

September 2001  
Final



**Western Forest Products Limited**

**Tree Farm Licence 19**

**Nootka Sound – Vancouver Island**

***Sustainable Forest Management Plan***

## **MANAGEMENT PLAN 9**

**August 1, 2001 To July 31, 2006**

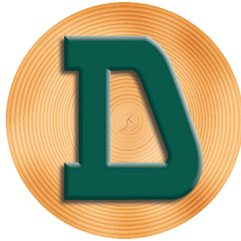
**Approved – August 1, 2001**



**Doman – Western Lumber Ltd.**

***This Plan also serves as the Management Plan and Commitment  
for Managed Forest 20***

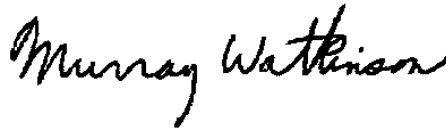




# **Doman Western Lumber Ltd.**

## **Tree Farm Licence 19 Management Plan 9**

This Management Plan was prepared  
by and under the supervision of



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And submitted on behalf of  
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## TFL 19 Management Plan Preparation Component and Timeline Summary

| <b>Months Prior to MP Expiry</b> | <b>Component</b><br>(Condition number from generic TFL dated August 27, 1999)                                         | <b>Date</b>    |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------|
| 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)<br>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)<br>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)<br>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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A CD folio of all maps found in this Plan is enclosed for  
larger scale review





**The Environmental Management System covering forest operations in TFL 19 is registered as conforming to ISO 14001 standards through the Canadian Quality Management Institute**



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## **1.0 INTRODUCTION**

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### **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. It is also intended to form the foundation and framework for Forest Stewardship Council and Canadian Standards Association sustainable forestry certification work that is intended to proceed during the tenure of this plan. This plan also serves as the Management Plan and Commitment for Managed Forest 20.

### **1.2 Description of the TFL**

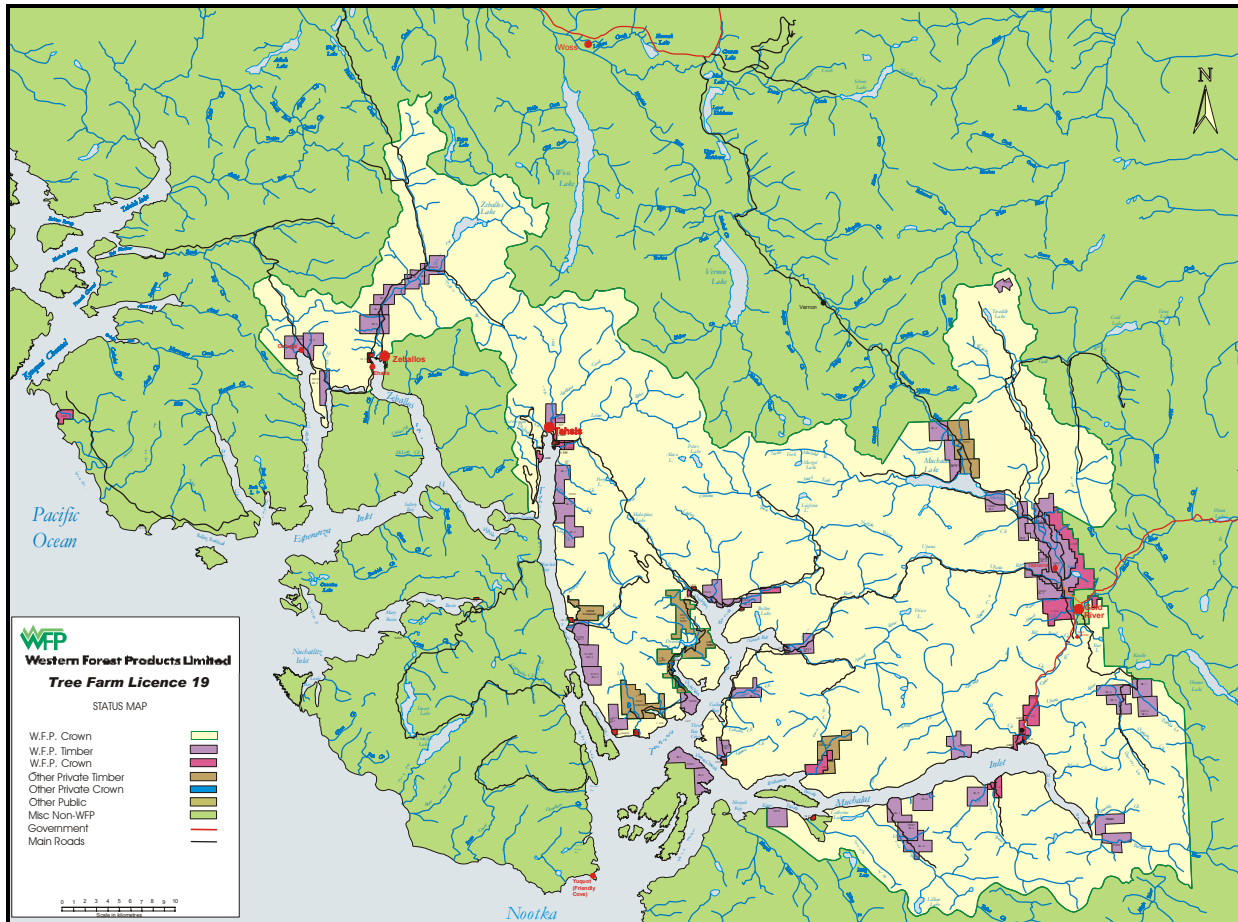
The Tahsis Tree Farm Licence 19 (TFL 19) is located on the west side of Vancouver Island in the vicinity of Nootka Sound (Figure 1). It is 80 kilometres due west of Campbell River. The total area of the TFL is approximately 191,992 hectares of which 189,738 hectares are Crown land including timber licences and 2,254 hectares are fee simple lands owned or controlled by the Licensee. A detailed summary of the TFL land status is in Table 1. Figure 1 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 VI. 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 rainforest landscape.

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.



**Table 1 – TFL Landbase Status**

| Classification                               | Area (ha)  |            | Mature Volume (m³) |              |
|----------------------------------------------|------------|------------|--------------------|--------------|
|                                              | Schedule A | Schedule B | Schedule A         | Schedule B   |
| <b>Total Area</b>                            | 6,674.4    | 185,317.3  | 2,120,821.2        | 48,949,951.3 |
| Less: Non-Forest                             | 350.8      | 35,845.8   | 0                  | 0            |
| Less: Non-Productive Forest                  | 37.3       | 7,580.4    | 2,319.8            | 507,070.4    |
| <b>Total Productive Forest</b>               | 6,286.3    | 141,891.1  | 2,118,501.4        | 48,442,880.9 |
| Less Reductions to Total Productive Forest:  |            |            |                    |              |
| Non-Commercial (NP Br)                       | 4.0        | 20.9       | 0                  | 0            |
| Riparian Reserves                            | 309.0      | 3,663.2    | 142,089.2          | 1,310,022.2  |
| Inoperable / Inaccessible (I, Oce, Ohe)      | 1,090.3    | 43,973.7   | 485,086.1          | 17,028,760.9 |
| Wildlife Habitat Reserves (e.g. UWR, WHA)    | 260.8      | 2206.0     | 225,700.4          | 1,505,040.2  |
| Unclassified Roads, Trails and Landings      | 119.8      | 1,827.3    | 14,888.8           | 189,821.2    |
| <b>Total Reductions to Productive Forest</b> | 1,783.9    | 51,691.1   | 867,764.5          | 20,033,644.5 |
| <b>Total Reduced Land Base</b>               | 4,502.4    | 90,200     | 1,250,736.9        | 28,409,236.4 |
| Less: Not Sufficiently Restocked Areas       | 150.0      | 3,062.4    | 0                  | 0            |
| Add: Not Sufficiently Restocked Areas        | 150.0      | 3,062.4    | 0                  | 0            |
| <b>Timber Harvesting Land Base</b>           | 4,502.4    | 90,200     | 1,250,736.9        | 28,409,236.4 |
| Less: Future Roads, Trails and Landings      | 46.3       | 1,407.6    | 18,701.8           | 443,731.6    |
| Less: Inferred Area Net Down (Recreation)    | 311.3      | 4,315.4    | 100,408.0          | 1,143,386.0  |
| Less: Volume Reductions (WTP – 4%)           | 165.8      | 3,379.1    | 45,265.1           | 1,072,884.8  |
| <b>Total Long Term Land Base</b>             | 3,979.0    | 81,097.9   | 1,086,362.0        | 25,749,234.0 |
|                                              |            |            |                    | 26,835,596.0 |



**Figure 1 – Land Status**

The forests of TFL 19 lie within the wetter and very dry 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 2. WFP harvesting operations in TFL 19 and adjacent forest and timber licences, and the associated sawmill 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 2 – 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 m<sup>3</sup> 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 39,000 ha. Planting (including fill in planting) has occurred on 42,000 ha. More than 27,900,000 seedlings of 11 different species have been planted.
- Tree improvement programs for Douglas Fir, western hemlock, Sitka spruce and western red cedar began in 1959, 1966, 1969 and 1974 respectively. Today all of the Douglas fir, 80% of the western hemlock seedlings and most of the red cedar 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 IV provides a history of silviculture projects completed.

### ***Enhanced Silviculture***

- More than 9,300 ha of second growth have been juvenile spaced since 1954.
- More than 6,200 ha have been fertilized to enhance forest productivity.
- 778 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 and Management Plans.
- A Memorandum of Understanding is in place with the three Bands whose traditional territory covers the TFL in respect of silviculture contracting and FRBC projects.

## ***Communities and Employment***

- Forestry and manufacturing jobs related to the timber harvest in the Region 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 by market declines and cost problems due to the closing of the Gold River pulpmill. 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. The company has been a vital part of community development including providing donations for local causes, sponsoring sports teams, sponsoring community events and developing infrastructure.

## ***Recreation***

- WFP maintains 19 trails and recreation sites on both private and public land within TFL 19. 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 IX) 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 Douglas fir, 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).
- WFP is a founding member and continues to be a strong supporter of the Salal, Cedar, Hemlock Integrated Research Program.

## ***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 that 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 240,000 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. The remainder of the wood is purchased on the open market

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 XIX contains a copy of the Corporate Annual Statutory Report for 2000.

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## 2.0 SUSTAINABLE FOREST MANAGEMENT PRINCIPLES

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### 2.1 Sustainable Forest Management Statement

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:
  - Establishing harvest levels that balance the carrying capacity of forest ecosystems with social, environmental, and economic considerations.
  - Utilizing forest practices appropriate to maintaining, social, environmental, and economic objectives
  - Engaging a team of dedicated professional foresters and planners committed to implementing and practicing sustainable forest management
  - Continually enhancing our ability to plan and manage by promoting applied research and using leading edge inventory and modeling systems.
  - 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.
  - Maintaining a practical, registered management system to guide and direct environmental aspects of company operations
  - Performing regular, internal and external audits to ensure compliance with forest practices legislation and the commitments made in this SFM statement.
  - Committing to a level of compliance that meets or exceeds legal requirements and satisfies public expectations
  - Continuously improving all aspects of our forest practices through adaptive management.
  - Communicating our performance to stakeholders and the public on a regular basis
  - Maintaining biological diversity and conservation objectives at regional, landscape and stand levels.
  - Sustaining, enhancing and protecting forest ecosystem functions.
  - Maintaining soil productivity and water quality by harvesting with environmentally appropriate systems.

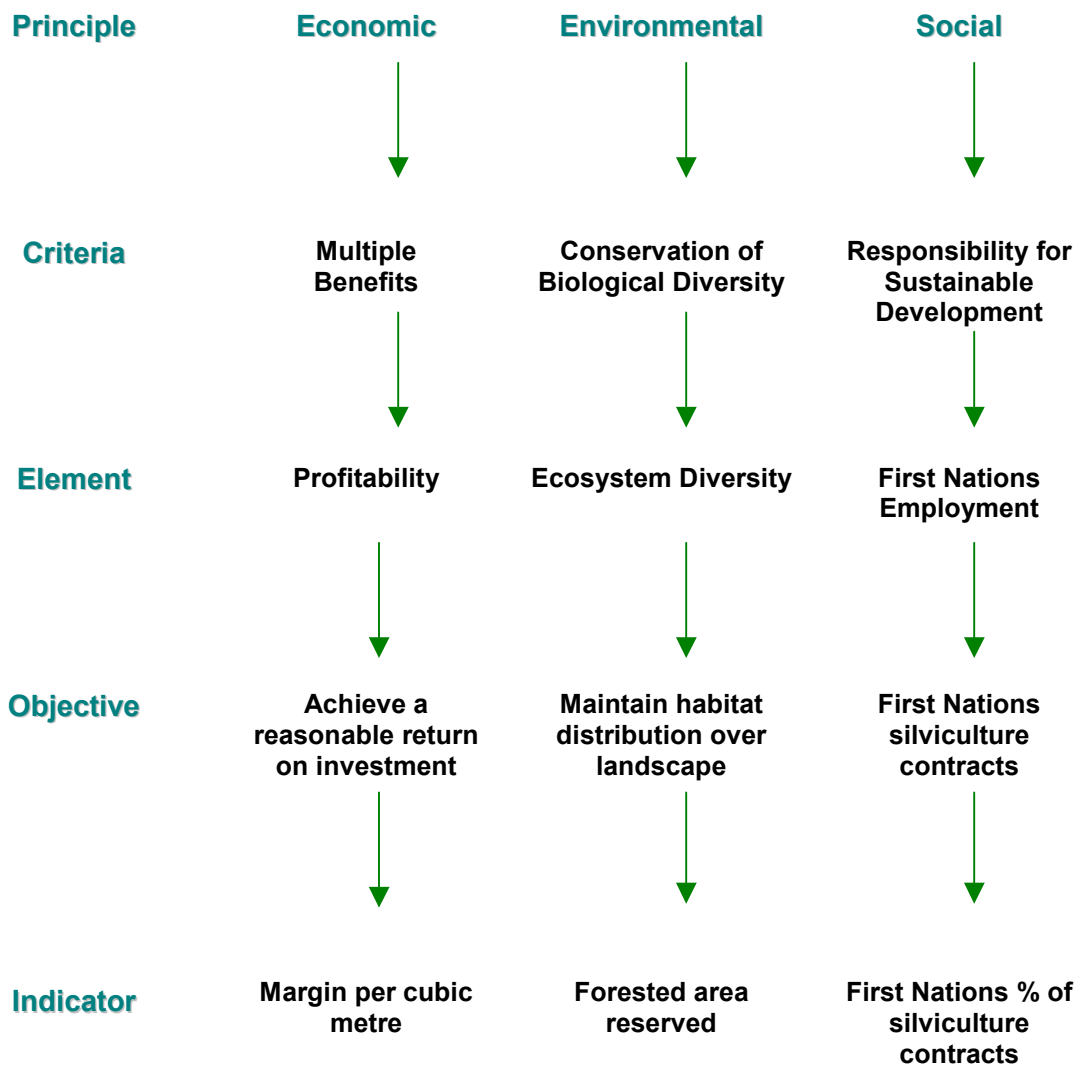


- Researching habitat needs of fish and wildlife species and populations and establishing a program for monitoring rare, threatened and endangered species
- Maintaining an active salmonid enhancement program to sustain or increase salmonid populations through hatchery and habitat restoration programs.
- Implementing restoration programs to address issues arising from past practices.
- Promoting a representative protected areas system within and adjacent to company forest tenures.
- Ensuring the economic health and sustainability of associated, resource-dependent communities.
- Involving the public and stakeholders in meaningful consultation on all aspects of our forest management.
- Encouraging public participation in identifying and assessing sustainable forest management goals, objectives and measurable indicators.
- Cooperating and consulting with community resource boards and stakeholder groups with resource management mandates.
- Managing operations to safeguard the health and safety of employees, contractors and the public.
- Developing our human resources through continuous training and recognition of employee contributions
- Maintaining and enhancing opportunities for public enjoyment of forests through an open road policy as well as recreation site development and 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 goals, objectives and measurable indicators.
- 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
- Achieving a fair return to shareholders by operating in a financially successful manner
- 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.
- We will maintain and further our competitive position in the global forest product marketplace based on our long-standing commitment to innovation, research, leadership and sustainable forest management.

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

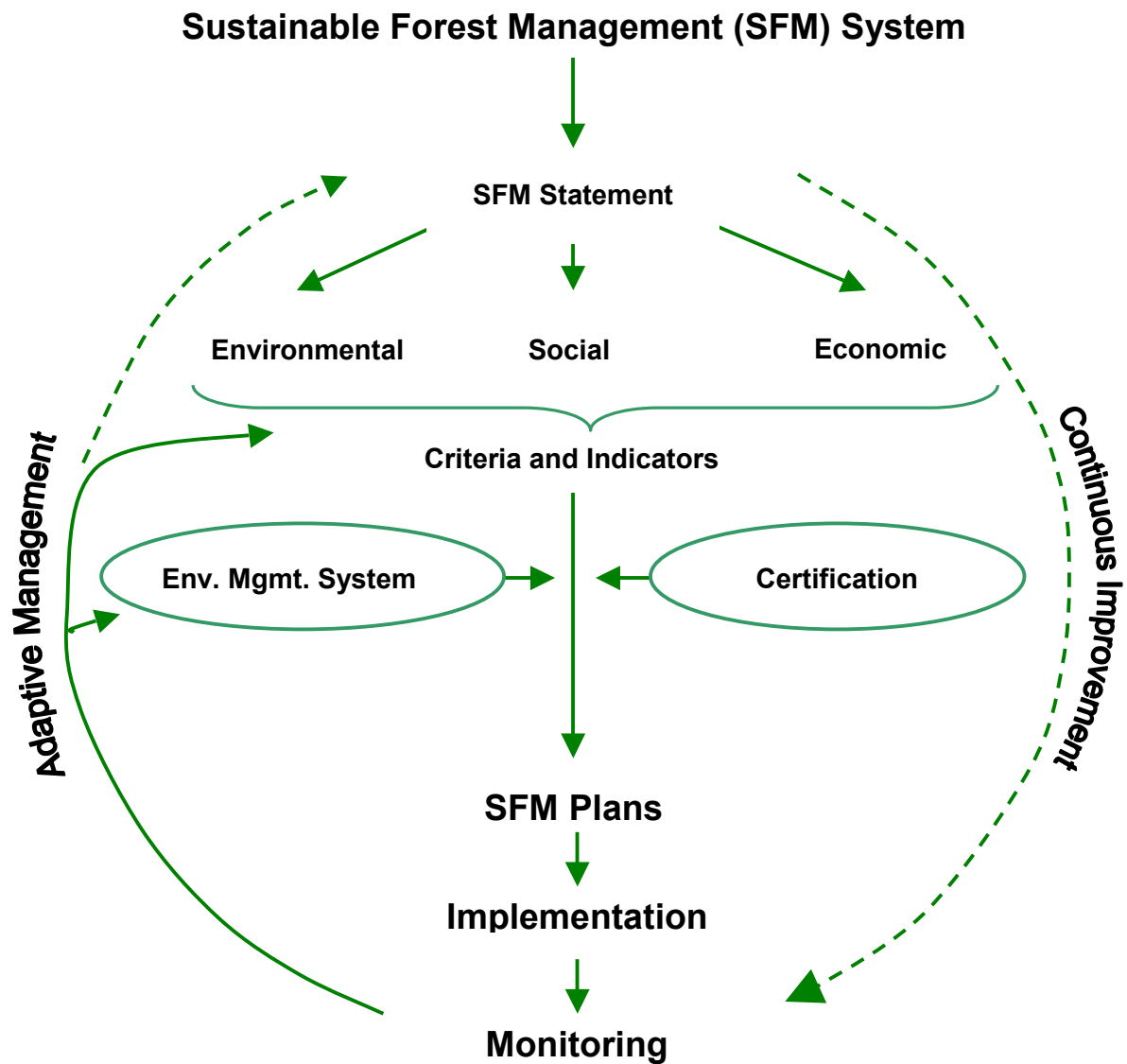
### 2.2.1 Hierarchy of SFM Levels

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 XVII 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).

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## **3.0 FOREST MANAGEMENT INVENTORY AND PLANNING**

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### **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 TFL 19 was completed in 1989. A MOF inventory audit for TFL 19 was completed in December 2000. The audit results for the mature component of the inventory for the TFL suggest that the inventory is acceptable. Audit results for the immature component of the inventory suggest that site index and species composition assignment is acceptable but may need upgrading.

A new vegetation resource inventory is planned for the TFL that will update both old growth and second growth stands. Funding for the vegetation resource inventory will come from WFP's multi-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 practices 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 XVI shows the 20-year plan.

### 3.1.4 Recreation

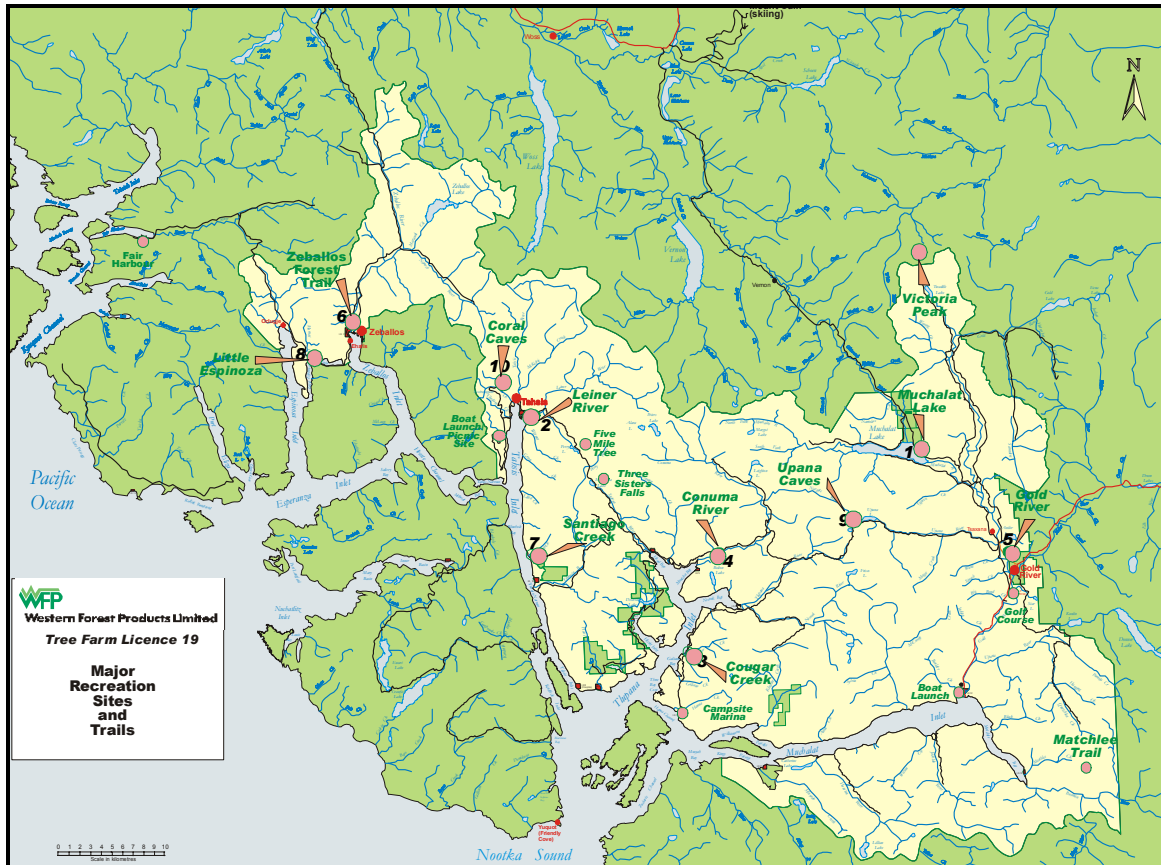
The current recreation features inventory was completed in 1993 and updated in 2000. The inventory consists 1:50,000 map sheets showing recreation feature classes, and a report describing the recreation and biophysical features and a management classification. This inventory has classified and mapped 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 - 2000. Figure 3 shows the location of the major recreation sites. Appendix XI provides detailed sketches of developed facilities. Appendix XII contains a copy of the Nootka Region Visitors Guide.

**Table 2 – Recreational Sites and Trails in TFL 19 1995 - 2000**

| <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                      |
| • Gold River Canyon Lookout                                | 35,000                     |
| <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 was undertaken in 2000 using refined karst potential mapping. Information from the Nootka Sound Forest Recreation and Tourism Opportunities Study (1998) and other pertinent information was incorporated into the revised inventory. The updated inventory was also used in the timber supply analysis. Area net downs of 50% and 100% were applied to polygons with high recreation values. The recreation features within those polygons will be site specifically managed and with careful planning, harvesting will be integrated in a manner that protects recreation values.



**Figure 3 – 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 was completed in March 2001 and the results of the upgrade were included in the Timber Supply Analysis. The inventory provides guidance when preparing operational plans. Visual impact assessments will be completed for areas where the inventory indicates detailed planning is required.

### 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 2001.

### 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 potential UWR (EW2) areas having significant value for wildlife including deer winter ranges in low snowfall areas below 300 metres in elevation 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 4 shows the location of ungulate winter ranges. Old EW2 designations not converted to UWR have a cover constraint of maintaining at least 50% in greater than 140 year old stands. Habitat modelling is underway and will be used to guide mapping of new UWRs and revise boundaries of existing UWRs or delete poorly functioning UWRs. UWR boundaries are to be resolved during the term of MP 9.

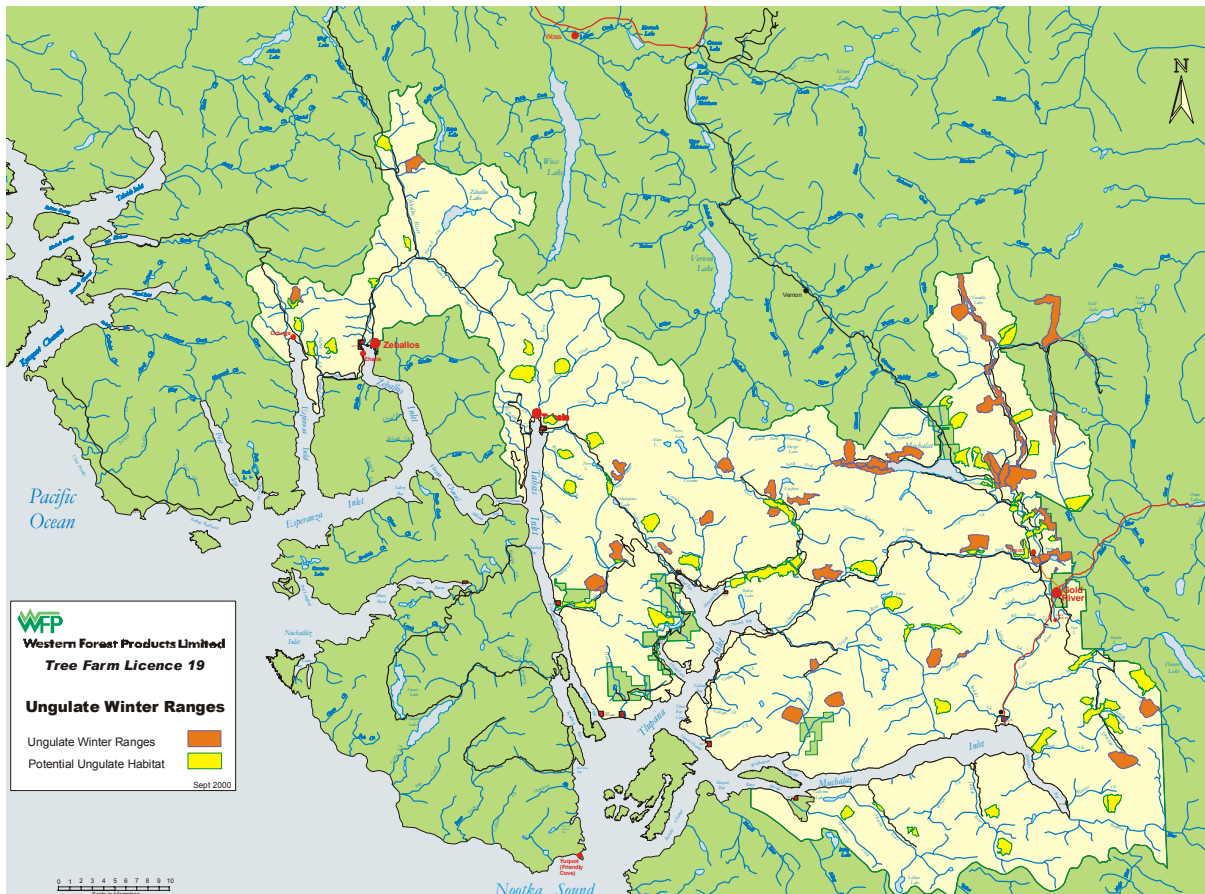


Figure 4 – Ungulate Winter Ranges

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 XIV provides a sample Goshawk inventory.

New inventory work is planned for marbled murrelets. Habitat suitability work was initiated in 2000 and will be followed by detection surveys to determine relative use of identified habitat.

A detailed strategy for managing wildlife in TFL 19 will be completed during the term of MP 9. This will be completed in conjunction with implementation of biodiversity strategies identified in higher level plans and/or landscape level plans.

### 3.1.12 High Conservation Value Forests

High Conservation Value Forests are defined as those forests that possess one or more of the following attributes:

- Forest areas containing globally, regionally or nationally significant:
  - Concentrations of biodiversity values (e.g. endemism, endangered species refugia); and/or
  - Large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance
- Forest areas that are in or contain rare, threatened or endangered ecosystems
- Forest areas that provide basic services of nature in critical situations (e.g. watershed protection, erosion control)
- Forest areas fundamental to meeting basic needs of communities (e.g. subsistence, health) and/or critical to local communities' traditional cultural identity (areas of cultural, economic or religious significance) identified in cooperation with such local communities.

During the term of the plan, WFP will preliminarily identify and locate known HCVF attributes and incorporate the management of these attributes into the Landscape Unit and operational planning processes. However, the process of developing local definitions, mapping and management strategies will be iterative and subject to continual evolution.

**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.                                        | Yes        | Yes<br>19-May-93                       | Inventory revisions updated annually.                                                |
| Ecosystems                                    | Work completed – internal review.                                                                                                                              | Yes        |                                        | Finalization and quality assurance to be completed in 2001.                          |
| Terrain Stability                             | Completed in 1997 by Terence Lewis et al.                                                                                                                      | Yes        | Submitted<br>11-Apr-99                 | Currently being reviewed by MOF                                                      |
| ESAs                                          | No longer used for planning. New inventories replace the need for this classification.                                                                         | No         | Yes<br>08-July-94                      |                                                                                      |
| Recreation Inventory and Recreation Analysis. | Recreation inventory and analysis completed in 2000 by Jeremy Webb of Recreation Resources Limited. Includes Karst overview.                                   | Yes        | Originally Submitted<br>26-July-96     | Update completed in 2000. Has been submitted to MOF and is currently being reviewed. |
| Visual Landscape Inventory                    | Completed by Recreation Resources Limited (Jeremy Webb in 2000. VQCs considered "draft". VQOs updated in 1998 as part of MOF visual impact mitigation program. | Yes        | Originally Submitted<br>13-Oct-94      | Update completed in 2000. Has been submitted to MOF and is currently being reviewed. |
| 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<br>13-July-94<br>MOE<br>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).    | No         |                                        |                                                                                      |
| Operability                                   | Completed by WFP in 1999.                                                                                                                                      | Yes        | Accepted<br>16-Oct.-2000               |                                                                                      |
| 20-Year Plan                                  |                                                                                                                                                                | Yes        | Under review                           | Submitted as part of this proposed plan.                                             |
|                                               |                                                                                                                                                                |            |                                        |                                                                                      |

### 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 and 2001 AAC determination ⇒ 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 5). 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 Nootka Sound and established for associated waterways. Table 4 summarizes the RMZs covering the TFL.



**Figure 5 – 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    | Kleeptee          | 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 6). 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 6 – 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               |
| Kleeptee | 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 seral stage distribution within Landscape Units. 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:

- Ha maintained as stand level reserves
- ha harvested by silviculture system
- km of road deactivated
- ha of coastal watershed assessment procedures (CWAPs) completed
- km of road maintained
- 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 V 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 other resource values. As further knowledge is gained, management practices will adapt and utilize the information in the development of future management strategies.

## 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<br>estimated total value of timber produced |
| Prevent timber loss   | ha of non-recoverable losses due to wind,<br>fire                                    |
| Efficient utilization | m <sup>3</sup> of billable waste<br>% recovery                                       |

WFP is committed to economically harvesting the licensee portion of the total proposed TFL 19 AAC in accordance with its SFM principles and the FPC. The licensee will make volume available as required by legislation for the Small Business Forest Enterprise Program. Table 6 shows the actual harvest to AAC performance since the granting of the TFL in 1954.

**Table 6 – Cut Control Performance 1954 - 2000**

| 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              |
| 1997-2000 <sup>1</sup>                                                                | 3,728,528                           | 2,748,296 <sup>2</sup> |
| Total                                                                                 | 34,524,779                          | 32,629,200             |
| <sup>1</sup> Completed portion of the 1997-2001 Cut Control Period                    |                                     |                        |
| <sup>2</sup> Includes Chargeable Cut before carry-forward adjustments to end of 1999. |                                     |                        |

Details of the MP 9 Timber Supply Review can be found in the TFL 19 Timber Supply Information package, Appendix II and in the Timber Supply Analysis, Appendix III.

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:

|                             | <b>Old Growth</b> | <b>Second Growth</b> |
|-----------------------------|-------------------|----------------------|
| Diameter breast height (cm) | 17.5              | 12.5                 |
| 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 m<sup>3</sup>/ha for old growth and 10 m<sup>3</sup>/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. Should course woody debris (CWD) needs require that higher than currently permitted volumes of material be left behind for ecological reasons, WFP will request billing relief.

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 annually. With respect to billable waste our indicator/objective is to have an average less than 20 m<sup>3</sup>/ha.

Complan 3.0, a spatially-explicit harvest model, was used to simulate current management practices for protection and maintenance of ecological values and to estimate the residual timber potential through the year 2250.

After allowances for non-recoverable losses, the simulation of current management practice as agreed and set out in the associated information package suggests an AAC of 938,000 m<sup>3</sup>/year for the term of the proposed management plan. This represents a reasonable harvest level that accommodates ecological and social concerns in the short and longer terms. The simulation suggests that a minimum of 51,200 ha (27%) will be maintained in older forests (>140 years) and a minimum



54,000,000 m<sup>3</sup> of merchantable growing stock retained throughout the 250-year simulation horizon. These forests are expected to contribute significantly to biodiversity conservation and complement a number of significant protected areas within and adjacent to TFL 19.

A number of data uncertainties exist and estimates around these values are precautionary; as a result timber flows are likely underestimated. An alternative timber flow which incorporates better estimates for these uncertainties suggests that the AAC suggested above could be increased by at least 2,000 m<sup>3</sup>/year. On the other hand, adopting the best estimates but following the current management trajectory would permit longer rotation ages and in the long term, larger, higher value logs, a higher AAC and perhaps enhance biological attributes or unconventional values such as carbon storage.

Sensitivity analyses suggest that the current management simulation is sensitive to land base, yield and minimum harvest age changes, but relatively less sensitive to adjacency, minimum harvest volume restrictions.

#### 4.1.1.2 Harvest Methods

#### Element

| Objective                                 | Indicator                                              |
|-------------------------------------------|--------------------------------------------------------|
| <i>Employ appropriate harvest methods</i> | <i>Percent of total harvest area by harvest system</i> |

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 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).

| <b>Logging Systems</b>                                   | <b>Historical</b> | <b>1992-96</b> | <b>1997-2001</b> |
|----------------------------------------------------------|-------------------|----------------|------------------|
| 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.

The Annual Report will track performance in harvesting the operable profile

#### 4.1.1.3 Contractor Commitment

#### Element

| <b>Objective</b>                       | <b>Indicator</b>                                    |
|----------------------------------------|-----------------------------------------------------|
| <i>Maintain contractor commitments</i> | <i>% of required contractor commitment achieved</i> |

Under Part 14 of the TFL 19 licence document, WFP is required to ensure the harvest of timber equivalent to 50% of the harvest contributed by Crown lands (prorate = .955) 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 Ltd.  
Friell Lake Logging Ltd.  
Onion Lake Logging Ltd.  
Russell and Lilly Limited  
Spirit Lake Timber Limited  
Hayes Forest Services Ltd.

#### **Falling, Yard, Load**

Lemon Point Logging (1990) Ltd.  
Cypress Creek Logging Ltd.

#### **Road Building**

Totem Bar Contracting Ltd.  
Upland Excavating Ltd.  
Westside Road Building Ltd.

#### **Hauling**

Stan MacLean Trucking Ltd.  
Butch Carroll Trucking Ltd.

#### **Poling**

Donner Lake Contracting 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.

#### 4.1.1.4 Profitability

#### Element

| <b>Objective</b>                                 | <b>Indicator</b>            |
|--------------------------------------------------|-----------------------------|
| <i>Achieve a reasonable return on investment</i> | <i>Margin/m<sup>3</sup></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.

#### 4.1.1.5 Non-Timber Forest Products

#### Element

| <b>Objective</b>                  | <b>Indicator</b>                     |
|-----------------------------------|--------------------------------------|
| <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.

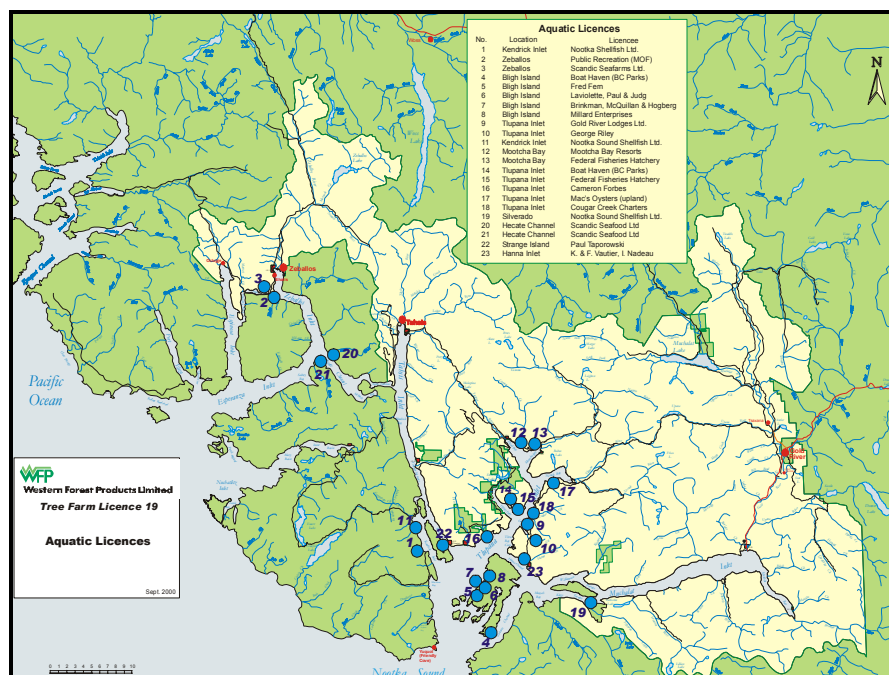
Trapping areas are illustrated in Figure 7. The level of trapping within the licence area is relatively low. WFP cooperates with the licence holders, to minimize impacts on trapping resources, when development is proposed within the licence area.

Maintenance of biodiversity in the TFL sustains trapping habitat.



**Figure 7 - 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 8 shows the location of aquatic licences.



**Figure 8 – Aquatic Licences**

#### 4.1.1.6 Special Forest Products

#### Element

| <b>Objective</b>                                        | <b>Indicator</b>                                        |
|---------------------------------------------------------|---------------------------------------------------------|
| <i>Encourage utilization of special forest products</i> | <i>Estimated total value of special forest products</i> |

WFP has an active special forest products program to harvest special 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 m<sup>3</sup> of cedar shake/shingle blocks are produced each year and 100 - 200 m<sup>3</sup> of cants.

Culvert and buried logs from road deactivation activities produce roughly 5,000 m<sup>3</sup> annually. This volume is hauled to dryland sorts and scaled with regular production.

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

#### 4.1.1.7 Access Management

#### Element

| <b>Objective</b>                 | <b>Indicator</b>             |
|----------------------------------|------------------------------|
| <i>Provide for public access</i> | <i>km of road maintained</i> |

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.

#### 4.1.1.8 Recreation

#### Element

| Objective                              | Indicator                                                            |
|----------------------------------------|----------------------------------------------------------------------|
| Maintain recreation sites and features | No. and type of recreation sites maintained<br>User days by category |

Recreation management in the TFL will be based on the updated Features Inventory and the Recreation Analysis and Management Strategy (RAMS) report which assesses current recreation use patterns and projects further trends. The main recreational use has been for camping, hiking, fishing and hunting predominantly by local residents. Appendix XIII contains detailed, Recreation Resource Management Options, Sections 5.0 and 6.0 from the RAMS report

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 9).



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 8). 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 8 – 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            |
| <b>TOTAL</b>                  | <b>46,201</b> | <b>44,948</b> | <b>50,768</b> | <b>58,132</b> | <b>64,123</b> | <b>264,172</b> |

#### 4.1.1.9 Research and Development **Element**

| <b>Objective</b>                        | <b>Indicator</b>               |
|-----------------------------------------|--------------------------------|
| <i>Support research and development</i> | <i>\$ invested in research</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.

Activities and expenditures in research and development will be reported in the annual report.

Appendix IX provides additional information on current WFP research projects.

#### 4.1.1.10 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 | <p>% of defined area reserved</p> <p>seral stage distribution (5 year basis)</p> <p>patch size distribution - % of landbase in patches &gt; 200 ha (5 year basis)</p> <p>average opening size (ha)</p> <p>\$ invested and type of environmental inventories and assessments</p> <p>THLB status</p> |

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 to 250 ha. As per the FPC, Biodiversity Guide-book 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 average opening size have been established which will guide planning and forest management activities. These indicators will be reported in the annual report 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 & CDC) |
|                                               | ha maintained as stand level reserves                                                 |
|                                               | cumulative ha of wildlife habitat reserves                                            |
|                                               | % of area declared as mixed species regeneration                                      |
|                                               | # trees planted by species                                                            |
|                                               | # fry released by species                                                             |

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 lists<sup>1</sup> or species identified in the Identified Wildlife Management Strategy as regionally important warrant special consideration (Table 9). 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.

<sup>1</sup> 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 9 – Red, blue listed and regionally important Mammals and Birds**

| <b>Red-listed Species</b>           | <b>Habitat</b>                                               |
|-------------------------------------|--------------------------------------------------------------|
| 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 |
| <b>Blue-listed Species</b>          | <b>Habitat</b>                                               |
| 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                                          |
| <b>Regionally Important Species</b> |                                                              |
| 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 collections 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 | pest attack status                                                     |
|                        | ha or # of weevil resistant spruce planting stock in high hazard zones |
|                        | # 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 of 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 10 lists common insects and diseases found in TFL 19.

**Table 10 – Common Insects and Disease found in TFL 19**

| Agent                        |                                  | Occurrence | Incidence | Susceptible Species <sup>2</sup> | Management Risk |
|------------------------------|----------------------------------|------------|-----------|----------------------------------|-----------------|
| <b>Root disease</b>          |                                  |            |           |                                  |                 |
| 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, Cw (Hw, Ba, Ss)              | L               |
| Phellinus Root rot           | <i>Phellinus weirii</i>          | Occasional | Light     | Fd, Ba, (Hw, Ss) Cw              | M               |
| <b>Stem/Branch Diseases</b>  |                                  |            |           |                                  |                 |
| 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               |
| <b>Insects</b>               |                                  |            |           |                                  |                 |
| 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.

<sup>2</sup> 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 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, primarily 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 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:

- Pest attack status
- 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                      |
|                                      | % of area surveyed, free growing |
|                                      | average regeneration delay       |
|                                      | ha reforested                    |
|                                      | \$ spent on basic forestry       |

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 maintain 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 of the highest breeding value will be 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.

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 that 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 11 indicates the Five-Year Basic Silviculture Goals (hectares) for TFL 19.



**Table 11 – Five year basic silviculture activity goals (ha) for TFL 19**

| Activity              | Annual<br>5 Year<br>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:

- NSR balance
- % of area surveyed, free growing
- \$ spent on basic forestry

Performance will be reported on in the annual report.

#### 4.2.2.3 Forest Ecosystem Productivity

#### Element

| Objective                                     | Indicator                                    |
|-----------------------------------------------|----------------------------------------------|
| <i>Maintain forest ecosystem productivity</i> | <i># of growth and yield plots monitored</i> |
|                                               | <i>\$ spent on enhanced forestry</i>         |
|                                               | <i>ha fertilized, spaced and pruned</i>      |
|                                               | <i>ha of riparian restoration</i>            |
|                                               | <i>ha harvested by silviculture system</i>   |
|                                               | <i>km of fish habitat created/enhanced</i>   |

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 for 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 of 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 or maintained and the number of ha fertilized, spaced and pruned each year. Table 12 outlines the planned five-year enhanced silviculture goals based on FRBC funding continuing at current levels.

**Table 12 - Five Year Enhanced Silviculture goals (ha)**

| Activity         | Annual<br>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 |

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 1947 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 removed from the timber harvesting land base 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 10 meters wide. Spur roads have averaged 9 meters. Future roads are forecast to occupy 1,454 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 the road prism to 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 is proposed in areas of higher 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.

#### ***Element***

#### ***4.2.3.2 Water Quality***

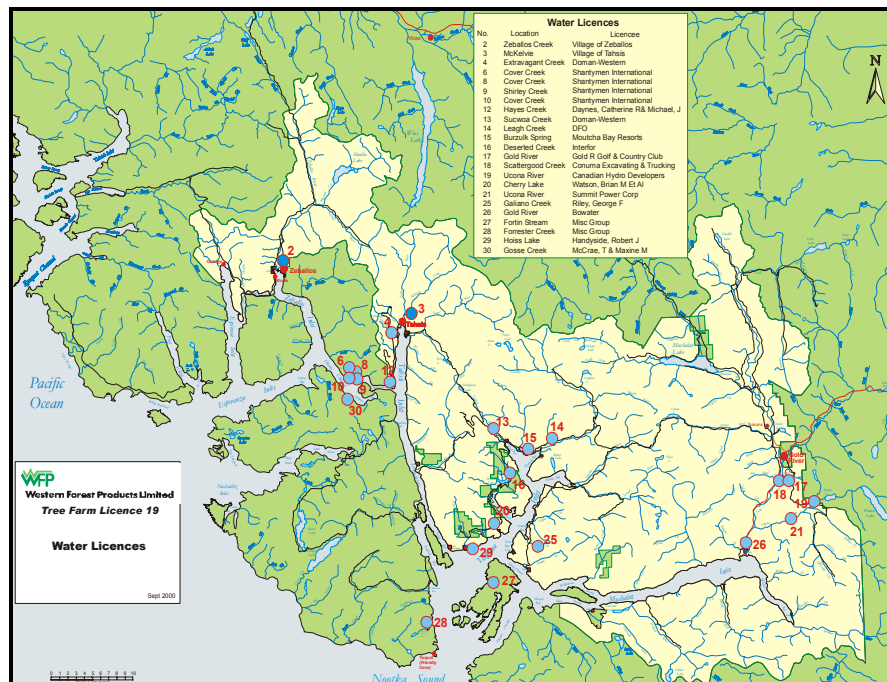
| <b><i>Objective</i></b>       | <b><i>Indicator</i></b>                                |
|-------------------------------|--------------------------------------------------------|
| <i>Maintain water quality</i> | <i>ha in Riparian Management Areas (RRZ &amp; RMZ)</i> |
|                               | <i>km of road deactivated</i>                          |
|                               | <i>ha of CWAPs completed by year</i>                   |
|                               | <i># or reportable spills to water</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 30 water licences within the general operating area of TFL 19. Fourteen registered water licences are within the boundaries of TFL 19 (Figure 10). McKelvie Creek is a designated community watershed. The Village of Tahsis draws its water supply from McKelvie Creek which drains 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. For McKelvie Creek a cover constraint has been imposed for the timber supply analysis. No more than 5% of the productive forest area will be under 5 years old at any point in time.

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 VIII 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 XV 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 10 – 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)   |
|                                                        | Ha fertilized                   |
|                                                        | Fuel consumption/m <sup>3</sup> |

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 CO<sub>2</sub> 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 and follow up silviculture treatments to ensure 2nd growth forest absorb CO<sub>2</sub> optimally.

#### 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.

If and when TFL 19 is declared a defined forest area for the purposes of certification under the Forest Stewardship Council, proposed HCVF attributes 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

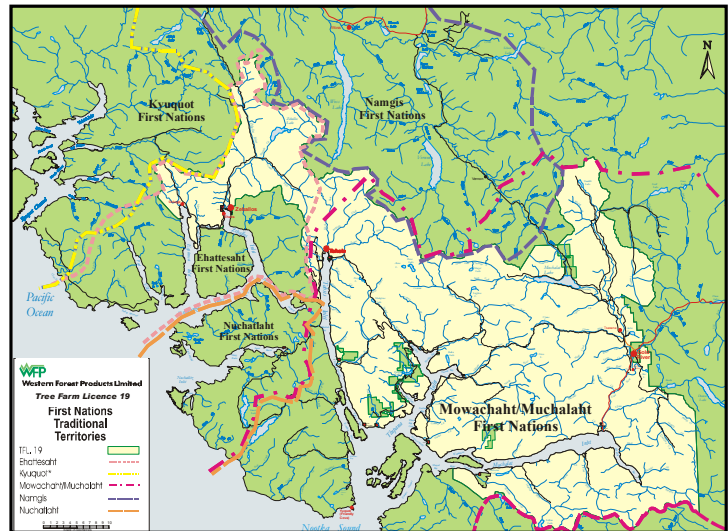
#### Element

| 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 contract person days to First Nations</i>                |
| <i>Protect First Nations cultural features</i>                 | <i>other person-days employment to First Nations and/or joint ventures</i> |
|                                                                | <i># of AIAs</i>                                                           |

The Mowachaht/Muchalaht and Ehattesaht First Nations traditional territories cover much of the TFL 19 land base as shown in Figure 11.

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 encompasses the community of Zeballos and the Port Eliza area. 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 11 – 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

| <b>Objective</b>                                       | <b>Indicator</b>                                                                   |
|--------------------------------------------------------|------------------------------------------------------------------------------------|
| <i>Conduct effective consultation with communities</i> | <i># and types of contacts/meetings/consultation</i>                               |
| <i>Maintain and enhance community stability</i>        | <i>\$ spent on public projects</i><br><i>\$ spent on forest education programs</i> |

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 annually.

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 XII is a copy of the Visitor Guide.

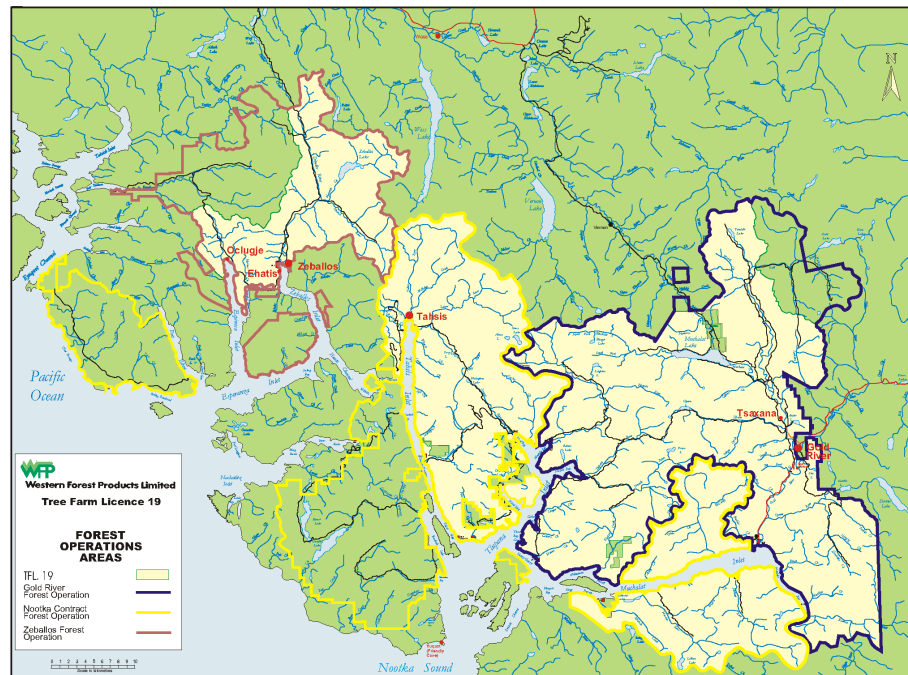
The Company is dedicated to supporting local businesses and contractors. The MOU signed between the Company and First Nations groups also commits Western Forest Products to awarding FRBC contract work to First Nation's Contractors. Businesses in the Nootka Region rely on trade generated by local forestry 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 12 shows the location of operations and communities. Appendix XVIII provides a profile of the main communities located within TFL 19.



**Figure 12 – 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

| <b>Objective</b>                                                  | <b>Indicator</b>                                                         |
|-------------------------------------------------------------------|--------------------------------------------------------------------------|
| <i>Provide adequate training</i>                                  | <i># of training hours (training records)</i>                            |
| <i>Provide regular communication to employees and contractors</i> | <i>WFP Western Spirit and Environment Matters Newsletter circulation</i> |

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 XX), 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

| <b>Objective</b>                          | <b>Indicator</b>                |
|-------------------------------------------|---------------------------------|
| <i>Provide a safe working environment</i> | <i># of lost time accidents</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

#### 4.3.1.6 Employment

#### Element

| <b>Objective</b>                 | <b>Indicator</b>                                |
|----------------------------------|-------------------------------------------------|
| <i>Sustain employment levels</i> | <i>Total Person-days and jobs/m<sup>3</sup></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 13 summaries the average direct employment over the past five years as a consequence of operations in TFL 19.

**Table 13 – Direct Employment 1997 – 2000**

| <b>Category</b>               | <b>Average Person Days of Employment</b> |
|-------------------------------|------------------------------------------|
| Planning/Harvesting           | 59,465                                   |
| Silviculture & Integrated Use | 7,191                                    |
| Administration                | 3,336                                    |
| <b>Subtotal</b>               | <b>69,991</b>                            |
| Manufacturing                 | 65,914                                   |
| <b>Total</b>                  | <b>135,905</b>                           |

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 hinge on the degree of decline of the AAC and market strength. The harvest flow objective will be to maintain harvest levels near current levels to ensure social and economic stability through the transition to the long-term harvest level. The rate of volume reduction per decade proposed will be limited to 10% or less, unless a steeper decline is warranted to avoid abrupt to drastic changes in the future.

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## **5.0 Sustainable Forest Management Plan Consultation**

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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.

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 was submitted with the draft plan as part of Appendix X. Open houses were held in Tahsis, Gold River, Zeballos and Campbell River. WFP staff met with municipal councils in the above-mentioned communities and with the three First Nations residing in Nootka Sound. WFP staff also met with the Nootka Resource Board and IWA Union/Management Committee to review the Plan. A summary report of the public review process was submitted to the Regional Manager in March 2001 as part of the revised Management Plan process, see Appendix X. A total of 168 people participated in 17 consultative sessions to review and discuss the draft plan. On the basis of public input received during the review process and comments from Ministry of Forests and other agencies, changes were made to the draft plan.

## 6.0 SUMMARY IMPACT ANALYSIS

Economic, environmental and social impacts will be monitored using indicators developed to measure WFP forest management activities. These indicators will be reported on an annual basis in the TFL Annual Report. As significant negative impacts become apparent, where appropriate, WFP will develop specific management strategies to mitigate the effects of the company's forest management activities.

### 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
- through optimal log allocations and utilization, WFP intends to improve product values and enhance lumber recoveries

Independent certification of forest operations will provide assurances that operations are being conducted in a sustainable manner.

Table 14 summarizes the Criteria, Elements, Objectives and Indicators that will be used to measure WFP's performance in practising Economically Viable Forest Management.

**Table 14 – Indicators of Economically Viable Forest Management**

| Criteria – Multiple Benefits        |                                                  |                                                  |
|-------------------------------------|--------------------------------------------------|--------------------------------------------------|
| Element                             | Objective                                        | Indicator                                        |
| Timber Supply                       | Harvest AAC                                      | % achievement of AAC, 5 year cut control         |
|                                     |                                                  | estimated total value of timber produced         |
|                                     | Prevent timber loss                              | ha of non-recoverable losses due to wind, fire   |
|                                     | Efficient utilization                            | m <sup>3</sup> of billable waste                 |
|                                     |                                                  | % recovery                                       |
| Harvest Methods                     | Employ appropriate harvest methods               | harvest system by volume                         |
| Contractor Commitment               | maintain contractor commitments                  | % of required contractor commitment achieved     |
| Profitability                       | achieve a reasonable return on investment        | margin/m <sup>3</sup>                            |
| Non-Timber Forest Products          | encourage NTFP utilization                       | volume by type of NTFP (m <sup>3</sup> , kg)     |
| Special Forest Products             | encourage utilization of special forest products | estimated total value of special forest products |
| Access Management                   | provide for public access                        | km of road maintained                            |
| Recreation                          | maintain recreation sites and Features           | # and type of recreation sites maintained        |
|                                     |                                                  | user days by category                            |
| Research and Development            | support research and development                 | \$ invested in research                          |
| Contribution to Provincial Revenues | contribute to provincial revenues                | payment of fees                                  |

## 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 negative impact on the AAC. However, this impact may be overcome by implementing intensive forest management in those areas where it is ecologically appropriate.

Table 15 summarizes the Criteria, Elements, Objectives and Indicators that will be used to measure WFP's performance in practising Environmentally Appropriate Forest Management.

**Table 15 - Indicators of Environmentally Appropriate Forest Management**

| <b>Criteria – Conservation of Biological Diversity</b>                |                                                               |                                                                                       |
|-----------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Element</b>                                                        | <b>Objective</b>                                              | <b>Indicator</b>                                                                      |
| Ecological Diversity                                                  | maintain a dynamic distribution of a habitat over a landscape | average opening size (ha)                                                             |
|                                                                       |                                                               | % of defined area reserved                                                            |
|                                                                       |                                                               | seral stage distribution (5 year basis)                                               |
|                                                                       |                                                               | patch size distribution - % of landbase in patches > 200 ha (5 year basis)            |
|                                                                       |                                                               | \$ invested and type of environmental inventories and assessments                     |
|                                                                       |                                                               | THLB Status                                                                           |
| Species Diversity                                                     | maintain viable populations of native species                 | # of known species classified as threatened, endangered or vulnerable (COSEWIC & CDC) |
|                                                                       |                                                               | ha maintained as stand level reserves                                                 |
|                                                                       |                                                               | cumulative ha of wildlife habitat reserves                                            |
|                                                                       |                                                               | % of area declared as mixed species regeneration                                      |
|                                                                       |                                                               | # planted by species                                                                  |
|                                                                       |                                                               | # fry released by species                                                             |
| Genetic Diversity                                                     | maintain the variation of genes within species                | % seed orchard seed used                                                              |
| <b>Criteria – Maintenance of Ecosystem Condition and Productivity</b> |                                                               |                                                                                       |
| <b>Element</b>                                                        | <b>Objective</b>                                              | <b>Indicator</b>                                                                      |
| Forest Health                                                         | maintain forest health                                        | pest attack status                                                                    |
|                                                                       |                                                               | ha or # of weevil resistant spruce planting stock in high hazard zones                |
|                                                                       |                                                               | # of accidental fires/ha burned                                                       |
| Forest Ecosystem Resilience                                           | maintain forest ecosystem Resilience                          | NSR balance                                                                           |
|                                                                       |                                                               | % of surveyed area free growing                                                       |
|                                                                       |                                                               | average regeneration delay                                                            |
|                                                                       |                                                               | ha reforested                                                                         |
|                                                                       |                                                               | \$ invested in basic forestry                                                         |

|                                                                                     |                                                        |                                             |
|-------------------------------------------------------------------------------------|--------------------------------------------------------|---------------------------------------------|
| Forest Ecosystem Productivity                                                       | maintain forest ecosystem productivity                 | # of growth and yield plots monitored       |
|                                                                                     |                                                        | km of fish habitat created/enhanced         |
|                                                                                     |                                                        | \$ invested in enhanced forestry            |
|                                                                                     |                                                        | ha of riparian restoration                  |
|                                                                                     |                                                        | ha fertilized, spaced and pruned            |
|                                                                                     |                                                        | ha harvested by silviculture system         |
| Criteria – Conservation of Soil and Water Resources                                 |                                                        |                                             |
| Element                                                                             | Objective                                              | Indicator                                   |
| Productive Area                                                                     | minimize permanent loss of productive area             | % permanent access within cutblocks         |
| Water Quality                                                                       | maintain water quality                                 | km of road deactivated                      |
|                                                                                     |                                                        | ha in Riparian Management Areas (RRZ & RMZ) |
|                                                                                     |                                                        | Ha of CWAPs completed by year               |
|                                                                                     |                                                        | # of reportable spills to water             |
| Criteria – Contribution to Global Ecological Cycles High Conservation Value Forests |                                                        |                                             |
| Element                                                                             | Objective                                              | Indicator                                   |
| Carbon Sequestration                                                                | maintain carbon balance relative to company operations | ha of NSR (current + backlog)               |
|                                                                                     |                                                        | ha fertilized                               |
|                                                                                     |                                                        | fuel consumption/m <sup>3</sup>             |

### 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. Continuation of environmentally appropriate management practices will ensure long-term sustainable socially beneficial operations.

Table 16 summarizes the Criteria, Elements, Objectives and Indicators that will be used to measure WFP's performance in practising Socially Beneficial Forest Management.

**Table 16 - Indicators of Socially Beneficial Forest Management**

|                                                              |                                                        |                                                                    |
|--------------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------|
| <b>Criteria – Responsibility for Sustainable Development</b> |                                                        |                                                                    |
| <b>Element</b>                                               | <b>Objective</b>                                       | <b>Indicator</b>                                                   |
| First Nations                                                | provide meaningful consultation on forest management   | records of meetings and correspondence                             |
|                                                              | increase First Nation involvement in forest management | % silviculture contracts to First Nations                          |
|                                                              | protect First Nations cultural features                | other person-days employment to First Nations and/or joint venture |
| Communities                                                  | conduct effective consultation with communities        | # of AIAs                                                          |
|                                                              | maintain and enhance community stability               | # and types of contacts/meetings/consultations                     |
|                                                              |                                                        | \$ invested in project                                             |
| Employment                                                   | Sustain employment levels                              | \$ spent of forest education programs                              |
|                                                              |                                                        | total person days and jobs/ m <sup>3</sup>                         |

|                    |                                                            |                                                                            |
|--------------------|------------------------------------------------------------|----------------------------------------------------------------------------|
| Compliance         | provide adequate training                                  | # of training hours                                                        |
|                    | achieve compliance with all legislation and regulations    | % compliance                                                               |
| Employee Relations | provide adequate training                                  | # of training hours                                                        |
|                    | provide regular communication to employees and contractors | <i>WFP Western Spirit and Environmental Matters Newsletter</i> circulation |
| Safety             | provide a safe working environment                         | # of lost time accidents                                                   |

MP 9 is the first Sustainable Forest Management Plan for TFL 19 that takes into consideration the Forest Practices Code and higher level plans such as the Vancouver Island Land Use Plan. Implementation of the Plan will result in significant constraints to the timber harvesting land base for biodiversity, sensitive landscapes, recreation and wildlife. However, these reductions represent social and environmental values and with careful planning, harvesting will be integrated in a manner that protects these values.

Implementation of the Plan will result in an immediate reduction in the AAC. The proposed AAC for the next 5 year period is 940,347 m<sup>3</sup> compared to AAC of 978,000 m<sup>3</sup> set for MP 8. The reduction will have a slightly negative impact on the total annual person days of employment generated as a result of harvesting the cut. It is anticipated that there will not be any significant reduction in the number of people employed or the number of contractors.

During the public review process the communities and stakeholders told us that their main concerns were employment, community stability and protection of the environment. Management Plan 9, based on Western Forest Products sustainable forest management principles, that our operations must be economically viable, socially beneficial and environmentally appropriate, strives to achieve a balance of values that will result in long term sustainable forest management.

