

September 2000



Western Forest Products Limited

Tree Farm Licence 19

Nootka Sound – Vancouver Island

Sustainable Forest Management Plan

DRAFT MANAGEMENT PLAN 9

August 1, 2001 To July 31, 2005



Doman – Western Lumber Ltd.

TFL 19 Management Plan Preparation Component and Timeline Summary

Months Prior to MP Expiry	Component (Condition number from generic TFL dated August 27, 1999)	Date
20	RM provides MP 8 review & guidelines (2.03)	Nov. 30, 1999
18	Timber Supply Forester may provide timber supply information requirements (2.05[g])	Jan. 31, 2000
16	Licensee submits IP to TSF (2.04) Licensee submits DMP 9 to RM (2.08) and refers and advertises DMP 9 (2.12)	Mar. 31, 2000
13	TSF accepts IP (2.06) or does not accept IP (2.07) RM provides comments on DMP to Licensee (2.16)	June 30, 2000
12	Licensee submits copy of notice, comments and proposals regarding DMP (2.17)	July 31, 2000
10	Licensee submits TYP to DM (2.18) and Analysis to TSF (2.22)	Sept. 30, 2000
7	DM accepts TYP (2.20) or does not accept TYP (2.21) TSF accepts Analysis (2.24) or does not accept Analysis (2.25)	Dec. 31, 2000
4	Licensee submits PMP to CF (2.26)	Mar. 31, 2001
2	CF approves PMP 9 (2.28) or does not approve PMP (2.31)	May 31, 2001
0	Expiry of current MP 8	July 31, 2001

TYP – 20-Year Plan

PMP – Proposed Management Plan

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1.0 INTRODUCTION

1.1 Purpose

The Tree Farm Licence (TFL) agreement requires the Licensee to submit for Ministry of Forests (MoF) approval a Management Plan every five years. The Management Plan provides objectives, goals and strategies to guide management activities over the next five years. The Management Plan and associated Timber Supply Analysis are used by the MoF Chief Forester to determine the Allowable Annual Cut (AAC) for TFL 19. The Management Plan provides direction for the preparation of operational plans. The Plan is focused on results and outcomes so that the Licensee, Doman-Western Lumber Ltd. can evaluate performance and continuously improve on management practices. The Plan contains measurable parameters in the form of indicators that will enable the achievement of sustainable forest management objectives for the period August 1, 2001 to July 31, 2006.

1.2 Description of the TFL

The Tahsis Tree Farm Licence 19 (TFL 19) is located on the west side of Vancouver Island in the vicinity of Nootka Sound (Figure 1). It is 80 kilometres due west of Campbell River. The total area of the TFL is approximately 191,992 hectares of which 189,738 hectares are Crown land including timber licences and 2,254 hectares are fee simple lands owned or controlled by the Licensee. A detailed summary of the TFL land status can be found in Table 1. Figure 2 shows the tenures associated with TFL 19. The fee simple (private) lands and lands controlled by the licensee are encompassed in Managed Forest (MF) 20. Maps and area summary for MF 20 are found in Appendix V. The eastern boundary abuts onto Strathcona Provincial Park, while to the west it borders Tahsis Inlet and Nootka Island. The western boundary has a diverse shoreline by virtue of several inlets (Espinosa, Zeballos, Tahsis, Tlupana, Muchalaht), which dissect the coastal landscape.

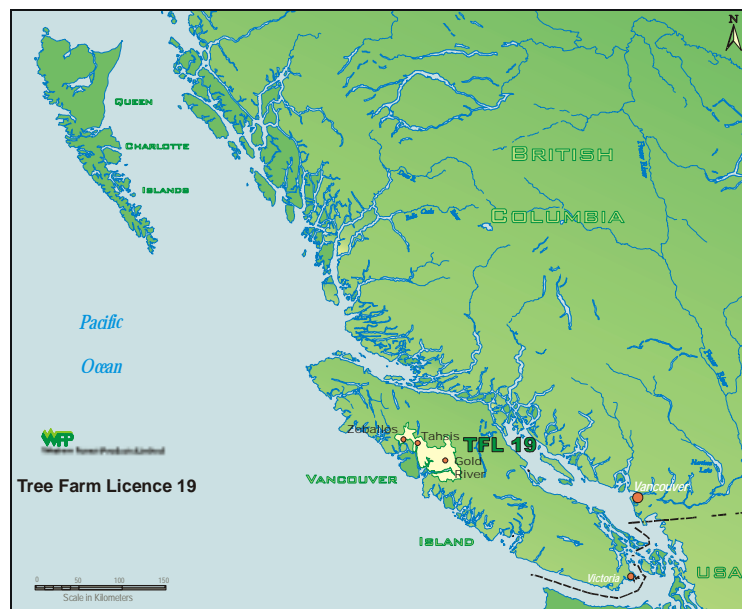


Figure 1 – TFL 19

Table 1 – TFL Landbase Status

Classification	Area (ha)			Mature Volume (m³)		
	Schedule A	Schedule B	Total	Schedule A	Schedule B	Total
Total Area	6,674.4	185,317.3	191,991.7	2,120,821.2	48,949,951.3	51,070,772.5
Less: Non-Forest	350.8	35,845.8	36,196.6	0	0	0
Less: Non-Productive Forest	37.3	7,580.4	7,617.7	2,319.8	507,070.4	509,390.2
Total Productive Forest	6,286.3	141,891.1	148,177.4	2,118,501.4	48,442,880.9	50,561,382.3
Less Reductions to Total Productive Forest:						
Non-Commercial (NP Br)	4.0	20.9	24.9	0	0	0
Riparian Reserves	309.0	3,663.2	3,972.2	142,089.2	1,310,022.2	1,452,111.4
Inoperable / Inaccessible (I, Oce, Ohe)	1,090.3	43,973.7	45,064.0	485,086.1	17,028,760.9	17,513,847
Wildlife Habitat Reserves (e.g. UWR, WHA)	260.8	2,174.5	2,435.3	225,700.4	1,505,040.2	1,730,740.6
Unclassified Roads, Trails and Landings	87.8	1,397.9	1,485.7	6,273.0	154,789.7	161,062.7
Total Reductions to Productive Forest	1,751.9	51,230.2	52,982.1	859,148.7	19,998,613.0	20,857,761.7
Less: Volume Reductions						
Total Reduced Land Base	4,534.4	90,660.9	95,195.3	1,254,054.8	28,444,267.9	29,698,322.7
Less: Not Sufficiently Restocked Areas	151.1	3,094.0	3,245.1	0	0	0
Add: Not Sufficiently Restocked Areas	151.1	3,094.0	3,245.1	0	0	0
Timber Harvesting Land Base	4,534.4	90,660.9	95,195.3	1,254,054.8	28,444,267.9	29,698,322.7
Less: Future Roads, Trails and Landings	27.7	942.6	970.3	12,722.6	404,451.1	417,173.8
Total Long Term Land Base	4,506.7	89,718.3	94,225.0	1,241,332.2	28,039,816.8	29,281,148.9

The topography is mountainous and steep with massive limestone outcrops and formations dominating the landscape. The licence area is drained by numerous rivers and streams. Most streams support significant anadromous fish populations. Large animals, notably Roosevelt elk, Columbia black-tailed deer, cougars and black bears are abundant throughout the licence area. Numerous other large and small animals, reptiles, amphibians, fish and birds can also be found.

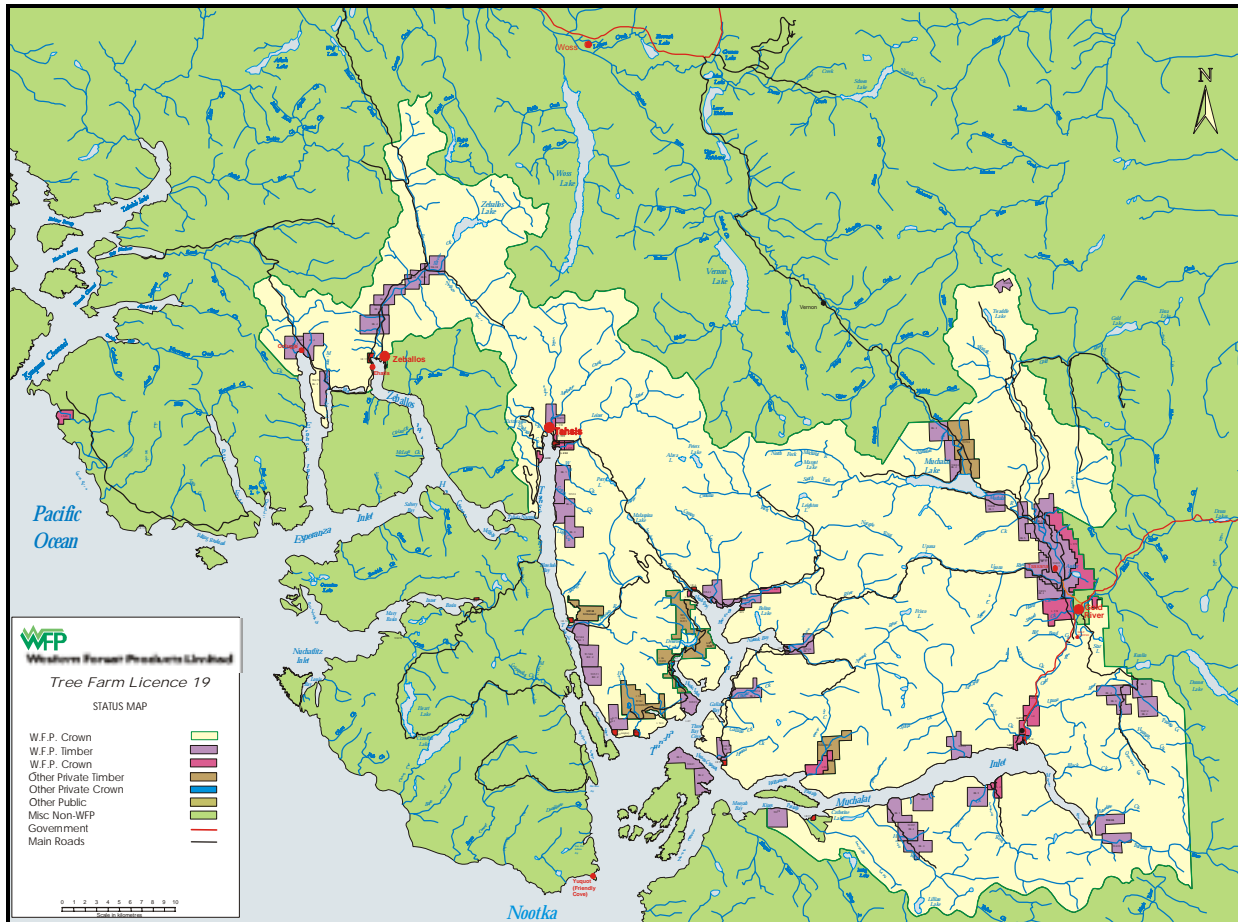


Figure 2 – Status Map

The forests of TFL 19 lie within the wetter maritime coastal western hemlock biogeoclimatic zone. Annual precipitation levels reach 3,000 to 5,000 mm. The climate is characterized by short winters with intermittent wet snow storms. The summer period from July to September can be dry and hot. The dominant timber species is western hemlock, which occurs in conifer stands mixed with varying amounts of amabilis fir, western red cedar and Douglas fir. Lesser amounts of Sitka spruce, yellow cedar and mountain hemlock also occur.

There are six communities within the licence area. Their livelihood and stability depends mostly or in part on the economic activities generated in the Nootka Sound region. These are the communities of Gold River, Tsaxana (Mowachaht-Muchalaht First Nation), Tahsis, Zeballos, Ehatis (Ehattlesaht First Nation) and Oclugjie (Nuchatlaht First Nation) as noted on Figure 3. WFP harvesting operations in TFL 19 and adjacent forest and timber licences, and the associated manufacturing facility in Tahsis, are the major employment activities in Nootka Sound. There is also some economic activity from fish farming, commercial and recreational fishing and expanding ecotourism.

Gold River is connected to Campbell River by Highway 28. Tahsis is accessed by an all weather gravel road from Gold River. Zeballos is served by a gravel road connected to Highway 19 north of Woss.

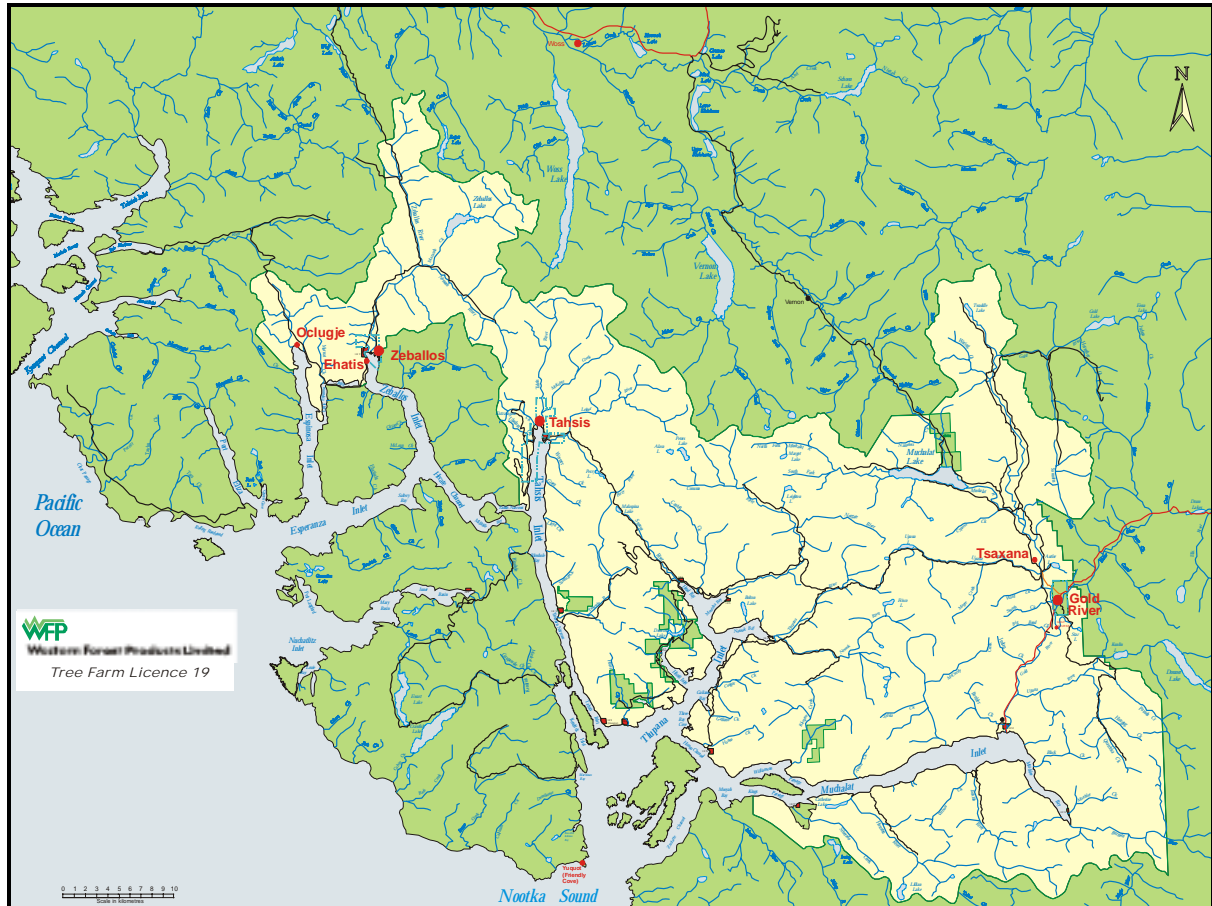


Figure 3 – Communities

1.3 History and Progress

TFL 19 is held by Doman-Western Lumber Ltd. and managed by Western Forest Products Limited (WFP). Doman-Western Lumber Ltd. was formed in December 1997 when Doman Industries Limited acquired the Crown assets of Pacific Forest Products Limited.

The original licence was granted to a predecessor, Tahsis Company Limited as the Tahsis Forest Management Licence 19 on December 23, 1954. Appendix I lists amendments to the licence agreement that have occurred since 1954. Now in its fifth decade of operation, WFP and predecessors have responsibly managed the license for its long-term sustainability. WFP is proud of the efforts of our employees and contractors in helping to sustain this important employment and crown revenue generating TFL.

The following accomplishments indicate the licensee's willingness and ability to manage more than 191,992 hectares of lands and forests in Tree Farm License 19 in a spirit of cooperation with government agencies, its employees and the public.

Timber Harvesting

- Over the last 48 years the licensee has harvested 95% of the available Allowable Annual Cut and has been at all times in compliance with the cut control regulations.
- Harvesting across the timber profile has been maintained.
- Non-conventional harvesting techniques such as skyline and helicopter logging have been utilized.
- Compliance with contracting regulations has always been met.

Small Business Forest Enterprise Program

In 1988, the Forest Act was amended and TFL volume was removed from TFL licensee control for a competitive small business logging program within major forest tenures. The program was allocated an annual volume of 45,868 m³ from the AAC of TFL 19. The Campbell River Forest District manager is responsible for administering the program. Operating areas for the small business program are identified and are located in several drainages. The majority of small business wood is sold through value added bid proposal timber sale licenses.

Basic Silviculture

- Reforestation has kept pace with harvesting since the TFL was granted in 1954.
- The licensee has logged just over 36,600 ha. Planting (including fill in planting) has occurred on 40,583 ha. More than 26,655,000 seedlings of 11 different species have been planted.
- Tree improvement programs for Douglas Fir, western hemlock and Sitka spruce began in 1959, 1966 and 1969 respectively. Today all of the Douglas fir and 80% of the western hemlock seedlings planted are grown from genetically improved seeds. No genetically modified seed or trees are utilized for reforestation on the TFL.
- The Company maintains an active tree improvement program at its Saanich Forestry Centre along with a 3 million tree seedling forest nursery.
- There is currently no backlog of not satisfactorily restocked (NSR) area on the TFL.
- Appendix III provides a history of silviculture projects completed.

Enhanced Silviculture

- More than 8,800 ha of second growth have been juvenile spaced since 1954.
- More than 4,500 ha have been fertilized.
- 428 ha have been pruned since 1987.

First Nations

- First Nations consultation for planning, harvesting and silviculture activities is in place.
- The development of silviculture work capability has been supported by coordinating training and the direct award of silviculture contracts for spacing, pruning, brushing and creek cleaning to members of the Mowachaht/Muchalaht First Nation and the Ehattesaht First Nation.
- The licensee remains committed to continue developing First Nations capacity in forest management and timber harvesting.
- A full time First Nations liaison representative is on licensee staff and consultation on forest harvesting is undertaken in conjunction with Forest Development Plans.
- A Memorandum of Understanding is in place with the three Bands whose territory covers the TFL in respect of silviculture contracting and FRBC projects.

Communities and Employment

- Forestry and manufacturing jobs related to the TFL 19 timber harvest are critically important to the communities of Gold River, Tahsis and Zeballos. Secondary jobs are also maintained in Campbell River and Courtenay as well other Vancouver Island and south mainland coast communities. In 1998, 627 direct person years of employment were created by the TFL 19 harvest. Poor markets and high inventories in 1998 resulted in the licensee achieving only 58% of the AAC. Doman Industries' sawmills also experienced significant down time in 1998 and 1999. The Tahsis sawmill was among the most adversely affected. Consequently, the current person days of employment are lower than historical averages. In 1999, 630 direct person years of employment were created and 60% of the AAC was achieved.
- The Licensee has been a long time supporter of Nootka Sound communities. Open Houses are held each year to present logging and silvicultural plans. Company staff are active on community boards and in local government.

Recreation

- WFP maintains 19 trails and recreation sites on both private and public land within the TFL. Many of the sites are managed cooperatively with the Ministry of Forests. In 1999 there were more than 64,000 person-days of recreational use at these sites.
- Staff participated in a FRBC study prepared by the Nootka Sound Economic Development Corporation titled, "Nootka Sound Forest Recreation and Tourism Opportunities Study".
- Each year hundreds of TFL visitors participate in guided tours to view harvesting and forestry activities.
- A recreation analysis in TFL 19 has been completed to guide future recreation developments. The recreation inventory and analysis has been updated for MP 9.

Research

- The Company maintains several tree improvement and reforestation research sites (Appendix VIII) throughout TFL 19. These are maintained in cooperation with the BC Forest Service (BCFS) and the Canadian Forestry Service (CFS).
- WFP also provides sites to the Forest Engineering Research Institute of Canada (FERIC) and BCFS for various harvesting and road building trials.
- The licensee established the Saanich Forestry Centre in 1964 to provide genetically improved planting stock for reforestation. Seed orchards for western hemlock, western red cedar and Sitka spruce are maintained. Yellow cedar hedges are also maintained for steckling production. WFP is a member of the Northwest Hemlock Tree Improvement Cooperative Program (HEMTIC).

Biodiversity

- WFP has worked with government over the last three years in establishing Landscape Unit boundaries and draft biodiversity emphasis options within the TFL.
- Detailed analysis of current seral stage distribution within the TFL has been completed to determine the amount and biological significance of old growth remaining in the TFL.
- WFP is committed to working with government and stakeholders to complete biodiversity planning as part of the Landscape Unit Planning process over the next three years.

1.4 Licence Holder and Administration

Doman-Western Limber Ltd. is a wholly owned subsidiary of Doman Industries Limited (Doman). Doman is a coastal B.C. forest products company involved in timber harvesting, saw milling, value-added lumber remanufacturing, dissolving sulphite pulp production and kraft pulp production. Doman's nine saw mills have an annual lumber production capacity of 1.1 billion board feet of lumber. Major markets include the U.S.A., Japan and Europe. Doman also owns one sulphite pulp mill at Port Alice which has an annual production capacity of 160,000 air dried metric tonnes (ADMT). Doman has a kraft pulp mill at Woodfibre with an annual production capacity of 240 ADMT. Major markets for pulp include North America, Europe and the Far East.

Western Forest Products Limited is responsible for timber harvesting and reforestation on approximately 885,000 ha of Crown and private forest lands located in coastal British Columbia. WFP has an annual timber harvest of approximately 4.2 million cubic meters under its tenures, which include three Tree Farm Licenses, seven Forest Licenses, 5 Managed Forests and numerous Timber Licenses. The Company's AAC together with log trading and other log supply agreements provides for approximately 85% of the fibre requirements for the Company's manufacturing plants.

WFP's Forest operations are organized into three regions. Northern Vancouver Island Region, with a regional office in Port McNeill, administers harvesting and reforestation activities in the north end of Vancouver Island. Mainland/Islands Region, with a regional office in Campbell River, administers harvesting and reforestation activities in numerous north and central coast operations as well as operations on the Queen Charlotte Islands, southern Vancouver Island and the lower mainland coast. Nootka Region, with a regional office in Gold River, administers harvesting and reforestation activities on the central, west coast of Vancouver Island. WFP's corporate head office is located in Vancouver. Appendix XVIII contains a copy of the Corporate Annual Statutory Report for 1999.

2.0 SUSTAINABLE FOREST MANAGEMENT PRINCIPLES

2.1 Sustainable Forest Management Policy

WFP's forest management is guided by three overarching principles. These are:

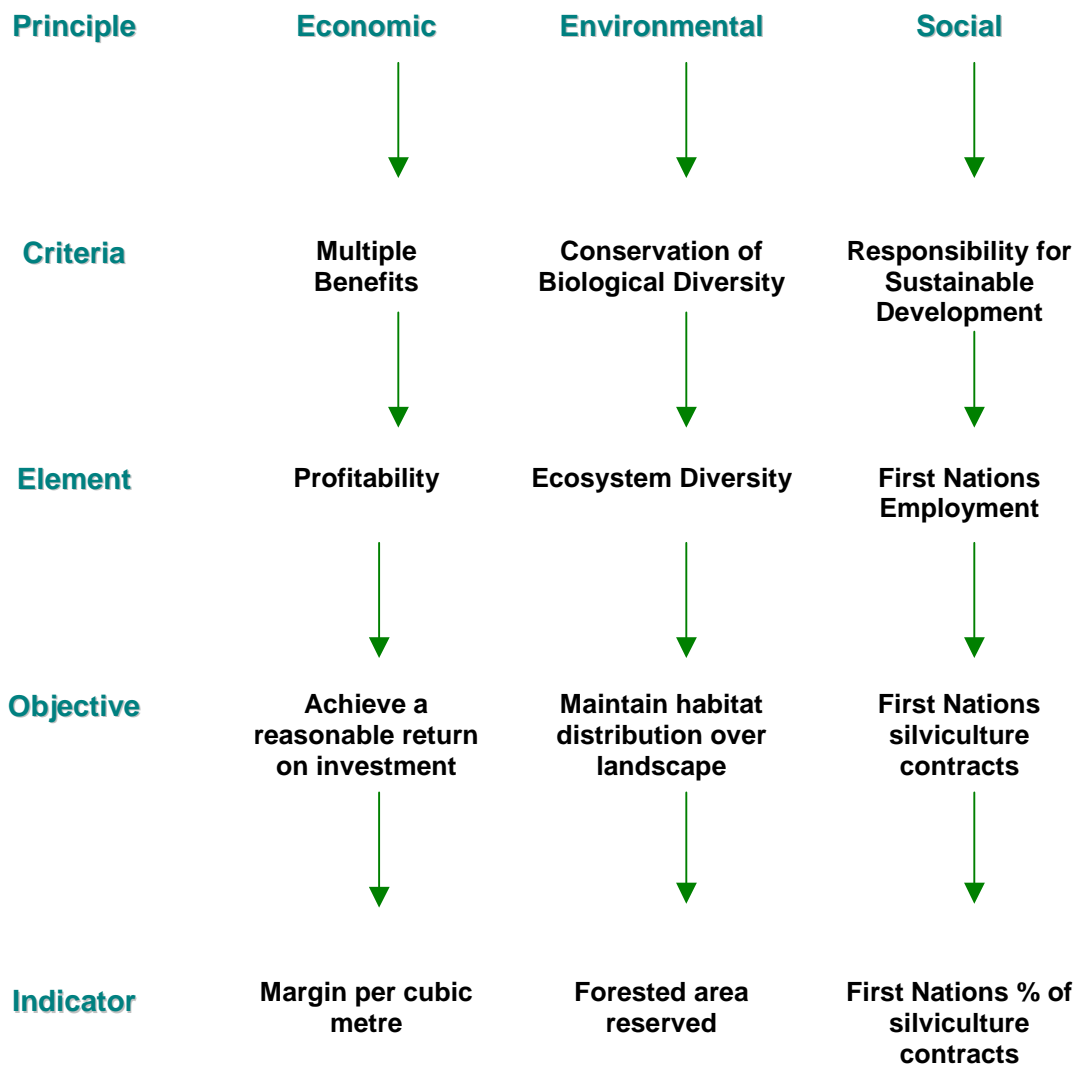
- our operations must be economically viable. Our company must operate in a financially successful manner to meet shareholders expectations of a fair return on investment and to meet social and environmental commitments;
- our actions must be socially beneficial to local, regional and First Nations communities. WFP is committed to respecting, understanding and supporting First Nations, community and employee aspirations for stability and certainty;
- our activities must be environmentally appropriate. WFP is committed to the protection of the environment and the sustainable development of the resources under our stewardship through sound forestry and environmental management practices that meet or exceed government standards.
- Under these principles, our company is committed to:
 - Sustaining, enhancing and protecting forest ecosystems while providing economic, environmental, social and cultural benefits
 - Proposing and implementing allowable annual cuts that reflect forest ecosystems' capacity and sustainability as well as social and economic considerations
 - Identifying and assessing measurable indicators of sustainable forestry
 - Performing regular, internal and external monitoring for compliance with forest practices legislation
 - Committing to compliance achievements that meet or exceed legal requirements and public expectations
 - Utilizing forest practices appropriate to maintaining economic, social and environmental objectives
 - Planning for the long-term in an integrated manner to incorporate the full range of forest values including soil, water, fish and wildlife, archaeological, scenic resources and biological diversity
 - Investigating and researching habitat needs of fish and wildlife species and populations and establishing benchmarks for monitoring rare, threatened and endangered species
 - Maintaining and/or supporting active salmonid enhancement programs to sustain or increase salmonid populations through hatchery and habitat restoration programs
 - Maintaining biological diversity and conservation objectives at regional, landscape and stand levels.
 - Implementing restoration programs to address issues arising from past practices
 - Promoting a representative protected areas system within and adjacent to company forest tenures
 - Maintaining a practical, registered management system to guide and direct environmental aspects of company operations

- Maintaining soil productivity by harvesting with environmentally appropriate systems
- Engaging a team of dedicated professional foresters and planners committed to implementing and practicing sustainable forest management
- Achieving a fair return to shareholders by operating in a financially successful manner
- Continually enhancing our ability to plan and manage by promoting applied research and using leading edge inventory and modeling systems.
- Promptly regenerating all areas after harvest with ecologically appropriate species to maintain and enhance forest growth
- Undertaking silviculture practices to enhance the value and volume of young forest stands.
- Managing operations to safeguard the health and safety of employees, contractors and the public
- Involving the public and stakeholders in meaningful consultation on all aspects of our forest management
- Respecting and recognizing First Nations traditional territories through consultation and involvement in forest development planning
- Providing for First Nations' participation in setting and achieving sustainable forest management objectives
- Establishing employment opportunities through cooperative ventures with First Nations to increase the benefits of our operations to their economic and social well being
- Supporting the fair and affordable settlement of aboriginal land claims through negotiated treaties with involvement of all stakeholders
- Ensuring the health and sustainability of associated, resource-dependent communities.
- Cooperating and consulting with community resource boards and stakeholder groups with mandates for resource management planning and implementation
- Maintaining and enhancing opportunities for public enjoyment of forests through open road policies, recreation site development and management
- Developing our human resources through continuous training and recognition of employee contributions
- Communicating our performance to stakeholders and the public on a regular basis

2.2 Linking WFP's Sustainable Forest Management Principles to Criteria and Indicators

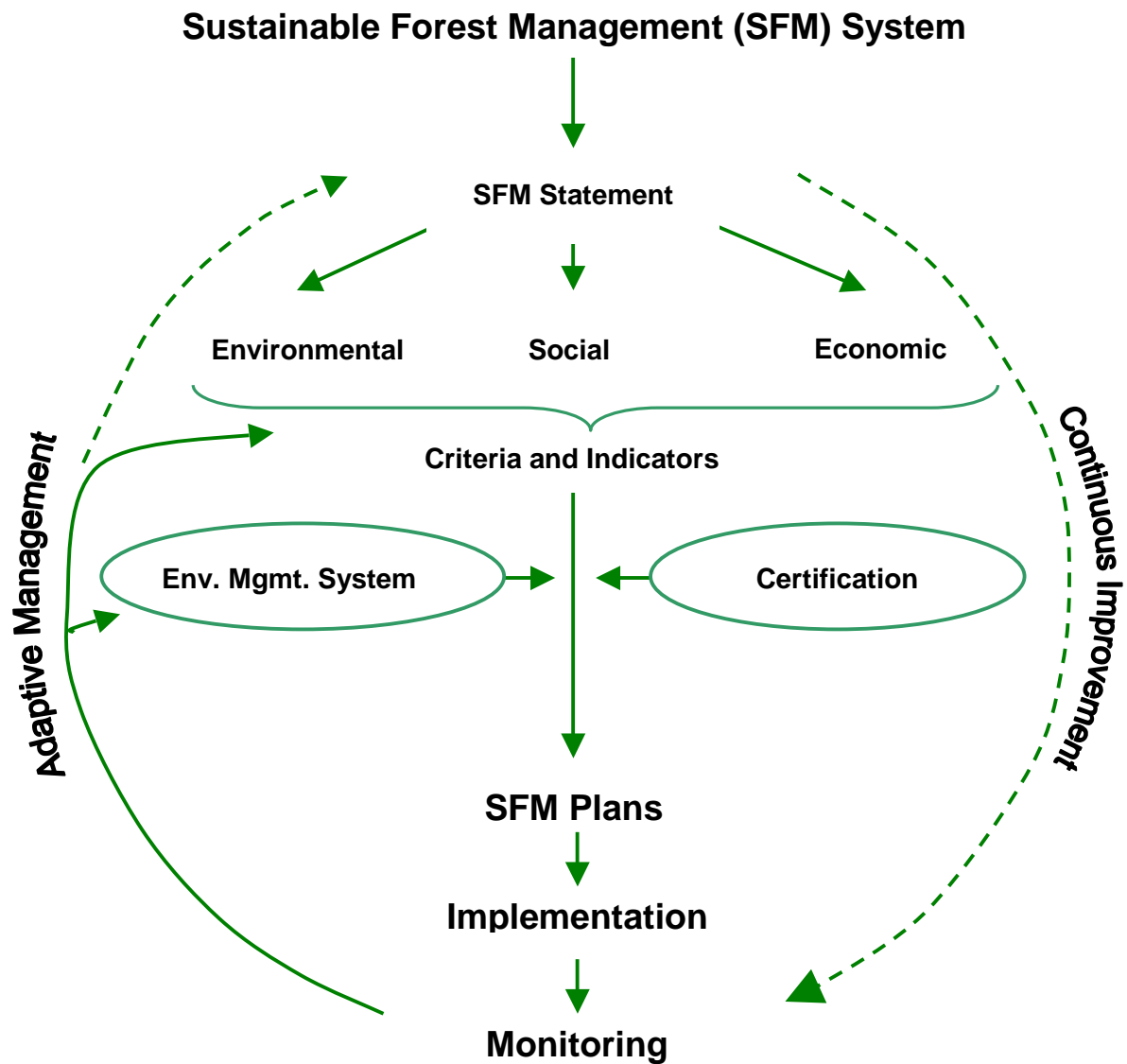
2.2.1 Hierarchy of SFM Levels

WFP's forest tenure Management Plans have been developed to implement in an effective manner the company's sustainable forest management (SFM) program and ensure compatibility with the various forest certification schemes available to the licensee. The plan focuses on three main principles followed by a series of increasingly specific Criteria, Element, Objective and Indicators. The following chart illustrates the concept using specific examples that are used to monitor the effectiveness of meeting identified Principles, Criteria and Indicators.



2.2.2 Sustainable Forest Management SFM system

Sustainable Forest Management is WFP's commitment, as stated in its policies, management plans and supported by our Environmental Management System and forest certification efforts. Criteria and Indicators are identified and monitored through audits and annual reporting. Results drive an adaptive management approach based on continuous improvement. The following illustration below outlines the systems.



2.3 WFP's Forest Certification Initiatives

The stewardship principles are essential components in the Company's objective to be certified under the Forest Stewardship Council Principles and Criteria (FSC), Canada's National Sustainable Forest Management System Standard, CAN/CSA-Z809-96 (CSA) and ISO 14001 Environmental Management System Standard (ISO). Linkages between WFP's sustainable forest management approach and the principles, criteria and requirements of FSC, CSA and ISO are embodied in this Management Plan and articulated in the Plan objectives, strategies and performance targets.

Measurable performance targets are set and monitored as a means of meeting the Plan objectives. Some targets will be established and reviewed annually while others will be set and reviewed periodically. TFL 19 operations were certified to ISO 14001 standards in April 2000 by QMI, an ISO certifier. Appendix XVI provides details of the ISO 14001 program.

WFP will report on performance in achieving targets and Plan objectives. The TFL annual report will be one of the main reporting mechanisms used. Others include corporate reports to shareholders and audits (both external and internal).

3.0 FOREST MANAGEMENT INVENTORY AND PLANNING

3.1 Resource Inventories

Resource Inventories are maintained for the TFL land base for: forest cover, environmentally sensitive areas (ESAs), operability, recreation features (including caves and karst), visual landscape, terrain stability, ownership, archaeological resource potential, ecosystems, streams and wildlife. Table 3 summarises the status of each inventory.

3.1.1 Forest Cover

The most recent Forest inventory for the TFL was completed in 1989. In 1999 the Ministry of Forests completed ground sampling for an audit and once completed the results will be used to check, and possibly adjust the MP 9 timber supply yield estimates. Also in 1999 a major project was undertaken in the Zeballos Lake area to confirm the 1989 inventory. A total of 473 plots were established in October 1999. Stand typing compared favorably with the current inventory.

A new vegetation resource inventory is planned for the TFL which will update both old growth and second growth stands. Funding for the vegetation resource inventory will come from WFP's 5-year agreement with Forest Renewal BC. It is expected that this inventory will be complete by 2002.

3.1.2 Environmentally Sensitive Areas

Areas assessed as sensitive or valuable for other resource values have been delineated through inventories conducted before and since MP 8. Management reflecting the presence of these areas are in other sections of this document, including terrain stability and soil sensitivity, wildlife habitat, riparian and recreational reserves.

3.1.3 Operability

Recent 1:20,000 scale operability mapping has been completed for the TFL. The terms of reference for the new operability mapping were submitted to the Ministry of Forests in February 1999 and approved by the Regional Manager in June 1999. A field review with district staff was taken in October 1999 and final adjustments were made to the mapping in November 1999. Approximately 88% of operable forest types can be harvested with conventional cable and ground based methods. Helicopter or skyline systems will be utilized to harvest the remaining 12% of the operable landbase. The operability maps are used to prepare a 20-year plan of forested timber harvest and road development. Appendix XV shows the 20-year plan.

3.1.4 Recreation

The current recreation features inventory was completed in 1993. The inventory consists 1:50,000 map sheets showing recreation feature classes, and a report describing the recreation and biophysical features and a management classification. This inventory has classified and mapped the license area into five Recreation Opportunity Spectrum Classes based on access, feature significance and recreational use.

An analysis of the inventory was completed in 1994 for recreational planning over the life of MP 8. Since 1995, ten new recreation sites and trails have been constructed. Significant upgrades have been made to six recreation sites and trails. Total spending on recreation sites since 1995 has exceeded \$600,000. Table 2 lists new and upgraded recreational sites and trails completed from 1995 - 1999. Figure 4 shows the location of the major recreation sites. Appendix X provides detailed sketches of developed facilities. Appendix XI contains a copy of the Nootka Region Visitors Guide.

Table 2 – Recreational Sites and Trails in TFL 19 1995 - 1999

<u>New Recreation Sites and Trails</u>	<u>Estimated Cost (\$)</u>
• Antler Lake day use area - toilets, tables, fire rings	50,000
• "A" Frame bridge day use area - toilet, fire rings	10,000
• Star Lake day use area - toilet, tables, fire rings	57,000
• Santiago Creek Kayak tie-up - toilet, fire ring, tie-up	5,000
• Little Espinosa kayak launch area - beach front, parking	3,000
• Malispina Lake day use area – trail	18,000
• Star Lake Trail – trail	25,000
• Gold River Trail - signage, stairs, trail	32,000
• Tahsis Lookout	3,000
• Mozino Point Trail	2,000
<u>Upgrades to existing Recreation Sites and Trails</u>	
• Muchalat Lake campsite - dock, beach front, campsites	114,000
• Cougar Creek Campsite - dock, campsites, toilets	120,000
• Leiner River Campsite - campsites, toilets	40,000
• Upana Caves - stairs, trails	59,000
• Coral Caves - parking area, trails	12,000
• Gold River Forest Walk Trail - signage, stairs, trails	1,000
• West Bay Trail	18,000
• Zeballos Forestry Trail	1,000
• Conuma River campsite	7,000

An upgrade to the recreation inventory will be undertaken in 2000 using refined karst potential mapping. Information from the Nootka Sound Forest Recreation and Tourism Opportunities Study (1998) and other pertinent information will be incorporated.



Figure 4 – Major Recreation Sites and Trails

3.1.5 Visual Landscape

The current visual landscape inventory was completed in 1992. Landscape sensitivity and visual quality objectives (VQOs) have been assigned to the land base visible from main road and marine travel corridors. Visual design techniques and alternative silviculture systems are used in the design of cutblocks in visually sensitive areas.

Some changes were made to the visual landscape inventory in 1998 as part of the Campbell River Forest District Mitigation Strategy. An upgrade to this inventory was started in June of 2000 to convert the classification to the new Ministry of Forest visual landscape standards. The upgrade is expected to be completed in September 2000.

3.1.6 Terrain Stability

Terrain Stability Mapping (1:20,000) scale was completed for the TFL in December 1996 by Dr. Terry Lewis. This terrain mapping has been used to identify areas where further geotechnical analyses are needed to ensure appropriate management strategies are implemented for soil conservation. This mapping also provides guidance during the TFL operability revisions. Generally, road construction and harvesting are not proposed in terrain Class V areas. On terrain Class IV areas roads and harvesting will occur after further geotechnical analyses and careful planning.

3.1.7 Ownership and other Tenures

Ownership and land status have been updated for the TFL 19 area. Since MP 8 two new Class A provincial parks have been created within the TFL. They are the Muchalaht/Gold Provincial Park (659 ha) and the Weymer Creek Karst Provincial Park (317 ha).

A new Mowachaht/Muchalaht First Nation community called Tsaxana was officially opened in 1996. Tsaxana covers 129 ha formerly crown land in Timber Licence TO495, Bk 1 within TFL 19.

3.1.8 Archaeological Resource Potential

An Archaeological Overview Assessment (AOA) for the Nootka and Kyuquot Sound areas including TFL 19 was completed in 1998. This overview identifies archaeological sites and resources and indicates where past human activities are likely to have occurred. The AOA is used in planning. Areas of high potential are subject to field reconnaissance and inventory followed by further analyses to ensure protection of special features.

3.1.9 Ecosystem Mapping

Field work for ecosystem mapping was completed for the TFL in 1999. A final report and mapping is expected to be available in 2000.

3.1.10 Streams

An inventory of riparian areas in the TFL was completed in 1994 using the standards of the Coastal Fisheries/Forestry Guidelines. This inventory has since been updated to Forest Practices Code standards. New riparian reserve zone and management zones have been considered for the MP 9 timber supply analysis. In addition a 1:20,000 RIC Fish and Fish Habitat Inventory is currently underway with completion expected by 2001. This inventory will provide information on fish distribution, fish habitat and habitat restoration opportunities.

3.1.11 Wildlife

A wildlife inventory of TFL 19 was completed in 1993. Areas critical to deer and elk for food, shelter and reproduction (EW1) have been designated as Ungulate Winter Ranges (UWR) and removed from the timber harvesting land base. Other areas having significant value for wildlife including deer winter ranges in low snowfall areas below 300 metres in elevation and nestling sites are identified in the TFL and will be subjected to a cover constraint within the timber supply analysis.

Under the Forest Practices Code of BC Act, Operational Planning Regulation all Ew1 areas in the TFL have been grandparented (as of October 1998) as ungulate winter ranges. Objectives for managing ungulate winter range have been set by the District Forest Manager and designated environment official. By October 2003 boundaries for ungulate winter ranges must be made permanent. WFP will work with both the MoF and MoE to finalize ungulate winter range boundaries and develop management strategies for them. Figure 5 shows the location of ungulate winter ranges.

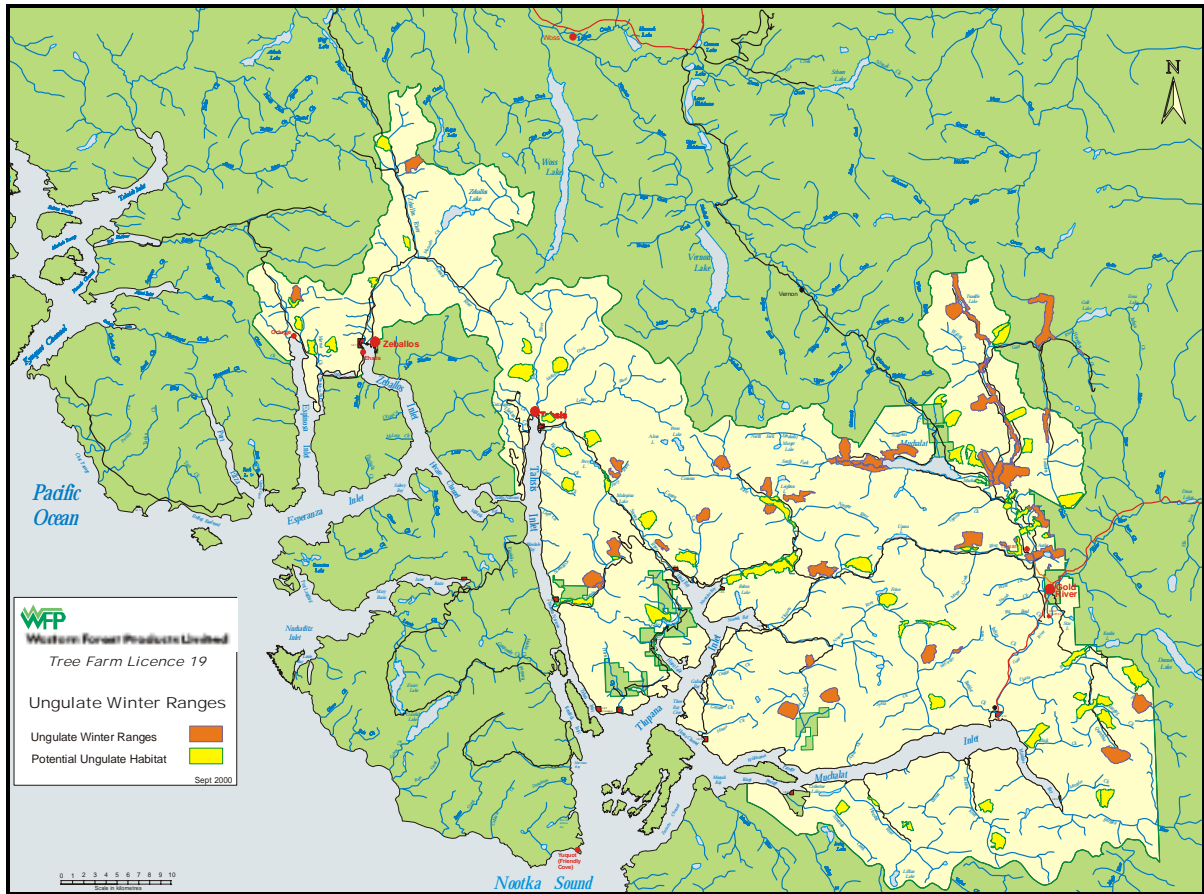


Figure 5 – Ungulate Winter Ranges

In 1998 inventory work for Queen Charlotte goshawks (*Accipiter gentilis laingi*) was initiated. Queen Charlotte goshawks are red listed and subject to protection measures under the Identified Wildlife Management Strategy. To date, five nesting territories have been identified near Muchalaht and Bolton Lakes. Some birds have been radio-tagged to further study their movement and nesting habits. Interim protection measures are established in areas where cutblocks are proposed near known nest sites. Appendix XIII provides a sample Goshawk inventory.

New inventory work is planned for marbled murrelets. Habitat suitability work is expected to begin in 2000 followed by detection surveys to determine relative use of identified habitat.

Table 3 – Resources Inventory Status

Item	Status	Within GIS	MOF Acceptance Date	Plan
Timber Inventory	Completed in 1988 by Reid, Collins and Associates (now Olympic Resource Management). MOF field audit completed in 1999 (results are still outstanding).	Yes	Yes 19-May-93	Inventory revisions updated annually.
Ecosystems	Currently being classified.			Classification to be completed in 2000.
Terrain Stability	Completed in 1997 by Terence Lewis et al.	Yes	Submitted 11-Apr-99`	Currently being reviewed by MOF
ESAs	No longer used for planning. New inventories replace the need for this classification.	No	Yes 08-July-94	
Recreation Inventory	Recreation inventory completed in 1989 by Jeremy Webb of Recreation Resources Limited (updated by Pacific in 1991 and 1993). Includes karst overview.	No	Yes 26-July-96	Update to be completed in 2000.
Recreation Analysis	Recreation analysis completed and submitted in May, 1994. Update required for MP #9.		Yes 26-July-96	Update to be completed in 2000.
Visual Landscape Inventory	Completed by Recreation Resources Limited (Jeremy Webb in 1992 and 1994. VQOs considered "draft". VQOs updated in 1998 as part of MOF visual impact mitigation program.	Yes	Submitted 13-Oct-94	Update to be completed in 2000.
Stream Classification	MP#8 classification based on A, B and C stream designations. FDP process has updated to FPC Riparian Classes for a large part of the TFL	Yes	DFO 13-July-94 MOE 08-July-94	Stream Inventories (RIC) in progress.
Archaeological	Archaeological Overview Assessment completed by Arcas in 1998. Site specific maps and description on file (held in confidence at request of First Nations).	Yes		
Operability	Completed by WFP in 1999.	Yes	Submitted 11-Apr-99	Currently being reviewed by MOF
20-Year Plan		Yes		Revised 20-Year plan in preparation for MP9.

3.2 Planning Linkages - Strategic and Operational Planning

The hierarchy of plans governing activities on TFL 19 is as follows: Vancouver Island Land Use Summary Plan (VILUSP) ⇒ Landscape Unit (LU) Planning ⇒ Management Plan 9, TFL 19 ⇒ Forest Development Plans ⇒ Operational Plans. Strategies and objectives both within and between these various plans must be consistent. Generally, Higher Level Plans such as the VILUSP and LU Plans allow for legally enforceable objectives to be established under the Forest Practices Code. These Higher Level Plan objectives give direction to subordinate plans that contain the detail for implementation.

Linkages to WFP's sustainable forest management (SFM) principles are made with both strategic level and operational level plans. SFM principles incorporate the Forest Practices Code and Regulations, Forest Act and other related legislation as minimum standards.

3.2.1 Regional Plans

The Vancouver Island Land Use Summary Plan is a Regional Plan, which covers the TFL area. Nine Resource Management Zones (RMZs) have been established for the TFL landbase (Figure 6). Of the nine zones, two are classified as Special Management Zones (SMZs), two are classified as General Management Zones (GMZs), and five are classified as Enhanced Management Zones (EMZs). General management regimes for timber, biodiversity, cave karst, water, visual quality, cultural heritage, fish, recreation, access, wildlife and tourism have been established for each zone. These regions are based on the requirements for integrated resource management and reflect pertinent resource legislation and policy. A Coastal Planning Unit has also been established for Nootka Sound and associated waterways. Table 4 summarizes the RMZs covering the TFL.

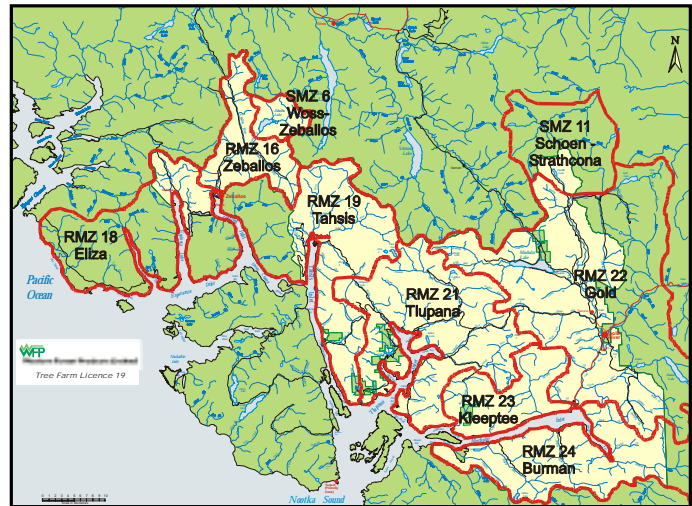


Figure 6 – Resource Management Zones

Table 4 – Resource Management Zones and Regimes

RMZ #	RMZ Name	TIM	WAT	FISH	WL	BIO	VIS	REC	TOU	C/K	CULT HER	ACC
6	Woss-Zeballos	S	G	G	G	B/G	S	S	G	G	G	G
11	Schoen-Strathcona	S	G	G	S	S/G	S	G	G	G	G	G
16	Zeballos	G	G	G	G	B	G	G	G	G	G	G
22	Gold	G	G	G	G	H	G	G	G	G	G	G
18	Eliza	E	CW/G	G	G	B	G	G	G	N/A	G	G
19	Tahsis	E	CW/G	G	G	B	G	G	G	G	G	G
21	Tlupana	E	G	G	G	G	G	G	G	G	G	G
23	Kleptee	E	G	G	G	B	G	G	G	N/A	G	G
24	Burman	ES/ETH	G	G	G	B	G	G	G	G	G	G

Note: Cave/Karst management is limited to those RMZs with known features or high probability of such occurrence.
TIM: Timber; BIO Biodiversity; C/K Cave Karst; WAT Water; VIS Visual; CULT.HER Cultural Heritage; FISH Fish; REC Recreation; ACC Access; WL Wildlife; TOU Tourism;
Regimes: S–Special; G–General; B–Basic; H–Higher; E–Enhanced; ES–Enhanced Silviculture; ETH–Enhanced Timber Harvesting; CW–Community Water

Some objectives have been made Higher Level Plans under the Forest Practices Code. These objectives affect operational planning in SMZs and EMZs. SMZs Higher Level Plan objectives deal with cut block structure, size and silviculture systems, joint approval of Forest Development Plans and visual quality management. EMZs Higher Level Plan objectives deal with cut block size and green-up, hydrology and reforestation species selection.

3.2.2 Landscape Unit Plans

In March 1999, the provincial government released the Landscape Unit Planning guide. Also in early 1999 a Regional Landscape Unit Planning Strategy was developed for the Vancouver Region, which focuses on the identification and establishment of old growth management areas (OGMAs) to meet biodiversity objectives. The strategy also deals with the establishment of wildlife tree patches (WTPs) and the protection of marbled murrelet habitat. Objectives for other resources can also be developed through LU Planning but are not mandatory.

The TFL landbase is covered by seven landscape units (Figure 7). The boundaries of the LUs generally follow those of the RMZs. A high, intermediate or low Biodiversity Emphasis Option (BEO) has been assigned to each LU based on a combination of factors including the amount of protected area within the LU, percent of old forest, ecosystem complexity, sensitivity to development, connectivity, forest productivity and timber operability. WFP will take a lead role in landscape unit planning for the area covered by the Plan. Table 5 shows the LUs and BEOs for TFL 19.



Figure 7 – Landscape Units

Table 5 – LUs and BEOs for TFL Landbase

LU Name	BEO	Total Area (ha)	Productive Area (ha)
Eliza	Low	5,827	5,499
Zeballos	Low	19,313	13,771
Tahsis	Low	29,377	19,840
Tlupana	Intermediate	43,144	34,118
Kleettee	Low	14,768	12,608
Burman	Low	27,972	21,919
Gold	High	51,591	40,392

Under WFP's environmental principle and conservation of biological diversity criteria and indicators have been established to monitor the establishment of OGMAs. A second indicator (under the same criteria) relates to the amount of WTP area maintained.

3.2.3 Forest Development Plans

Forest Development Plans (FDPs) are required under the Forest Practices Code of BC Act and the Operational Planning Regulation to direct forest management activities and practices usually for 5 years. Specifically FDPs show the location and orderly development of proposed harvesting and road construction, maintenance and deactivation. The FDP also includes

information on access management and the maintenance and protection of other resource values in the area covered by the plan. The FDP must be consistent with Higher Level Plans and made available for review by resource agencies, First Nations and the public before approval is considered by the Ministry of Forests. FDPs are submitted either annually or every two years and contain enough blocks to equal at least five years of annual harvest. Several indicators related to WFP's SFM principles have been established which will be reported on in the Forest Development Plan. The list includes:

- % of required reserved zones established
- % of area under assessment for karst, location of ungulate winter range
- # of accidental fires/ha burned
- ha harvested by silviculture system
- % retention harvesting
- km of road deactivated
- % coastal watershed assessment procedures (CWAPs) conducted on designated watersheds
- km of road maintained
- # and type of harvest methods
- records of meetings and consultations with First Nations
- # of archaeological impact assessments (AIAs)
- # and types of contacts/meetings/consultation with communities.

3.2.4 Stand Level Prescriptions

A number of different plans and prescriptions detailing forest management activities are prepared for review and approval of the MoF and other government agencies. Silviculture Prescriptions, Stand Management Prescriptions, Access Management Plans and Logging Plans are referred to as operational plans under the Forest Practices Code of BC Act, Operational Planning Regulation. Deactivation prescriptions detail road deactivation activities and are regulated by the FPC, Forest Road Regulation. Appendix IV includes an example of a Silviculture Prescription.

Cutting and road construction authority is given by MoF through Cutting Permits and road permits. These permits are granted under the Forest Act.

Much of the content requirements for these plans, prescriptions and permit applications is defined by legislation. Policy guidelines and guidebooks also give direction in the development of plans, prescriptions and permit applications.

3.2.5 Adaptive Management

Forestry plans must recognize limited knowledge and uncertainty. For this reason, ecosystem management plans are based upon adaptive management principles. These include the maintenance of ecosystems and habitats across a landscape, consideration of land management impacts at both the stand and landscape levels and striking a balance between timber and non-timber resources.

4.0 SUSTAINABLE FOREST MANAGEMENT STRATEGY

4.1 Economically Viable Forest Management

Principle

4.1.1 Multiple Benefits

Criteria

4.1.1.1 Timber Supply

Element

Objective	Indicator
Harvest AAC	% achievement of AAC, 5 year cut control
Prevent timber loss	ha of non-recoverable losses due to wind, fire
Efficient utilization	m ³ of billable waste

WFP is committed to economically harvesting the licensee portion of the total proposed TFL 19 AAC of 978,000 m³ in accordance with its SFM principles and the FPC. The licensee portion of the proposed AAC is 932,132 m³. The Small Business Forest Enterprise Program AAC is 44,010 m³. The schedule "B" pro-rate is 0.995. Table 6 shows the actual harvest to AAC performance since the granting of the TFL in 1954.

Table 6 – Cut Control Performance 1954-1999

Period	Allowable Cut Available to Licensee	Chargeable Cut
1954/55-1956	566,336	601,910
1957-1961	1,551,762	1,694,946
1962-1966	1,993,506	1,861,360
1967-1971	3,296,078	3,393,928
1972-1976	4,278,840	4,043,233
1977-1981	4,820,935	4,714,734
1982-1986	4,901,672	4,472,702
1987-1991	4,729,462	4,730,242
1992-1996	4,660,660	4,367,849
1997-1999 ¹	2,796,396	1,963,704 ²
Total	33,592,647	31,844,608
¹ Completed portion of the 1997-2001 Cut Control Period		
² Includes Chargeable Cut before carry-forward adjustments to end of 1999.		

Detailed assumption used for MP 9 Timber Supply Review can be found in the TFL 19 Timber Supply Analysis package, Appendix II.

Harvesting will emphasize the maximum recovery of saw logs and pulp logs grades. Log recovery will conform to the Vancouver Forest Region Close Utilization Standards as a minimum. These standards are:

	Old Growth	Second Growth
Diameter breast height (cm)	17.5	17.5
Maximum stump height (cm)	30	30
Minimum top diameter (cm)	15	10
Minimum log length (m)	3	3

The company may exceed these minimum standards by recovering low-grade pulp quality logs. Generally, these logs are marginal Y grade specifications whose utilization is optional. Utilization is also kept high by the salvage of cedar shake and shingle blocks and to a lesser extent cypress and Douglas fir cants from logged blocks.

Utilization levels will be monitored by conducting residue surveys to determine the volume of avoidable and unavoidable fibre left on logged blocks. Current MoF policy for avoidable waste billing is 35 m³/ha for old growth and 10 m³/ha for second growth. WFP's goal is to be below these targets for avoidable waste. Waste survey results are submitted to the MoF. Avoidable and unavoidable waste is entered by the MoF into the cut control record.

Merchantable hardwood (maple, alder, cottonwood) volumes are minimal and have been included in the AAC. The company will consider sales of hardwood volumes if the opportunity arises.

Salvage from stands damaged by blowdown, fire, pest or disease infestations will be given a high priority. Assessments of these stands will include the extent and degree of damage, feasibility for harvest and relevant value with respect to biological diversity.

As part of WFP's SFM principles, three objectives have been established regarding timber supply. These are:

- harvest the AAC
- prevent timber loss
- maintain efficient utilization

Indicators have also been established to measure our success in achieving these objectives. Our indicator for the AAC is to be 100% in compliance with the cut control regulation at the end of each cut control period. Our indicator for timber loss is to keep the number of ha of non-recoverable loss due to wind and fire to 30 ha or less. With respect to billable waste our indicator/objective is to have an average less than 20 m³/ha.

4.1.1.2 Harvest Methods

Element

Objective	Indicator
Employ appropriate harvest methods	Percent of total harvest area by harvest system

Past harvesting in TFL 19 is providing a variety of patch sizes and shapes across the landscape. With the advent of the Forest Practices Code of BC Act (FPC) more attention is being given to riparian protection, coarse woody debris and maintenance of structural forest attributes important for biodiversity function.

Harvesting during the planning period will continue to be mainly in old growth forest

stands more than 120 years old. Some 80-120 year old second growth of fire origin is also being harvested where it fits in with the development of older stands or where specific objectives at the landscape level dictate. For example the creation of spring forage around ungulate winter ranges may result in second growth harvest.

A variety of silvicultural systems are being utilized all of which are variations of clearcutting or partial cutting as defined by the FPC, Operational Planning Regulation (OPR). The primary silviculture systems used to date in the TFL have been patch clearcutting and patch clearcutting with reserves. Other silviculture systems which have been utilized include single tree, group selection and shelterwood. Recently the retention silviculture system, which maintains structural diversity over the cut block for a minimum of one rotation is being utilized. WFP is committed to using silviculture systems that maintain forest ecosystem productivity and function.

A variety of logging systems are being utilized in TFL 19. The main conventional systems being used are mobile highlead towers and mobile grapple yarders. Hoe forwarding and skyline systems are also used. Line skidding has been used in the past. Non-conventional harvesting is done mainly with helicopters. Some multi-span skyline systems have been used in the past. Manual falling and log length yarding are common to all of the above mentioned systems.

New operability lines have been established for the TFL delineating operable stand types and anticipated logging system. Marginal stand types such as pure hemlock balsam height class 3 stands will only be harvested when they are economically viable. Over the planning period the anticipated split between conventional and aerial logging systems will be 85/15. Table 7 outlines the historic use of logging systems in TFL 19

Table 7 – Distribution of Logging Systems

Percent of total production (approx).

Logging Systems	Historical	1992-96	1997-2001
Conventional cable and ground based systems	86	87	84
Skyline systems*	11	3	1
Non-conventional systems: aerial and multi-span skylines	3	10	15

** Skyline system defined as a system utilizing lateral yarding and/or yarding distances over 300 meters.*

WFP has experimented with mechanized falling and processing heads mounted on tracked carriages. This type of harvesting equipment will be utilized in patch clearcutting or partial cutting systems in second growth or for commercial thinning where conditions allow.

4.1.1.3 Employment

Element

Objective	Indicator
<i>Sustain employment levels</i>	<i>Total Person-days and jobs/m³</i>

Tree Farm Licence 19 is a significant generator of employment in logging, silviculture and forest management. Other employment is created as the logs produced in TFL 19 are processed in the Tahsis sawmill and other Doman mills. Table 8 summarizes the average direct employment over the past five years as a consequence of operations in TFL 19.

Table 8 – Direct Employment 1995 – 2000

Category	Average Person Days of Employment
Planning/Harvesting	40,561
Silviculture & Integrated Use	5,613
Administration	3,828
Subtotal	50,002
Manufacturing	62,280
Total	112,282

Over the planning period WFP intends to maintain employment levels through the following strategies:

- Harvest 100% of the AAC in each cut control period
- Meet or exceed contractor requirement as per Timber Harvesting Contract and Subcontract Regulation
- Where possible expand the silviculture and watershed restoration programs through long term funding commitments from FRBC
- Expand minor forest products harvesting program
- Work with First Nations to expand employment opportunities

Employment strategies are predicated on the maintenance of AAC at approximately current levels, no diminishment with company tenure rights and continued or expanded funding from Forest Renewal BC over the next 5 years.

4.1.1.4 Contractor Commitment

Element

Objective	Indicator
Maintain contractor commitments	% of required contractor commitment achieved

Under Part 14 of the TFL 19 contract, WFP is required to ensure the harvest of timber equivalent to 50% of the harvest contributed by Crown lands be carried out by contractors according to the Timber Harvesting Contract and Sub-Contract Regulation. Over the past five years WFP has performed in excess of requirements as follows:

1995	105.5%
1996	101.7%
1997	119.0%
1998	103.6%
1999	111.4%

Currently the following contractors have replaceable contracts in TFL 19:

Full Phase Logging -	Frank Beban Logging Limited Friell Lake Logging Ltd. Onion Lake Logging Ltd. Russell and Lilly Limited Spirit Lake Timber Limited
Falling, Yard, Load -	Lemon Point Logging (1990) Ltd. Cypress Creek Logging Ltd. Cypress Logging Ltd.
Road Building -	Totem Bar Contracting Limited Upland Excavating Limited Westside Road Building Ltd. Stan McLean Trucking Ltd.
Hauling -	Stan MacLean Trucking Ltd.

An annual accounting of the contracting requirements and performance is in the TFL 19 Annual Report.

There are more than 70 other contracting firms working in TFL 19 as part of forest operations. Work performed includes cruising and cut block layout, tree planting and minor products salvage and many other tasks.

4.1.1.5 Profitability

Element

Objective	Indicator
<i>Achieve a reasonable return on investment</i>	<i>Margin/m³</i>

WFP is committed to the maintenance of economically viable forestry and manufacturing operations through the optimal utilization of timber values. Through the internal manufacture and trading of logs WFP will strive to maximize value margins and provide a competitive return on investments to our shareholders.

Return on investment and log margin average will be reported in company financial and annual reports respectively.

4.1.1.6 Non-Timber Forest Products

Element

Objective	Indicator
<i>Encourage NTFP utilization</i>	<i>No. and type of NTFP (M3, kg, \$)</i>

WFP will plan for and utilize wherever possible all commercial non-timber forest products while ensuring a high standard of management and environmental control. The main non-timber forest products harvested in TFL 19 are: yew bark, mushrooms (pine and chanterelle) and salal.

Over the past five years roughly 5,000 kg of yew bark has been collected from cutblocks approved for falling. WFP collects \$1.00/kg to cover some of the administration costs.

Pine mushrooms harvesting is concentrated in the Gold River area. In 1997, WFP planners met with concerned pickers and buyers to review proposed harvest blocks around Gold River. Some areas on the Forest Development Plan (FDP) were voluntarily deferred and a process to track production was set up with local buyers. Estimated pine mushroom production over the past three years has been as follows: 1997 – 2300 kg, 1998 – less than 100 kg, 1999 – 1400 kg.

Chanterelles grow in many stand types through out the TFL including pole sized second growth. Chanterelle production has not been recorded. Salal is a common shrub growing in cutovers and open grown stands. Salal is collected from TFL lands for the floral industry but production is not recorded.

WFP staff are participating in various non-timber forest products forums regarding policy development and employment opportunities. New opportunities will be pursued in the TFL where sufficient revenue is generated to offset administration costs; assessments and inventories indicate the activity is sustainable and the activity will not negatively impact other forest management investments. WFP will continue to report on non-timber forest product activities in annual reports and other pertinent publications.

Trapping areas are illustrated in Figure 8. The level of trapping within the licence area is relatively low. WFP cooperates with the licence holders, to minimize impacts on trapping resources, when development is proposed within the licence area.

Maintenance of biodiversity in the TFL sustains trapping habitat.



Figure 8 - Traplines

The Nootka Sound – Esperanza Inlet waterways provide various opportunities for aquaculture, tourism and other commercial ventures related to the marine areas adjacent to TFL 19. Ventures of this type are important to the economic diversification and development of the Nootka Sound region. WFP will cooperate with planning and development of aquatic related economic development. Figure 9 shows the location of aquatic licences.

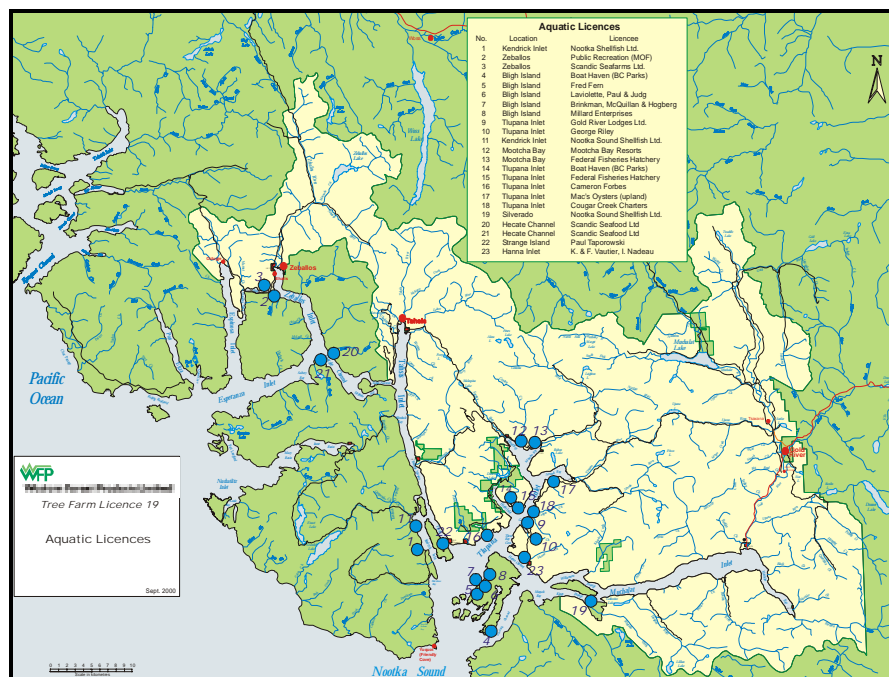


Figure 9 – Aquatic Licences

4.1.1.7 Minor Forest Products

Element

Objective	Indicator
Encourage utilization of minor forest products	Salvage volume x \$/m ³

WFP has an active minor forest products program to harvest minor forest products from its tenures within TFL 19. Established contractors salvage mainly western red cedar shake and shingle blocks in cutblocks that have been surveyed for waste and residue. Minor amounts of yellow cedar blocks and yellow cedar, Douglas fir and Sitka spruce cants are also produced. On average 2,000 - 3,000 m³ of cedar shake/shingle blocks are produced each year and 100 - 200 m³ of cants.

Culvert and buried logs from road deactivation activities produce roughly 5,000 m³ annually. This volume is hauled to dryland sorts and scaled with regular production.

WFP will continue to encourage utilization of minor forest products and will report volume produced in the annual report.

4.1.1.8 Access Management

Element

Objective	Indicator
Provide for public access	km of road maintained

A transportation system has been developed in the TFL over the past 35 years to deliver logs by truck and by water to manufacturing facilities. Roughly 2,400 km of road has been built to date of which an estimated 1000 km is currently maintained.

Roads are constructed, maintained and deactivated as per the Forest Act and the Forest Practices Code of BC Act, Forest Road Regulation.

Access management maps showing the current and planned status of roads will be prepared and made available for public comment with the Forest Development Plan.

All roads-users assume certain obligations for the use of roads. Road users assume the risk of accident or injury. Road users are also expected to cooperate with WFP staff in reporting and suppressing fires and conforming to Company and BC Forest Service fire protection regulations.

Road status changes will be reported annually in the Annual Report.

4.1.1.9 Recreation

Element

Objective	Indicator
Maintain recreation sites and features	No. and type of recreation sites maintained User days by category

Recreation management in the TFL will be based on a feature inventory and an analysis report which assesses current recreation use patterns and projects further trends. Options are presented with funding estimates. The main recreational use has been for camping, hiking, fishing and hunting predominantly by local residents. Appendix XII contains detailed, Recreation Resource Management Options.

There are currently four overnight campsites, four-day use picnic areas, seven maintained trails and two developed cave sites within TFL. Numerous other unimproved trails and recreation sites also exist. These recreation sites are indicated on WFP visitors guides of the Nootka Sound area which are distributed free of charge. There are several Provincial Parks within and adjacent to TFL 19 (Figure 10).

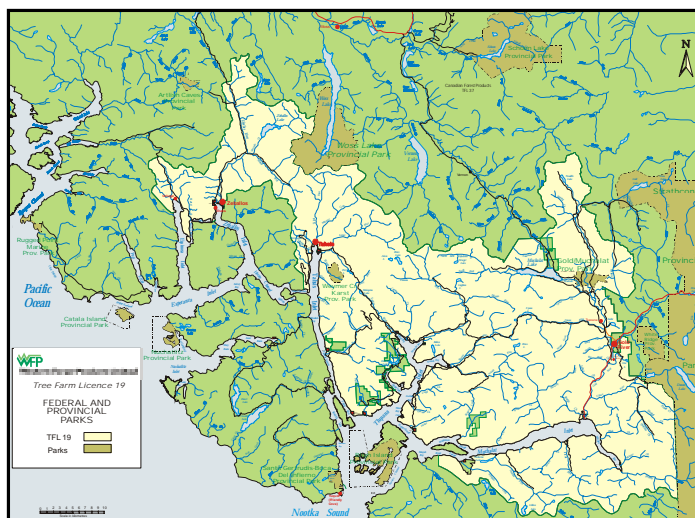


Figure 10 – Federal and Provincial Parks

Over the past five years more than \$600,000 have been spent on developing and maintaining recreational opportunities in the TFL. In 1999 there were an estimated 64,000 user days of recreation (Table 9). Expenditures have been cost shared with the BC Forest Service with significant funding from Forest Renewal BC. During the planning period, WFP will estimate and report, via the annual report, use days by activity category. New recreation sites development and maintenance will be carried out in partnership with the BC Forest Service. The level of work performed is dependent on funding available from the Company and the BC Forest Service.

Visual aesthetics are an important component in harvest planning. A visual quality inventory has been completed for views adjacent to waterways, travel corridors, communities and major recreation sites. Harvest blocks in scenic areas will be designed to meet the recommended visual quality objective for the area. Visually effective greenup (VEG) will be determined on a site specific basis when new harvest blocks adjacent to previously harvested areas are proposed. For planning purposes VEG is assumed to be 5 meters.

Table 9 – Recreation Activities Summary – Estimated User Days, TFL 19, 1995-1999

Location/Activity	Usage					
	1995	1996	1997	1998	1999	Total
Tourist/Recreation Site Maps	4,000	4,000	4,000	2,000	6,500	20,500
Cougar Creek Campsite	29,956	28,423	32,724	32,706	33,000	156,809
Muchalat Lake Campsite	6,751	6,468	5,603	12,625	12,000	43,447
Upana Caves	800	800	1,000	1,254	1,400	5,254
Star Lake Trail/Day Use	1,000	1,000	1,000	1,000	6,000	10,000
Antler Lake Day Use	500	500	500	500	500	2,500
Gold River #2 Trail	--	--	--	--	500	500
Gold River Forest Walk	50	50	50	100	100	350
Big Bend Day Use	200	200	200	200	200	1,000
Victoria Peak (W-79) Hike	50	50	50	50	50	250
Matchlee Glacier Hike	50	50	50	50	50	250
Conuma River Campsite/Day Use	400	400	500	500	500	2,300
Leiner River Campsite	3,804	4,477	5,868	6,000	6,000	26,149
Great Walk	340	480	673	597	803	2,893
Tahsis Lookout Day Use	0	0	0	0	200	200
Santiago Creek Campsite	0	0	0	0	100	100
Malaspina Lake Day Use	200	200	200	200	200	1,000
Coral Caves	100	100	100	100	120	520
West Bay Trail	100	100	100	100	150	550
Mozino Point Trail	0	0	0	50	50	100
Zeballos Forestry Trail Maps	300	50	50	50	50	500
Zeballos Forestry Trail	500	500	500	500	500	2,500
Little Espinosa	1,000	1,000	1,500	1,500	1,500	6,500
Resolution (TFL)	100	100	100	100	200	600
TOTAL	46,201	44,948	50,768	58,132	64,123	264,172

4.1.1.10 Research and Development *Element*

<i>Objective</i>	<i>Indicator</i>
<i>Support research and development</i>	<i># of projects</i>

WFP's research and development program will investigate and study new and evolving techniques and prescriptions that maintain or improve the health and productivity of forest ecosystems values while sustaining a high level of environmental protection. The company will continue to cooperate with the MoF, Canadian Forest Service, FERIC, universities and other research specialists on various research initiatives. Project funding support is often provided for by government agencies such as Forest Renewal BC.

Current research projects include:

- Continue selection breeding and testing of yellow cedar, Sitka spruce, western red cedar and western hemlock to provide healthy, well adapted genetically superior trees for reforestation.
- Continue cooperation research on important wildlife species including Queen Charlotte goshawk (MoELP), marbled murrelet (SFU), Roosevelt elk, black tail deer, black bear, bald eagle.
- Continue growth and yield research in line with the priorities established by the Coastal Forest Productivity Council. Particular emphasis will be placed on obtaining data for species with identified information gaps and partial harvesting systems.
- Alternate silviculture and harvesting systems will be investigated in cooperation with research agencies such as FERIC. Research topics will include productivity, cost and impacts on non-timber resource values. Projects involving helicopter logging and reforestation in the mountain hemlock subzone are currently being investigated by FERIC.
- Forest productivity and health of ecosystems will be investigated. Fertilization effects on western red cedar, balsam and western hemlock stands will continue.

As part of WFP's SFM principle an objective has been established regarding the company's support for research and development. Activities and expenditures in research and development will be reported in the annual report.

Appendix VIII provides additional information on current WFP research projects.

4.1.1.11 Contribution to Provincial Revenues

Element

Objective	Indicator
Contribute to provincial revenues	Payment of fees

Timber harvest and associated forestry activities on TFL 19 contribute to provincial revenues in a number of ways. Stumpage and royalty payments for the TFL 19 harvest are significant. For the period 1995-99 over \$92.6 million has been paid. Of this total \$25.2 million was super stumpage which goes to support Forest Renewal BC and Forest Practices Code enforcement. Other fees such as AAC rentals, fees for Special Use Permits, licenses of occupation, road use agreement, etc. amount to more than \$500,000 per year. All of these charges and fees go to general revenue to help pay for roads, hospitals, schools and services enjoyed by all British Columbians.

As one of the SFM objectives WFP will, for social responsibilities, pay all applicable fees related to its operations in TFL 19. Payments will be reported in the annual report.

4.2 Environmentally Appropriate Forest Management

Principle

4.2.1 Conservation of Biological Diversity

Criteria

Biological diversity (or biodiversity) is the diversity of plants, animals and other living organisms in all their forms and levels of organization, and includes the diversity of genes, species and ecosystems, as well as the evolutionary and functional processes that link them (FPC, Biodiversity Guide book, September 1995). An ecosystem management approach that maintains suitable habitat conditions for all native species will be used as a surrogate to maintaining biodiversity. Both coarse and fine filter approaches will be utilized to achieve biodiversity objectives.

Coarse filter strategies include the maintenance of riparian habitats, areas of old growth, connectivity corridors and a variety of patch sizes across a landscape. At the stand level coarse filter strategies include maintaining wildlife tree patches, snags, downed woody debris and deciduous trees.

Fine filter strategies deal with the identification and maintenance of habitats for known sensitive plant and animal species. Special consideration will be given to habitat requirements for red and blue listed species. Measures which may be used to achieve fine filter strategies include:

- 1) the creation of Wildlife Habitat Areas
- 2) establishment of Old Growth Management Areas in critical habitat zones
- 3) use of interim measures, as prescribed in the Identified Wildlife Management Strategy to protect red and blue listed species and their habitats.

4.2.1.1 Ecological Diversity

Element

Objective	Indicator
Maintain a dynamic distribution of habitat over a landscape	Established or planned OGMAs
	% of defined area reserved
	seral stage distribution
	patch size distribution - % of landbase in patches > 200 ha
	# and type of ecological inventories
	% of required reserved zones established
	% of area under assessment for karst
	% of defined area not THLB

Through our planning and forest management activities, WFP will strive to maintain a variety of ecosystems across the landscape to preserve species through the provision of suitable natural habitat. Ecosystems are defined as per the Biogeoclimatic Ecosystem Classification (BEC) System. BEC zones are further subdivided in subzone variants and site series. It is at the variant level that any unique organisms occur that respond to a range of related site series (ie organisms that live in xeric sites vs those that live in sub hydric sites). Ecosystem mapping using the provincial BEC classification has recently been completed for TFL 19. Using GIS tools, ecosystem representation, as measured at the variant level, will be analyzed and tracked at the landscape level.

A second component of ecosystem diversity is seral stage. Currently more than 50% of the landbase is covered with mature or old seral stages. Over time a trend toward a more balanced age class distribution will occur as a result of harvesting. Spatial modeling tools will be utilized to ensure the harvest pattern maintains sufficient quantities of natural habitat at each seral stage across the landscape. Areas of old growth, as defined by the FPC Biodiversity Guide Book, will be designated as Old Growth Management Areas (OGMAs) under Landscape Unit Planning.

A third component of ecosystem diversity is patch size. Wind and fire, resulting from lightning strikes, are the main natural disturbance factors in the forest of TFL 19. Disturbance events have historically created a range of patch sizes up 250 ha. As per the FPC, Biodiversity Guidebook recommendation, development will attempt to achieve a distribution of patch sizes across the landscape of 30-40% in patches <40ha, 30-40% in patches 40-80 ha and 20-40% in patches 81-250 ha.

Protected areas adjacent to and within TFL 19 are mapped. Other areas reserved from harvest, as per the FPC, include riparian reserve zones on fish streams, ungulate winter range, wildlife habitat areas and environmentally sensitive areas will be mapped and tracked. With respect to riparian areas, road construction will be carefully monitored to reduce sediment where stream crossings are required. Timing

windows will be observed for road construction around fish streams. Where required appropriate riparian management areas or buffers will be established to maintain the integrity of riparian reserves.

SFM indicators for area reserved, seral stage distribution, patch size distribution and ecosystem inventories have been established which will guide planning and forest management activities. These indicators will be reported on in the management plan and other pertinent reports.

4.2.1.2 Species Diversity

Element

Objective	Indicator
Maintain viable populations of native species	# of known species classified as threatened, endangered or vulnerable (COSEWIC)
	ha maintained as wildlife tree patches (WTP)
	cumulative ha/# WHA established
	ungulate winter range
	mixed species regeneration
	# planted by species
	# fry released

While maintaining a range of suitable habitats across the landscape will provide for the majority of species, some species on the provincial red and blue lists¹ or species identified in the Identified Wildlife Management Strategy as regionally important warrant special consideration (Table 10). Particular attention will be given to old growth dependent species. Inventory work is needed for many sensitive species so that a baseline can be established to measure management efforts.

¹ Ministry of Environment classification. Red-list includes species or subspecies considered to be extirpated, endangered or threatened in BC. Blue-list includes any indigenous species or subspecies considered to be vulnerable in BC.

Table 10 – Red, blue listed and regionally important Mammals and Birds

Red-listed Species	Habitat
Pacific water shrew	Riparian areas and wetlands
Keen's long-eared myotis	Caves and nearby old growth
Queen Charlotte goshawk	Drier mid-slope, old growth stands (nesting)
Marbled Murrelet	Old growth with large branches greater than 15cm in diameter
Blue-listed Species	Habitat
Ermine	Riparian areas with dense understory
Vancouver Island Wolverine	High elevation stand types
Roosevelt Elk	Low elevation old growth (winter) and young second growth
Great blue heron	Deciduous stand types, wetlands and estuaries
Peregrine falcon	Rocky ledges with overhanging vegetation (nesting)
White-tailed ptarmigan	Generalist, uses a range of seral stages
Western screech owl	Low elevation riparian areas (nesting)
Northern pygmy owl	Low elevation, late seral stage stand types (nesting)
Huttin's vireo	Low elevation, late seral stage stand types (nesting)
Sandhill crane	Wetlands, estuaries
Regionally Important Species	
Black bear	Generalist, uses a range of seral stages
Black-tail deer	Generalist, uses a range of seral stages

Reforestation programs also impact on species diversity. WFP will reforest with a variety of ecologically appropriate native conifer species. Native deciduous species will also be retained within stands (minor component), riparian reserves and wildlife tree patches.

Salmon enhancement programs also contribute to the maintenance of salmon stocks. WFP contributes funding to the Gold River Chinook project and the Zeballos salmon enhancement project. Instream activities funded by the FRBC watershed restoration program also contribute to the maintenance and restoration of local fish populations.

SFM principle indicators have been established to track numbers of known rare and endangered species, ha of mixed species regeneration, number of seedlings planted by species and number of salmon fry released. Performance will be included in the annual report.

4.2.1.3 Genetic Diversity

Element

Objective	Indicator
Maintain the variation of genes within species	% seed orchard seed used

The maintenance of a range of suitable habitats across the landscape will contribute to maintenance of genetic diversity within plant and animal populations. Special measures may be needed in situations where research indicates that distinct local populations are threatened through habitat loss.

Reforestation and tree improvement programs contribute to the maintenance of genetic diversity for commercial conifer species. Seed orchards are designed to include a wide genetic base. Wild seed collects are obtained from a large number of trees to ensure a wide range of genes are incorporated in the seedlot.

A SFM principle indicator for percentage of seed orchard seed used will be established and reported in the annual report and other research publications.

4.2.2 Maintenance of Ecosystem Condition and Productivity

Criteria

4.2.2.1 Forest Health

Element

Objective	Indicator
Maintain forest health	Ha of pest attack Use (ha or #) of weevil resistant spruce planting stock # or accidental fires/ha burned

Forest health is a key element in the maintenance of ecosystem condition and productivity. WFP will maintain a forest health program that is designed to protect the licence area from damage from insects and disease, abiotic factors and fire. A proactive strategy will be pursued in detection and control. The goals of the program are to:

- Minimize the loss of timber in operable merchantable stands;
- Maintain the forest productivity and health of immature stands by monitoring insects and disease activity and implementing control action when needed;
- Salvage insect, disease, wind or fire damaged merchantable timber quickly;
- Minimize the time between felling and processing of timber

The forests of TFL 19 have been relatively free of major insect or disease infestations. There have been no major catastrophic outbreaks causing significant unsalvaged mortality or volume losses. The main active agents have been various defoliators and bark beetles. The last defoliator outbreak was in the mid-70's by western black-headed budworm (*Acleris gloverana*) in stands above 600m near Zeballos. Douglas fir and mountain pine beetle caused pockets of mortality in the mid-60's around Gold River.

Spruce weevil (*Pissodes strobi*) has severely infested Sitka spruce plantations to the point where the species is nearly non-existent in reforestation programs. White pine blister rust (*Cronartium ribicola*) has meant a similar fate for white pine as a reforestation species. Work is underway to produce resistant planting stock and WFP will again utilize these species when resistant seed or vegetative material is available.

Hemlock dwarf mistletoe is widespread throughout merchantable size stands. Sanitation treatments of advanced regeneration are sometimes required to prevent the spread in newly regenerated western hemlock stands. Usually vigorously growing, fully stocked stands are not impacted significantly by hemlock dwarf mistletoe.

Root diseases sometimes result in small pockets of mortality. Reforestation with less susceptible species can be used in root rot pockets

Ambrosia beetle attack degrades value to logs in inventory or storage. Keeping felled and bucked inventories low and processing logs quickly is the best method of control. Pheromone baited traps are sometimes used around dryland sort and booming grounds to trap adult beetles. Table 11 lists common insects and diseases found in TFL 19.

Table 11 – Common Insects and Disease found in TFL 19

Agent		Occurrence	Incidence	Susceptible Species ²	Management Risk
Root disease					
Armillaria root rot	<i>Armillaria ostoyae</i>	Occasional	Light	Fd, Hw, Ba, (Cw, Ss)	M
Annosus root rot	<i>Heterobasidion annosum</i>	Occasional	Light	Fd, Cwt (Hw, Ba, Ss)	L
Phellinus Root rot	<i>Phellinus weirii</i>	Occasional	Light	Fd, Ba, (Hw, Ss) Cw	M
Stem/Branch Diseases					
Hemlock Dwarf Mistletoe	<i>Arceuthobium tsugense</i>	Frequent	Medium	Hw, (Ba, Ss)	L
White Pine Blister Rust	<i>Cronartium ribicola</i>	Common	Heavy	Pw	H
Insects					
Douglas-fir beetle	<i>Dendroctonus pseudotsugae</i>	Infrequent	Light	Fd	L
Spruce terminal weevil	<i>Pissodes strobi</i>	Common	Heavy	Ss	H
Western black-headed budworm	<i>Acleris gloverana</i>	Infrequent	Light	Hw, Ss, Ba	M
Ambrosia beetles	<i>Trypodendron lineatum</i>	Common	Heavy	(Hw, Ss, Ba, Fd)	H

Detection of insect and disease activity normally occurs with the collection of silviculture prescription field data or regeneration surveys. Completed silviculture prescriptions will include proposed actions for dealing with insects or diseases noted.

² Species are listed in order of susceptibility. Brackets indicate species are equally susceptible.

Any increased incidence of insect or disease activity observed during the course of regular operations will be dealt with by a specific action plan. WFP will seek assistance from specialists at the Canadian Forestry Service, MoF, universities, and consultants, if required.

If specific control measures are warranted, such as spraying to control severe defoliation outbreaks, a plan will be developed in consultation with the MoF, First Nations and other shareholders. Where alternatives exist, biological insecticides will be used.

Abiotic factors such as windthrow, snow press, drought and sun scald are also considered in the forest health program. Where there is evidence of historic windthrow activity assessments will be made during the block layout phase. Blocks will be designed with wind firm edges or treatments such as feathering or pruning will be prescribed to reduce the risk of blow down in neighbouring stands. Where significant amounts of blow down occurs salvage of operations merchantable timber will be implemented.

Species and seedlot selection combined with stocking control will be utilized to reduce damage caused by snow press, drought or sun scald.

A third component in the forest health program is fire protection. As the licence area is situated on the west coast of Vancouver Island, in the wetter maritime zone, typically the fire danger reaches extreme only in some of the interior drainages on the east side. There have only been two major operational fires on the TFL, the Upana Mountain fire in 1958 and the Muchalat Lake fire in 1966.

WFP will comply with regulations under the Forest Act and Forest Practices Code Act relating to the prevention, detection and suppression of fires.

A fire preparedness plan will be submitted by April 1 each year to the MoF. The plan will outline proposed activities, key contacts, shut down criteria, suppression equipment and company regulations with respect to fire prevention and suppression. Fuel management planning will be incorporated into Forest Development Plans and will include an analysis of anticipated fuel build-up over the five-year planning period and strategies to reduce the build-up and mitigate risk. A sample Fire Preparedness Plan is found in Appendix VII.

SFM principle indicators have been established for forest health and include:

- ha of insect and disease attack
- use of insect or disease resistant planting stock
- number of accidental fires and ha burned

Indicators will be reported on in the annual report, Forest Development Plan and other pertinent reports.

4.2.2.2 Forest Ecosystem Resilience

Element

Objective	Indicator
Maintain forest ecosystem resilience	NSR balance
	Not free growing balance
	% area meeting regen delay

The functionality of forest ecosystems is paramount in our harvest planning and silviculture activities. Prior to harvesting, an ecologically based silviculture prescription (SP) specific to each cutblock is prepared by Company RPFs and submitted to the District Manager for approval. Incorporated into the SP are the results of various assessments completed by Company staff and external professionals. Assessments that may be completed include:

- terrain stability
- visual impact
- riparian
- archaeological impact
- gully
- karst
- windthrow
- forest health and wildlife impact

Key elements of the SP in addition the resource assessment recommendations include:

- the BEC ecosystem classification for the area covered by the prescription
- the harvest method and hazard rating for soil compaction, erosion and displacement
- the location of roads and a plan for their future use
- a description of the silviculture system used and the purpose and function of trees left standing
- a description of any known non-timber resource features and a plan to protect them
- the location of streams, wetlands and lakes and plans to protect them
- a reforestation plan which states the target number of healthy, well-spaced trees by species that will be achieved in the free growing stand.

The implementation of the SP is linked to WFP's basic silviculture program, the goals of which are:

- Establish a free growing stand of ecologically appropriate, well spaced trees within the prescribed period.
- Reforest all cutblocks within 2 years after harvest to comply with prescribed regeneration delays.
- Manage regenerated cutblocks to target stocking standards

To achieve these goals the following activities will be undertaken:

- site preparation, planting, regeneration monitoring and surveys, brushing and weeding (if necessary)

- replanting (if necessary)
- basic spacing if required to declaration of free growing

WFP's basic silviculture program will conform to the FPC, silviculture practices regulation. A description of the basic silviculture program is as follows:

Site preparation is not required for initial reforestation in most areas with the exception of spot accumulations of yarding slash along roads. Roadside accumulations that prevent planting to desired stocking densities will be piled. Piles may be burned or left as coarse woody debris and/or habitat. Roadside accumulations account for less than 1% of the reforestation area.

Mechanical site preparation and/or spot applications of herbicide may be required prior to fill-planting. Herbicide applications are planned as per the Nootka Region Pest Management Plan which is discussed under brush control. Historically less than 11% of the reforestation area requires fill-planting.

Planting is the main method of reforestation. To achieve desired stocking densities trees are planted in every cutblock. The number of trees planted will depend on the amount of advanced regeneration retained after harvesting, expected natural seeding in, brush hazard and browse hazard. Seedlings are obtained from a number of container nurseries located on Vancouver Island including WFP's nursery in Saanich. Wherever available, "A" class improved seed is used. Much of the Hw, Cw and Fd seed used is "A" class and produced at WFP's localized seed orchards in Saanich.

Yellow cedar seedlings are usually produced from rooted cuttings. Wild seed collections or purchases are made to address any deficiencies in seed supplies.

- WFP seed orchards
- Seed Inventory for TFL 19
- Planting history 1954-1999 (# seedlings by species, ha)

Silviculture surveys are performed on all regenerating cutblocks to monitor progress towards achieving free growing status. Information collected includes: species; total number of stems and number which are well-spaced; brush species and distribution; qualitative remarks. The results are used to prescribe follow-up silviculture treatments if necessary. Generally one survival survey and a minimum of two regeneration surveys are undertaken prior to a final free to grow assessment. Survey results are reported to the MoF via Major Licence Silviculture Information system (MLSIS) reports.

An integrated pest management approach will be used when determining treatment thresholds, and treatments for brush control. TFL 19 is covered under a five year Pest Management Plan which is approved by the MoELP. The Plan specifies when and how brush control treatments will be undertaken, consultation protocols, environmental protection measures and monitoring. Where possible alternatives to herbicides will be used to control brush. Table 12 indicates the Five-Year Basic Silviculture Goals (hectares) for TFL 19.

Table 12 – Five year basic silviculture activity goals (ha) for TFL 19

Activity	Previous 5 Year Avg.	2001	2002	2003	2004	2005
SP's (Area Logged)	1600	1500	1200	1400	1200	1200
Site Preparation	30	22	25	25	25	25
Planting	1200	1400	1200	1200	1300	1400
Silvicultural Surveys	3100	4200	4000	3500	3500	3500
Brushing	100	250	200	200	180	150
Free Growing Surveys	1500	1500	1500	1500	1500	1500

SFM indicators have been established for forest ecosystem resilience and include:

- not satisfactorily stocked (NSR) area (ha)
- area not free growing
- area meeting regeneration delay

Performance will be reported on in the annual report.

4.2.2.3 Forest Ecosystem Productivity

Element

Objective	Indicator
Maintain forest ecosystem productivity	# of growth and yield plots established and maintained
	ha fertilized, spaced and pruned
	ha harvested by silviculture system

Once the commitments and obligations of the SPs have been fulfilled, stands are available for incremental silviculture treatments. WFP will strive to optimize the timber producing capacity of forest ecosystems while conserving other resource values. WFP currently has a multi-year agreement with Forest Renewal BC to fund incremental silviculture activities such as backlog brushing, backlog planting, juvenile spacing, pruning and fertilization. A Resource Management Plan has been developed and approved by FRBC and the MoF which sets out goals related to volume and value gains to be made through various incremental silviculture treatments as well as social outputs such as training and employment. Stand Management Prescriptions (SMPs) are prepared and approved by Company RPFs which give specific treatment objectives, plans to plan non-timber resources and time frames. SMPs are reviewed and approved by the MoF.

As previously discussed under the section Research and Development, WFP maintains permanent growth and yield plots which are used to measure stand productivity. New plots will be established to monitor incremental silviculture treatments in line with priorities by the Coastal Forest Productivity Council.

Two SFM indicators have been established to report on Forest Ecosystem Productivity. WFP will report annually on the number of growth and yield plots established and maintained and the number of ha fertilized, spaced and pruned each year. Table 12 outlines the planned five year goals enhanced silviculture goals based on continued FRBC funding at current levels.

Table 13 - Five Year Enhanced Silviculture goals (ha)

Activity	Previous 5 Year Average	2001	2002	2003	2004	2005
Juvenile Spacing	205	190	195	200	200	250
Pruning	65	170	195	175	150	150
Fertilization	190	900	500	700	800	700

4.2.3 Conservation of Soil and Water Resources

Criteria

4.2.3.1 Productive Area

Element

Objective	Indicator
Minimize permanent loss of productive area	% permanent access within cutblocks # or ha of landslides in forest operations

The total area of TFL 19 is approximately 191,992 ha. Of this total, 148,177 ha are considered productive. Existing roads, trails and landings occupy roughly 1486 ha or 1% of the productive land. A major factor in completing the operability classification for TFL 19 was the identification and removal of environmentally sensitive areas for soils from the timber harvesting landbase. Approximately 22,900 ha of productive area was identified and were removed from the timber harvesting landbase due to soil concerns.

One of the primary goals of harvest planning is to minimize impacts on the net productive landbase. Permanent and temporary access structures are planned to minimize the total amount of road required to safely and economically harvest the timber. For the period 1995-99 the percent of permanent access within conventional cutblocks has averaged 5.3%.

Mainline and branch road surfaces during this period have been on average 11 meters wide. Spur roads have averaged 9 meters. Future roads are forecast to occupy 970 ha. The following practices are undertaken to minimize the loss of productive area.

- Road cut slopes and fill slopes are planted with trees and grass seeded
- Temporary access structures and abandoned roads are debuilt wherever possible
- Excess material generated by road building on slopes greater than 60% is generally end hauled or keyed into minimize side-casting
- Fill slopes are rehabilitated through side cast pullback and planted with trees and grass seeded

Terrain stability assessments are also completed where harvesting in proposed areas of moderate hazard for landslide initiation following timber harvesting or road construction. If harvesting proceeds in these areas the recommendations made by terrain specialists are followed in plan development and implementation. Rainfall shutdown standard operating procedures are followed to ensure the safety of personnel and reduce the risk of erosion and landslides.

Two SFM principle indicators have been established to monitor impacts to the productive forest landbase. They are: % permanent access within cutblocks and number of ha of landslides in forest operations. Results will be in the annual report.

<i>Element</i>	
<i>4.2.3.2 Water Quality</i>	
<i>Objective</i>	<i>Indicator</i>
<i>Maintain water quality</i>	<i>Rainfall shut down</i>
	<i>SOPs</i>
	<i>km of road deactivated</i>
	<i>ha of RMZ/ha logged</i>
	<i>% CWAPs conducted on designated watersheds</i>
	<i># or reportable spills</i>
	<i>ha treated with pesticide vs. ha treated mechanically</i>

The watersheds in TFL 19 drain a large catchment area on the west coast of Vancouver Island. Many support populations of anadromous fish and some supply domestic drinking water. There are currently fourteen registered water licences in TFL 19 (Figure 11). There are no designated community watersheds as defined by the FPC. The Village of Tahsis draws its water supply from McKelvie Creek which is an unlogged watershed draining into the Tahsis River. A water quality station has been established using FRBC funds on McKelvie Creek and is being maintained by Environment Canada – Water Survey of Canada. As well as contributing data to a larger study of streams on Vancouver Island the station will provide background data for McKelvie Creek which will serve as a baseline to measure the impact of future harvesting in the watershed.

FPC riparian reserve zone and management zone provisions will be incorporated into operational plans to protect water quality. In addition, WFP has standard operating procedures (SOP) designed to protect water quality and the environment in general. These standards include formal procedures for activities and maintenance of machinery in riparian management zones, application of herbicides for brush control and block design and layout. Appendix VII provides a sample SOP.

Road deactivation, road maintenance and watershed restoration projects funded by FRBC are also key activities in the maintenance of water quality. The focus of road deactivation and maintenance is to maintain natural surface and ground water flow patterns and to minimize risks posed by road related landslides or other mass wastage events. Specific watershed restoration projects are directed at maintenance and enhancement of fish habitat. Appendix XIV provides project details.

SFM principle indicators have been established for water quality. They are: ha of RMZ vs ha logged, km of deactivated road, number of CWAPs completed, number of reportable petroleum spills and ha treated with herbicide vs ha treated mechanically. Results will be reported in the annual report.

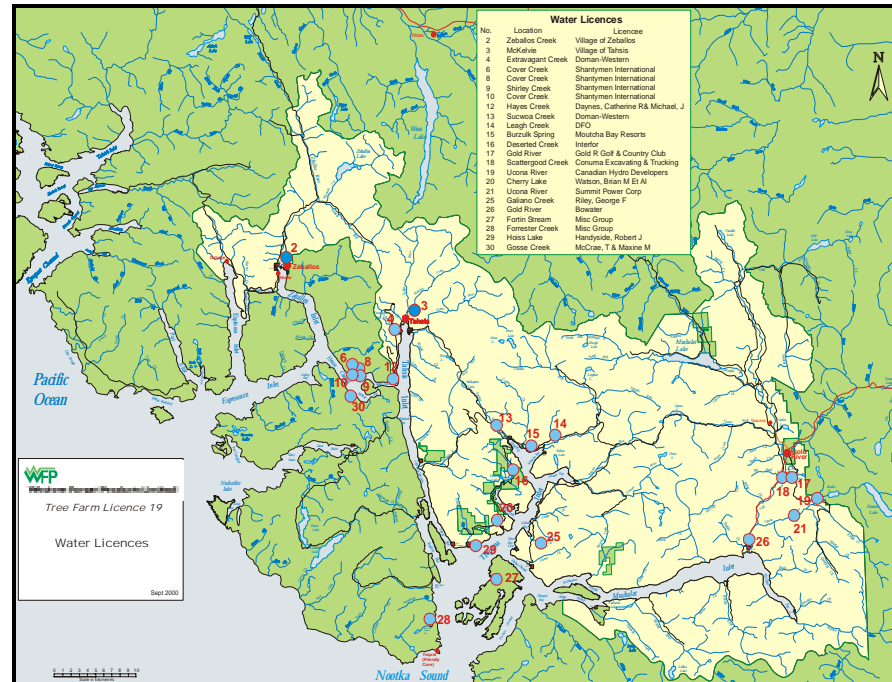


Figure 11 – Water Licences

4.2.4 Contribution to Global Ecological Cycles

Criteria

4.2.4.1 Carbon Sequestration

Element

Objective	Indicator
Maintain carbon balance relative to company operations	Ha of NSR (current + backlog)

Carbon Sequestration refers to the provision of long-term storage of carbon in the terrestrial biosphere, underground, or the oceans so that the buildup of carbon dioxide (the principal greenhouse gas) concentration in the atmosphere is reduced or slowed. In some cases, this is accomplished by maintaining or enhancing natural processes.

Global carbon cycles are not fully understood. However, it is believed that global carbon cycle is out of balance. The increased atmospheric CO₂ level is making global climatic change more likely.

Establishment and maintenance of forests is an important aspect of the terrestrial carbon sequestration. As forests grow they convert carbon dioxide in the air to carbon stored in trees. Forests form a large terrestrial sink for carbon. Harvesting will be followed by prompt reforestation.

4.2.5 High Conservation Value Forests

Criteria

The term "High Conservation Value Forest" or HCVF originates from Principle 9 of the Forest Stewardship Council's ten Principles and Criteria. Management of HCVF focuses on the precautionary maintenance or enhancement of attributes such as significant concentrations of biodiversity, ecosystems at risk, watersheds, unstable terrain, or fundamental economic or cultural needs of local communities or First Nations.

Management of attributes identified as sensitive to forest management has been ongoing for many years. Management strategies for them have been described in previous plans or other sections herein.

Once TFL 19 is declared a defined forest area for the purposes of certification under the Forest Stewardship Council, proposed HCVF attributes are identified and strategies specifically developed for management and monitoring of them will be the subject of consultation with stakeholders.

4.3 Socially Beneficial Forest Management

Principle

4.3.1 Responsibility for Sustainable Development

Criteria

4.3.1.1 First Nations

Element

Objective	Indicator
<i>Provide meaningful consultation on forest management</i>	<i>Records of meetings and correspondence</i>
<i>Increase First Nations involvement in forest management</i>	<i>% silviculture contracts to First Nations other person-days employment to First Nations and/or joint ventures</i>
<i>Protect First Nations cultural features</i>	<i># of AIAs, AOAs</i>

The Mowachaht/Muchalaht and Ehatesaht First Nations traditional territories cover much of the TFL 19 land base as shown in Figure 12.

The Mowachaht/Muchalaht traditional territory extends from Nootka Island in the west to Buttle Lake in the east, and from Twaddle Lake in the north to Lillian Lake in the South. The communities of Gold River and Tahsis both lie within the boundaries of the Territory. Tsaxana, a community of approximately 200 residents located outside Gold River, is the main community of the Mowachaht/Muchalaht First Nations. There are roughly 300 members of the Mowachaht/Muchalaht living outside of the Nootka Region.

The Ehattesaht First Nations Traditional Territory surrounds the community of Zeballos and includes Fair Harbour and Port Eliza. The Territory extends almost to Woss Lake and Tahsis Inlet. Ehatis, the main community of the Ehattesaht (located near Zeballos) has a population of roughly 100. The Ehattesaht have a second community, Queen's Cove, in Port Eliza (not within the boundary of TFL 19), with a population of six people.



Figure 12 – First Nations Territories

The Nuchatlaht First Nations, while not having Traditional Territory in TFL 19, live in the community of Oclugje, in Little Espinosa, near Zeballos. There are about fifty residents living in Oclugje.

WFP is committed to maintaining a meaningful and respectful relationship with First Nations. The TFL Management Plan and Forest Development Plans (FDP) are referred to the First Nations leadership for review and comment. WFP planners meet with Band Councils to review the draft plans and address concerns brought forward by the Bands. Development plans are adjusted to respect First Nations cultural and heritage resources.

To ensure protection of important First Nations cultural heritage sites, a protocol has been developed for archaeologically important areas and culturally modified trees (CMT's). An archaeological overview assessment of the TFL was completed, that identified potentially significant areas. Areas with high potential, areas that are adjacent to those areas of high potential, and areas identified in the field as having trees that have potentially been culturally modified, are surveyed by an archaeological consultant to produce an archaeological impact assessment (AIA). The AIA is sent to the First Nations band involved for review and comment.

A Memorandum of Understanding (MOU) was signed in 1996 by Pacific Forest Products (predecessor to WFP), and renewed in 1998 by Western Forest Products, between WFP, the Ehattesaht Band, the Mowachaht/Muchalaht Band, and the Nuchatlaht Band. The MOU states that FRBC projects can be directly awarded to local First Nations contractors wherever possible, provided the bids are within the range of historic, open-tendered projects of a similar nature in the Nootka Region. Target groups for enhanced silviculture projects are First Nation companies operating within their traditional territories. The goal is to provide full employment for those crews in a variety of silviculture activities in addition to providing training opportunities for new people. Over the last five years, First Nations employment was approximately 1,800 person days per year for silviculture contracting in TFL 19.

Western Forest Products provides timber to First Nations groups for a range of traditional uses, including canoes, drum logs, totem poles, and big houses.

4.3.1.2 Communities

Element

Objective	Indicator
Conduct effective consultation with communities	# and types of contacts/meetings/consultation
Maintain and enhance community stability	public project expenditures

Tours of forestry and logging operations within TFL 19 are available to the public upon request. These tours are provided at no charge, with approximately 200 participants.

For the last 10 years, the company has been providing a forestry program consisting of ten modules for grade three and five classes at Ray Watkins School (Gold River) and Captain Meares School (Tahsis). A forestry and logging tour is given to the grade five classes at the end of each school year. Programs and presentations are given on request at Zeballos School and Gold River Senior Secondary. The school programs have been very enthusiastically received.

Visitor guide maps of the Nootka Region are popular. The Western Forest Products' maps are the only maps readily available to the public of the Nootka Region and 6,000 copies were distributed in 1999. Appendix XI is a copy of the Visitor Guide.

The Company is dedicated to supporting local businesses and contractors. The MOU signed between the Company and First Nations groups also commits Western Forest Products to awarding FRBC contract work to First Nation's Contractors. Businesses in the Nootka Region rely on trade generated by local forestry operations.

The communities of the Nootka Region benefit from Western Forest Products support of many events and recreational activities. Financial support and in-kind contributions are provided for: The Great Walk, Gold River Golf Course, Gold River Riding Club, Gold River Rod and Gun Club, Zeballos Fall Fair, National Forest Week, Logger's Sports Day, and several other events and groups.

Western Forest Products' employees are very active in their communities. In the last five years, employees have continued to be members of many local groups including:

- Local Government and Committees
- Nootka Resource Board
- Special Management Zone Working Group
- Regional Aquatic Management Committee
- Chamber of Commerce
- Employee Family Assistance Program
- Community Action Network
- Gold River Health Council
- Volunteer Fire Departments

- British Columbia Ambulance Service, and the Provincial Emergency Program.

Figure 13 shows the location of operations and communities. Appendix XVII provides a profile of the main communities located within TFL 19.

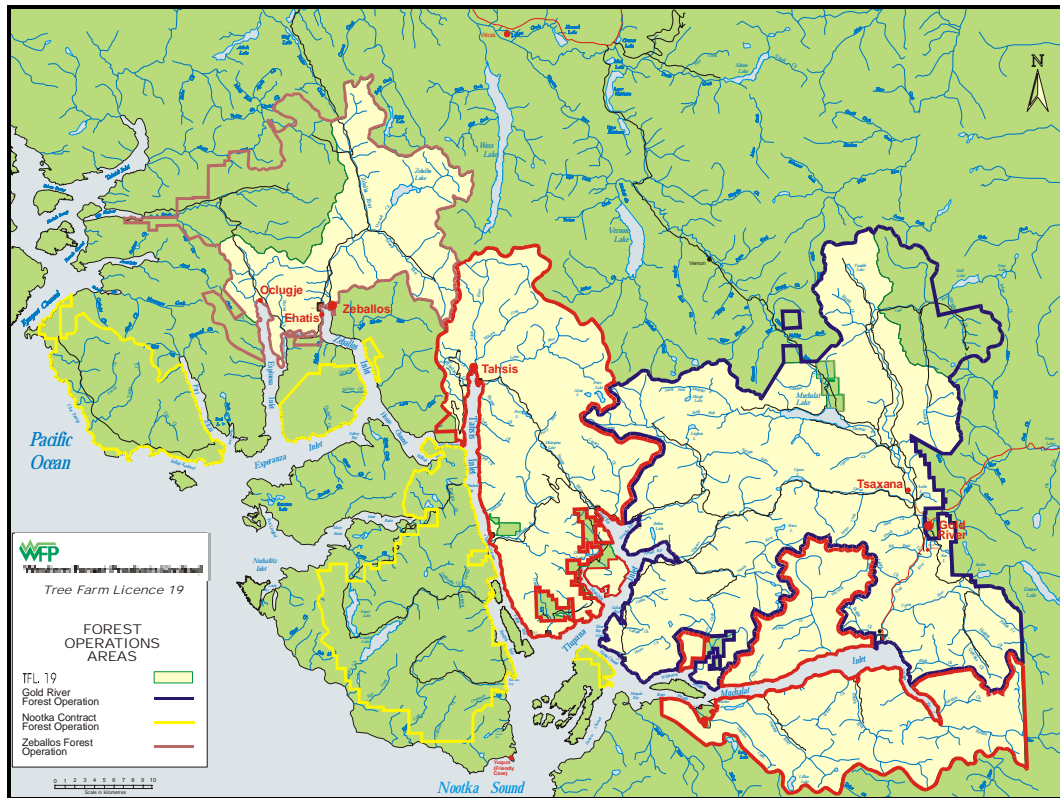


Figure 13 – Forest Operations

4.3.1.3 Compliance

Element

Objective	Indicator
Provide adequate training	# of training hours (training records)
Achieve compliance with all legislation and regulations	% compliance

Forestry activities in TFL 19 are focused on sustainable development and environmental protection. Legislation, regulations, policy and guidebooks provide standards for forest practices. WFP's objective is to achieve full compliance with all legislation and regulations.

WFP has developed a series of Standard Operating Procedures (SOPs). These SOPs guide each of our staff, employees and contractors. These SOPs and associated training programs assist WFP's operations to achieve a consistent and high level of responsible forest stewardship.

The SOPs are a key element of WFP's environmental management system. The SOPs set minimum standards for specific forest management activities. Progress and performance will be assessed through internal and external audits of each operation.

Percent compliance with rules and regulations will be monitored. Contraventions will be investigated and, if required, controls and policy changes put in place to prevent reoccurrence.

4.3.1.4 Employee Relations

Element

Objective	Indicator
Provide adequate training	# of training hours (training records)
Provide regular communication to employees and contractors	WFP Western Spirit and Environment Matters Newsletter circulation

Maintaining good relations with WFP's employees, contractors and their employees is an important element of WFP's Sustainable Forest Management Program. The objective is to provide adequate training and regular communication to workers and contractors. The employees are trained in sustainable forestry practices and through regular communication the employees are informed of new practices. Existing practices are reviewed and updated when required.

WFP's Western Spirit and Environment Matters Newsletters (samples in Appendix XIX), quarterly publications are circulated to employees. Training records and training needs for all employees are maintained at WFP's Regional Office. The Environmental Committees in each operation meet quarterly to review their environmental management program.

4.3.1.5 Safety

Element

<i>Objective</i>	<i>Indicator</i>
<i>Provide a safe working environment</i>	<i># of incidents</i>

Western Forest Products recognizes the necessity of establishing and maintaining a safe working environment for all employees, contractors and their employees. Safety has always been and always will be an important aspect of all operations. Each operation's safety program includes the following:

- Monthly meeting of safety committees
- Develop safe work practices for each activity
- Provide training in safe work procedures
- Communicate safety to all workers on a regular basis
- Reporting of dangerous conditions and incidents

5.0 SUSTAINABLE FOREST MANAGEMENT PLAN CONSULTATION

The preparation of Management Plan 9 for TFL 19 has followed a hybrid of the old and new TFL Management Plan processes. The old process laid out a 30 month time line leading up to the approval of a new plan and included the following: a public review of the current plan, submission of a review strategy for the new plan, a Statement of Management, Options, Objectives and Procedures (SMOOP), an Employment and Economic Opportunity report (EEO), an information package, a timber supply analysis complete with a 20 year plan, and a draft MP. This process was initiated for TFL 19 in January 1999 following a letter from the MoF Vancouver Region calling for a public review of the current plan.

WFP developed a public and stakeholder review strategy for MP 9 early in 1999 and carried out the public review of the current plan in February and March of 1999. Advertisements were placed in local newspapers and on the Company website inviting comments on current performance under MP 8 and suggestions for consideration. In addition, letters were sent to 190 stakeholders advising them of the review and an invitation to comment.

MP 8 was on review in Tahsis, Zeballos, Gold River, Campbell River (MoF), Nanaimo (MoF), Victoria (MoF) and Vancouver (WFP, Head Office) from February 12, 1999 to March 15, 1999. A total of 51 responses were received including 10 letters and 42 checklists. Most of the responses came from Tahsis and were prompted by frustration in the community over downtime in the Tahsis Sawmill due to poor markets in 1998 and 1999. That concern remains in view of the continuing serious problems in the Asian hemlock market. The checklist was developed by the local IWA members to convey the message that logs harvested from TFL 19 should be processed locally and that Doman Industries and the government had an obligation to provide full-time employment opportunities in Tahsis.

As part of government's commitment to industry to reduce costs associated with operating under the FPC a new streamlined TFL Management Plan process was developed in mid-1999. The new process shortened the timeline to prepare, review and approve a new plan by 14 months and eliminated the need for advertising and reviewing the current plan and the submission of a SMOOP and EEO. WFP elected to follow this new process and Instrument 66 of the TFL 19 Licence became effective January 20, 2000 which approved the 20 month process.

A revised MP 9 stakeholder and public review strategy is submitted with the draft plan as part of Appendix IX. Open houses will be held in Tahsis, Gold River, Zeballos and Campbell River. WFP staff will meet with municipal councils in the above-mentioned communities and with the three First Nations residing in Nootka Sound. A summary report will be prepared and appended to the final draft MP.

6.0 SUMMARY IMPACT ANALYSIS

6.1 Economic

One of WFP's primary principles is to be an economically viable forest products company which can compete in world markets. This will be achieved by;

- economically harvesting the licensee portion of the proposed AAC
- achieving production and administration efficiencies will be vital to WFP's success.
- through optimal log allocations and utilization, WFP intends to improve product values and enhance lumber recoveries.

Harvesting will be done by using sustainable forest management practices. Independent certification of forest operations will provide assurances that operations are being conducted in a sustainable manner.

6.2 Environmental

Environmentally appropriate forest management is another key principle in WFP's Sustainable Forest Management Policy. WFP is committed to the protection of the environment and the sustainable development of the resources under our stewardship. This will be achieved by implementing several forestry and environmental management practices that meet or exceed government standards. Management practices will continue to be evaluated and adopted in response to new information and experience.

It is anticipated that implementation of new environmentally appropriate management practices may have a slight negative impact on the AAC. However, this impact may be overcome by implementing intensive forest management in those areas where it is ecologically appropriate.

6.3 Social

WFP is committed to respecting, understanding and supporting First Nations, community and employee aspirations for stability and certainty. An economically viable company translates into stable employment for employees and promotes community stability. Implementation of environmentally appropriate management practices will ensure long-term sustainable operations.