with a head start against competing vegetation will help to reduce the need for manual or chemical brushing treatments. <p><i>The Ministry of Forests and Range is responsible for providing guidelines on key dates such as free growing, based on specific biogeoclimatic information for each site.</i></p>
Target	All cutblocks will reach free growing requirements on or before the latest date.
Basis for the Target	OSLRMP guidance. Sustainability (vigor, site productivity) enhanced.
Legal Requirements	Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Timber Harvesting and Silviculture Practices Regulation, Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement Periodic	
Annual	Report on the cutblock area (hectares) that achieved free growing status and the average time (years) that the cutblock outperformed late free growing date (weighted average). In addition, report as general information, the volume of chemicals (items covered by the Pesticide Control Act and broadcast fertilizer applications) that are applied annually.
Variance	Variance is provided for within the legal framework.

Section 5.0 – Indicators and Indicator Matrices

Indicator	(18) Report on access management commitments contained in Forest Stewardship Plans (FSPs).
Element(s)	2.1 Forest Ecosystem Resilience
Strategy(s) Description	Access plans consider the condition of access, maintenance, deactivation and access restrictions related to long term objectives for an area. This includes identifying potential impacts on resources such as wildlife, recreation, sensitive ecosystems, or other values due to open public access and introducing public access controls, where required. One of the concerns identified by the SFM Advisory Group for consideration in access management planning is the potential impact of motorized access on sensitive wildlife habitat. Implemented access controls will minimize disruption to sensitive ecosystems and wildlife populations.
Means of achieving objective and target	Forest licensees follow the advice and direction set by the government agencies through access management planning processes. Licensee plans include access and timing restriction information.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) Access management strategies indicated in the FDP were implemented as planned.
Forecast	Implemented access controls will minimize disruption to the sensitive ecosystems and disruption to sensitive wildlife populations. LRMP Analysis ¹² : The plan recognizes that access related issues can impact many resource values and interests in the plan area. Specifically, the plan provides all users with opportunities for access and opportunities for public input to any plans that propose to alter access. There is provision to manage potentially negative impacts of road development/use and off road use on the environment and other social values. Further, the plan requires, as much as practicable, to avoid use and development of roads and other developments on alpine areas, known rare ecosystems, sensitive ecosystems, critical wildlife habitat and during periods that are sensitive to wildlife. There is general direction to manage access in a manner that is compatible with other values (e.g. water quality, habitat and recreation) and provides for 'follow-up' access management planning to deal with specific issues if required.
Target	100 percent of annual access management commitments contained within the FDP/FSP will be implemented during the reporting period.
Basis for the Target	OSLRMP guidance. Minimize disruption to sensitive ecosystems and wildlife populations.
Legal Requirements	Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement	
Periodic	
Annual	To enable reporting, the following steps will occur: 1. Utilize Forest Stewardship Plan access and timing restriction information. 2. To determine the above has been achieved, refer to the information system for road completion status, access management commitment status, and other relevant information.
Variance	None

¹² Okanagan Shuswap "Land & Resource Management; Multiple Accounts Analysis - Final Base Case with LRMP Analysis", 2000

Section 5.0 – Indicators and Indicator Matrices

Indicator	(19) Percent of cutblocks harvested in which soil disturbance exceeds level specified in plan.
Element(s)	2.2 Forest Ecosystem Productivity; 3.1 Soil Quality and Quantity; 3.2 Water Quality and Quantity
Strategy(s) Description	A goal of the OSLRMP for timber and silviculture is to maintain or enhance the sustainable supply of economically viable timber and minimize costs while maintaining environmental standards and addressing other resource values.
Means of achieving objective and target	Certain soil types are sensitive to disturbance, especially from road construction and harvesting activities involving mobile equipment such as excavators and skidders. These sensitive soils are identified in advance to help prevent/minimize soil compaction, poor drainage, puddling, erosion and soil displacement that result in loss of productive forest sites and siltation of water courses. Licensee plans specify acceptable levels of disturbance.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) Zero percent of openings harvested exceeded specific soil disturbance levels.
Forecast	Productive forest soils with minimized losses to forest development. <ul style="list-style-type: none"> ▪ This target reflects the Forest Practices Code – Soil Conservation Guidebook standards. Timber supply impacts of this FPC requirement were analyzed in the Forest Practices Code Analysis Report – 1996. Minimizing soil disturbance will reduce the potential for soil movement and sedimentation thereby contributing to the maintenance of water quality.
Target	Zero percent of cutblocks harvested in which soil disturbance exceeds specified level of disturbance.
Basis for the Target	OSLRMP guidance. Productive forest soils with minimized losses to forest development. Impact on water quality is also minimized.
Legal Requirements	Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Timber Harvesting and Silviculture Practices Regulation, Forest Road Regulation, Forest And Range Practices Act, Forest Planning And Practices Regulation, Fisheries Act
Monitoring & Measurement Periodic	
Annual	Utilize incident reports completed for the reporting year to determine the number of non-conformances related to soil disturbance commitments made in plans.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(20) Incidents of non-conformance with government direction on recovery plans for regionally significant species.
Element(s)	1.2 Species Diversity; 1.3 Genetic Diversity
Strategy(s) Description	<p>Biodiversity can be affected by the disruption of natural processes. Future maintenance of biodiversity is in part dependent upon protection of known rare and endangered species and ecosystems.</p> <p>The OSLRMP plan area provides habitat through protected areas and OGMA's for several rare (red and blue-listed) species and plant communities. Many of these are associated with the lower elevations of main valleys, particularly in the South Okanagan and the lower Similkameen valleys. Habitat loss or alteration of habitat has contributed to the threat to some of these species, however, many are naturally rare (they have sparse distributions or numbers, or are near the geographic limits of their distribution).</p> <p>In addition to the management direction provided for wildlife management through general resource management objectives and strategies, polygon-specific resource management zones (RMZs) were established. These zones provide area specific objectives and strategies for managing the values identified in the RMZ.</p>
Means of achieving objective and target	<p>"Known" information (see Glossary) that is provided by government authorities, will be incorporated into the company's GIS database and available for forest planning.</p> <p>OSLRMP direction impacting Identified Wildlife (Appendix 14 - interim measures, and polygon specific resource management zones for: big-horn sheep; grizzly bear; mountain caribou; mountain goat; fisher as per capability mapping) and KBLUP (grizzly bear) will be addressed in Licensee plans.</p>
Forecast (Predicted Results or Outcome)	<p>Status at time of Indicator implementation (2001)</p> <p>Regional significant species were not identified by government during the reporting period.</p>
Forecast	<p>A diversity of healthy ecosystems while prescribing to strategies established for regionally significant species.</p> <ul style="list-style-type: none"> ▪ Okanagan-Shuswap LRMP allocated approximately 62,000 hectares on the Timber Harvesting Landbase and 124,000 hectares on the Non-Timber Harvesting Landbase for Old Growth Management Areas to align with the Provincial biodiversity strategy. Additionally, 7500 hectares is available on the Timber Harvesting Landbase for Identified Wildlife Management Strategy and "interim measures document". A forecast for these areas will be provided in the next Timber Supply Review. <p>LRMP Analysis¹³: The LRMP recommendations for habitat management coupled with the release of the FPC Identified Wildlife Management Strategy, and the recommendations for protected areas have decreased the risk to Red and Blue-listed species within the plan area. As systematic inventories have yet to occur, and due to the relative obscurity of these species, there is still a great reliance upon government agencies to identify the locations of the critical habitats and make that information available to resource developers and the general public. The lower elevation very dry, hot (xh) subzones are recognized for their potential to provide habitat and maintain connectivity to the central interior of the province. Certain species/communities (particularly Red-listed) remain at a very high risk due to (primarily) their low number of occurrences and may continue to decline despite the recognition received during the planning process.</p>
Target	Follow government direction set out in recovery plans for regionally significant species.
Basis for the Target	Provides for a diversity of healthy ecosystems while prescribing to strategies established for regionally significant species.
Legal Requirements	KBLUP Higher Level Plan, Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Wildlife Act, Species At Risk Act, Forest And Range Practices Act, Forest Planning And Practices Regulation

¹³ Okanagan Shuswap "Land & Resource Management; Multiple Accounts Analysis - Final Base Case with LRMP Analysis", 2000

Section 5.0 – Indicators and Indicator Matrices

Monitoring & Measurement	
Periodic	
Annual	<p>Recovery plans and strategies may be outside the control of forest licensees. “Known” information (see Glossary) that is provided by government authorities, will be incorporated into the company’s GIS database and available for forest planning.</p> <p>Licensees will report the number of cutblocks approved/signed in the reporting period that were influenced by IWMS (recovery plans) for regionally significant species. To enable reporting, an information system will be used to generate a list of applicable cutblocks that were approved/ signed and had incorporated a strategy.</p>
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(21) Percent of permanent status roads that have had inspections completed as per plans.
Element(s)	3.1 Soil Quality and Quantity; 3.2 Water Quality and Quantity; 4.2 Forest Land Conversion
Strategy(s) Description	The Okanagan-Shuswap LRMP recognizes water as a primary and fundamental resource. Water is a crucial component of the plan area's ecosystems with lakes, rivers and riparian areas providing critical habitat for many fish and wildlife species. Water is also an important resource for human consumption. As a finite resource it needs to be protected and managed in order to sustain human populations and natural ecosystems.
Means of achieving objective and target	Business units will schedule and complete inspections with frequency based on road risk: high, medium and low risk roads.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) Risk inspections have been completed on 99 percent of permanent status roads (669 km completed of 678 km total)
Forecast	Active road maintenance and deactivation programs, particularly during the spring snowmelt, will assist in the prevention of soil movement and sedimentation; thereby, contributing to the maintenance of water quality and soil productivity.
Target	100 percent of permanent status roads will have risk assessments and plans developed based on assessments.
Basis for the Target	Legal requirements. OSLRMP guidance. Recognition that roads often have the largest potential environmental aspect of all forestry operations. Also recognizes risk management.
Legal Requirements	Forest Practices Code of British Columbia Act, Forest Road Regulation, Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement	
Periodic	
Annual	To enable reporting, the following steps will occur: <ol style="list-style-type: none"> 1. Business units will keep a file for inspection frequency schedule for high, medium and low risk roads. 2. For the reporting period, query road information system for inspections complete on road. 3. Cross reference frequency schedule with query output.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(22) Percent of temporary status roads inspected at least once per year until road has been rehabilitated.
Element(s)	3.1 Soil Quality and Quantity; 3.2 Water Quality and Quantity; 4.2 Forest Land Conversion
Strategy(s) Description	The Okanagan-Shuswap LRMP recognizes water as a primary and fundamental resource. Water is a crucial component of the plan area's ecosystems with lakes, rivers and riparian areas providing critical habitat for many fish and wildlife species. Water is also an important resource for human consumption. As a finite resource it needs to be protected and managed in order to sustain human populations and natural ecosystems.
Means of achieving objective and target	Inspections on temporary roads (where not rehabilitated at the completion of harvesting) are scheduled, conducted in the field, and recorded. Information systems will be used to ensure rehabilitation activities are completed as planned.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) One hundred percent of temporary status roads were inspected in the reporting period (totaling 12.7 km).
Forecast	Active road maintenance and deactivation programs, particularly during the spring snowmelt, will assist in the prevention of soil movement and sedimentation; thereby, contributing to the maintenance of water quality and soil productivity. Temporary roads are generally rehabilitated following harvesting and/or site preparation operations. Where prompt rehabilitation has not occurred, the road is deactivated to ensure water quality until such time as rehabilitation occurs.
Target	Inspect all temporary status roads at least once per year until rehabilitated.
Basis for the Target	Legal requirements. OSLRMP guidance. Recognition that roads often have the largest potential environmental aspect of all forestry operations. Also recognizes risk management.
Legal Requirements	Forest Practices Code of British Columbia Act, Forest Road Regulation, Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement	
Periodic	
Annual	Inspections on temporary roads (where not rehabilitated at the completion of harvesting) are conducted in the field and will be recorded. Information systems will be used to ensure rehabilitation activities are completed as planned. To enable reporting, complete the following steps: <ol style="list-style-type: none"> 1. For the reporting period, query road information system or areas having outstanding rehabilitation requirements of temporary roads where site preparation has already occurred. 2. Confirm that road inspections have occurred for these areas.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(23) Percent of the licensee’s forest operations employees and primary contractors trained in Spill Preparedness and Response procedures.
Element(s)	3.1 Soil Quality and Quantity; 3.2 Water Quality and Quantity
Strategy(s) Description	<p>The Okanagan-Shuswap LRMP recognizes water as a primary and fundamental resource. Water is a crucial component of the plan area’s ecosystems with lakes, rivers and riparian areas providing critical habitat for many fish and wildlife species. Water is also an important resource for human consumption. As a finite resource it needs to be protected and managed in order to sustain human populations and natural ecosystems.</p> <p>Soil productivity is vital to all forest resource interests. Objectives in the Okanagan-Shuswap LRMP are aimed at preserving soil resources and managing plant-soil systems.</p> <p>Trained forest workers will provide enhanced emergency response to minimize detrimental environmental impact.</p>
Means of achieving objective and target	Licenseses utilize a training tracking system to schedule training updates.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) One hundred percent of licensee’s forest operations employees and primary contractors (67 of 67) have been trained in Spill Preparedness and Response procedures.
Forecast	Trained forest workers will provide enhanced emergency response to minimize detrimental environmental impact.
Target	100 percent of the licensee’s forest operations employees and primary contractors trained each year in procedures for Spill Preparedness and Response (fueling, maintenance, pesticides).
Basis for the Target	Trained forest workers will provide enhanced emergency response to minimize detrimental environmental impact.
Legal Requirements	Waste Management Act, Spill Reporting Regulation, Drinking Water Protection Act, Water Act, Fisheries Act, Transportation of Dangerous Goods Act, TDG Clear Language Regulations
Monitoring & Measurement	
Periodic	
Annual	Utilize a training tracking system and query if training update has occurred.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(24) Number of legally reportable spills.
Element(s)	3.1 Soil Quality and Quantity; 3.2 Water Quality and Quantity
Strategy(s) Description	<p>The Okanagan-Shuswap LRMP recognizes water as a primary and fundamental resource. Water is a crucial component of the plan area's ecosystems with lakes, rivers and riparian areas providing critical habitat for many fish and wildlife species. Water is also an important resource for human consumption. As a finite resource it needs to be protected and managed in order to sustain human populations and natural ecosystems.</p> <p>Soil productivity is vital to all forest resource interests. Objectives in the Okanagan-Shuswap LRMP are aimed at preserving soil resources and managing plant-soil systems.</p> <p>Recording, investigating, and adjusting practices leads to reduced spill occurrence and magnitude.</p>
Means of achieving objective and target	Licensees record, report, investigate, and make any appropriate adjustments to practices for all legally reportable spills.
Forecast (Predicted Results or Outcome)	<p>Status at time of Indicator implementation (2001)</p> <p>One hundred percent of spills complied with BC Environment reporting guidelines.</p> <p>One spill was reported to BC Environment, although the reporting of this spill was not required under the guidelines.</p>
Forecast	Trained forest workers will provide enhanced emergency response to minimize detrimental environmental impact from a spill.
Target	Zero spills.
Basis for the Target	Recognition of the potential detrimental environmental impacts of spills.
Legal Requirements	Waste Management Act, Spill Reporting Regulation, Drinking Water Protection Act, Water Act, Fisheries Act, Transportation of Dangerous Goods Act, TDG Clear Language Regulations
Monitoring & Measurement	
Periodic	
Annual	Utilize EMS incident reports for spills and follow-up action items if spills require reporting to Provincial Emergency Program (PEP)
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(25) Harvest level.
Element(s)	4.1 Carbon Uptake and Storage; 4.2 Forest Land Conversion; 5.3 Fair Distribution of Benefits and Cost
Strategy(s) Description	The goal of the OSLRMP for timber and silviculture is to maintain or enhance the sustainable supply of economically viable timber and minimize costs while maintaining environmental standards and addressing other resource values.
Means of achieving objective and target	Licensees schedule harvesting within the variance provided.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) Weyerhaeuser is within the cut control variance set out by regulation for TFL 35, FL A18970 and FL A18674.
Forecast	<p>Short and long term harvest flows that reflect forest conditions, forest practices, and the socio-economic objectives of the Crown. Timber Supply Review has detailed forecasts which then rely on the Chief Forester to provide a determination of harvest levels utilizing forecast information, Crown objectives and input from the public.</p> <p>A timber supply review for the TSA was last completed in 2005 with a resulting Chief Forester’s determination effective January 2006.</p> <p>In 2002 the Okanagan Innovative Forestry Society (OIFS) prepared a timber supply analysis to support an application for a harvest uplift request from the regional executive director. Due to the urgency the mountain pine beetle epidemic placed on the TSR 3 review for the Okanagan TSA, the analysis prepared by the OIFS was used as the basis for the TSR 3 AAC decision, with additional analysis work to reflect the ministry’s current understanding of the mountain pine beetle epidemic in the Okanagan TSA</p> <p>The OIFS timber supply analysis indicates an initial harvest level of 3,000,000 cubic metres per year can be maintained for four decades. After that, harvest levels decline by approximately 8% per decade for two decades before reaching a mid-term harvest level of 2,555,000 cubic metres per year which can be maintained from decades 6 to 10. Harvest levels can then increase 15% in decade 11 to a sustained long-term level of 2,930,000 cubic metres.</p> <p>In the 2005 determination the Chief Forester concluded that a “base” AAC of 2,925,000 cubic metres can be supported in the TSA. This new “base” AAC is 270,000 cubic metres above the previous AAC.</p> <p>In addition to the “base” AAC, the Chief Forester recognized an additional uplift was needed to address the mountain pine beetle epidemic in the Okanagan TSA. The total coniferous AAC determined for the Okanagan TSA is 3,355,000 cubic metres. This includes a 5-year beetle uplift of 700,000 cubic metres above the current AAC.</p> <p>The next review is scheduled for completion approximately 5 years later.</p>
Target	Harvest the allowable cut over the five-year cut control period.
Basis for the Target	Harvesting the allowable cut over the five-year period maintains short and long term harvest flows that reflect forest conditions, forest practices, and the socio-economic objectives of the Crown.
Legal Requirements	Forest Act, Cut Control Regulation
Monitoring & Measurement Periodic	
Annual	The licensees will report annual harvest during the reporting period, and their annual allowable cut. The existing scaling system in place (monitored by MOFR) tracks volume delivered.
Variance	According to the Cut Control Regulation or government policy.

Section 5.0 – Indicators and Indicator Matrices

Indicator	(26) Report annual initiatives/ partnerships.
Element(s)	5.2 Communities and Sustainability, 5.3 Fair Distribution of Benefits and Cost
Strategy(s) Description	Support for local communities through business relationships provides employment diversification and increased local revenue.
Means of achieving objective and target	Licenseses seek and maintain active, mutually beneficial business relationships with other forest products businesses in the TSA and vicinity.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) In 2001 Weyerhaeuser maintained the following value-added and business initiatives/relationships: 1. Canwood (furniture) 2. TSW (laminated beams) 3. Hilmoe (specialty house log components) 4. Reed-Thomas (post and rails, specialty lumber) 5. Osoyoos Indian Band (cants, dimension lumber, discussions re: 1' product) 6. Rassmussen/OK Wood Fibre (log homes) 7. Unique Timber Corp (log home building) 8. White Valley Log Homes (log home building) 9. Bell Pole Ltd (pole manufacturing) 10. Interior Softwood Recoveries Ltd (finished cedar products)
Forecast	Support for local communities through business relationships provides employment diversification and increased local revenue.
Target	Maintain active involvement with value-added and business initiatives/partnerships.
Basis for the Target	Business initiatives and partnerships, built on sound business principles, are not only beneficial to the partners, but also to the economy and vitality of the TSA.
Legal Requirements	NA
Monitoring & Measurement	
Periodic	
Annual	Report on value added and business initiatives/partnerships.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(27) Level of compliance with preservation, retention and partial retention of visual quality objectives in Licensee plans.
Element(s)	5.1 Timber and Non-Timber Benefits
Strategy(s) Description	Management for visual quality within scenic areas is based on social preferences. Visually sensitive areas were identified in the Okanagan Shuswap LRMP and corresponding visual quality objectives were assigned. Management for visual quality can often additionally contribute to other non-timber objectives.
Means of achieving objective and target	Measures to maintain visual quality within visually sensitive areas are included in Licensee plans.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) One hundred percent of harvested cutblocks met the objectives for visual impact assessment (9 blocks total)
Forecast	Management for visual quality within scenic areas is based on social preferences. Visually sensitive areas were identified in the Okanagan Shuswap LRMP and corresponding visual quality objectives were assigned. These preferences generally constrain timber supply, and as such have been provided for in the TSA Timber Supply Review. Management for visual quality can often additionally contribute to other non-timber objectives. LRMP Analysis ¹⁴ : The plan revised the previous (Okanagan Timber Harvesting guidelines) direction on visual management. Visual Management guidelines are established which recognize appropriate levels of visual management. Overall, there is a focus on visual design with increased levels of acceptable visible harvesting. Cumulatively, visual management will cover 57 % of the plan area.
Target	Full compliance with preservation, retention and partial retention of visual quality objectives.
Basis for the Target	OSLRMP guidance. Visual Impact Assessment Guidebook. Legal requirements. Changes in visual appearance are often the primary harvesting or road building impact noticed by the general public.
Legal Requirements	KBLUP Higher Level Plan, Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Timber Harvesting and Silviculture Practices Regulation, Forest Act, Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement Periodic	
Annual	Report on the number of cutblocks harvested in the reporting period that had preservation, retention or partial retention visual quality objectives, and the number of cutblocks that achieved the visual intent as planned. Achievement of visual intent will be confirmed with photos from a key viewpoint demonstrating that operations provided results similar to plan. To enable reporting, an information system will be used to generate a list of blocks harvested with VQO objectives and their compliance.
Variance	None

¹⁴ Okanagan Shuswap “Land & Resource Management; Multiple Accounts Analysis - Final Base Case with LRMP Analysis”, 2000

Section 5.0 – Indicators and Indicator Matrices

Indicator	(28) Report on OSLRMP committee involvement, number of Forest Stewardship Plan meetings attended, and number of stakeholder meetings attended.
Element(s)	5.1 Timber and Non-Timber Benefits, 5.2 Communities and Sustainability, 6.2 Respect for Aboriginal Forest Values, Knowledge, and Uses; 6.4 Information for Decision-Making
Strategy(s) Description	Public and stakeholder involvement in Licensee plans such as/Forest Stewardship Plan reviews is intended to facilitate the exchange of information between developers and people interested in, or affected by, forest operations. The licensees are committed to working with directly affected stakeholders and members of the public on forest management issues and have a well-established history of participation in community meetings, including local planning processes. In addition, the licensees are committed to providing topical education updates on forest management issues during public meetings and to ensure that local First Nations tribal councils and bands have up-to-date information. Members of the public participate in strategic and local planning processes and meetings on forest management issues.
Means of achieving objective and target	The licensees are committed to working with directly affected stakeholders and members of the public on forest management issues and have a well-established history of participation in community meetings, including local planning processes.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) Weyerhaeuser participated in LRMP committee meetings, Forest Development Plan meetings, and stakeholder meetings throughout 2001. FDP: attended 4 open houses. Stakeholder Meetings: attended 12 meetings and sent out 43 information packages.
Forecast	Public participation in forest planning and operations that is open, inclusive and responsive to public concerns. LRMP Analysis ¹⁵ : Overall the plan seeks to balance, ecological, economic and social values within the plan area. As such there is unlikely to be a change to the base case as a result of plan implementation LRMP Analysis: The plan provides direction on licensed guide outfitting so that territories remain sustainable and viable. This involves outfitters assisting in providing necessary/available information to forest licensees (Forest Act tenures) and Ministry of Energy, Mines and Petroleum Resources (Mines Act tenures). This information will be considered in the development planning so that the impact of any industrial activities on the integrity of facilities, access trails, key wildlife features and habitats is minimized. LRMP Analysis: The plan has recognized recreational features in several ways. Firstly, recreational values were included in the development of the plans proposed protected area package. Secondly, regionally significant trails were identified and assigned appropriate management within the Recreation RMZ. Thirdly, the plan maintains the management direction for Lakes classified under the FPC. These areas will enhance recreational management over that provided in the base case. LRMP Analysis: The plan maintains, and may enhance, recreational hunting and fishing opportunities. This is attributable to the plans enhanced wildlife management. LRMP Analysis: The plan recognizes trapping as an acceptable activity and has not impacted the ability to trap within the plan area.
Target	Participate in the following public processes: <ul style="list-style-type: none">▪ OSLRMP committee meetings;▪ Forest Stewardship Plan meetings;▪ Stakeholder meetings (e.g., TFL Advisory Group, Vaseaux Sheep Recovery Group, etc.).
Basis for the Target	Provides for public participation in forest planning and operations that is open, inclusive and responsive to public concerns.
Legal Requirements	Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Forest and Range Practices Act, Forest Planning And Practices Regulation

¹⁵ Okanagan Shuswap "Land & Resource Management; Multiple Accounts Analysis - Final Base Case with LRMP Analysis", 2000

Section 5.0 – Indicators and Indicator Matrices

Monitoring & Measurement	
Periodic	
Annual	Documentation for OSLRMP and Forest Stewardship Plan meetings are kept at the appropriate licensee's office.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(29) Incorporation of traditional knowledge, non-timber resources, and cultural and spiritual values in forest planning, where available.
Element(s)	6.1 Aboriginal and Treaty Rights, 6.2 Respect for Aboriginal Forest Values, Knowledge, and Uses,
Strategy(s) Description	Licensees work proactively to build mutually beneficial relationships with Aboriginal peoples. First Nations involvement in plans such as Forest Stewardship Plan reviews is intended to facilitate the exchange of information between developers and First Nations people interested in, or affected by, forest operations. Indicator (29) recognizes the importance of managing and protecting non-timber resources, including cultural/heritage resources and values, during forestry operations. First Nations may provide useful information concerning non-timber resources, including cultural and heritage resources, traditional use sites and knowledge of local wildlife and fisheries. Non-timber resources may also include, but not be limited to, water, recreation, tourism, botanical forest products, and forage
Means of achieving objective and target	Open communications with local First Nations during Plan reviews. Licensees maintain an established contact list and advise those on the list of proposed activities contained within their plans (Forest Stewardship Plans). 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.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation The results achieved in the 2006 monitoring report will serve as the base line in the 2008 SFMP.
Forecast	Forest operations that reflect the timber and non-timber interests of local First Nations.
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: The 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.
Basis for the Target	OSLRMP guidance. Legal requirements. Licensees are committed to making ongoing efforts to improve the effectiveness of First Nations communication processes. Sharing information and communication with First Nations on Forest Stewardship Plans supports the provincial government's legal obligation to consult with First Nations regarding Aboriginal rights and title. Licensees are committed to assisting the Crown in carrying out its duty to consult by sharing information and endeavoring to address concerns.
Legal Requirements	Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Heritage Conservation Act, Forest And Range Practices Act, Forest Planning And Practices Regulation Under the principles set out in Delgamuukw. Provincial agencies have a duty to consult with aboriginal people pursuant to Sec. 35(1) of the constitution Act, 1982, when the Crown by its own actions will infringe aboriginal title.
Monitoring & Measurement	
Periodic	
Annual	Licensees will report: a) 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, b) 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). c) 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.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(30) Report educational and research initiatives.
Element(s)	5.1 Timber and Non-Timber Benefits; 6.4 Information for Decision-Making
Strategy(s) Description	The licensees are committed to working with directly affected stakeholders and members of the public on forest management issues and have a well-established history of participation in community meetings, including local planning processes. In addition, the licensees are committed to providing topical education updates on forest management issues during public meetings and to ensure that local First Nations tribal councils and bands have up-to-date information. Members of the public participate in strategic and local planning processes and meetings on forest management issues.
Means of achieving objective and target	Licensees maintain their involvement and sponsorship in research and educational initiatives (e.g., summer students, post graduate research projects, volunteer sites for studies, association support – FERIC, Forest Products Association of Canada, OSLRMP Wildlife subcommittee, Vaseaux Sheep Study, etc.).
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) Annual education and research initiatives: <ol style="list-style-type: none"> 1. Four summer students totaling 28 work months. 2. Landing rehabilitation study (work in progress) 3. Participation in OSLRMP Marten and Mule Deer research. 4. Penticton Creek water quality study (\$10,000 grant). 5. Sheep recovery program (\$5000 grant for fencing and guards). 6. Two \$500 scholarships to graduates from Lumby high school. 7. Mule deer winter range assessment project (FRBC) 8. Fertilizer trial (FRBC)
Forecast	Adaptive forest management, based on facts and data, that are supported by ongoing monitoring and research. <ul style="list-style-type: none"> ▪ Responsive research programs are contributing to better quality decisions for sustainable forest management.
Target	Maintain involvement and sponsorship in research and educational initiatives (e.g., summer students, post graduate research projects, volunteer sites for studies, association support – FERIC, Forest Products Association of Canada, OSLRMP Wildlife subcommittee, Vaseaux Sheep Study, etc.).
Basis for the Target	Adaptive forest management should be based on facts and data, and supported by ongoing monitoring and research.
Legal Requirements	NA
Monitoring & Measurement	
Periodic	
Annual	To enable reporting, documentation on research programs and educational initiatives will be retained at the appropriate licensee's office.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(31) Percent response to written communications received.
Element(s)	5.1 Timber and Non-Timber Benefits
Strategy(s) Description	Public and stakeholder involvement in Licensee plans such as Forest Stewardship Plan reviews is intended to facilitate the exchange of information between developers and people interested in, or affected by, forest operations.
Means of achieving objective and target	To ensure that public input can be considered in plan development, comments are submitted to the development proponent in writing. The licensees will document actions taken to accommodate public concern.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) One hundred percent of the public's requests for communication relating to Forest Development Plans (or amendments) were responded to promptly.
Forecast	Public participation in forest planning and operations that is open, inclusive and responsive to public concerns.
Target	Respond to all written public communications related to forest operations within 30 days of receipt.
Basis for the Target	It is important that public participation in forest planning and operations be open, inclusive and responsive to public concerns.
Legal Requirements	NA
Monitoring & Measurement Periodic	
Annual	Review documentation contained within the Forest Stewardship Plan for Weyerhaeuser's, Tolko's, Gorman Bros.', and BCTS responses to public communications. Licensees will report on the number of responses sent out by licensees compared to the number of written requests for communication. Report the average timeline for response.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(32) Report annually on the number of First Nation partnerships.
Element(s)	5.2 Communities and Sustainability, 6.2 Respect for Aboriginal Forest Values, Knowledge, and Uses
Strategy(s) Description	This Indicator recognizes the licensees' efforts to build capacity within First Nations on matters related to the forest industry.
Means of achieving objective and target	Licensees work proactively to build mutually beneficial relationships with Aboriginal peoples.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) Weyerhaeuser's partnerships with First Nations: <ol style="list-style-type: none"> 1. FL A49782 partner with Osoyoos Indian Band (training opportunities, logging, silviculture opportunities). 2. Working Agreement with Osoyoos Indian Band 3. Working Agreement with Upper Similkameen Indian Band (harvesting – shared with Princeton operation). 4. Working Agreement with Westbank First Nations (spacing). 5. Spallumcheen Indian Band – joint license.
Forecast	The licensees are supportive of partnership opportunities with First Nations to assist in building organizational capacity. <ul style="list-style-type: none"> ▪ As responsible stewards of public forest land, the licensees will work proactively to build mutually beneficial relationships with Aboriginal peoples.
Target	Support partnership opportunities with First Nations through mutually beneficial involvement in forest management.
Basis for the Target	Partnerships, built on mutual principles, are not only beneficial to the partners, but also to the vitality of the TSA.
Legal Requirements	NA
Monitoring & Measurement Periodic	
Annual	Documentation and reporting on First Nations partnerships will be retained at the appropriate licensee's office.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(33) An effective Public Advisory Group
Element(s)	6.3 Public Participation, 6.4 Information for Decision-Making
Strategy(s) Description	<p>The SFM Advisory Group was formed to assist Weyerhaeuser, Tolko, Gorman Bros. and BC Timber Sales in developing and maintaining the SFM Plan by identifying local values, objectives, indicators and targets and evaluating the effectiveness of the Plan. The SFM Plan is an evolving document that will be reviewed and revised on an annual basis with the SFM Advisory Group to address changes in forest condition and local community values.</p> <p>Ensuring the continuing interest and participation of this important Group is a Licensee priority. Interest and participation will be enhanced by provision of relevant information including ecosystem processes and human interaction with forest ecosystems.</p>
Means of achieving objective and target	<p>Licensees provide a meaningful forum for the Advisory Group to participate in planning for sustainable forest management.</p> <p>Each year the SFM Advisory Group will review an annual report prepared by licensees to assess achievement of performance measures. This monitoring process will provide the 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.</p> <p>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.</p>
Forecast (Predicted Results or Outcome)	<p>Status at time of Indicator implementation</p> <p>a. PAG survey response was an average of 4.0 out of five 5. There were 10 respondents to the survey.</p> <p>b. Results of the feedback were compiled and are reported as part of the annual monitoring program in Appendix I of the Monitoring Report.</p>
Forecast	Demonstration of the licensee’s commitment to sustainable forestry and continual improvement.
Target	<p>Participant Satisfaction Survey</p> <p>33a. 80% of responses “3” or better</p> <p>33b. All written comments are reviewed and considered, and all line responses averaging less than 3 become action items</p>
Basis for the Target	<p>Demonstrates licensees’ commitment to sustainable forestry and continual improvement.</p> <p>Ensure issues are resolved, and Advisory Group process continuously improved.</p>
Legal Requirements	NA
Monitoring & Measurement	
Periodic	
Annual	<p>Okanagan Boundary documentation related to advisory group will be filed at the appropriate licensee’s office.</p> <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>
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(34) Educational forums.
Element(s)	6.4 Information for Decision-Making
Strategy(s) Description	Indicator (34) recognizes the importance of keeping members of the public informed of forestry strategies being developed and planning occurring in their area. Open lines of communication facilitate public awareness and understanding of the SFMP and other current forestry topics, and provide an open opportunity for the public to respond. Members of the public can provide local knowledge that contributes to socially and environmentally responsible forest management.
Means of achieving objective and target	Licenseses conduct educational classroom visits in public schools and sponsor forestry tours. Licenseses will be involved with and conduct public presentations to increase public knowledge and understanding about sustainable forest management.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation (2001) Nineteen classroom visits involving 466 students. Eleven forest tours were undertaken, involving 144 individuals. Seven public presentations were conducted with a total audience of 70 people.
Forecast	An educated and informed public with a broad based understanding of forestry that can provide local input into forest planning and operations.
Target	Conduct educational classroom visits in public schools, promote public participation in forestry tours and conduct public presentations to increase public knowledge and understanding about sustainable forest management.
Basis for the Target	An educated and informed public with a broad based understanding of forestry can provide local input into forest planning and operations.
Legal Requirements	NA
Monitoring & Measurement	
Periodic	
Annual	Annually report both the number of forums and the number of attendees.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(35) Public awareness of the SFMP
Element(s)	5.2 Communities and Sustainability, 6.3 Public Participation, 6.4 Information for Decision Making
Strategy(s) Description	Indicator (35) recognizes the importance of keeping members of the public informed of forestry strategies being developed and planning occurring in their area. Open lines of communication facilitate public awareness and understanding of the SFMP and other current forestry topics, and provide an open opportunity for the public to respond. Members of the public can provide local knowledge that contributes to socially and environmentally responsible forest management.
Means of achieving objective and target	Licenseses individually manage web sites dedicated to providing the latest SFMP information. Licenseses develop and distribute SFMP and other information to the Advisory Group at least annually.
Forecast (Predicted Results or Outcome)	Status at time of Indicator implementation: (2005) There was limited public access to the SFM Plan.
Forecast	Public awareness and understanding of the SFMP. An SFMP that has openly informed, included and responded to the public.
Target	Licenseses will keep members of the public informed of TSA strategies being developed, and planning occurring, by maintaining websites.
Basis for the Target	Developed by Licenseses in consultation with the Advisory Group
Legal Requirements	NA
Monitoring & Measurement	
Periodic	
Annual	Licenseses will report a yes/no answer as to whether web sites are being maintained, and whether SFMP and other information was made publicly available in the last year.
Variance	None

Section 5.0 – Indicators and Indicator Matrices

Indicator	(36) Percentage of cutblocks where coarse woody debris piling is necessary to achieve silviculture activities that a proportion was then retained in loose piles or windrows.
Element(s)	1.1 Ecosystem Diversity
Strategy(s) Description	<p>Biodiversity can be affected by the disruption of natural processes. Future maintenance of biodiversity is in part dependent upon the maintenance and connectivity of representative habitats and seral stages at the landscape and watershed level;</p> <p>Coarse woody debris (i.e., downed wood) plays an important role in forest ecosystems including provision of food and shelter for invertebrates and smaller wildlife, growing sites for trees, nutrients for soils, and structure in streams to maintain channel stability.</p> <p>Excessive removal of coarse woody debris (CWD) may affect habitat needs for some wildlife species (e.g., pine marten, fisher, grizzly bear, many small mammals and snakes, some amphibians and numerous invertebrates).</p>
Means of achieving objective and target	Licensee plans for cut blocks that require debris accumulating to meet reforestation objectives will state that a proportion of loose piles or windrows are to be retained.
Forecast (Predicted Results or Outcome)	<p>Status at time of Indicator implementation (2001)</p> <p>Eighty seven percent of cutblocks had loose piles or windrows retained (13 of 15 cutblocks)</p> <p>The remaining 13 percent (2 cutblocks) are believed to have piles on site, but this has not been field verified.</p>
Forecast	Retention of large organic debris on harvested sites and utilization as habitat for wildlife.
Target	100 percent of cut blocks that require debris accumulating to meet reforestation objectives have a proportion of loose piles or windrows retained.
Basis for the Target	OSLRMP guidance. Maintenance of habitat during silviculture operations.
Legal Requirements	Forest Practices Code of British Columbia Act, Operational and Site Planning Regulation, Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement Periodic	
Annual	To enable reporting, an information system will be used to generate a list of blocks where burning of accumulations piled during site prep occurred, and those blocks which met the target of retaining a portion of loose piles or windrows.
Variance	10 percent

6.0 Links to Other Planning Processes and Policies

Resource use planning in British Columbia occurs at a variety of levels ranging from strategic land use plans (LRMPs) to Landscape Unit plans to site specific plans for small areas (e.g., site plans for individual cutblocks).

Strategic land use plans provide broad direction for the sustainable management of land and resources through the establishment of resource management zones (e.g., protected areas, special management areas and general resource management zones), management objectives and strategies to guide land and resource management activities.

Landscape Unit Plans occur at a smaller scale than strategic land use plans and are intended to ensure that biodiversity objectives identified in the Forest Practices Code are met. Landscape Unit Plans address Old Growth Management Areas and wildlife tree retention.

Licensee plans address resource management at a site-specific level and are guided and often regulated by objectives and strategies in strategic land use plans and Landscape Unit plans.

Provisions in resource use plans that pertain to forest resource uses and management practices may be implemented as legally enforceable provisions by being formally established as “higher level plans” under the Forest Practices Code or as “Land Use Objectives”/ “GAR Orders” under FRPA. Examples of forest uses that may be governed under higher-level plans include:

- timber production, utilization and related purposes
- forage production and grazing by livestock and wildlife and related purposes
- recreation, scenery and wilderness purposes
- water, fisheries, wildlife, biological diversity and cultural heritage resource purposes
- any purpose permitted by the regulations.

Figure 6 on Page 73 illustrates the links between various levels of provincial resource use plans and related policies and procedures.

6.1 Kootenay Boundary Land Use Plan

The Kootenay-Boundary Land Use Plan was developed in the early 1990s based on regional land use plans developed by the Commission on Resources and Environment (CORE) for the East Kootenay and West Kootenay-Boundary regions of the province. The provincial government announced the Kootenay Boundary Land Use Plan in 1995 and approved a more detailed implementation strategy in 1997. As of January 31, 2001, the government approved the Kootenay-Boundary Higher Level Plan, which makes key parts of the plan legally binding.

Key elements of the higher-level plan include:

- a timber supply target of 4.7 million cubic metres per year;
- mature and old forest retention targets;
- measures to address caribou, regional connectivity and important avalanche tracks for grizzly bears;

- green-up reduced, while maximum patch size increased in accordance with natural forest disturbance patterns;
- enhanced resource development zones for timber;
- restoration of fire-maintained ecosystems
- some increased protection for streams within domestic watersheds; and
- establishment of scenic areas.

6.2 Okanagan-Shuswap Land and Resource Management Plan

The Okanagan-Shuswap Land and Resource Management Plan was completed in September 2000. A wide cross-section of stakeholders, interest groups and members of the general public from throughout the area developed the plan. The OSLRMP was approved in January 2001.

The Okanagan-Shuswap LRMP is intended to reflect a balance of social, economic and environmental values. It incorporates the principles of sustainability and integrated resource management into a long term, strategic vision for Crown land and resource development for the plan area and will assist statutory decision-makers in making determinations about land and resource use. It will also assist in building cooperation and partnerships among government agencies, First Nations, licensed tenure holders and other interested stakeholders in the plan area.

The OSLRMP provides strategic direction to the management of land and resources on all Crown lands in the Okanagan-Shuswap plan area. Direction is provided through the establishment of resource management zones (e.g., protected areas), management objectives and strategies. Objectives define the intent or desired future state for a particular resource value and strategies are the activities or conditions that must be met to achieve the objective. The objectives in the plan that relate to forest management may be established legally binding Land Use Objectives under the *Land Act*, or Orders under the *Government Actions Regulation (GAR) of FRPA*. Both Land Use Objectives and GAR Orders have legal basis and give direction to resource tenure holders in the planning of future operations. Recently, through the Land Use Objective Regulation, eight objectives have been established. All licensees' are presently amending their FSP's to incorporate these new objectives. Objectives and strategies for non-forestry related activities (e.g., mining, recreation, tourism, and agriculture) are government policy and provide strong direction to management decision-making in the plan area.

In the hierarchy of planning for forest management, LRMPs provide direction to landscape unit plans, which provide direction to Licensee plans. Local plans and other public input processes, including the SFM Advisory Group, feed into this process (see Figure 6, Page 73). The OSLRMP will be monitored annually by the Implementation and Monitoring Committee to assess implementation progress and the effectiveness of the plan in meeting its stated goals and objectives.

A number of objectives and strategies in the Okanagan-Shuswap LRMP relate to the values, objectives, indicators and targets in the SFM Plan as follows.

Protected Areas

The Protected Areas Strategy was established by the provincial government in 1992 with the objective of protecting 12 percent of the province's land base by the year 2000. In the Okanagan-Shuswap LRMP, lands were recommended for protection based on their representation of natural diversity, wildlife, wilderness, recreation and cultural and heritage values. As a result of the OSLRMP, an additional 122,963 hectares of protected area was added increasing the total amount of protected area from 2.9 percent to 7.9 percent of the plan area. Protected areas are located across the landbase to provide representation of the cross-section of ecosystems. Logging, mining and hydroelectric development are not permitted within protected areas and other resource development activities such as grazing and commercial tourism development, are permitted only in specified areas and under strict guidelines.

Forest Ecosystem Management

The Okanagan-Shuswap TSA contains a wide variety of forest ecosystems. Within the TSA ecosystems range from grassland and semi-arid ecosystems in the south and as elevation increases, ponderosa pine and Douglas-fir forests give way to lodgepole pine, sub-alpine fir and spruce, which are common in the south and central plateaus. The northern part of the TSA is much wetter and supports cedar and hemlock forests at low elevations, and sub-alpine fir and spruce at upper elevations, before rising to rugged mountains. In the south and central portion of the TSA where the DFA is located these forest ecosystems have been historically influenced by the presence or absence of fire as a dominant form of natural disturbance. The similarities in fire return intervals, and disturbance sizes and patterns form the basis for categorizing each of the ecosystems into Natural Disturbance Types (NDT), which in turn is used to provide guidance for maintaining biodiversity.

Biological diversity (biodiversity) is the diversity of plants, animals and other living organisms in all their forms and levels of organization. It includes the diversity of genes, species, and ecosystems and the functional and evolutionary processes that link them. The great diversity of physical features and prevailing climatic conditions in the Okanagan-Shuswap LRMP area has resulted in a great diversity of habitats and species. Biodiversity can be affected by the disruption of natural processes. Future maintenance of biodiversity is dependent upon:

- the protection and connectedness of representative ecosystems as ecological benchmarks at the provincial and regional level;
- the maintenance and connectivity of representative habitats and seral stages at the landscape and watershed level;
- management for important attributes at the stand (site) level; and
- protection of known rare and endangered species and ecosystems.

The overall goal for forest ecosystem management is to maintain a representation of the biological and physical diversity native to the plan area, and maintain forested ecosystem functions and conditions.

Key objectives related to the above goal include:

- maintain well distributed habitat for wildlife tree dependent species (retain wildlife tree patches and individual wildlife trees);
- avoid disturbances to known rare ecosystems;
- maintain representative old growth forests throughout the plan area;
- maintain functional connectivity (movement of plants and animals) at the regional, landscape and stand level; and
- retain coarse woody debris.

Wildlife Tree Retention

Strategies related to wildlife tree retention are consistent with the direction in the Landscape Unit Planning Guide with additional consideration for individual large diameter stems in NDT4.

Rare Ecosystems

Rare ecosystems are those of limited distribution or those that have been altered through historic land use practices. In the southern part of the plan area, the very dry desert ecosystems are considered rare. Key strategies for managing known rare ecosystems include avoidance of new road construction where practicable, and inclusion of known rare ecosystems, as areas to be given priority for the establishment of old growth management areas.

Maintain Representative Old Growth Forests

Strategies for biodiversity include direction to landscape unit planning, identifying areas where conservation is a priority through assignment of biodiversity emphasis options. The OSLRMP has assigned preliminary biodiversity emphasis options to each landscape unit in the plan area. Old growth management areas (OGMAs) will be established through Landscape Unit planning. OGMAs will be defined in a manner that is biologically relevant (i.e., considers connectivity, age and spatial distribution, etc.).

The plan calls for the avoidance of harvesting in OGMAs until such time as the structural and functional attributes can be identified and maintained during timber harvesting.

Connectivity

Connectivity will be achieved at the Landscape Unit planning level through the placement of OGMAs or by planning for harvested and leave areas that maintain mature/older stands in a connected manner.

Coarse Woody Debris

Coarse woody debris (i.e., downed wood) plays an important role in forest ecosystems including provision of food and shelter for invertebrates and smaller wildlife, growing sites for trees, nutrients for soils, and structure in streams to maintain channel stability.

Excessive removal of coarse woody debris (CWD) may affect habitat needs for some wildlife species (e.g., pine marten, fisher, grizzly bear, many small mammals and snakes, some amphibians and numerous invertebrates).

The OSLRMP has a number of specific strategies relating to CWD. These strategies include direction for basic levels of CWD, creation of stubs, and guidelines for enhanced levels of CWD in landscape units with high biodiversity emphasis options.

Forest Health

In the Okanagan-Shuswap LRMP healthy forests are described as having “a condition that does not pose unacceptable risks to resources or values; characterized by biodiversity, the forest contains sustained habitat for indigenous life and meets present and future resource and value objectives”. Biotic forest health factors and abiotic factors that impact the health of forests are (e.g., fire, root rot, bark beetle, mammal, weevil, defoliators, wind, sun, drought and bacteria).

The general approach suggested in the OSLRMP for managing forest health is to identify a favourable forest health condition for an area, or type of area, and that management strategies are focused on support of that condition.

Indicators identified in this plan that are applicable to forest health include 1, 2, 3, 4, 13, and 15.

Land and Soils

Soil productivity is vital to all forest resource interests. Objectives in the Okanagan-Shuswap LRMP are aimed at preserving soil resources, managing plant-soil systems and minimizing the potential for the contamination of water resources by naturally occurring uranium deposits. OSLRMP goals for land and soil resource include:

- healthy plant soil systems;
- forest health, productivity and full functioning ecosystems; and
- minimal dissolution of naturally occurring uranium.

Regulations and guidelines in the Forest Practices Code and the Forest and Range Practices Act complement strategies for land and soils in the Okanagan-Shuswap LRMP. For example both the Code and the Forest and Range Practices Act set out forest management guidelines to minimize soil disturbance and degradation.

Range

In the Okanagan-Shuswap LRMP range is broadly defined as any land that provides food and habitat for animals, both wildlife and domestic livestock. Rangeland includes natural grasslands, forests, alpine communities, parklands and cutblocks. Two key issues related to range management include the loss of range from forest in-growth (due largely to fire suppression) and invasion by noxious weeds that out competes native vegetation and threaten the biodiversity and long-term viability of susceptible grassland ecosystems.

The goal of the range management in the OSLRMP is to maintain and/or enhance the long-term productivity and sustainability of the range resource for all users.

Wildlife

The Okanagan-Shuswap LRMP has a great diversity of wildlife including several species that are considered rare at the provincial level. A key management requirement for sustaining wildlife populations is the protection, maintenance and enhancement of wildlife habitat. To

address the needs of wildlife habitat, resource managers have recently begun to adopt an ecosystem approach that addresses the needs of many species at a landscape level. However, in following this approach, the habitat needs of certain key species may not be addressed and additional specific actions may be required to deal with these needs (e.g., mule deer, bighorn sheep).

The OSLRMP plan area provides habitat through protected areas and OGMAs for several rare (red and blue-listed) species and plant communities. Many of these are associated with the lower elevations of main valleys, particularly in the South Okanagan and the lower Similkameen valleys. Habitat loss or alteration of habitat has contributed to the threat to some of these species, however, many are naturally rare (they have sparse distributions or numbers, or are near the geographic limits of their distribution).

The Identified Wildlife Management Strategy (IWMS) provides some management direction for rare species, however, it does not address all rare species in the plan area and only addresses site level features (e.g., den or nest sites). Additional species are managed under the “Interim Measures” document developed as part of the Okanagan-Shuswap LRMP.

Fisher and pine marten are two of the rare species that are addressed in the OSLRMP as well as in the IWMS. These species occupy forested ecosystems dominated by mature and older seral stages. Retention of forest attributes – including intact riparian systems and coarse woody debris – during forest operations can reduce many of the impacts on these two species.

The primary goal for wildlife management is to maintain adequate habitat for all naturally occurring and regionally important species through appropriate management of cover requirements, access, forage productivity, movement opportunities and protection of special features.

In addition to the management direction provided for wildlife management through general resource management objectives and strategies, polygon-specific resource management zones (RMZs) were established for NDT4, Bighorn Sheep, Elk, Grizzly Bear, Moose, Mountain Caribou, Mountain Goat and Mule Deer. These zones provide area specific objectives and strategies for managing the values identified in the RMZ.

Fish and Aquatic Habitat, Riparian and Wetlands

There are some 43 species of fish found within the Okanagan-Shuswap LRMP plan area. Salmon are an important resource in the area and depend on the streams and lakes for migration, spawning and rearing. The Okanagan River – which takes in some of Weyerhaeuser’s forestlands in the south of the plan area – supports one of only two viable sockeye stocks remaining on the entire Columbia River system.

Human population growth, urban development, land and resource development and water use have all had a cumulative impact on fish populations and fish habitat. A combination of low summer flows, high water temperatures, fines in the gravel and shortage of pools has seriously diminished the quality of fish habitat in many watersheds. Impacts include changes in flow rates, loss of riparian vegetation, destabilization of stream channel, erosion and sedimentation.

The Interior Watershed Assessment Procedure (IWAP) is a program for assessing the cumulative impacts of disturbance to a watershed. IWAPs identify impacts that affect fish habitat and water

quality and quantity and include recommendations for mitigating impacts and preventing further impacts from occurring.

The main goal of the OSLRMP is to conserve the natural diversity of fish and fish habitat, with priority given to wild fish stocks. Key objectives for achieving this goal include protecting the integrity of critical and environmentally sensitive fish habitats and maintaining and restoring the structural and functional integrity of streams, stream channels, lakes, riparian areas and other aquatic ecosystems.

Objectives that relate to the SFM Plan include:

- reduce the impacts of development activities on fish habitat;
- maintain stream temperature conditions considered necessary to sustain and protect fish and fish habitat;
- rehabilitate and stabilize stream banks that have been impacted by resource development activities;
- achieve and maintain properly functioning conditions of streams including the timing and magnitude of flows;
- provide adequate riparian habitat to sustain healthy aquatic ecosystems, fish and wildlife populations; and
- identify and protect wetlands in provincial forests.

Regulations and guidelines in the Forest Practices Code and the Forest and Range Practices Act complement strategies for aquatic and riparian ecosystems in the Okanagan-Shuswap LRMP. For example, management within riparian areas is outlined in the Code and in the *Riparian Management Area Guidebook*. The Okanagan Shuswap and Arrow - Boundary Forest Districts also have district policies for riparian and lakeshore management¹⁶.

Water

The Okanagan-Shuswap LRMP recognizes water as a primary and fundamental resource. Water is a crucial component of the plan area's ecosystems with lakes, rivers and riparian areas providing critical habitat for many fish and wildlife species. Water is also an important resource for human consumption. As a finite resource it needs to be protected and managed in order to sustain human populations and natural ecosystems.

Fish and wildlife and domestic and industry water users rely on a stable supply of water as well as good quality water. A major concern related to water quality is sedimentation, which can impact aquatic life by smothering the streambed organisms that fish depend upon for food. Sedimentation can also impact water quality for human use.

A major issue in the plan area is the protection of water quality and quantity in watersheds in the face of increasing population growth and resource development activities. Activities such as urban development, agriculture, forestry and other land uses have created cumulative impacts for

¹⁶ The Boundary Forest District does not have specific policies for lakeshore management over and above those contained in the Forest Practices Code.

some of the area's watersheds. For example, uncontrolled timber harvesting and road development may contribute to increases in peak season flows resulting in erosion, channel destabilization and sedimentation of streams.

OSLRMP objectives for water management that relate to the SFM plan include:

- manage surface water quality and timing of flow to meet both instream and consumptive requirements;
- protect and/or enhance both surface and ground water quality and quantity;
- do not increase the risk to life and property from floods, erosion, mass wasting and debris torrents and protect ecosystem values;
- maintain and/or restore the functional and structural integrity of streams, stream channels, lakes, riparian areas and aquatic ecosystems; and
- manage the water resource on a watershed basis.

Timber and Silviculture

The forest industry in the Okanagan-Shuswap LRMP area plays an important role in the regional and provincial economies and accounts for approximately 4 percent of the provincial allowable annual cut (AAC). Within the Okanagan Timber Supply Area (TSA) approximately 65 percent of the 2.2 million hectare landbase is considered productive Crown forest and 45 percent of the land base is deemed suitable for harvesting. The difference between the productive forest land base and the timber harvesting land base is largely attributable to unmerchantable forest types, roads and landings, and inoperable areas.

Key land and resource issues for the forest industry in the plan area include security of timber supply and increased costs associated with managing other resource values (e.g., forage for livestock, wildlife habitat, visual quality, etc.). Cost increases are a major concern to the forest industry as they may affect its international competitiveness.

The goal of the OSLRMP for timber and silviculture is to maintain or enhance the sustainable supply of economically viable timber and minimize costs while maintaining environmental standards and addressing other resource values.

Objectives relating to the SFM Plan include:

- maintain or enhance AAC as determined by the Chief Forester for Tree Farm Licenses (TFLs) and the Timber Supply Areas (TSA);
- when constructing new forest development roads, minimize, where practical, site disturbance that causes permanent withdrawals from the timber harvesting land base;
- maintain a diversity of tree species in managed forests; and
- Where practical, important range use related information will be incorporated into Licensee plans.

Access Management

The Okanagan-Shuswap LRMP does not contain a specific section on access management, but does include the following principles (somewhat abbreviated) for coordinated access management planning¹⁷:

- incorporate the advice of a broad spectrum of user groups;
- organized forest users must assume some responsibility for resolution;
- roaded access may not be compatible with all forest uses and may be a detriment to some;
- road networks may need to change over time;
- access use decisions should be made in the context of a larger plan area to accommodate the full spectrum of user's demands;
- scheduled review periods are required to address new information;
- utilize a range of alternatives (e.g., physical closure, signage and enforcement); and
- information/education strategies to increase public awareness and acceptance of the plan.

6.3 Provincial Landscape Unit Plans

The Landscape Unit Planning Guide – released March 1999 – provides a foundation for achieving landscape level biodiversity through the achievement of priority objectives for the retention of old growth and wildlife trees. The guide provides clear rules on the development of appropriate objectives for biodiversity conservation based on requirements and direction provided in the Forest Practices Code. Landscape units are areas of land and water for long term planning of resource management activities with an initial priority for biodiversity conservation. They are important in creating objectives and strategies for landscape-level biodiversity and for managing other forest resources.

The establishment of old growth management areas (OGMAs) is the most important part of the Forest Practices Code for managing the conservation of biodiversity. The guide provides direction for determining the area of old growth for each of the three types of biodiversity emphasis areas (high, medium, low) and size and spatial location of OGMAs. The Okanagan-Shuswap LRMP has defined target amounts of OGMA for each biogeoclimatic subzone variant and or the timber harvesting land base and the non-timber harvesting landbase.

Wildlife trees provide habitat for a variety of species at the stand level. Although wildlife tree retention is managed at the stand level it contributes to landscape level forest structure.

Landscape unit planning falls into two categories:

- biodiversity planning; and
- forest resources planning.

¹⁷ Based on a review by BC Environment of the Ministry of Forests Publication: A Guide to Coordinated Access Management Planning (1989)

Biodiversity planning involves setting objectives for six elements including

- retention of old growth forest;
- stand structure through wildlife tree retention;
- seral stage distribution;
- landscape productivity;
- species composition; and
- temporal and spatial distribution of cutblocks (patch size).

Forest resources planning may include objectives for any of the following resources:

- timber;
- recreation;
- water;
- botanical forest products;
- wildlife;
- forage; and
- fisheries.

The first phase of landscape unit planning will focus on the achievement of priority biodiversity objectives for the retention of old growth and wildlife trees. Objectives for non-priority elements may be developed if they do not delay the establishment of objectives for priority biodiversity elements or create an impact on timber supply that exceeds government policy. In some cases, non-priority biodiversity elements may be included as objectives in approved strategic land use plans and will therefore be included in the first phase of landscape unit plans.

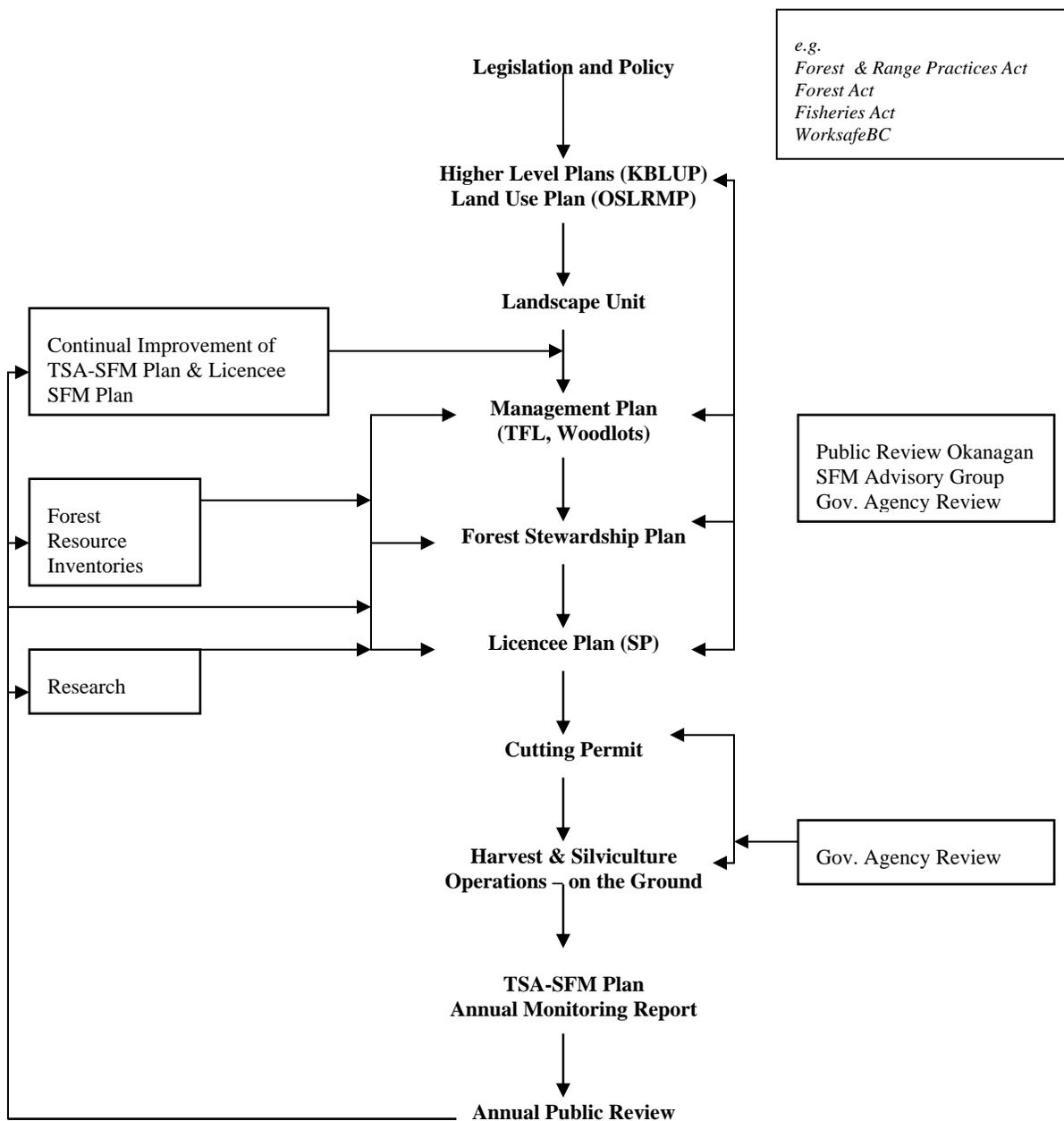
6.4 Plans, Policies and Management Strategies to Support the Achievement of the SFM Plan

The SFM Plan is a complementary plan that demonstrates field level performance of commitments made within this plan, the Okanagan-Shuswap LRMP and higher-level plans such as the Kootenay-Boundary Land Use Plan, and Licensee plans. Figure 6 shows the flow of input and direction to Licensee plans. It also shows the feedback loops of research, monitoring and adaptive management that occur from operations to the SFM plan, higher-level plans and Licensee plans.

The intent is, over the long term, to rigorously apply the management direction provided through the hierarchy of planning shown in Figure 6, combined with regular monitoring and assessment. Through this process, the SFM plan will continue to be updated and improved to incorporate new information and best management practices based on the most current understanding of effective resource management practices.

There are already several prescriptions contributing to sustainable forest management in existing legislation and policy. The Forest Practices Code and the Forest and Range Practices Act, for example, require management along riparian corridors. Current policy requires the identification of old growth management areas and wildlife/leave tree retention areas. There are also numerous policies and guidelines in place at the regional and district levels that contribute to the principles of sustainable forest management including the following:

Figure 7. Links Between Plans



- **Public Involvement:** Public and stakeholder involvement in Licensee plans, such as Forest Stewardship Plan reviews, is intended to facilitate the exchange of information between developers and people interested in, or affected by, forest operations.

To ensure that public input can be considered in plan development, comments are submitted to the development proponent in writing. The licensees will document actions taken to accommodate public concern. This formal process ensures public concerns pertaining to items such as recreation features, visual quality, identified trails or other features of significance are identified as early as possible in the planning process to enable the forest licensee to address the request.

The Forest Practices Code and FRPA require that licensees consider “known information” on resources during Licensee planning. “Known information” is formally made available to licensees through a higher-level plan, or by government agencies. Input provided by the public and First Nations contributes to the government data/knowledge prior to the government making the “known information” available to licensees for planning.

The licensees are committed to working with directly affected stakeholders and members of the public on forest management issues and have a well-established history of participation in community meetings, including local planning processes. In addition, the licensees are committed to providing topical education updates on forest management issues during public meetings and to ensure that local First Nations tribal councils and bands have up-to-date information. Members of the public participate in strategic and local planning processes and meetings on forest management issues.

- **Access Management:** government develops Access Plans with input from public and other stakeholders. Forest licensees and proponents from other resource industries must coordinate and follow the advice and direction set by the government agencies through these planning processes. Access plans consider the condition of access, maintenance, deactivation and access restrictions related to long term objectives for an area. This includes identifying potential impacts on resources such as wildlife, recreation, sensitive ecosystems, or other values due to open public access and introducing public access controls, where required. One of the concerns identified by the SFM Advisory Group for consideration in access management planning is the potential impact of motorized access on sensitive wildlife habitat.
- **Vertical Structure:** During forest development planning, licensees incorporate a number of strategies for maintaining diversity of structure and function within cutblocks. These include wildlife/leave tree retention, either in single trees or patches, as described in the *Landscape Unit Planning Guide*. During operational activities, tree species of merchantable size will be retained, where this is in keeping with safety standards of the Worker’s Compensation Board. This includes retention of green trees that will act as future wildlife trees including deciduous trees and conifers that have characteristics that make them suitable as future wildlife/leave trees, such as large diameter and height, structural features such as cavities, loose bark, or dead tops, and signs of damage or rot. It also includes

retaining trees of suitable quality and productivity that can act as seed trees to aid in the natural regeneration of harvested areas. Locating wildlife/leave trees in unique microsites, in known habitat areas, and along riparian areas can contribute to long-term forest function and biodiversity.

Natural processes will be allowed to take their course within wildlife tree patches, where this does not threaten merchantable trees in adjacent areas. Trees that burn, are attacked by insects, or are blown down will still contribute to biodiversity goals. However, the intent is to provide wildlife tree patches that are windfirm and that will provide standing live and dead trees for habitat within or on the edge of harvested areas for the course of the rotation.

Other aspects of maintaining structural diversity within cutblocks include providing a diversity of tree species, maintaining understory vegetation, and retaining coarse woody debris on sites after logging.

- **Pest Management:** The licensees are required under their Crown licenses to address forest pest/health at the operational level. Managing for health must take into account the natural variability and cyclical variations that occur on the landscape. Management for forest health includes both preventive action and proactive response measures. Examples include participation in overview flights, focused reconnaissance action resulting from overview flights, strategies and coinciding action plans, communication, implementation and review.
- **Seed and Vegetative Material Transfer Guidelines:** Seed and vegetative material transfer guidelines are intended to minimize the risks of maladaptation or growth loss associated with regenerating trees (planted from seed or vegetative material) in a different location from their source. Transferring seeds or vegetative materials beyond the limits specified in the guidelines may decrease productivity or increase susceptibility to frost, insects or disease. With respect to genetic diversity, these guidelines geographically limit the amount of natural change and spread of seed or vegetative material over the landscape. The transfer guidelines must be adhered to when prescribing reforestation measures in Licensee plans.
- **Invasive Plants:** Invasive plants are non-native plant species that can be difficult to control. They can have a significant impact on agriculture and timber production, reducing forage production for livestock and wildlife and threatening forest regeneration. They may also alter the structure of natural plant communities, threatening biodiversity.

The most effective strategy for controlling invasive plants is to prevent their establishment. Once established, the cost and difficulty of controlling invasive plants increases significantly. The licensees have committed to promptly re-vegetate road cuts and fills in order to reduce the spread of invasive plants..

- **Forest Industry-Caused Wildfires:** The forest industry has numerous legal requirements to minimize the potential for wildfires being started by forest operations. Each year, licensees are required to prepare and submit a fire pre-organization plan to the Ministry of Forests and Range providing details on the location of personnel and equipment in the event of a wildfire. Licensees' employees and contractors are trained and knowledgeable in

preventing and actioning wildfires. As well, the licensees monitor fire weather indices, which help determine the level of risk in terms of forest operations. Wildfires are a natural part of ecosystem rejuvenation. However, human safety and potential loss of resources plays a role in strategies to control loss.

- **Free to Grow Silviculture Practices:** A free growing stand is defined in the legislation as a healthy stand of trees of a commercially valuable species, the growth of which is not impeded by competition from plants, shrubs or other trees.

Prior to 1987, the Ministry of Forests and Range funded all stand establishments to the free to grow stage on Crown lands. With a change to the Forest Act that year, stand establishment (basic silviculture) became the financial responsibility of the licensee.

The regeneration date is the date by which at least the minimum number of healthy well-spaced trees of the preferred and acceptable species per hectare must be established and subsequently maintained until the stand is declared free growing. The free growing assessment period is the time within which a free growing stand must be established as required in the Licensee Plan. A survey must be conducted on or before the latest free growing date to determine whether the number of free growing trees per hectare meets the number set in the Licensee Plan. Periodic monitoring and/or assessments are completed between the harvest and free growing dates.

- **Quality of seed for revegetation of rights-of-way:** Grass seeding is carried out for three reasons: 1) invasive plant control; 2) erosion prevention; and, 3) to provide forage. The seed used for revegetation is graded by Agriculture Canada to protect against the presence of invasive plants and other unwanted species. Measures used to ensure seed quality in the production cycle include sowing seeds with clean equipment, crop inspection, crop certificate permitting seed from inspected crop to be sold as certified seed, seed crop harvested with clean equipment, seed inspected, graded and sealed to Canada Seeds Act requirements by Agriculture Canada.
- **Genetic diversity:** The process for developing seedlings in provincial seed orchards is closely regulated by BC's chief forester to ensure that genetic diversity and seedling quality is maintained. The Chief Forester appoints the Tree Improvement Council (TIC) to provide advice on the provincial tree improvement program including issues of seed production, genetic gain, and gene resource management.

To conserve the genetic diversity of the province's forests, tree breeders collect hundreds of samples of tree species. Collections range from places where the species are found in large quantities to isolated populations at the edge where they grow naturally. Breeders ensure that enough trees are selected to provide a level of diversity that will buffer future forests from environmental extremes and insect and disease attacks. In addition to breeding protocols, the genetic diversity of British Columbia's trees is protected in parks and protected areas or in special reserves, which are established by making "duplicates" of parent trees.

All trees planted on Crown lands must have originated from seed registered by the BC Tree Seed Centre. The Centre has strict requirements for tree seed acceptability, selection and storage.

- **Retention of fine organic materials:** The licensees operate across a variety of ecosystems within the Defined Forest Area. In the drier zones with high fire frequency there are sites with very thin litter and humus layers. Harvesting and site preparation systems that remove high proportions of the fine organic material in tree tops, branches and needles have the potential to reduce the already limited nutrient capital on these sites. In order to maintain the long-term productivity of these sites, the licensees will endeavor to leave a portion of limbs and tops on site.
- **Determination of Forest Practices Code or Forest and Range Practices Act contraventions:** If a contravention is reported, a letter is sent from the MOFR to the licensee with notification of investigation/inspection (data gathering). The licensee will be given the opportunity to be heard (sharing data) and the District Manager (Ministry of Forests and Range) will make a determination based on information from all parties. If the contravention is confirmed, the licensee may appeal the ruling and/or the penalty levied.
- **Road construction and maintenance procedures:** Certain soil types are sensitive to disturbance especially from road construction and harvesting activities involving mobile equipment such as excavators and skidders. These sensitive soils are identified in advance to help prevent/minimize soil compaction, poor drainage, puddling and soil displacement that result in loss of productive forest sites. With respect to forest roads, the soil and water information collected during the planning phase and future expected use of the road are used to determine the type of road constructed and level of maintenance, deactivation or rehabilitation to be prescribed. Deactivation and rehabilitation provides a distinction between the varying construction standards and duration of roads as follows:
 - Deactivation: The intent is to control water and maintain natural drainage patterns based on the risks associated. Activity includes: cross ditches, waterbars, backup drainage control or removing culverts, bridges, seeding and revegetation and pulling back of material (recontouring or returning material).
 - Rehabilitation: some of the same prescriptions above may be completed to control water and maintain natural drainage; however, the intent is to have the site capable of growing a productive crop of trees. Potential strategies may include pulling back of material (recontouring or returning material), seeding and revegetation and decompaction.

There are two administrative categories of road types: status and non-status.

- i. Status roads are ones held under road permit or road use permit by licensees. These permits give the licensees responsibility for maintaining the roads. There are two types of status roads:
 - *permanent roads* are long term roads that may be deactivated for control of water
 - *temporary roads* are short-term roads that will be rehabilitated – including water management – to return the area into a productive growing site.

Commitments related to the amount of permanent access structures (i.e. roads, gravel pits) are included in site-specific plans. Temporary access structures included in plans are part of the net area that requires reforestation and must be suitably treated to enable tree survival and growth.

- i. Non-status roads have no assigned permit holder and responsibility is that of the Crown (usually old trails and roads)

The new Forest Stewardship Plans contain several results and strategies where road construction and deactivation are referenced, and that must be met or implemented. Communication and input by the public, other resource users and resource agencies are important to ensure access meets necessary requirements. As a requirement under the Forest Practices Code, the Forest and Range practices Act, or a company's Environmental Management System, licensees are responsible for inspection of roads based on a risk frequency.

- **Allowable Annual Cut (AAC) determination:** The AAC is the maximum allowable rate of timber harvesting in a management unit such as timber supply area (TSA) or a tree farm licensee (TFL). The Chief Forester sets the AAC for each of the province's 37 TSAs and 33 TFLs. The process for setting the AAC is called a timber supply review (TSR) wherein the Chief Forester considers an analysis of timber supply under current management practices, social and economic objectives and other criteria specified in the *Forest Act*.

The timber supply is the rate at which timber is made available for harvesting. It is a measure of the potential flow of logs out of the forest. It is not the same as the inventory or amount of wood in the forest. The size and productivity of a given area of land available for timber harvesting (timber harvesting land base) are the factors that are used to determine the amount of timber that can be produced over time. Economic, environmental and social factors also affect the rate of timber harvesting and the methods used. Economic factors may include prices for wood products, location and quality of timber, costs of production, etc. Environmental factors may include wildlife habitat, riparian buffers, environmentally sensitive areas, etc. Social factors may include visual appearance of the landscape, drinking water quality and supply, etc.

Timber supply analysis is a process that explores the effects on timber supply of existing or possible future forest management strategies and alternative timber harvesting levels. The analysis makes it possible to compare how alternative management strategies affect forest structure and timber production over time. The steps in timber supply analysis to support AAC determination include:

- i. *Categorize the land base* – define the timber harvesting land base by separating lands suitable for timber production from lands unavailable or inappropriate for timber production (e.g., protected areas or inaccessible terrain). Lands outside of the timber harvesting land base are still part of the provincial forest and contribute to and are managed for other values (e.g., wildlife habitat, old growth).

- ii. *Project growth and yield* – growth and timber yield is projected for each stand based on current management. These projections show the characteristics of a stand (e.g., timber volume per hectare, average stem diameter) at different ages.
- iii. *Identify management activities and requirements* – current management practices – including those that enhance timber production (e.g., planting) and those that maintain or enhance other values (e.g., wildlife habitat, visual quality) – are identified and the amount and timing of each activity is specified. It is often necessary to restrict some activities in some areas to achieve multiple objectives.
- iv. *Model timber supply based on current management* – a computer model is used to simulate the way a stand grows and is harvested over time.
- v. *Run sensitivity analyses* – sources of uncertainty in the data and management assumptions are analyzed to determine which factors most affect analysis results (e.g., where small changes in a management objective can cause large changes in timber supply). This knowledge helps to establish priorities for collecting new information and indicates where caution is required in interpreting results.

The Chief Forester uses the results of the timber supply review to determine the allowable annual cut.

- **Terrain stability:** The Defined Forest Area (DFA) has significant climatic variations from wet conditions in the north to drier conditions in the south. Steep slopes and terrain conditions in the entire DFA have the potential for landslides and surface soil erosion. Landslides are a natural and inevitable phenomenon that contributes to the evolution of the landscape. Although landslides occur in both logged and unlogged terrain, logging and road building can increase their frequency. Impacts of landslides include acceleration of sediment delivery to streams, possible damage to fish and invertebrate habitat and productivity, loss of forest site productivity, unsightly scars and damage to roads, culverts and bridges. The Forest Practices Code has comprehensive steps to aid in the identification and mitigation of industry caused landslides¹⁸ whereas the FRPA stipulates that forest harvesting and road construction must not cause landslides (FPPR 37). Since the FPC inception in 1995 all development of roads and cutblocks is consistent with the tools established in the legislative framework. The following are examples of the process undertaken to minimize landslides:
 - i. Assess all Class IV and V (Es1 and Es2) terrain prior to road construction or harvesting to evaluate terrain stability and provide recommendations on:
 - whether or not development should proceed;
 - best road and cutting boundary locations or changes to proposed layout or road alignment;
 - riparian management areas;
 - possible mitigative actions and criteria; and
 - road construction and harvesting constraints or special techniques.

¹⁸ Guidelines were developed in 1995 therefore, the SFM plan indicator/objective refers to occurrences after 1995.

ii. Inspections of drainage ditches and culverts regularly and take preventative measures to minimize the potential for debris flow initiation and soil erosion.

- **Recovery plan process for regionally significant species:** If regionally significant species are identified through a planning process such as the OSLRMP, representatives from licensees may participate in discussions for addressing habitat needs (e.g., mule deer). In cases where there are likely to be operating area implications associated with the management of regionally significant species, the licensees may elect to bring their interests forward to ensure they are considered in any subsequent management plans (e.g., Vaseaux Lake bighorn sheep). In cases where the licensees do not participate directly in these processes and there are management implications, the information will come back as “known information” to be incorporated into Forest Stewardship Plans. At present, there are no “regionally significant species” in the Okanagan TSA.
- **Global climate change:** Global climate change refers to a change in climate caused by a buildup of greenhouse gases in the earth’s atmosphere. Greenhouse gases such as carbon dioxide trap heat that in turn raises the earth’s average temperature and alters the global climate. Some of the worst case scenarios associated with global climate change include: rising ocean levels, summer water shortages and drought in some regions, and dying forests and wildfires. A key source for the buildup of greenhouse gases in the atmosphere is through emissions from fossil fuels.

One of the ways to offset the buildup of greenhouse gases is through the maintenance and establishment of carbon sinks – either naturally or through the use of technology. Carbon sinks capture and store carbon and keep it out of the atmosphere. Productive forests are a good example of a carbon sink. Growing trees sequester (absorb) carbon dioxide from the atmosphere through the process of photosynthesis and convert it and store it the form of cellulose.

There is debate as to whether managed forests (i.e., harvesting and post harvest silvicultural treatments) contribute to an increase or decrease in the natural carbon storage capacity of a forest. In general it is believed that managed forests that increase the average rotation age beyond that which occurs through natural disturbances (i.e., fire) contribute to an increase in carbon storage capacity¹⁹. This means that for interior forests where the typical managed stand rotation is greater than the average cycle of stand-replacing natural disturbances, there is likely to be an increase in carbon storage capacity, assuming that natural disturbances (e.g., fire) are suppressed. Additionally, studies have determined that the total ecosystem carbon storage increases as the age of the forest increases toward maturity. This means that a managed forest with an older age class distribution is likely to provide increased carbon storage over a forest with a younger age class distribution.

¹⁹ See Price et al, “Comprehensive assessment of carbon stocks and fluxes in Boreal-Cordilleran forest management unit, *Canadian Journal of Forest Resources*, 30 July 1997.

The licensees recognize that global climate change is an important international issue in which forestry and forestry products can make a significant contribution. The licensees participate in a number of initiatives at a corporate level that are intended to contribute to improvements in global climate change.

- **Visual management:** Visually sensitive areas are viewsheds or viewscapes visible from communities, public use areas and travel corridors, or viewpoints identified through a variety of referral or planning processes where the maintenance of visual quality is important. The OSLRMP has identified and mapped the priority (Zone 1) areas for visual management. Planned harvesting within this priority area requires a visual impact assessment and operations must be conducted to maintain visual quality. Measures to maintain visual quality are included in Licensee plans.
- **Archaeology:** During plan development, cutblock and road proposals are provided to archeologists to determine if there is potential significance through an archaeological overview assessment. If yes, then additional fieldwork is scheduled as an archaeological impact assessment and any necessary changes are incorporated into the appropriate Licensee plan.

Glossary of Terms

Glossary of Terms

Abbreviations/Acronyms

Acronym	Meaning	Acronym	Meaning
AAC	Allowable Annual Cut	MLSIS	Major Licensee Silviculture Information System
BCTS	British Columbia Timber Sales	MOE	Ministry of Environment
CSA	Canadian Standards Association	MOFR	Ministry of Forests and Range
CWD	Coarse Woody Debris	NAR	Net Area to Reforest
DFA	Defined Forest Area	NDT	Natural Disturbance Type
DFO	Department of Fisheries and Oceans	NP	Non-Productive
ESA	Environmentally Sensitive Area	NPBR	Non-Productive Brush
FDP	Forest Development Plan	NTHLB	Non Timber Harvesting Land Base
FERIC	Forest Engineering Research Institute of Canada	OGMA	Old Growth Management Area
FPAC	Forest Products Association of Canada	OSFMP	Okanagan SFMP
FPC	Forest Practices Code of BC Act	OSLRMP	Okanagan Shuswap Land and Resource Management Plan
FRBC	Forest Renewal British Columbia	RMZ	Resource Management Zone
FPPR	Forest Planning and Practices Regulation	SFM(P)	Sustainable Forest Management (Plan)
FRPA	Forest and Range Practices Act	SU	Standards Unit
FSP	Forest Stewardship Plan	TDG	Transportation of Dangerous Goods
FSSIM	Forest Service Simulation Model	TFL	Tree Farm Licence
GAR	Government Actions Regulation	THLB	Timber Harvesting Land Base
HLP	Higher Level Plan	TSA	Timber Supply Area
IWAP	Interior Watershed Assessment Procedure	TSL	Timber Sale Licence
IWMS	Identified Wildlife Management Strategy	TSR	Timber Supply Review
KBLUP	Kootenay Boundary Land Use Plan	VQO	Visual Quality Objective
LRMP	Land and Resource Management Plan	WHA	Wildlife Habitat Area
LU	Landscape Unit	WTP	Wildlife Tree Patch
LUP	Land Use Plan		

Definitions

The following definitions were taken from the Canadian Standards Association (CSA) Sustainable Forest Management; Requirements and Guidance Z809 -- 02, the Okanagan-Shuswap LRMP, the *Forest Practices Code of British Columbia Act*, the *Forest Act*, the *Forest and Range Practices Act* and the Ministry of Forests and Range Glossary of Resource Planning Terms (April, 1996), or provided by the Licensees.

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)

Biodiversity (or biological diversity) – the diversity of plants, animals, and other living organisms in all their forms and levels of organization, including genes, species, ecosystems, and the evolutionary and functional processes that link them. (Glossary of Resource Planning Terms)

Cultural heritage resource – means 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. (*Forest Act*)

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, botanical forest products, forage, and biological diversity. (*Forest Practices Code of British Columbia Act*)

Free growing stand – a stand of healthy trees of a commercially valuable species, the growth of which is not impeded by competition from plants, shrubs or other trees. (*Forest and Range Practices Act*)

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

Information System – A system to manage harvesting, road activities and reforestation obligations and commitments. (The licensees)

Invasive Plant – means a plant listed in the *Invasive Plants Regulation* (B.C. Reg. 18/2004). (*Forest and Range Practices Act*)

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*)

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 Stewardship Plans, harvest plans, range use plans, silviculture prescriptions, and site plans. (The licensees)

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 that is subject to old growth management objectives established under section 3 [*resource management zones and objectives*] or 4 [*landscape units and objectives*] of the *Forest Practices Code of British Columbia Act*. (*Forest Planning and Practices Regulation*)

Permanent access structure – means an access structure in a cutblock that a) at the time of its construction, is reasonably expected to provide access for timber harvesting and other activities that are not wholly contained in the cutblock, or b) is constructed on or through, or contains, materials unsuitable for the establishment of a commercial crop of trees and is not an excavated or bladed trail (*Forest Planning and Practices Regulation*)

Pest -- means an injurious, noxious or troublesome living organism but does not include a virus, bacteria, fungus or internal parasite that exists on humans or animals. (*Provincial Pesticide Control Act*)

Potential natural community (PNC) – the biotic community that would become established on an ecological site if all successional sequences were completed without interference by humans under the present environmental conditions. Natural disturbances are inherent in its development. The PNC may include acclimatized or naturalized non-native species. (*Ministry of Forests and Range Management Guidebook*)

Range development – means (a)) a structure, (b) an excavation, (c) a livestock trail indicated in a range use plan or a range stewardship plan as a range development, or (d) an improvement to forage quality or quantity on an area that results from (i) the application of seed, fertilizer or prescribed fire to the area, or (ii) the cultivation of the area (*Forest and Range Practices Act*)

Recreation feature – means a biological, physical, cultural or historic feature that has recreational significance or value. (*Forest and Range Practices Act*)

Resource feature – includes all of the following: (a) a cultural heritage resource; (b) a recreation feature; and (c) a range development that is a structure, excavation or constructed livestock trail. (*Forest Practices Code of British Columbia Act*)

Riparian reserve zones – means an area described under Division 3 [*Riparian areas*] of Part 4 [*Practice requirements*], that (a) is a portion of a riparian management area, and (b) is established to protect fish, wildlife habitat, biodiversity and the water values of the riparian reserve zone (*Forest and Range Practices Act - Forest Planning and Practices Regulation*)

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*)

Rare physical environment – a landscape where very uncommon features are present including wildlife, plants, vegetation associations and rock formations (Okanagan-Shuswap LRMP)

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)

Stubs – Merchantable residual tree cut by a mechanical harvester and retained during harvest with an approximate height of 3-5 meters. (The licensees)

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 timeframes set by a registration applicant for implementing, maintaining, and improving sustainable forest management. (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 the Standard). (Can/CSA Z809 – 02)

Appendix 1

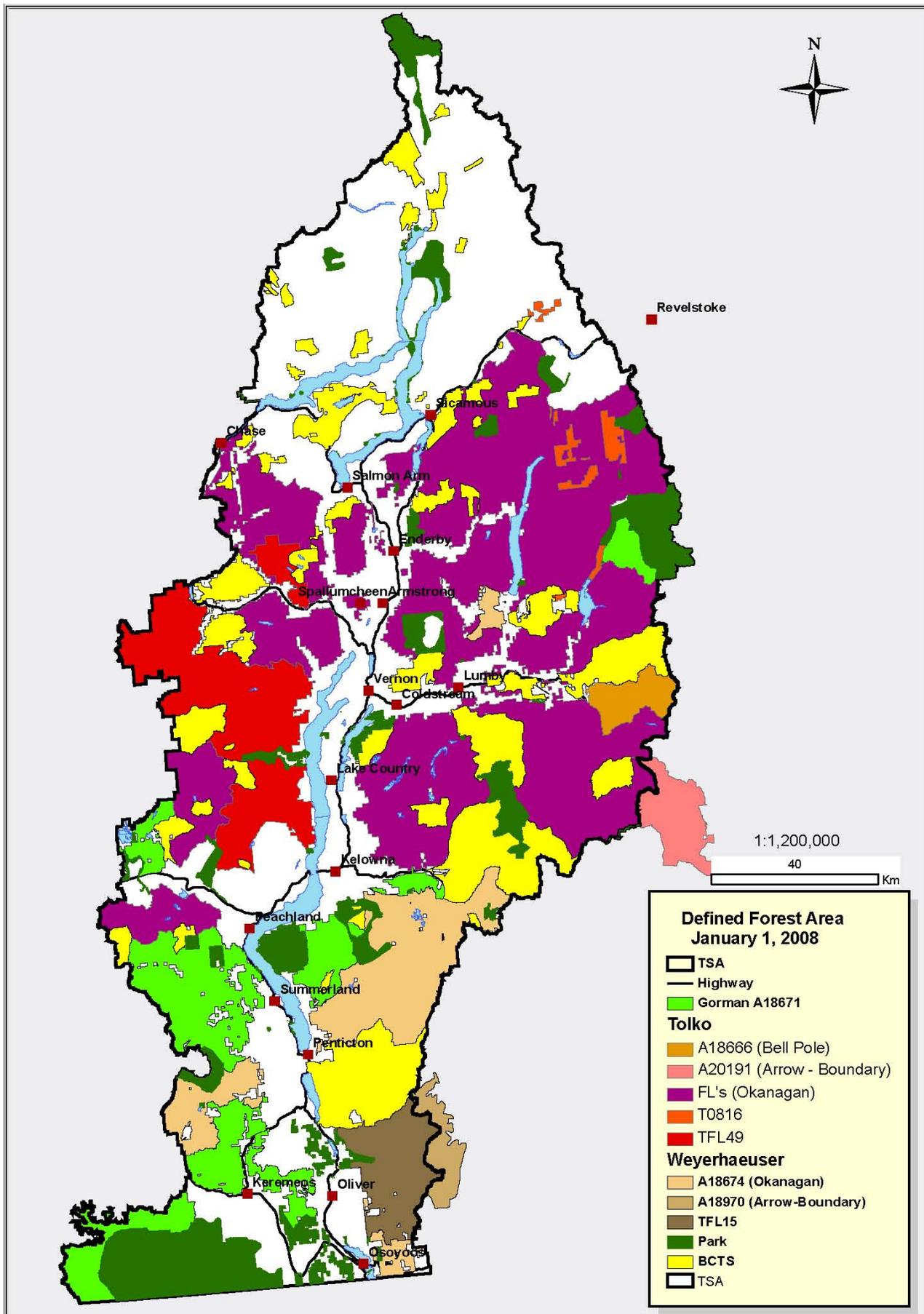
Defined Forest Area Map

Appendix 1:

Weyerhaeuser/Tolko/Gorman Bros./BCTS

Okanagan Defined Forest Area

The following map shows the scope of the defined forest area (DFA) for the Weyerhaeuser/Tolko/Gorman Bros./BCTS Okanagan Sustainable Forest Management Plan.



Appendix 2

Information for Future Consideration

Appendix 2: Information for Future Consideration

The licensees and the Sustainable Forest Management Advisory Group decided that the "parking lot" items should be added to the SFM Plan as an appendix to ensure the ideas are not forgotten. Items were placed in the parking lot generally because they lacked information or a practical means of measurement.

Information below will be revisited periodically to determine if new information allows for their incorporation into the indicator set.

1. Future Indicators

Genetic Diversity

- Develop indicators to measure genetic diversity in the plan area
 - Reviewed 4/5/06 PAG meeting
 - Current focus is on water, no action yet; retain

Ecosystem changes

- Develop indicators to measure:
 - Wildlife population census
 - Changes in landscape capability/suitability (habitat suitability index)
 - Site index productivity measures
 - Reviewed 4/5/06 & 12/7/06 PAG meetings
 - Licensees reviewed work being done with Site Index (SI) as part of the Okanagan Innovative Forest Practices Agreement (IFPA). Review concluded that current Indicator 25 will capture changes to Site Index.
 - Extent to which disturbance exceeds natural range of variability
 - Forest fragmentation and connectedness (patch size)
 - Retention of natural forest attributes in managed forests
 - Reviewed 4/5/06 & 12/7/06 PAG meetings
 - Licensee review of the Trapper Survey with a Trapper Association member resulted in a mutual decision that using it would not be viable
 - What industry can manage for and influence is habitat, not populations
 - Intention: industry to work with trappers to understand habitat and animals in the habitat. (effective communication)

Global Carbon Modeling

- Determine the extent to which forested areas in the DFA are a source or sink
 - Reviewed 4/5/06 PAG meeting
 - Currently a test model that is at least a couple years from application in BC.
 - Retain item and schedule an update in the future.

Indicator 5: stems per hectare too low: (added 4/5/06 PAG Meeting)

Need to consider this is also future CWD

Indicator should be reworded to “... contain at least an average of 2-5 stubs or standing trees per hectare...”

2. Other Parking Lot Information

Overlapping Licenses:

Non-Replaceable Forest Licenses (NRFLs) and Licenses to cut – Small Scale Salvage Program (SSSP) operations occur within the DFA. Tolko and Weyerhaeuser are working with the MOFR to capture reporting of performance against indicators for licenses issued to third parties within the DFA. . Currently most NRFL's are reporting, while harvest occurring under the SSSP is not reported.

Ingress on Grasslands: (added 4/5/06 PAG Meeting)

Suggest the primaries and the TFL 35 operators actively manage ingress on grasslands.

Local workers underrepresented: (added 4/5/06 PAG Meeting)

Large scale long term contracts are limiting opportunities for participation.

Potential to adjust the tendering process?

Appendix 3

SFM Plan Reporting Format

Appendix 3: SFM Plan Reporting Format

The following table is the reporting form that licensees will use when reporting the results of monitoring the SFM Plan. The Plan will be monitored annually and the information will contribute to an annual review to confirm that CSA that performance measures are being met. The SFM Advisory Group will review and comment on the annual report.

Okanagan/Boundary Sustainable Forest Management Plan Annual Report

Licensee Name and Reporting Year: _____

Obj No.	Monitoring parameter	Monitoring results
1	Early mature and old seral stage. GIS output.	Seral Stage Distribution Total Area of OGMA Net Reduction of OGMA during the year
2	A. Number of hectares harvested in known rare ecosystems contained in (draft) OGMA's. B. Cutblocks or roads influenced by, and in compliance with IWMS strategies (General Wildlife Measures within WHAs). C. Cutblocks or roads influenced by, and in compliance with OSLRMP/KBLUP strategies specific to rare species (OSLRMP link to red and blue listed coverage). Data pool: <i>A. Cutblocks with harvest complete in reporting period. Site Plan exempt areas are excluded.</i> <i>B & C. Cutblocks with Site Plans signed/approved, or road designs signed in the reporting period. Site Plan exempt areas are excluded.</i>	A. _____ Hectares B. _____ Number of cutblocks, or roads influenced by IWMS strategies. _____ Number of cutblocks, or roads in non-compliance with strategies. C. _____ Number of cutblocks, or roads influenced by OSLRMP/KBLUP strategies specific to rare (identified) species. _____ Number of cutblocks, or roads in non-compliance with OSLRMP/KBLUP strategies specific to rare species.

Appendix 3 – SFM Plan Reporting Format

Obj No.	Monitoring parameter	Monitoring results																																								
3	<p>Area of cutblocks by size and silviculture system category.</p> <p>Data pool: <i>Cutblocks with Site Plan signed/approved in the reporting period (NAR). exempt areas are excluded.</i></p> <p><i>Qualify any area add-ons (amendments) to previously harvested blocks with a text notation.</i></p>	<table border="1"> <thead> <tr> <th align="center">Block Size</th> <th align="center" colspan="4">Silviculture System</th> </tr> <tr> <th align="center">Ha</th> <th align="center">Even Aged</th> <th align="center">Even Aged With Reserves</th> <th align="center">Uneven Aged</th> <th align="center">Total</th> </tr> </thead> <tbody> <tr> <td align="center">1 - 5</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td align="center">6 - 40</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td align="center">41 – 100</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td align="center">101 - 250</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td align="center">> 250</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td align="center">Total</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Block Size	Silviculture System				Ha	Even Aged	Even Aged With Reserves	Uneven Aged	Total	1 - 5					6 - 40					41 – 100					101 - 250					> 250					Total				
Block Size	Silviculture System																																									
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4	<p>Non-conformance to FPC, FRPA and plan commitments impacting values in riparian management areas.</p> <p>Data pool: <i>incident reports in reporting period.</i></p>	<p>_____ Number of non-conformance incidents.</p>																																								

Appendix 3 – SFM Plan Reporting Format

Obj No.	Monitoring parameter	Monitoring results
5	<p>Percent cutblocks requiring a site plan with associated wildlife tree retention (patches and/or individual trees).</p> <p>Percent harvest units with an average of 2-5 stubs or wildlife trees per hectare.</p> <p>Data pool: <i>Cutblocks with harvest complete in the reporting period. Site Plan exempt areas are excluded.</i></p>	<p>_____ Number of cutblocks requiring a site plan with associated wildlife tree retention/_____total number cutblocks harvested.</p> <p>_____ Percent</p> <p>_____ Number of units with an average of 2-5 in-block stubs or trees per hectare/_____total number units harvested.</p> <p>_____ Percent</p>
6	<p>Percent of cutblocks where management of Coarse Woody Debris (CWD) is consistent with plans.</p> <p>Data pool: <i>Cutblocks with harvest complete in the reporting period. Site Plan exempt areas are excluded.</i></p>	<p>_____ Cutblocks meeting CWD requirements identified in Plans/_____total cutblocks harvested.</p> <p>_____ Percent</p>
7	<p>Percent of cutblocks with three or more tree species identified at free growing.</p> <p>Data pool:</p> <ul style="list-style-type: none"> • <i>MLSIS reporting of free growing during reporting period where entire block has achieved free growing.</i> • <i>Reporting of Net Area to be reforested.</i> • <i>Species data is based on inventory layer</i> • <i>Weighted average is based on number units meeting the target.</i> 	<p>_____ Hectares of cutblocks with three or more species/_____total hectares achieving free growing status.</p> <p>_____ Percent</p> <p>For cutblocks with three or more tree species :</p> <p>_____ Percent primary species (average)</p> <p>_____ Percent secondary species (average)</p> <p>_____ Percent remaining species (average)</p>

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Obj No.	Monitoring parameter	Monitoring results
8	<p>The proportion of the THLB that age classes 1 to 5 occupy as last reported by a Timber Supply Review and for the DFA.</p>	<p>For the TSA as reported by the last TSR:</p> <p>Age class 1 (1-20): % of the THLB Age class 2 (21-40): % of the THLB Age class 3 (41-60): % of the THLB Age class 4 (61-80): % of the THLB Age class 5 (81-100): % of the THLB</p> <p>For the DFA</p> <p>Age class 1 (1 -20): _____ % of the THLB-----% of Gross Area Age class 2 (21-40): _____ % of the THLB-----% of Gross Area Age class 3 (41-60): _____ % of the THLB-----% of Gross Area Age class 4 (61 -80): _____ % of the THLB-----% of Gross Area Age class 5 (81 -100): _____ % of the THLB-----% of Gross Area</p>
9	<p>Planted area is regenerated in accordance with seed transfer guidelines.</p> <p><i>Data pool: incident reports in the reporting period and trees planted in the reporting period.</i></p>	<p>_____ Non-conformances to seed transfer guidelines</p> <p>_____ Planted trees not in accordance to guidelines</p> <p>_____ Total trees planted</p>
10	<p>The current Protected Area status as last reported by a Timber Supply Review</p>	<p>_____ percent of the Okanagan TSA is in Protected Areas</p>

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Obj No.	Monitoring parameter	Monitoring results
11	<p>Permanent road cut and fill slope revegetation application carried out within the current growing season of road completion under normal conditions; and for roads completed during winter, revegetation application will be completed before or during favourable germinating conditions the following spring.</p> <p>Data pool: total kilometres of permanent road constructed in the reporting period.</p> <p>Percent of R/W's revegetated with Canada No.1 or equivalent grass seed.</p> <p>Data pool: quantity purchased in reporting period.</p>	<p>_____ Total kilometres of permanent non-winter constructed road</p> <p>_____ Total kilometres of permanent non-winter constructed road revegetated within the current growing season.</p> <p>_____ Total kilometres of winter constructed road</p> <p>_____ Total kilometres of winter constructed road revegetated before or during favourable germinating conditions the following spring</p> <p>_____ Kilograms of Canada No.1 or equivalent seed/_____ total kilograms of Canada No.1 or equivalent seed.</p> <p>_____ Percent</p>
12	<p>Percent permanent access structures.</p> <p>Data pool: Cutblocks with harvest complete in reporting period. Site Plan exempt areas are excluded.</p>	<p>_____ Hectares of access structures/_____ha tot. gross block area.</p> <p>_____ Percent</p>
13	<ol style="list-style-type: none"> 1. Licensees report both the number of new or reconstructed permanent road stream crossings in Community Watersheds, and the number of those stream crossings that have had a water quality effectiveness evaluation completed. 2. The number of crossings rated as High, Medium and Low will be reported 3. The number of crossings rated as High where all reasonable mitigation measures were taken 	<p>_____ Number of new or reconstructed permanent road stream crossings in Community Watersheds</p> <p>_____ Number of these stream crossings that have had a water quality effectiveness evaluation completed</p> <p>_____ High _____ Medium _____ Low</p> <p>_____ Number of High where all reasonable mitigation measures were taken</p>

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Obj No.	Monitoring parameter	Monitoring results
14	<p>Number of slides >.1 hectare induced by forest management activities. For perspective, report gross block area harvested and kilometres of permanent roads inspected.</p> <p>Data pool: <i>Incident reports in reporting period (slides); cutblocks with harvest complete (GCA); and permanent road inspected in the reporting period.</i></p>	<p>_____ Slides</p> <p>_____ Hectares harvested.</p> <p>_____ Kilometres of permanent roads inspected.</p>
15	<p>Percent of forest health strategies completed as per plan.</p> <p>Data pool: <i>include Site Plan exempt cutblocks.</i></p>	<p>Forest health strategies available _____yes _____no</p> <p>_____ Hectares of harvest priorities completed/_____hectares of harvest priorities planned.</p> <p>_____ Percent</p> <p>List other strategies employed other than priority harvest: _____</p> <p>_____</p>

Obj No.	Monitoring parameter	Monitoring results
16	<p>Percent of cut block area planned for planting are completed during, or prior to the second complete growing season.</p> <p>Percent of naturally regenerated cutblock area meeting regeneration delay.</p> <p>Data pool: <i>Regeneration delay due (by SU) in the reporting period.</i></p> <ul style="list-style-type: none"> • <i>For SUs with 4 year delay due, compare planting dates and harvest completion date.</i> • <i>For SUs with 7 year delay due, compare declaration met</i> 	<p>_____ Hectares planted within, or prior to the second complete growing season/_____total hectares planned for planting.</p> <p>_____ Percent</p> <p>_____ Hectares natural regeneration meeting regeneration delay/_____total hectares of natural regeneration expected to meet regeneration delay.</p> <p>_____ Percent</p>

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Obj No.	Monitoring parameter	Monitoring results
	<i>with due date.</i>	
17	<p>Area of cutblocks that achieved free growing status prior to or at late free growing due date and the average time (years) that the cutblock out performed late date.</p> <p>Data pool: <i>cutblocks where late free growing date is due in the reporting period.</i></p>	<p>___ Hectares of cut blocks that achieved free growing status.</p> <p>___ Total hectares where late free-growing date is due in the reporting period.</p> <p>___ Average time (years) that cut blocks out performed late date.</p> <p>Licensees will also report the quantity of any pesticides applied during the reporting period.</p>

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Obj No.	Monitoring parameter	Monitoring results
18	<p>Access management commitments contained in FDPs/FSPs.</p> <p>Data pool: <i>Notable features or strategies that we play a role in, as documented in our FDP/FSPs. Not to include status on deactivation -plan versus actual, cattle guard dynamics.</i></p>	<p>List access management commitments as per FDP/FSPs that were implemented:</p> <p>_____</p> <p>_____</p> <p>List access management commitments as per FDP/FSPs that were not implemented</p> <p>_____</p> <p>_____</p> <p>_____</p>
19	<p>Percent of cutblocks harvested which exceeded specified soil disturbance levels.</p> <p>Data pool: <i>incident reports in reporting period.</i></p>	<p>_____ Cut blocks harvested within soil disturbance levels.</p> <p>_____ Total blocks harvested.</p> <p>_____ Percent</p>
20	<p>Number of cut blocks in non-compliance on recovery plans for regionally significant species.</p> <p>Data pool: <i>cutblocks with Site Plan approved/signed, and road design signed in reporting period (not Site Plan exempt areas).</i></p>	<p>_____ Number of cutblocks, and roads influenced by IWMS (recovery plans).</p> <p>_____ Number of cut blocks and roads in non-compliance.</p>
21	<p>Percent of permanent status roads that have inspections completed as per plan.</p>	<p>_____ Kilometres of permanent status road with inspections completed/ _____ total kilometres of permanent status road.</p> <p>_____ Percent</p>

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Obj No.	Monitoring parameter	Monitoring results
22	Percent of temporary status roads inspected.	<p>_____ Kilometres of temporary roads with inspections completed/ _____ total kilometres of temporary roads.</p> <p>_____ Percent</p>
23	Percent of the licensee's operations forest employees and primary contractors trained in Spill Preparedness and response procedures.	<p>_____ Forest operations employees and contractors trained/ _____ total number of operations staff and contractors.</p> <p>_____ Percent</p>
24	Number of legally reportable spills. <i>Data pool: incident reports in reporting period relating to legally reportable quantities.</i>	<p>_____ Number of spills requiring legal reporting to BC Government (PEP).</p>

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Obj No.	Monitoring parameter	Monitoring results
25	Report annual volumes harvested, and 5 year cut (if at the end of cut control).	TFL 35 _____m3 annual harvest TFL 49 _____m3 annual harvest BCTS on TFL 35 _____m3 annual harvest AAC BCTS on TFL 49 _____m3 annual harvest AAC FL A18674_____m3 annual harvest FL A18970_____m3 annual harvest FL A18666_____m3 annual harvest FLA18667_____m3 annual harvest FL A18672_____m3 annual harvest FL A20191_____m3 annual harvest FL A74912_____m3 annual harvest FL A18632_____m3 annual harvest T0816_____m3 annual harvest FL A18671_____m3 annual harvest
26	Business relationships and partnerships in reporting period.	_____ _____ _____

Appendix 3 – SFM Plan Reporting Format

Obj No.	Monitoring parameter	Monitoring results
27	<p>Number of harvested cutblocks that achieve the visual objective as described in Licensee plans versus the number of cutblocks harvested that had preservation, retention or partial retention visual quality objectives.</p> <p>Data pool: Cutblocks with harvest completed in the reporting period that have visual objectives as above. Confirmation of meeting objective is comparing post harvest photo to pre-harvest model.</p>	<p>Number of cutblocks with preservation, retention or partial retention achieving visual intent _____</p> <p>Number of cutblocks harvested with VQOs: _____</p>
28	<p>Involvement in OSLRMP, FDP/FSP, stakeholder meetings in the reporting period.</p>	<p>OSLRMP committee involvement: yes _____ no _____</p> <p>FDP/FSP meetings attended _____</p> <p>Stakeholder meetings attended _____</p>
29	<p>Licensees will report:</p> <p>a) 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;</p> <p>b) 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> <p>c) 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.</p>	<p>Number of meetings and meaningful communications _____</p> <p>Number of written requests for communication _____</p> <p>Number of responses made _____</p> <p>Number of cutblocks where specific actions were requested ____ taken _____</p>

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Obj No.	Monitoring parameter	Monitoring results
30	Educational and research initiatives in the reporting period.	List involvement in educational and research initiatives: _____
31	Percent response to written communications related to forest operations Report the average timeline for response. <i>Data pool: FDP comments and response time during the reporting period.</i>	_____ Total number of communications related to FDP/FSP. _____ Number of written communications responded to. _____ Average timeline for response.
32	First Nations partnerships in the reporting period.	List partnerships with First Nations: _____
33	Survey responses coded 1 (poor), 2, 3 (satisfactory), 4, 5 (well done) Results of feedback form compiled and reported as part of annual monitoring program.	Response average ____ Results of feedback form compiled and reported ____ yes ____ no

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Obj No.	Monitoring parameter	Monitoring results
34	<p>Number of students involved with classroom visits in the reporting period.</p> <p>Number of individuals involved with forest tours in the reporting period.</p> <p>Number of people involved with public presentations in the reporting period.</p>	<p>_____ Number of students.</p> <p>_____ Number of classroom visits.</p> <p>_____ Number of individuals involved with forest tours.</p> <p>_____ Number of tours.</p> <p>_____ Number of people involved with public presentations.</p> <p>_____ Number of presentations</p>
35	<p>Web sites are being maintained and SFMP and other information was made publicly available in the last year.</p>	<p>_____ Yes/No</p>
36	<p>Percent of cutblocks retaining piles/ debris accumulations resulting from site preparation activities</p> <p>Data pool: <i>Cutblocks with mechanical site preparation that resulted in debris accumulations and post burn plan results. Preferred locations are within 50 metres from timber edge and riparian.</i></p>	<p>_____ Number of cutblocks where a portion of debris accumulations were retained (not burned)</p> <p>_____ Number of cutblocks where debris accumulations occurred.</p> <p>_____ Percent</p>

Appendix 4

Summary of Publicly Developed Values, Objectives and Indicators

Appendix 4: Summary of Publicly Developed Values, Objectives and Indicators

Criterion 1: Conservation of Biological Diversity

ELEMENT	VALUE	OBJECTIVE	INDICATOR
<p>1.1 Ecosystem Diversity</p> <p>Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that naturally occur in the DFA.</p>	<ul style="list-style-type: none"> • Healthy, productive, well-balanced ecosystem • Well functioning, ecologically diverse ecosystem • Abundance of connected and productive habitat (i.e. distribution across the landscape) 	<ul style="list-style-type: none"> • Maintenance of a full range of seral stage distribution • Maintain full range of habitat • Retention of vertical structure for stand level attributes 	<ol style="list-style-type: none"> 1. Representation of seral stage distribution by Natural Disturbance Type. 2. Incidents of harvesting in rare ecosystems <ul style="list-style-type: none"> -Non-compliance with the Identified Wildlife Management Strategy (IWMS) -Non-compliance with OSLRMP/ KBLUP strategies for identified wildlife. 3. Report on total area of clearcuts by size categories. 4. Riparian management areas (as per the FPC, FRPA and the approved OSLRMP/KBLUP) for wetlands, lakes and streams. 5. Percent of cutblocks requiring a site plan with associated wildlife tree retention (patches and/or individual trees) <ul style="list-style-type: none"> -Percent of harvested cutblocks that contain an average of 2-5 stubs or standing trees per hectare, given consideration to spatial distribution. 6. Percent of cutblocks where management of Coarse Woody Debris (CWD) is consistent with plans. 10. Protected Ecosystems 36. Percentage of cutblocks where coarse woody debris piling is necessary to achieve silviculture activities that a proportion was then retained in loose piles or windrows.
<p>1.2 Species Diversity</p> <p>Conserve species diversity by ensuring that habitats for the native species found in the DFA are maintained through time.</p>	<ul style="list-style-type: none"> • Sustainable populations of flora and fauna native to the DFA (including subspecies) and the abundance and distribution of species within their natural range of variation 	<ul style="list-style-type: none"> • Species native to the DFA are maintained at sustainable levels 	<ol style="list-style-type: none"> 1. Representation of seral stage distribution by Natural Disturbance Type. 2. Incidents of harvesting in rare ecosystems <ul style="list-style-type: none"> -Non-compliance with the Identified Wildlife Management Strategy (IWMS) -Non-compliance with OSLRMP/KBLUP strategies for identified wildlife. 4. Riparian management areas (as per the FPC, FRPA and the approved OSLRMP/KBLUP) for wetlands, lakes and streams. 7. Percent of harvested cutblocks having three or more tree species identified in the free growing inventory. 11. Amount of time for road cut and fill slope revegetation application (control of noxious weed). 20. Incidents of non-conformance with government direction on recovery plans for regionally significant species.

Appendix 4 – Summary of Publicly Developed Values, Objectives and Indicators

Criterion 1: Conservation of Biological Diversity

ELEMENT	VALUE	OBJECTIVE	INDICATOR
<p>1.3 Genetic Diversity</p> <p>Conserve genetic diversity by maintaining the variation of genes within species.</p>	<ul style="list-style-type: none"> • Diversity of genetic material within species • Adaptability to change <p>Sustainable populations of flora and fauna native to the DFA (including subspecies) and the abundance and distribution of species within their natural range of variation</p>	<ul style="list-style-type: none"> • Maintain genetic diversity of all species (and subspecies) native to the DFA 	<ol style="list-style-type: none"> 1. Representation of seral stage distribution by Natural Disturbance Type. 2. Incidents of harvesting in rare ecosystems <ul style="list-style-type: none"> -Non-compliance with the Identified Wildlife Management Strategy (IWMS) -Non-compliance with OSLRMP/KBLUP strategies for identified wildlife. 4. Riparian management areas (as per the FPC, FRPA and the approved OSLRMP/KBLUP) for wetlands, lakes and streams. 7. Percent of harvested cutblocks having three or more tree species identified in the free growing inventory. 9. Percent of planted area for the current planting year regenerated in accordance with seed transfer guidelines. 20. Incidents of non-conformance with government direction on recovery plans for regionally significant species.
<p>1.4 Protected Areas and Sites of Special Biological Significance</p> <p>Respect protected areas identified through government processes. Identify sites of special biological significance within the DFA and implement management strategies appropriate to their long-term maintenance.</p>	<ul style="list-style-type: none"> • Natural functioning ecosystems • Rare physical environments 	<ul style="list-style-type: none"> • Maintenance of representative natural, and known rare, functioning ecosystems 	<ol style="list-style-type: none"> 2. Incidents of harvesting in rare ecosystems <ul style="list-style-type: none"> -Non-compliance with the Identified Wildlife Management Strategy (IWMS) -Non-compliance with OSLRMP/KBLUP strategies for identified wildlife. 10. Protected Ecosystems

Appendix 4 – Summary of Publicly Developed Values, Objectives and Indicators

Criterion 2: Maintenance and Enhancement of Forest Ecosystem Condition and Productivity

ELEMENT	VALUE	OBJECTIVE	INDICATOR
<p>2.1 Forest Ecosystem Resilience</p> <p>Conserve ecosystem resilience by maintaining both ecosystem processes and ecosystem conditions.</p>	<ul style="list-style-type: none"> Resilient forest ecosystems 	<ul style="list-style-type: none"> Forest management system does not compromise ecosystem resilience 	<ol style="list-style-type: none"> Representation of seral stage distribution by Natural Disturbance Type. Incidents of harvesting in rare ecosystems <ul style="list-style-type: none"> -Non-compliance with the Identified Wildlife Management Strategy (IWMS) -Non-compliance with OSLRMP/ KBLUP strategies for identified wildlife. Report on total area of clearcuts by size categories Percent of harvest priorities related to forest health completed by date set out in strategies. Report on access management commitments contained in Forest Stewardship Plans (FSPs).
<p>2.2 Forest Ecosystem Productivity</p> <p>Conserve forest ecosystem productivity and productive capacity by maintaining ecosystem conditions that are capable of supporting naturally occurring species.</p>	<ul style="list-style-type: none"> Well-functioning, biologically productive forest ecosystems 	<ul style="list-style-type: none"> Forest ecosystems that support a full range of timber and non-timber values 	<ol style="list-style-type: none"> Forest age class distribution -Percent of cutblock area planned for planting is completed before or during the second complete growing season; <ul style="list-style-type: none"> -Percent of naturally regenerated cutblock area not meeting the natural regeneration delay. Percentage of cutblock area that meets free growing requirements on or before the latest date. Percent of cutblocks harvested in which soil disturbance exceeds level specified in plan.

Appendix 4 – Summary of Publicly Developed Values, Objectives and Indicators

Criterion 3: Conservation of Soil and Water Resources

ELEMENT	VALUE	OBJECTIVE	INDICATOR
<p>3.1 Soil Quality and Quantity</p> <p>Conserve soil resources by maintaining soil quality and quantity.</p>	<ul style="list-style-type: none"> • Soil health and productivity <ul style="list-style-type: none"> ▪ Biological ▪ Physical 	<ul style="list-style-type: none"> • Minimize physical and biological degradation of soil 	<p>11. Amount of time for road cut and fill slope revegetation application (control of noxious weed).</p> <p>12. Annual percent of opening areas in permanent access structures.</p> <p>14. Number of induced slides resulting from forest management activities (>.1 ha) originating in or adjacent to harvested areas or inspected roads.</p> <p>19. Percent of cutblocks harvested in which soil disturbance exceeds level specified in plan.</p> <p>21. Percent of permanent status roads that have had inspections completed as per plans.</p> <p>22. Percent of temporary status roads inspected at least once per year until road has been rehabilitated.</p> <p>23. Percent of the licensees' forest operations employees and primary contractors trained in Spill Preparedness and Response procedures.</p> <p>24. Number of legally reportable spills.</p>
<p>3.2 Water Quality and Quantity</p> <p>Conserve water resources by maintaining water quality and quantity.</p>	<ul style="list-style-type: none"> • Protection and security of the water resource 	<ul style="list-style-type: none"> • Stream flow regimes that provide levels of water quality and quantity within a natural range of variability • Retain natural systems that support water quality and quantity (e.g., beaver) • Protection of quality and quantity of water in licensed domestic watersheds 	<p>4. Riparian management areas (as per the FPC, FRPA and the approved OSLRMP/KBLUP) for wetlands, lakes and streams.</p> <p>11. Amount of time for road cut and fill slope revegetation application (control of noxious weed).</p> <p>13. Managing water quality</p> <p>14. Number of induced slides resulting from forest management activities (>.1 ha) originating in or adjacent to harvested areas or inspected roads.</p> <p>19. Percent of cutblocks harvested in which soil disturbance exceeds level specified in plan.</p> <p>21. Percent of permanent status roads that have had inspections completed as per plans.</p> <p>22. Percent of temporary status roads inspected at least once per year until road has been rehabilitated.</p> <p>23. Percent of the licensees' forest operations employees and primary contractors trained in Spill Preparedness and Response procedures.</p> <p>24. Number of legally reportable spills.</p>

Appendix 4 – Summary of Publicly Developed Values, Objectives and Indicators

Criterion 4: Forest Ecosystem Contributions to Global Ecological Cycles

ELEMENT	VALUE	OBJECTIVE	INDICATOR
<p>4.1 Carbon Uptake and Storage</p> <p>Maintain the processes that take carbon from the atmosphere and store it in forest ecosystems.</p>	<ul style="list-style-type: none"> Balanced, well-functioning ecological processes that support healthy, productive forest ecosystems 	<ul style="list-style-type: none"> Forest management activities are conducted in ways that maintain ecological processes 	<p>8. Forest age class distribution</p> <p>17. Percentage of cutblock area that meets free growing requirements on or before the latest date.</p> <p>25. Harvest level.</p>
<p>4.2 Forest Land Conversion</p> <p>Protect forestlands from deforestation or conversion to non-forests.</p>	<ul style="list-style-type: none"> Protection and security of forest land to ensure health of global ecological cycles 	<ul style="list-style-type: none"> Maintain healthy, productive forest land base 	<p>12. Annual percent of opening areas in permanent access structures.</p> <p>16. -Percent of cutblock area planned for planting is completed before or during the second complete growing season; -Percent of naturally regenerated cutblock area not meeting the natural regeneration delay.</p> <p>21. Percent of permanent status roads that have had inspections completed as per plans.</p> <p>22. Percent of temporary status roads inspected at least once per year until road has been rehabilitated.</p> <p>25. Harvest level.</p>

Appendix 4 – Summary of Publicly Developed Values, Objectives and Indicators

Criterion 5: Multiple Benefits to Society

ELEMENT	VALUE	OBJECTIVE	INDICATOR
<p>5.1 Timber and Non-Timber Benefits</p> <p>Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits.</p>	<ul style="list-style-type: none"> • Forests contribute to the quality of life 	<ul style="list-style-type: none"> • Opportunity and access to the forest resource for a variety of commercial and non-commercial uses 	<p>11. Amount of time for road cut and fill slope revegetation application (control of noxious weed).</p> <p>27. Level of compliance with preservation, retention and partial retention of visual quality objectives in Licensee plans.</p> <p>28. Report on:</p> <ul style="list-style-type: none"> -OSLRMP committee involvement -Number of Forest Stewardship Plan meetings attended -Number of stakeholder meetings attended. <p>30. Report educational and research initiatives</p> <p>31. Percent response to written communications received.</p>
<p>5.2 Communities and Sustainability</p> <p>Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and to participate in their use and management.</p>	<ul style="list-style-type: none"> • Sustained multiple benefits from our forests • Local public involvement 	<ul style="list-style-type: none"> • Opportunity and access to the forest resource for a variety of commercial and non-commercial uses • Affected and local interested parties have input into decisions 	<p>26. Report annual initiatives/partnerships.</p> <p>28. Report on:</p> <ul style="list-style-type: none"> -OSLRMP committee involvement -Number of Forest Stewardship Plan meetings attended -Number of stakeholder meetings attended. <p>32. Report annually on the number of First Nation partnerships.</p> <p>35. Public awareness of the SFMP</p>
<p>5.3 Fair Distribution of Benefits and Costs</p> <p>Promote the fair distribution of timber and non-timber benefits and costs.</p>	<ul style="list-style-type: none"> • Economic benefits to society 	<ul style="list-style-type: none"> • A prosperous forest industry with sustainable supply of timber and non-timber resources 	<p>25. Harvest level.</p> <p>26. Report annual initiatives/partnerships.</p>

Appendix 4 – Summary of Publicly Developed Values, Objectives and Indicators

Criterion 6: Accepting Society’s Responsibility for Sustainable Development

ELEMENT	VALUE	OBJECTIVE	INDICATOR
<p>6.1 Aboriginal and Treaty Rights</p> <p>Recognize and respect Aboriginal and treaty rights.</p>	<ul style="list-style-type: none"> • Respect for Aboriginal and treaty rights 	<ul style="list-style-type: none"> • Duly established Aboriginal and treaty rights considered in forest management planning and opportunities provided for meaningful participation by First Nations in forest management and planning 	<p>29. Incorporation of traditional knowledge, non-timber resources, and cultural and spiritual values in forest planning, where available.</p>
<p>6.2 Respect for Aboriginal Forest Values, Knowledge, and Uses</p> <p>Respect traditional Aboriginal forest values and uses identified through the Aboriginal input process.</p>	<ul style="list-style-type: none"> • Respect for the special and unique needs of Aboriginal peoples 	<ul style="list-style-type: none"> • Participation by First Nations in forest management and planning to ensure that the special and unique needs of Aboriginal peoples are respected and accommodated in forest management decisions 	<p>28. Report on:</p> <ul style="list-style-type: none"> -OSLRMP committee involvement -Number of Forest Stewardship Plan meetings attended -Number of stakeholder meetings attended. <p>29. Incorporation of traditional knowledge, non-timber resources, and cultural and spiritual values in forest planning, where available.</p> <p>32. Report annually on the number of First Nation partnerships.</p>

Criterion 6: Accepting Society’s Responsibility for Sustainable Development

ELEMENT	VALUE	OBJECTIVE	INDICATOR
<p>6.3 Public Participation</p> <p>Demonstrate that the SFM public participation process is designed and functioning to the satisfaction of the participants.</p>	<ul style="list-style-type: none"> • Awareness of what is going on (knowledge/information) • Ability to influence • Participate in decision making 	<ul style="list-style-type: none"> • Public values are incorporated in decision-making processes and fairly considered in development and maintenance of the SFM Plan • Implementation of the SFM Plan will influence forest management outcomes 	<p>33. An effective Public Advisory Group</p> <p>35. Public awareness of the SFMP</p>
<p>6.4 Information for Decision-Making</p> <p>Provide relevant information to interested parties to support their involvement in the public participation process, and increase knowledge of ecosystem processes and human interactions with forest ecosystems.</p>	<ul style="list-style-type: none"> • Shared knowledge and informed decisions 	<ul style="list-style-type: none"> • Adaptive forest management that is responsive to research, experience and public input 	<p>28. Report on:</p> <ul style="list-style-type: none"> -OSLRMP committee involvement -Number of Forest Stewardship Plan meetings attended -Number of stakeholder meetings attended <p>30. Report educational and research initiatives.</p> <p>33. An effective Public Advisory Group</p> <p>34. Educational forums</p> <p>35. Public awareness of the SFMP</p>

Appendix 5

SFM Plan Terms of Reference

Weyerhaeuser Tolko Gorman Bros. BCTS Okanagan Sustainable Forest Management Plan

SFM Advisory Group Terms of Reference and Procedures

September 19, 2000
Revised, December 7, 2006

Introduction

The purpose of the Terms of Reference and Procedures is to define the goals, tasks, roles and procedures that will guide the development of the Weyerhaeuser, Tolko and Gorman Bros.²⁰ Okanagan Sustainable Forest Management (SFM) Plan. The SFM Plan will be developed based on the Canadian Standards Association (CSA) Standard CAN/CSA-Z809, and will be applied to the participating licensees' operating area within the Arrow-Boundary and Okanagan Shuswap Forest Districts.

The Terms of Reference and Procedures include the following sections:

- Goals
- Operating guidelines
- Conflict of interest
- Timelines
- Roles and responsibilities
- Resources
- Decision-making process
- Information
- Communication
- Changes to the process.

Goals

The goals of the process are to:

- Develop a SFM plan in accordance with the CSA guidelines
- Develop procedures for the Advisory Group to monitor the effectiveness of the SFM Plan. Provide ongoing public input into the implementation, monitoring and continual improvement of the SFM Plan.

²⁰ Also referred to as "Participating licensees"

Operating Guidelines

The SFM Plan will be maintained by Weyerhaeuser, Tolko and Gorman Bros. based on advice and recommendations provided by the SFM Advisory Group. The SFM Advisory Group will include a cross-section of participants with varying interests and backgrounds. Participants in the process will:

- contribute to the development of the SFM Plan
- attend meetings on a regular basis
- consider the views of others in developing recommendations
- act in “good faith” in all aspects of the process
- aim to reach decisions on the basis of consensus
- support an open and transparent process in both the development and implementation of the SFM Plan.

Meetings of the SFM Advisory Group will be open to the general public.

The SFM Plan for participating licensees’ operating areas will comply with all existing legislation and regulations and will be consistent with the strategic direction and intent of the Okanagan-Shuswap LRMP and the Kootenay-Boundary Regional Land Use Plan.

Sustainable ecosystem management will be characterized by resource management practices that are ecologically sound, scientifically based, socially and culturally responsible, and recognize and respect First Nations interests.

Conflict of Interest

Advisory group members will declare any possible or perceived conflict of interest pertaining to a specific discussion topic, should the situation arise. In such cases, the advisory group will decide on the members’ level of involvement relative to the specific topic matter.

Timelines

The SFM Advisory Group will be engaged to review annual progress on performance measures with a goal of continual improvement of the SFM Plan.

Roles and Responsibilities

Active Members of the Public Advisory Group (PAG)

Active members of the PAG commit to regular attendance to, and participation in, Advisory Group meetings and field trips. Active members receive all PAG information and communication including the most recent SFM Plan and Monitoring Report, draft agendas, meeting summaries, information of interest, and invitations for additional participation (audits,

special non PAG meetings, and information sessions). A list of active members, including contact information, is maintained.

Partial Participants of the Public Advisory Group

Partial participants are those that are interested in the SFM Plan process but have decided they cannot fully commit the time and effort required to be an active member of the Advisory Group. Partial participants receive the most recent SFM Plan and Monitoring Report. Included with this correspondence is an invitation, and encouragement, to more fully participate as an active member of the Advisory Group. Any additional Advisory Group communication is available to partial participants on request. A list of partial participants, including contact information, is maintained.

SFM Advisory Group Functioning

Participation in the SFM Advisory Group is open to all interested members of the public. First Nation participation in the advisory group is valued and will be encouraged. Government participation and support is valued, particularly in the capacity of technical advisor on how the SFM Plan aligns with legislation, policy and government direction. Public members agree to participate in the advisory group as an individual member of the public and not as a representative of any interest group. A record of attendance will be included as part of each meeting summary.

The roles and responsibilities of participants in the process are to assist the participating licensees in their development of the SFM Plan by:

- expressing local values that relate to the Canadian Council of Forest Ministers (CCFM) SFM criteria and critical elements
- setting objectives that describe a desired future state or condition for each value
- developing indicators to be used to assess progress in meeting goals
- setting targets related to each indicator that will provide a clear, specific statement of expected results
- developing procedures for monitoring the effectiveness of the SFM plan including annual meetings of the SFM Advisory Group to review results of performance measures and the outcomes of any CSA audits.

The long-standing rights and interests of First Nations will be considered in the development of the SFM Plan.

The participating licensees will engage an independent facilitator who is knowledgeable about the CSA certification process to assist the SFM Advisory Group in its work. The role of the facilitator will be to:

- facilitate advisory group meetings
- prepare agendas and summaries for meetings
- prepare a work plan and time table for the process
- assist participants in developing recommendations for the SFM Plan.

Resources

Public participants traveling to attend meetings will be reimbursed at a rate equivalent to the provincial government Group I rate.

Expenses incurred in the development of this Plan will be the responsibility of the participating licensees.

Decision-making Process

Participants in the process will aim to reach decisions on the basis of consensus. Consensus is defined as "agreement by all participants on a recommendation related to the SFM Plan process or on the final SFM Plan".

In negotiating to reach consensus, participants agree to:

- negotiate in good faith
- state concerns openly and directly and as interests rather than positions²¹
- listen carefully, ask questions and educate themselves regarding the interests of others
- share relevant information.

When consensus is reached, a written record of the agreement will be recorded in the meeting summary.

If consensus is not achieved, the facilitator will assist the participants in resolving their differences using the "Dynamic Round Table Dialogues" (Appendix to the TOR) as a guide. If consensus is still not achieved, participants will agree to disagree and the options defined in the negotiation process will be recorded in the meeting summary. The participating licensees will consider all options in development of the final SFM plan and will provide a written explanation for decisions taken where consensus was not achieved.

The participating licensees will consider consensus recommendations of the SFM Advisory Group as advice to guide the development of the SFM Plan. In the event that the participating licensees decide not to accept a consensus recommendation of the SFM Advisory Group, a written explanation for this decision will be included in the SFM Plan process documents.

Consensus will not be required for housekeeping items such as scheduling meeting dates and locations.

²¹ Interests are defined as the needs, wants, fears and concerns that are connected to an issue. Positions are defined as a predetermined solution to a problem without consideration for the interests of others.

Information

The SFM Plan process will be supported by relevant information including the CSA SFM guidelines and supporting reference documents, examples of other British Columbia-based SFM Plans, and other technical information as required. Where desired by the advisory group the participating licensees will seek to provide internal or external experts to gain a better understanding of a particular issue.

Communication

Agendas and meeting summaries will be prepared for each meeting. These materials will be distributed to members of the SFM Advisory Group and as requested, to other interested members of the public. Revised SFM Plans and Annual Monitoring Reports will be shared with advisory group members and with a wider audience of individuals who have expressed some level of interest in the public process. The Plans and Reports will also be shared with all affected First Nation communities.

Changes to the Process

The Terms of Reference and Procedures for the SFM Plan process may be changed at any time during the process in accordance with the decision-making process described in section 8 above.

By Juergen and Marilyn Hansen, Summerland

During the last ten years, there has been a major discussion in Canada and the USA about participatory ways of resolving environmental conflicts and designing better policies. Part of this change has been a move away from the mediated negotiation format (such as in the LRMPs) to a collaborative facilitated round table system. The new "dynamic round tables" are advisory to a convenor (government; corporation; or NGO) who initiates the tables which are based on:

- 1) A collaborative dialogue which encourages the stakeholders to work together, with a focus on developing and examining all sustainability policy options and selecting the best;
- 2) Dialogue support from a neutral facilitator who does not take part in the discussions but leads the stakeholders through a thinking and negotiation process which gives each participant a chance to understand and respect the needs of the other participants and to go through a very personal transition from defending pre-conceived positions to contributing to common goals.
- 3) Six consensual dialogue steps (vision; agenda; analysis; brainstorming for options; options' evaluation; decision and implementation). These steps allow the stakeholders to become fully informed and to contribute, as equals, to an in-depth discussion of the group's vision and goals. They also hand the power for decision-making and recording to the participants and a scribe.
- 4) A table composition that is fair (equal numbers of representatives! Native interests included) to the three major sectors (economy; environment; social equity) that contribute to sustainability planning and policies.
- 5) A table structure that assigns separate roles to the stakeholders/participants; the facilitator and scribe; the chair and the convenor. This structure serves to makes the table independent.

These five changes define the difference between the mediated and facilitated formats. They form the basis for our new "dynamic round table" concept which provides an ideal method for fast, respectful and environmentally sensitive decision-making. It encourages (and forces) the individual participants to:

- a) look at the negotiations as a collaborative planning effort rather than conflict resolution, and
- b) go through an individual transition process from supporting pre-conceived bargaining goals to collaborating toward the common goal, and
- c) use their creativity to develop and evaluate the range of possible options (steps 4 and 5)
- d) integrate their values and priorities into a coherent whole, the new public policy or plan, that serves the needs of all participants, and
- e) select a final policy option that best protects the individual values and the public interest, and
- f) write a clear consensus-based policy recommendation or action plan for the convenor who is responsible for implementation, and
- g) commit to the dynamic process and publicly support the final policy recommendation.

These seven changes were needed to enable the table to integrate industrial and development interests with environmental protection. Field tests have shown that the process is robust, fast and user-friendly. The "dynamic round table" concept will be published in book form in 2005.