



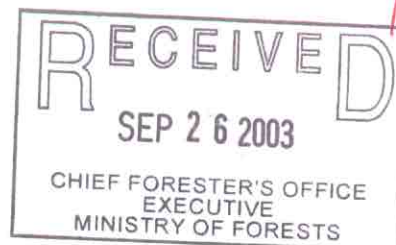
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WESTERN FOREST PRODUCTS LIMITED

General Partner of Western Pulp Limited Partnership  
CORPORATE FORESTRY

MINISTRY OF FORESTS  
RESOURCE TENURES &  
ENGINEERING BR.



September 23, 2003

File # 195-2

Larry, Pedersen, Chief Forester  
Resource Tenures and Engineering Branch  
Ministry of Forests  
Box 9525 Stn Prov Govt  
Victoria, BC V8W 9C3

Dear Mr. Pedersen:

**Re: Tree Farm License 19 Annual Report 2002**

Herewith is submitted the Annual Report for Tree Farm License 19 for the calendar year 2002.

Yours truly,  
WESTERN FOREST PRODUCTS LIMITED  
General Partner of  
Western Pulp Limited Partnership

Kerry McGourlick  
Chief Forester

Cc: Ken Collingwood, Regional Manager, Coast Forest Region  
Rory Annett, District Manager, Campbell River Forest District  
Larry Rewakoski, IWA- Local 1-85 Port Alberni  
Rod Visser, MLA-North Island  
Mayor Lewis, Village of Gold River  
Mayor McNeil, Village of Tahsis  
Mayor Pederson, Village of Zeballos  
Bruce Williams, Comox-Strathcona Regional District  
Chief Michael Maquinna, Mowachaht First Nation  
Chief Norman George, Muchalaht First Nation  
Chief Walter Michael, Nuchatlaht First Nation  
Victoria Wells, Acting Chief, Ehattesaht First Nation  
Chief Natalie Jack, Ka:'yu:'k't'h'/Che:k:tles7et'h' First Nation

118-1334 Island Highway  
Campbell River, B. C. V9W 8C9  
Tel: 250-286-3767  
Fax: 250-286-4140





## **Doman – Western Lumber Ltd.**

Tree Farm Licence 19  
**2002**  
Annual Report



The forest operations in Tree Farm License 19 are under an Environmental Management System (EMS) registered as conforming to ISO 14001 standards as issued by QMI, Registration No. 009680



## **Western Forest Products Limited**





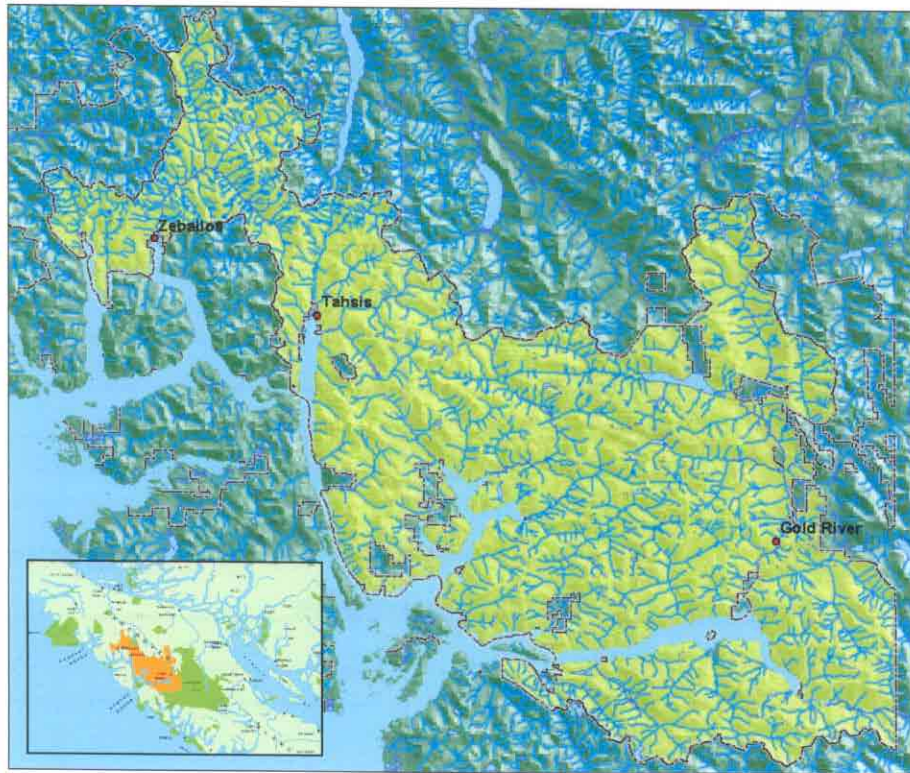
## Tree Farm Licence 19

Tahsis Tree Farm Licence 19 held by Doman-Western Lumber Ltd. and managed by Western Forest Products Limited (WFP) was originally granted to Tahsis Company Ltd. on December 23, 1954.

In 1954, under Management Plan No 1 the licence area was 161 612 hectares and the company was authorized to harvest 283 170 cubic metres of timber per year. By 1996 the licence area had been increased to 192 551 hectares. With improved utilization standards, updated inventory and productivity estimates and an expanded timber harvesting land base, the allowable annual cut (AAC) was increased to 978 000 cubic metres. The AAC includes an annual Small Business Forest Enterprise Program harvest allocation of 45 868 cubic metres.

Management Plan No 9 was approved in 2001. The allowable annual cut was reduced to 940 000 cubic metres due to reductions in the amount of old growth available to harvest.

This Annual Report records accomplishments and data for TFL 19 for 2002. For further information on WFP's Sustainable Forest Management visit our Website at [www.westernforest.com](http://www.westernforest.com).



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## SUMMARY OF ACTIVITIES AND ACCOMPLISHMENTS

Depletion	Scaled Volume	566,324 m <sup>3</sup>
	Volume Charged to Allowable Annual Cut	581,067 m <sup>3</sup>
	Area Logged (Licensee)	873.4 ha
	Area Logged (SBFEP)	0 ha
Reforestation	Silviculture Prescriptions	742.1 ha
	Site Preparation	11.8 ha
	Seedlings Planted	1,027,418 trees
	Seedlings Fertilized	1,027,418 trees
	Area Planted	1,040 ha
	Stocking Surveys	673.4 ha
	Brushing and Weeding	157.6 ha
	Plantation Survival Assessments	1,036.7 ha
	Free Growing Surveys	1,643.5 ha
Stand Management	Stand Management Prescriptions	13.4 ha
	Juvenile Spacing	42.7 ha
	Pruning	36.2 ha
	Fertilization	1,227 ha
Inventory	Cutting Permit Cruising	1,043 plots
	Residue Assessment	245 plots
Engineering	Roads Built	48.4 km
	Roads Re-Built	32.3 km
	Roads Maintained	603.1 km
	Roads Deactivated	131.0 km
	Roadside Seeding	5.0 km
	Site Stabilization	5.0 ha
Protection	Accidental Fires	0
Contracting	Contractor Obligation	268,873 m <sup>3</sup>
	Contracted	275,187 m <sup>3</sup>
	Compliance	102.3 %
Special Forest Products	Log Salvage	0
	Shake and Shingle	1,400 m <sup>3</sup>
	Cedar Cants	0
Non Timber Forest Products	Yew Bark	0
	Salal	1,894 kg
	Cedar Oil	0
	Honey	0
	Gravel	0
Salmon Enhancement Program	Chinook	89,000 fry
	Coho	0
	Chum	0
	Steelhead	0
Employment	Planning and Development	11,200
	Harvesting	30,783
	Transportation	5,326
	Processing	31,830
	Silviculture & Integrated Resource Management	8,502
	Administration	3,056





## 1.0 INTRODUCTION

### 1.1 Statement of Sustainable Forest Management

Western Forest Products Limited is committed to forest management strategies guided by three main principles of sustainability. These reflect economic, social, and environmental values:

- 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. Our Company must operate in a financially successful manner while maintaining social and environmental commitments.
- Our forest management strategies must be socially beneficial to local, regional, and First Nations' communities. Western Forest Products Limited is committed to respecting, understanding, and supporting First Nations, local community, and employee aspirations for stability and certainty.
- Our activities must be environmentally appropriate. Western Forest Products Limited is committed to the protection of the environment and the sustainable development of the resources under our stewardship. This is achieved through sound forestry and environmental management practices that meet or exceed government standards.

Details of commitments under these guiding principles have been outlined in Management Plan 9 for TFL 19. Our commitment to Sustainable Forest Management (SFM) is further supported by Company policies, our ISO 14001 Certification and Environmental Management System, and our forest certification initiatives. This Annual Report summarizes the accomplishments and progress made toward these commitments in 2002.

*Two California sea lions provide an interesting foreground for the loading of the Seaspun Forester to transport logs from Nootka Sound. Each year about 90 log barges are loaded to transport logs from Nootka Sound to coastal Company mills.*



## 1.2 Corporate Highlights

- 2002 was a difficult financial year for Western Forest Products Limited's parent company Doman Industries. The Company's operations in 2002 continued to be negatively impacted by low lumber and pulp commodity prices that translated into mill and forest operation shutdowns.
- As a result of curtailed operations the Company was only able to utilize about three quarters of the available AAC, with just over three million m<sup>3</sup> of logs produced.
- Effective May 22, 2002 cash deposits to cover the 18.79% countervail and 8.43% antidumping duties, as determined by the U.S. Department of Commerce, were required for lumber shipments into the United States.
- Although demand for lumber in the U.S. was high increased production from Canada to improve manufacturing efficiencies and partially offset the effects of softwood lumber duties resulted in an oversupply of the North American market that kept prices depressed.
- NBSK pulp prices which had been weak at the start of 2002 remained that way throughout the year, except for a brief rally in the third quarter with the monthly list price never reaching U.S.\$500 per ADMT.
- On November 7<sup>th</sup> Doman Industries Limited was forced to pursue protection under the Company Creditors Arrangement Act to start a financial restructuring of the Company. This Court protection provided the Company and its subsidiaries with relief from creditors until a restructuring plan could be approved and implemented.
- The Company recorded a net loss of \$164.1 million in 2002. These results included a pre-tax write-down of assets and related costs of \$67.5 million. Earnings before interest, amortization and write down of assets were \$53.4 million.
- In spite of significant losses some \$60.3 million or approximately \$20/m<sup>3</sup> was paid in stumpage fees and royalties.

## 1.3 Local Highlights

- On October 9<sup>th</sup> and 10<sup>th</sup>, the Gold River Forest Operation hosted a tour for eight retired Industry Chief Foresters. These foresters have been getting together for the last few years to visit some of their old stomping grounds. This year they decided to visit TFL 19. Nels Nielsen (Resident Forester GRFO), Dick Cain (Resident Forester NCA), Murray Watkinson (Regional Forester), and Lelaynia Hryhorka (Assistant Forester) were the tour guides for this group.
- A large aerial fertilization program was completed on approximately 1,300 hectares by Western Aerial Application in October/November under near perfect weather conditions.



- Staff participated in and adapted to new forest practices regulations in December. Moved from a process driven legislation towards results based.
- Logging operations were curtailed for various periods throughout the year due to difficult market conditions. Sixty-five percent of the AAC was harvested.
- Person-days of employment attributed to TFL 19 operations in 2002 were down 26.5% compared to the 5-year average.
- A total of 1,027,418 seedlings were planted on 1,040 hectares. Of this total 36.8% of the seedlings planted were cedar/cypress.
- TFL 19 operations paid \$12,929,406 in stumpage on 581,241 m<sup>3</sup> averaging \$22.24/m<sup>3</sup> in 2002.



Retired Chief Foresters Tour of the Gold River Forest Operation  
L to R: Ken Williams, Charlie Johnson, Darrel McQuillan, Sven Rasmussen, Jack Toovey, Gerry Burch, Doug Rickson, Dick Kosick

#### 1.4 Area Description

The Tahsis Tree Farm Licence 19 (TFL 19) is located on the west side of Vancouver Island in the vicinity of Nootka Sound (Location Map). The communities of Gold River, Tsaxana (Mowachat-Muchalaht First Nations), Tahsis, Zeballos, Ehatis (Ehattlesaht First Nations) and Oclugjie (Nuchatlaht First Nations) are within the licence area. The forest of TFL 19 lies within the wetter and very dry maritime coastal western hemlock biogeoclimatic zone. The dominate timber species is western hemlock, amabilis fir, western red cedar and douglas fir. Lesser amounts of Sitka spruce, yellow cedar and mountain hemlock also occur.

A summary of TFL 19 land status follows:

<b>Total Area</b>	<b>191,992 ha</b>
Less nonforest and non-productive forest	- 43,814 ha
Total Productive Forest Area	148,178 ha
Less non-commercial (NP,Br), riparian area, Inoperable/inaccessible, wildlife reserves, roads, trails.	-53,475 ha
<b>Timber Harvesting Land Base</b>	<b>94,703 ha</b>

## 2.0 SUSTAINABLE FOREST MANAGEMENT STRATEGY REPORT

### 2.1 Economically Viable Forest Management

#### 2.1.1 Timber Supply

**Objective:** *Harvest AAC*

**Indicator:** *Per cent achievement of AAC*

Scaled timber production with TFL 19 was 566,324 m<sup>3</sup>. Volumes by timber mark and operation are detailed in Appendix I. The total volume charged to the AAC (Allowable Annual Cut) was 581,067 m<sup>3</sup> (Appendix II) and includes residue volumes billed in the calendar year. Of the AAC available to the licensee in 2002, sixty-five per cent was harvested.

**Indicator:** *Five year cut control*

In the current cut control period, the chargeable cut totals 581,067 m<sup>3</sup> (Appendix III). This represents sixty-five per cent of the available cut to date for the current cut control, and thirteen per cent of the total cut for this cut control. Since the inception of the Tree Farm Licence, the total chargeable cut totals 34,468,552 m<sup>3</sup>, which is ninety-five per cent of the cut available to the Licensee (Appendix IV).

**Indicator:** *Estimated total value of timber produced*

Value of the total scaled volume of timber based on 2002 average log prices by species and grade was estimated at \$62,108,643.

**Objective:** *Prevent timber loss*

**Indicator:** *Area of non-recoverable losses due to wind, fire and all slides*

Western Forest Products maintains a timber loss ledger to track volumes of timber lost to biotic and abiotic agents. Since 1993 the total non-recoverable volume recorded for TFL 19 is 19,350 m<sup>3</sup> (Appendix V). In 2002, a total of 8,300 m<sup>3</sup> were reported as non-recoverable volumes. These losses resulted from wind damage. A further 18,200 m<sup>3</sup> was reported as recoverable in 2002. In 2002, 10,300 m<sup>3</sup> was salvaged.

**Objective:** *Efficient utilization*

**Indicator:** *Billable waste volume*

The Company continues to survey and report residue volumes on a calendar year basis for all cutblocks where logging is complete. There were a total of 245 plots established during the 2002 survey year. For those areas surveyed in 2002, AAC depletion totalled 28,563 m<sup>3</sup>, of which 9,702 m<sup>3</sup> was deemed billable waste (Table 1). The average avoidable residue volume was 12.1 m<sup>3</sup>/ha. The volume charged to the AAC for 2002 totalled 14,743 m<sup>3</sup> (Appendix II). Variation between the survey volume attributable to the AAC, and the actual charged to the AAC reflects the billing date



as opposed to the survey year. Avoidable waste is consistently below MOF guidelines of 35 m<sup>3</sup>/ha for old growth and 10 m<sup>3</sup>/ha for second growth.

**Table 1: Residue Assessment Survey Summary.**

LOCATION	SURVEY AREA		AAC DEPLETION		BILLABLE WASTE TOTAL VOLUME		NUMBER OF PLOTS				
	Gross (ha)	Net (ha)	m <sup>3</sup> /ha	m <sup>3</sup>	m <sup>3</sup> /ha	m <sup>3</sup>	Slasl	Road Side	Pile	Other	Total
Gold River	500.0	436.0	33.0	14,536.0	10.5	4,574.0	41	20	22	4	87
Nootka Contract	160.0	139.0	39.0	5,378.0	14.3	1,989.0	25	26	14	6	71
Zeballos	234.0	227.0	38.0	8,649.0	13.8	3,139.0	35	18	18	16	87
<b>TOTAL</b>	<b>894.0</b>	<b>802.0</b>	<b>35.6</b>	<b>28,563</b>	<b>12.1</b>	<b>9,702.0</b>	<b>101</b>	<b>64</b>	<b>54</b>	<b>26</b>	<b>245</b>

Cutting permits outline the required and optional utilization standards. The general guidelines include

- Maximum stump height of 30 cm on the short side;
- All old growth coniferous trees containing X grade logs or better will be utilized to a top diameter of 15 cm inside bark (10 cm for second growth);
- All coniferous trees or parts of these trees exceeding 3 m in length which contain X grade logs or better will be removed;
- Logs or parts of logs less than 3 m in length and broken at ends are classed as breakage;
- Logs will not be bucked or trimmed in a manner that reduces grade.

These requirements apply to all living and dead trees that meet these standards. Quality control is maintained by Company personnel, and monitored through felled and bucked inspections and residue surveys.

Approximately three quarters of the log volume produced from TFL 19 in 2002 was used in Doman Industries mills. As volumes incorporate a starting and ending inventory figure, all numbers are approximate. The Duke Point, Silvertree, Vancouver, Saltair and Nanaimo sawmills utilized 293,000 m<sup>3</sup>. The Nanaimo log merchandizer utilized 115,000 m<sup>3</sup>. The Woodfibre Pulp Mill received 108,000 BDUs of chips from these sawmills and the log merchandizer. The balance of the volume from the tenure was either sold or traded to acquire species and grades of logs suited to Doman mills. The 2002 Log Source/Consumption Summary is provided as Appendix XXI.

**Indicator: Per cent recovery**

For a representative sample of cutblocks logged, the percentage of wood harvested amounted to 97.8% of the merchantable wood available to harvest as defined by the utilization standards.

## 2.1.2 Harvest Methods

**Objective: Employ appropriate harvest methods**

**Indicator: Harvest system by volume**

The bulk of the logging in TFL 19 in 2002 utilized conventional cable and ground-based systems (Table 2). Conventional systems used in the TFL in 2002 include grapple yarders, hoe-forwarders, towers, and super-snorkels. Heli-logging occurred in the Zeballos and Nootka Contract Operations.

**Table 2: Distribution of Logging Systems.**

Logging System	2002 Volume (m <sup>3</sup> )
Conventional cable and ground based systems	538,469
Skyline Systems*	0
Non-Conventional Systems: Heli and Multispan Skylines	27,855
<b>TOTAL</b>	<b>566,324</b>

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

## 2.1.3 Contractor Commitment

**Objective: Maintain contractor commitments**

**Indicator: Per cent of contractor commitment achieved**

As per the TFL 19 agreement, Western Forest Products is required to ensure that a minimum of 50% of the harvest of timber from Crown lands be executed by contractors, as detailed in the Timber Harvest Contract and Sub-Contract Regulation. In 2002, the volume harvested by full and phase contractors totalled 275,187 m<sup>3</sup>. The Coastal Contractor Clause Performance Report (Appendix VI) confirms that this commitment was exceeded. A listing of full and phase harvesting contractors is included in Appendix VII. A comprehensive list of all contractors including planning and development, harvesting, silviculture, and integrated resources management contractors, is presented in Appendix VIII.

## 2.1.4 Profitability

**Objective: Achieve a reasonable return on investment**

**Indicator: Margin on a cubic metre basis**

The Company produces and markets upper grades and commodity grades of lumber and various grades of NBSK and dissolving and paper grade sulphite pulp, which are sold in approximately 30

countries worldwide. In 2002, the Company's sales decreased by approximately 18% to \$634.9 million as a result of a reduction in sales in both the solid wood and pulp segments.

Sales for the solid wood segment decreased by approximately 13% to \$463.7 million in 2002. This was due to a decrease in lumber sales of approximately 9% to \$320.9 million, a decrease in log sales of approximately 21% to \$123.3 million and a decrease in chip sales of approximately 6% to \$19.6 million in 2002. Lumber sales into the U.S. were impacted by an oversupply situation and softwood duties while the Japanese market remained weak reflecting the on-going economic problems in that country.

Sales for the pulp segment decreased 28% to \$171.2 million in 2002 as a result of lower sales of dissolving pulp where prices for commodity grades, in particular, remained weak. Sales of NBSK pulp were consistent from 2001 to 2002 with a higher sales volume in 2002 but a lower average price.

**Table 3: Sales Performance.**

Category / Market	Lumber	Logs	Chips	Pulp	TOTAL
2002 Sales Volume	562 million bdft	652,000 m <sup>3</sup>	370,000 BDU	258 ADMT	NA
2002 Sales Value	\$321 million	\$ 123 million	\$ 20 million	\$ 171 million	NA
Canada %	10	100	100	0	28
United States %	58	0	0	11	32
Asia %	26	0	0	59	29
Europe %	5	0	0	27	10
Other %	1	0	0	3	1
% of Company Sales	51	19	3	27	100

### 2.1.5 Non-Timber Forest Products

**Objective:** *Encourage Non-Timber Forest Products utilization*

**Indicator:** *Volume and value by type of Non-Timber Forest Products*

Western Forest Products encourages and co-operates with non-timber forest products harvesters and initiatives. In 2002, harvest of salal and mushrooms were reported. The value of the products is estimated at \$64,000 (Appendix IX).

Research into the development of policy for non-timber forest products was supported by the Company in 2002. Staff participated in workshops and forums to discuss options and their potential impacts. Western Forest Products supports strategies that do not conflict with timber rights and other forest investments, which maintain our environmental standards, that are sustainable according to assessments and inventories, and that pay for administrative costs from revenue generated.



A small trapping industry focusing on fur-bearing mammals occurs within the TFL. Western Forest Products co-operates with registered licence holders to optimize the availability of the resource.

The TFL is bounded by coastal waters that provide a variety of commercial opportunities including aquaculture and tourism. The Company supports the economic diversification and development of these ventures, and co-operates with planning and implementation.

#### **2.1.6 Special Forest Products**

**Objective:** *Encourage use of Special Forest Products*

**Indicator:** *Volume and estimated value of Special Forest Products recovered*

Western Forest Products has established contracts with timber salvage contractors, primarily for the recovery of western redcedar shake and shingle wood. Other products include cants and guitar blocks. Culvert wood and buried logs salvaged from road deactivation or culvert replacement are scaled with regular production. A detailed summary of the Special Forest Products recovered in 2002 is included in Appendix IX. The total volume of Special Forest Products recovered was 1,400 m<sup>3</sup> for an estimated value of \$441,464. The estimated non-timber value was \$64,000. Administration costs incurred by the Company were \$14,480.

#### **2.1.7 Access Management**

**Objective:** *Provide for public access*

**Indicator:** *Length of roads maintained*

A transportation system has been established in TFL 19 to allow transport of logs by truck and water to processing facilities. In 2002, an estimated 603.1 km of road were maintained. Roads within the TFL are generally open for public use.

Details of construction, maintenance, and deactivation are included in Appendix X. Roads are constructed, maintained, and deactivated as per current legislation and regulations. Access management maps were provided for public comment as part of the Forest Development Plan consultations.

#### **2.1.8 Recreation**

**Objective:** *Maintain recreation sites and features*

**Indicator:** *Number and type of recreation sites maintained*

The Company maintained recreation sites throughout the TFL during the year (Table 4). Many improvements including danger tree removal, picnic table repair and replacement, outhouse repair and replacement, and fire pit repair and replacement were completed. Costs to maintain and improve the recreation sites were \$17,100. Reimbursements from FRBC and FIA totalled \$10,628.

**Table 4: Recreation Sites and Improvements.**

Type	Site (Operation)	Improvements
<b>Campgrounds</b>	Muchalat Lake	8 Picnic Tables and Regular Maintenance
	Cougar Creek	4 Pick Tables – Ministry of Forests contracted maintenance directly to a third party
	Leiner River	Regular Maintenance
<b>Picnic Grounds</b>	Antler Lake	Heavy Brushing and Regular Maintenance
	Conuma River	Regular Maintenance
	Star Lake	Dock Repair and Regular Maintenance
	Little Espinosa	Regular Maintenance
<b>Trails</b>	Zeballos Nature Trail System	Approximately 2 km of new trails built. Western Forest Products assisted the Village of Zeballos with their trail expansion project.
	Upana Caves	Regular Maintenance
	Malaspina Lake	Regular Maintenance
	Gold River Trail	Regular Maintenance



*Ray Watkins Elementary (Gold River) Grade Two class forestry walk around Antler Lake Trail on private WFP land. Western Forest Products has trails throughout their private and public lands that are used by mountain bike riders, hikers and horseback riders.*



**Indicator: User days by category**

Recreation use in the TFL is estimated from visitor guide demand, municipal visitor information statistics, site-specific monitoring reports and numbers of permits issued. The public engages in a wide variety of recreational pursuits in and adjacent to the TFL, as indicated in Table 5.

**Table 5: Recreation Activities and Use Estimates**

ACTIVITY	USER DAYS BY OPERATION			
	GOLD RIVER	NOOTKA CONTRACT	ZEBALLOS	TOTAL
Beach Use	200	200	60	460
WFP Sites and Trails	52,500	5,331	1,000	58,831
Hunting	5,000	2,104	250	7,354
Fishing (Freshwater)	2,000	100	200	2,300
Fishing (Saltwater)	45,000	11,544	2,500	59,044
Firewood Cutting	750	730	150	1,630
Food Gathering	50	48	10	108
Kayaking	500	6,051	600	7,151
Whale Watching	100	250	0	350
Mountain Biking	1,800	0	0	1,800
Hiking and Caving	2,400	2,615	500	5,515
Auto Touring	1,000	1,260	200	2,460
<b>TOTAL</b>	<b>111,300</b>	<b>30,233</b>	<b>5,470</b>	<b>147,003</b>

## 2.1.9 Research and Development

**Objective: Support research and development**

**Indicator: Investment in research**

Western Forest Products continued to lead and support research initiatives in 2002. Projects led or co-led by the Company include yellow cypress genecology research together with other tree improvement initiatives, stand establishment studies, stand treatment response investigations, and forest inventories. Additionally, the Company supported research and development led by researchers at the University of British Columbia, the University of Victoria, Simon Fraser University, the Ministry of Forests, the Canadian Forest Service, and independent researchers. This support included in-kind support (housing, maps, reviews, etc), funding, and letters of support. Costs of the Company's research and development program apart from in-kind support were prorated at \$47,324 for TFL 19. Recoveries from FRBC, FIA, and FII were prorated at \$35,404.

The Salal Cedar Hemlock Integrated Research Program (SCHIRP) published a second research update in 2002 summarizing recent findings in this research. These included findings of a number



of Company projects including the fertilization at planting of western redcedar and western hemlock on transitional sites, fertilizer formulations and applications of western redcedar at planting, and scarification trials.

Findings of the 2001 Operational Fertilization Monitoring at Jordan River corroborates the findings of fertilization of similar salal dominated sites on northern Vancouver Island. Broadcast fertilizer treatments of nitrogen and phosphorus have a beneficial impact on growth of redcedar and hemlock saplings on these sites.

The North Coast fertilizer trials did not show conclusive evidence of benefit. Problems with the initial data have resulted in a messy data set. The five-year data after the 2005 growing season should provide conclusive results.

Monitoring of two yellow cypress clonal trial establishments was completed after the 2002 growing season. Results of the Company's yellow cypress clonal trials have led to the development of high-gain hedge orchards, with the latest cuttings lot sent to the nurseries having a projected gain of 15% volume at age 60. From these hedge orchards, rooted cuttings are deployed to the Company's reforestation programs, including those in TFL 19.

The native grasses operational trials at Jordan River and Gold River were monitored. Research into native grass species suitable for coastal site rehabilitation projects continued in 2002 with funding provided from the Company's TFL 19 land-based FIA allocation. This work has lead to recommendations for local species inclusion in site stabilization projects, and the development of seed production capacity in these species.

Western Forest Products has partnered with FORREX, whose aim is to provide research extension for healthy and sustainable forest ecosystems. Company staff serves on the Board of Directors of FORREX.

Western Forest Products supports the Forest Genetics Council and its sub committees in their efforts to improve the quality of regeneration in Coastal British Columbia. Company staff participates in the planning and implementation of projects aimed at improved growth rates in second and third growth stands.



Forestry Technician Georgina Dampier grafts a second clone onto one of the trees in the Saanich Forestry Centre's experimental western redcedar orchard. This OTIP funded trial is intended to see if we can increase outcrossing rates by having two parents grafted together. The upper parent should shed pollen onto the unrelated female flower on the lower parent. High outcrossing can increase the genetic worth of the cone crop significantly.

## 2.1.10 Contribution to Provincial Revenues

**Objective:** *Contribute to provincial revenues*

**Indicator:** *Payment of fees*

In 2002 stumpage payments for wood harvested from Crown land within the TFL totalled \$12,929,406. Additional payments of AAC rental, fees for Special Use Permits, licences of occupation, TL rent, road use agreements, and others total more than \$680,550 for the year.

## 2.2 Environmentally Appropriate Forest Management

### 2.2.1 Conservation of Biological Diversity

#### 2.2.1.1 Ecological Diversity

**Objective:** *Maintain a dynamic distribution of habitat over a landscape*

**Indicator:** *Average opening size*

Block size, according to prescriptions submitted in the year, averaged 21.2 ha throughout TFL 19 (Table 6). Block sizes varied from as small as 3.4 ha to as large as 112.5 ha.

**Table 6: Silviculture Prescription Statistics by Operation.**

Operation	Submitted Silviculture Prescriptions (Count)	Total Area (ha)	Average Block Size (ha)	Minimum Block Size (ha)	Maximum Block Size (ha)	Total Reserve Area (ha)
Gold River	13	347.0	26.7	7.5	112.5	61.2
NCA	17	292.5	17.2	3.4	48.5	38.8
Zebalos	5	102.6	20.5	8.0	31.5	12.0
<b>TOTAL</b>	<b>35</b>	<b>742.1</b>	<b>21.2</b>	<b>3.4</b>	<b>112.5</b>	<b>112.0</b>

**Indicator:** *Per cent of defined area reserved*

Based on silviculture prescriptions submitted in 2002, 15.1% of the total defined area under prescription was included in stand level reserves of various types (Table 6).

**Indicator:** *Seral stage distribution (five year basis)*

Seral stage distribution was derived from GIS analysis using the forest inventory current to January 2001. At that time, more than 67% of the land base was covered by mature, old, or very old seral stages (Table 7). Seral stages are based on both age and height criteria and represent the structural stage of the forest polygon as opposed to just the actual age.

**Table 7: Seral Stage Distribution**

Seral Stage	Reporting Period (2001 – 2006)	
	Area (ha)	Distribution
Herb (Seedling)	11241.0	7%
Brush/Shrub	22015.0	14%
Young Open (Sapling)	10515.9	7%
Young Closed (Pole)	7516.5	5%
Mature	9519.6	6%
Old Mature	12899.2	8%
Very Old	82150.6	53%
<b>TOTAL</b>	<b>1.0</b>	<b>53%</b>

**Indicator: Patch size distribution – proportion of landbase in patches of greater than 200 ha**

The latest patch size distribution analysis was completed on the 2001 land base. At that time, an estimated nine per cent of the land base was covered in patches of less than 40 ha, where the desired proportion is 30 - 40%. Similarly, the desired proportion of patches in the 40 – 80 ha size is 30 – 40%, compared to the actual of three per cent. Patches of 80 to 250 ha are desired on 20-40% of the land base, and are found on eight per cent of the land base (Table 8).

**Table 8: Patch Size Distribution**

Patch size	Young		Mid		Old		TOTAL	
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
< 40 ha	4938.4	3%	2755.7	2%	5588.5	4%	13282.6	9%
40 – 80 ha	2040.6	1%	1069.7	1%	1778.4	1%	4888.8	3%
80 – 250 ha	6882.3	4%	2157.2	1%	3870.3	2%	12909.8	8%
>250 ha	29910.6	19%	11053.4	7%	83812.5	54%	124776.5	80%
<b>TOTAL</b>	<b>43771.9</b>	<b>28%</b>	<b>17036.1</b>	<b>11%</b>	<b>95049.8</b>	<b>61%</b>	<b>155857.8</b>	<b>100%</b>

**Indicator: Number, type, and investment in environmental inventories and assessments**

The Company completes numerous inventories as required for planning and implementation. Table 9 provides a listing of inventories and their status. Total costs incurred by the forestry department for inventories were \$461,816. Costs incurred by the engineering department are not included. Recoveries from FRBC and FIA totalled \$401,207.



**Table 9: Resource Inventories**

Item	Status	Plan
Timber Inventory	Completed in 1988 by Reid, Collins and Associates . MOF field audit completed in 1999.	Inventory revisions updated annually. New VRI project ongoing and will replace current forest inventory when completed.
Ecosystems	Mapping completed by Madrone Consulting Ltd (Nov 00). Internal review ongoing	Finalization and quality assurance completed in 2001.
Terrain Stability	Completed in 1997 by Terence Lewis et al.	
Recreation Inventory and Recreation Analysis	Recreation inventory completed in 2000 by Jeremy Webb of Recreation Resources Limited. Includes karst overview.	Update completed in 2000.
Visual Landscape Inventory	Completed by Recreation Resources Limited (Jeremy Webb) in 2000.	Update completed in 2000.
Stream Classification	FDP process has updated to FPC Riparian Classes for a large part of the TFL	Stream Inventories - 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).	
Operability	Completed by WFP in 1999.	
20-Year Plan		Submitted and approved as part of MP 9
Karst	Planning-level Karst inventory of TFL 19 started in 2001 by Terra Firma Geosciences Services	Inventory completed in 2002

**Indicator: Ecosystem representation**

GIS analysis of the ecosystems of TFL 19 is presented in Table 10. This table indicates the proportion of each ecosystem currently constrained from harvest.

**Table 10: Ecosystem Representation**

BEC Variant	Ecosystem	Forested Area	% Constrained from Harvest
CWH vm 1	Amabilis fir - Western redcedar – Foamflower	8077.8	78%
	Amabilis fir - Western redcedar - Salmonberry	143.6	62%
	Black cottonwood – Willow	33.7	54%
	Hardhack - Sweet gale wetland	23.5	40%
	Lodgepole pine – Sphagnum	3.6	28%
	Shallow Open Water	1.9	100%
	Sitka alder - Salmonberry avalanche chute	298.5	52%
	Sitka spruce - salmonberry	1624.3	53%
	Sphagnum - Cottongrass fen	59.1	63%
	Tufted hairgrass estuary	60.3	82%
	Western hemlock - Amabilis fir - Blueberry	49461.8	81%
	Western hemlock - Lodgepole pine - Cladina	792.5	61%
	Western hemlock - Western redcedar - Salal	20145.4	62%
	Western redcedar - Sitka spruce - Skunk cabbage	75.4	72%
	Western redcedar - Western hemlock - Amabilis fir - Mountain holly fern	530.9	91%
	Western redcedar - Western hemlock - Sword fern	225.5	58%
	Western redcedar - Yellow-cedar - Goldthread	507.3	59%
<b>CWH vm 1 Total</b>		<b>82065.0</b>	<b>75%</b>
CWH vm 2	Amabilis fir - Mountain Hemlock - Twistedstalk	8077.8	78%
	Amabilis fir - Western redcedar - Foamflower	143.6	62%
	Amabilis fir - Western redcedar - Salmonberry	33.7	54%
	Lodgepole pine – Sphagnum	23.5	40%
	Mountain hemlock - Amabilis fir – Mountain-heather	3.6	28%
	Sitka alder - Salmonberry avalanche chute	1.9	100%
	Sphagnum - Cottongrass fen	298.5	52%
	Western hemlock - Amabilis fir – Blueberry	1624.3	53%
	Western hemlock - Lodgepole pine - Cladina	59.1	63%
	Western hemlock - Western redcedar - Salal	60.3	82%
	Western redcedar - Sitka spruce - Skunk cabbage	49461.8	81%
	Western redcedar - Yellow-cedar - Goldthread	792.5	61%
<b>CWH vm 2 Total</b>		<b>43973.1</b>	<b>54%</b>
CWH xm 2	Black cottonwood - Willow	9.5	37%
	Douglas fir - Lodgepole pine - Cladina	5.6	0%
	Douglas fir - Sword fern	31.2	30%
	Douglas fir - Western hemlock - Salal	616.7	47%
	Hardhack - Sweet gale wetland	6.2	41%
	Sitka alder - Salmonberry avalanche chute	2.4	0%
	Sitka spruce - salmonberry	107.6	26%
	Tufted hairgrass estuary	4.7	0%
	Western hemlock - Douglas fir - Kindbergia	4525.3	78%
	Western redcedar - Foamflower	107.6	50%
	Western redcedar - Sword fern	652.6	76%
<b>CWH xm 2 Total</b>		<b>6069.4</b>	<b>73%</b>



BEC Variant	Ecosystem	Forested Area	% Constrained from Harvest
MH mm 1	Amabilis fir - Mountain hemlock - Oak fern	160.3	53%
	Amabilis fir - Mountain Hemlock - Twistedstalk	991.8	32%
	Mountain hemlock - Amabilis fir - Blueberry	10718.3	38%
	Mountain hemlock - Amabilis fir - Mountain-heather	1755.5	17%
	Mountain hemlock - Phlox	64.8	16%
	Mountain hemlock - Yellow-cedar - Deer cabbage	4.3	0%
	Mountain hemlock krummholz	68.3	2%
	Mountain-heather heath	47.0	20%
	Sitka alder - Salmonberry avalanche chute	87.2	21%
	Sphagnum - Cottongrass fen	13.7	9%
<b>MH mm 1 Total</b>		<b>13911.2</b>	<b>34%</b>
MH mmp1	Amabilis fir - Mountain Hemlock - Twistedstalk	6.8	0%
	Mountain hemlock - Amabilis fir - Blueberry	27.8	14%
	Mountain hemlock - Amabilis fir - Mountain-heather	32.6	0%
	Mountain hemlock krummholz	4.0	0%
	Mountain-heather heath	1.4	0%
	Sitka alder - Salmonberry avalanche chute	1.4	0%
<b>MH mmp1 Total</b>		<b>73.9</b>	<b>5%</b>
<b>Grand Total</b>		<b>146092.6</b>	<b>65%</b>

**Indicator: Timber Harvest Land Base status**

The total area under agreement for TFL 19 is 191,991.7 ha, of which approximately 155,795.1 ha are forested. Of this 94,702.4 ha is defined as part of the Timber Harvest Land Base. This leaves 61% of the defined area outside of the Timber Harvest Land Base. Areas added to those reserved from development and removed from the Timber Harvest Land Base include Ungulate Winter Ranges, riparian reserves, and areas with sensitive slopes.

Changes in operability also affected the size of the Timber Harvest Land Base. These additions or removals to the operable land base can result from factors such as changing market conditions and/or slope stability refinements. Appendix XI summarizes and compares the actual harvest in TFL 19 to the operability classification.

**2.2.1.2 Species Diversity**

**Objective: Maintain viable populations of native species**

**Indicator: Number of known species classified as threatened, endangered, or vulnerable by COSEWIC and CDC**

The third point of the species diversity strategy adopted by Western Forest Products to maintain terrestrial species states that the Company will maintain the distribution and abundance of known sensitive species. At present, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) includes two species occurring or likely to occur in TFL 19 as Endangered or Threatened. An additional four species are listed as Vulnerable. Details, together with specific management strategies employed by the Company are included in Appendix XIII.

**Indicator: Area maintained in stand level reserves**

A number of reserves were established to provide a variety of habitats required for the terrestrial species throughout the TFL (Table 11). These address the first two points of the species diversity strategy adopted by Western Forest Products:

- a) to maintain the amount, distribution, and heterogeneity of habitat and landscape elements important for biodiversity over time, and
- b) to ensure representation of ecologically distinct habitat types to maintain lesser known species and ecological functions.

The following table summarizes the amount of stand-level and landscape level reserves within TFL 19.

**Table 11: Species Diversity Reserves**

BEC Variant	Ecosystem	Forested Area	% Constrained from Harvest
CWH vm 1	Amabilis fir - Western redcedar - Foamflower	8077.8	22%
	Amabilis fir - Western redcedar - Salmonberry	143.6	38%
	Black cottonwood - Willow (Black cottonwood - Red-osier dogwood)	33.7	46%
	Hardhack - Sweet gale wetland	23.5	60%
	Lodgepole pine - Sphagnum	3.6	72%
	Shallow Open Water	1.9	0%
	Sitka alder - Salmonberry avalanche chute	298.5	48%
	Sitka spruce - salmonberry	1624.3	47%
	Sphagnum - Cottongrass fen	59.1	37%
	Tufted hairgrass estuary	60.3	18%
	Western hemlock - Amabilis fir - Blueberry		
	(Western hemlock - Western redcedar - Deer fern)	49461.8	19%
	Western hemlock - Lodgepole pine - Cladina	792.5	39%
	Western hemlock - Western redcedar - Salal	20145.4	38%
	Western redcedar - Sitka spruce - Skunk cabbage	75.4	28%
	Western redcedar - Western hemlock - Amabilis fir - Mountain holly fern	530.9	9%
	Western redcedar - Western hemlock - Sword fern	225.5	42%
	Western redcedar - Yellow-cedar - Goldthread	507.3	41%
CWH vm 1 Total		82065.0	25%
CWH vm 2	Amabilis fir - Mountain Hemlock - Twistedstalk	166.2	80%
	Amabilis fir - Western redcedar - Foamflower	1660.4	38%
	Amabilis fir - Western redcedar - Salmonberry	483.0	48%
	Lodgepole pine - Sphagnum	16.0	40%
	Mountain hemlock - Amabilis fir - Mountain-heather	29.7	56%
	Sitka alder - Salmonberry avalanche chute	242.4	67%
	Sphagnum - Cottongrass fen	14.1	14%
	Western hemlock - Amabilis fir - Blueberry		
	(Western hemlock - Western redcedar - Deer fern)	29815.6	43%
	Western hemlock - Lodgepole pine - Cladina	1799.5	69%
	Western hemlock - Western redcedar - Salal	7956.5	53%
	Western redcedar - Sitka spruce - Skunk cabbage	2.7	1%
	Western redcedar - Yellow-cedar - Goldthread	1786.9	46%



BEC Variant	Ecosystem	Forested Area	% Constrained from Harvest
<i>CWH vm 2 Total</i>		43973.1	46%
CWH xm 2	Black cottonwood - Willow	9.5	63%
	Douglas fir - Lodgepole pine - Cladina	5.6	100%
	Douglas fir - Sword fern	31.2	70%
	Douglas fir - Western hemlock - Salal	616.7	53%
	Hardhack - Sweet gale wetland	6.2	59%
	Sitka alder - Salmonberry avalanche chute	2.4	100%
	Sitka spruce - salmonberry	107.6	74%
	Tufted hairgrass estuary	4.7	100%
	Western hemlock - Douglas fir - Kindbergia	4525.3	22%
	Western redcedar - Foamflower	107.6	50%
	Western redcedar - Sword fern	652.6	24%
<i>CWH xm 2 Total</i>		6069.4	27%
MH mm 1	Amabilis fir - Mountain hemlock - Oak fern	160.3	47%
	Amabilis fir - Mountain Hemlock - Twistedstalk (Yellow-cedar - Mountain hemlock - Hellebore)	991.8	68%
	Mountain hemlock - Amabilis fir - Blueberry (Mountain hemlock - Amabilis fir - Bramble)	10718.3	62%
	Mountain hemlock - Amabilis fir - Mountain-heather	1755.5	83%
	Mountain hemlock - Phlox	64.8	84%
	Mountain hemlock - Yellow-cedar - Deer cabbage	4.3	100%
	Mountain hemlock krummholz	68.3	98%
	Mountain-heather heath	47.0	80%
	Sitka alder - Salmonberry avalanche chute	87.2	79%
	Sphagnum - Cottongrass fen	13.7	91%
<i>MH mm 1 Total</i>		13911.2	66%
MH mmp1	Amabilis fir - Mountain Hemlock - Twistedstalk (Yellow-cedar - Mountain hemlock - Hellebore)	6.8	100%
	Mountain hemlock - Amabilis fir - Blueberry (Mountain hemlock - Amabilis fir - Bramble)	27.8	86%
	Mountain hemlock - Amabilis fir - Mountain-heather	32.6	100%
	Mountain hemlock krummholz	4.0	100%
	Mountain-heather heath	1.4	100%
	Sitka alder - Salmonberry avalanche chute	1.4	100%
<i>MH mmp1 Total</i>		73.9	95%
<b>Total</b>		<b>146092.6</b>	<b>35%</b>

**Indicator: Cumulative area in wildlife habitat reserves**

To date in TFL19 3,706.5 ha have been reserved for elk and deer winter ranges (UWR) and 27.7 ha have been reserved as a wildlife habitat area (WHA) for Keen's Long-Eared Myotis.

**Indicator: Proportion of regeneration area declared mixed species regeneration**

Within TFL 19, the Company declared 249.6 hectares free growing in the year. Of these, 249.6 ha or 100% were declared mixed species regeneration. Mixed species regeneration is defined as those areas whose forest inventory label includes two or more species.



**Indicator: Number of trees planted by species**

The Company implemented planting on 1,040 ha in TFL 19 in 2002. The total seedlings planted were 1,027,418. These included 269,503 western redcedar, 226,862 western hemlock, 214,218 Douglas-fir, 124,673 amabilis fir, 129,068 yellow cypress, 11,850 Sitka spruce, and 51,244 other species. Details by Operation are included in Appendix XIV.

**Indicator: Number of fry released by species**

Western Forest Products continues to support the Salmonid Enhancement Program throughout its operating areas. In 2002, approximately 89,000 chinook were released into TFL 19 watersheds. Costs incurred by the Company to support hatcheries in TFL 19 were \$5,638.

**2.2.1.3 Genetic Diversity**

**Objective: Maintain the variation of genes within species**

**Indicator: Proportion of orchard seed deployed**

The regulations governing the deployment of improved and natural seed in British Columbia maintain high standards for genetic diversity. All seedlots deployed in TFL 19, both seedlots from orchards and seedlots from natural stands, met these standards. Where improved seed from orchards is available, regulations require its deployment ahead of natural stand seed collections. Many coastal gene resource management programs have identified desirable stock for the production of improved seed. Thus significant portions of the western redcedar, western hemlock, Douglas-fir, Sitka spruce, western white pine, and yellow cypress seedlings for reforestation originated from orchards (Table 12). No improved seed is available for amabilis fir and the minor regeneration species.

**Table 12: Saanich Orchard Seed Source Summary.**

Species*	Saanich Seed Orchard Stock (%)			
	Gold River	Nootka Contract	Zeballos	Weighted Mean
Western redcedar	56	93	58	68
Western hemlock	100	100	100	100
Coastal Douglas-fir	100	100	100	100
Amabilis fir	0	0	0	0
Yellow Cypress	0	78	0	78
Sitka spruce	77	100	0	78
Western white pine	100	0	0	100
Mountain hemlock	0	0	0	0
Shore pine	0	0	0	0
Other	0	0	0	0
<b>Weighted Mean</b>	<b>59</b>	<b>80</b>	<b>62</b>	<b>63</b>

\*In order of decreasing total deployed across TFL

## 2.2.2 Maintenance of Ecosystem Productivity

### 2.2.2.1 Forest Health

**Objective:** *Maintain forest health*

**Indicator:** *Pest attack status*

The Company continued to monitor pests as necessary throughout the TFL. Lowered felled and bucked inventories has minimized the ambrosia beetle damage. In the Gold River Operations approximately five hectares has been affected by *Armillaria* and *Phellinus weirii*. A dry summer accentuated the existing disease.

Kevin Hardy, MOF Region Growth & Yield, with Growth & Yield Contractor. Assessing Growth in a stand heavily infected with root rots, notably *Phellinus weirii* (laminated root rot) and *Armillaria* root diseases.



**Indicator:** *Deployment of weevil resistant Sitka spruce in high hazard zones*

All Sitka spruce planted in medium and high-hazard zones in 2002 were of known weevil resistant stock. These include 2,665 from Big Qualicum wild stand collections and 8,745 from the bulking up process. An additional 440 non-weevil resistant Sitka spruce were planted in low-hazard zones and at high elevation where the annual cumulative degree days above a threshold of 7.2° C rarely exceed the 888 degree days required for successful development of the weevil.

**Indicator:** *Number of browse guards installed or maintained*

Damage to seedlings from ungulates is reduced through the use of browse guards. In 2002, the Company installed 1,400 seedling protectors on 45.0 ha. Maintenance of 5,124 on 569.0 ha was also completed. On 544.9 ha, 2,062 seedling protectors were removed. Costs for this program were \$9,917.

Elk browsing in the Houston River Contract Forest Operation. Photo taken by John Veerman from a VIH helicopter.





**Indicator: Number and area of accidental fires**

Fire Preparedness Plans were updated to fulfill annual obligations. Ground and aerial patrols were undertaken during times of upper moderate, high, and extreme fire-weather hazard ratings. Patrols focused on areas with lightning strikes, active work areas, and recreation sites. Weather stations were monitored during the fire season and throughout the slash pile-burning program in October and November. There were no accidental fires reported in 2002.

Gold River Forest Operation, Zeballos Forest Operation and Nootka Contract Operations were not shut down for fire weather conditions in 2002.

Fire management costs in 2002 totalled \$1,915 including fire prevention, fire preparedness, and fire control.

**2.2.2.2 Forest Ecosystem Resilience**

**Objective: Maintain ecosystem resilience**

**Indicator: NSR Balance**

The NSR Balance to December 31, 2002, indicates that 1,393.8 ha were identified as Not Satisfactorily Restocked (NSR) in TFL 19 as per our GIS updates. The bulk of the NSR is the area logged in 2002.

**Indicator: Proportion of surveyed area declared free growing**

In 2002, 1,643.5 ha within TFL 19 were surveyed for free growing status. Of these, 78%, or 1,274.3 ha were found to meet all free growing requirements (Appendix XIV). A total of 369.2 ha were identified as not free growing. These include all satisfactorily restocked areas that have not yet achieved the minimum requirements of a free growing stand.

**Indicator: Average regeneration delay**

A total of 929.0 ha were due to meet regeneration delay in 2002. Of these 100% met the requirements. These include the establishment of a prescribed number of well-spaced trees per hectare of acceptable species to be growing in the area. Areas due within the year are determined by prescription and start date of harvesting.

Analysis of 75 blocks, where regen delay was due in 2002, indicated that the average time from logging end date to meeting regeneration delay requirements is 2.3 years.

**Indicator: Area reforested**

A total of 1,040 ha were included in the planting program in 2002 (Appendix XIV). This included 1,018.2 ha of original plantations and 21.8 ha of fill planting.

**Indicator: Investment in basic forestry**

Basic forestry investments in TFL 19 totalled \$1,718,302. These included silviculture prescriptions, site preparation, planting and fertilizing at plant, surveys, brushing and weeding, and record keeping. Recoveries from Forest Renewal BC followed by the Forest Investment Account totalled \$19,006 for backlog areas.

**2.2.2.3 Forest Ecosystem Productivity**

**Objective: Maintain forest ecosystem productivity**

**Indicator: Number of growth and yield plots established and maintained**

TFL 19 had 195 growth and yield plots at the beginning of 2002. Of these, 42 were measured. No additional plots were established in 2002. Further information about the growth and yield plots monitoring schedule is included in Appendix XII. These data are used to calibrate volume prediction models used to forecast future timber flow. Costs reported in 2002 of the growth and yield program were \$12,638 of which \$8,504 was recovered from the Forest Investment Account program.

**Indicator: Amount of fish habitat created or enhanced**

Routine effectiveness evaluation of the Zeballos and Oktwanch spawning/rearing channels showed that restoration treatments were meeting performance objectives. One section of the Oktwanch channel will require maintenance in 2003.

**Indicator: Riparian restoration area**

Activities completed in 2002 associated with riparian management included a riparian overview assessment of the Oktwanch River, water quality monitoring of Leagh Creek and a hydrological assessment of Muchalat River. Costs amounted to \$100,662 and credits were \$57,214.

**Indicator: Investment in enhanced forestry**

Costs for enhanced forest management projects totalled \$513,375 and were fully funded by Forest Renewal BC and the Forest Investment Account.

**Indicator: Area fertilized, spaced, or pruned**

Incremental forestry investments into fertilization, spacing, and pruning were administered by the Company in 2002. Details of the projects by Operation are included in Appendix XVI.



Eddie Mark from Mt. Leighton pruning in Block K33 – Gold River Forest Operation.



**Indicator: Area harvested by silviculture system**

Of the blocks for which harvest was completed in 2002, all employed either clearcut or clearcut with reserves silviculture systems, as defined by the Operational and Site Planning Regulation of the Forest Practices Code.

**Table 13: Silviculture Systems by Operation**

Silviculture System	Gold River		Nootka Contract Administration		Zeballos		TOTAL	
	# Block:	Area (ha)	# Block:	Area (ha)	# Block:	Area (ha)	# Block:	Area (ha)
Clearcut	1	11.2					1	11.2
Clearcut with Reserves	25	581.2	12	215.6	9	223.2	46	1020.0

**2.2.3 Conservation of Soil and Water Resources**

**2.2.3.1 Productive Area**

**Objective: Minimize permanent loss of productive area**

**Indicator: Proportion of permanent access within cutblocks**

To minimize loss of productivity across the land base, permanent and temporary access structures must be optimized to safely and economically harvest timber while minimizing the total amount of roads constructed. In 2002, surveys of 50 cutblocks for site degradation were completed in all TFL 19 operations. A summary of the survey results is included in Table 14.

**Table 14: Site Degradation Surveys**

Operation	# Blocks	Site Degradation (%) Weighted Average
Gold River	30	6.5
Nootka Contract	20	4.2
<b>TOTAL</b>	<b>50</b>	<b>5.6</b>

**2.2.3.2 Water Quality**

**Objective: Maintain water quality**

**Indicator: Amount of road deactivated**

Road maintenance and deactivation is key to the maintenance of water quality. Temporary, semi-permanent, and permanent road deactivation occurred on roads for which the Company assumes all responsibilities under the Forest Practices Code. Details are included in the engineering report in Appendix X. Costs are not reported for engineering department activities.

**Indicator: Area in Riparian Management Areas**

The Riparian Management Area (RMA) includes the Riparian Reserve Zone (RRZ) and Riparian Management Zone (RMZ). Width of these zones varies according to the stream classification.

These are identified during cutblock layout and harvesting prescriptions. Harvesting prescriptions for the RMA are included in operational plans. Of 236.8 ha under prescription in 12 blocks for which harvest completion reports were filed in 2002, 38% were in a Riparian Management Area. This amounted to 90.1 ha in Riparian Management Areas.

**Indicator: CWAPs conducted on designated watersheds**

Coastal Watershed Assessment Procedures (CWAPs) were completed in two watersheds in 2002.

**Indicator: Number of reportable spills to water**

There were no reportable petroleum or other spills in TFL 19 in 2002.

## 2.2.4 Contribution to Global Ecological Cycles

### 2.2.4.1 Carbon Sequestration

**Objective: Maintain carbon balance relative to Company operations**

**Indicator: NSR area (NSR balance relative to harvest – TFL19)**

Harvesting followed by prompt reforestation, together with silviculture treatments to optimize growth ensure that forest lands are current sinks for carbon dioxide. The Regeneration Balance Sheet to December 31, 2002, indicates that 1,393.8 ha were identified as Not Satisfactorily Restocked (NSR) in TFL 19 as per our GIS updates. The bulk of the NSR is the area logged in 2002, that totalled 873.4 ha.

**Indicator: Area fertilized**

In 2002 fertilization was applied to 1,227 ha, further enhancing the uptake of carbon dioxide in the TFL. Good weather during the 2002 season resulted in a successful aerial applications program.

Staging area for Gold River Operations fertilization along West Road, Muchalat Lake area.





## 2.3 Socially Beneficial Forest Management

### 2.3.1 First Nations

**Objective:** *Provide meaningful consultation on forest management.*

**Indicator:** *Records of meetings and correspondence*

Information sharing meetings were held with all of the First Nations whose traditional territories coincide with the TFL lands. These include the Mowachaht/Muchalaht First Nation, Nuchatlaht Tribe, Ka:'yu:'k't'h'/Che:k'tles7et'h' Nation and the Ehattesaht Tribe.

**Objective:** *Increase First Nations' involvement in forest management*

**Indicator:** *Proportion of silviculture contracts to First Nations*

WFP has an annual goal of achieving a minimum of 20% First Nations employment in silvicultural contracting. In 2002 of a total of 16,447 contractor days for silviculture and integrated resource management, 1,829 person days or 11.1% were accumulated by First Nations crews or First Nations crew members in other silviculture contracting crews (Appendix XX).

**Indicator:** *Person-days employment to First Nations and / or joint venture*

First Nations members are employed directly by Western Forest Products, by First Nations and other contractors to work for Western Forest Products, and in joint ventures between Bands and the Company. In 2002 more than 601 person-days were accumulated by known First Nations members in TFL 19 work. These occurred in planning and development, harvesting, and silviculture and integrated resource management.

**Objective:** *Protect First Nations' cultural features*

**Indicator:** *Number of Archaeological Impact Assessments.*

Archaeological Impact Assessments (AIAs) are conducted on all cutblocks identified as having moderate to high potential for cultural significance based on the Archaeological Overview Assessment (AOA). The Nookta Region conducted 26 AIAs in 2002. Defined archaeological features were conserved in the final engineering of the cutblocks.

### 2.3.2 Communities

**Objective:** *Conduct effective consultation with communities*

**Indicator:** *Number and type of contacts, meetings, and consultations*

Operations hosted public reviews of Forest Development Plans in 2002 (Table 15). Concerns raised by participants and correspondents were addressed.

**Table 15: Public Participation**

Operation	Plan	Community	Attendees	Correspondents
Gold River	Forest Development Plan(2002-2006)	Gold River	0	1
Nootka Contract Administration	Forest Development Plan(2002-2006)	Gold River	5	0
		Tahsis	13	1
Zeballos	Forest Development Plan(2002-2006)	Kyuquot	4	4
		Oclucje	3	3
		Zeballos	5	5
<b>TOTAL</b>			<b>30</b>	<b>14</b>

**Objective:** *Maintain and enhance community stability*

**Indicator:** *Public project expenditures*

Western Forest Products continues to support local communities through participation in community events, supporting community projects, and leading community initiatives.... Total expenditures on public projects apart from salmon enhancement, recreation sites, and forest education were \$86,183.



Western Forest Products Children's Christmas Party – Gold River clowns entertaining the children.



National Forests Week Helicopter Ride Winners. Poster/Essay contest, Ray Watkins Elementary (Gold River)  
L to R: Alex Gneth Jr., Jessica Gneth, Megan Wynn, Anna Gneth, Taryn Haley, Jessika Tyronese, Shandis Harrison, Chase Haley

**Indicator:** *Forest education investments*

The Company also promotes forestry and forest management in the local communities through tours and forest education initiatives.

Total expenditures on forest education totalled \$5,538.



### 2.3.3 Employment

**Objective: Sustain employment levels**

**Indicator: Total person-days**

TFL 19 generates a significant number of jobs in the local communities. These include jobs in planning and development, logging, and silviculture and integrated forest management. A summary of the direct employment person-days is included in Table 16. Manufacturing jobs are provided in other communities within the Vancouver Forest Region. Details by community are provided in Appendix XVIII. A comparison of these totals to the five-year average presented in the SFMP indicates that employment was down 26.5% in 2002 mainly due to poor market conditions.

**Table 16: Summary of Direct Employment Person-Days by Operation**

Category	Gold Rive	Nootka Contract Administration	Zeballos	Nootka Region	Total
Planning and Development	6,073	2,563	2,564		11,200
Harvesting	17,794	6,485	6,504		30,783
Silviculture & Integrated Resources	3,385	1,650	1,822	1,645	8,502
Administration				936	936
<b>TOTAL</b>	<b>27,252</b>	<b>10,698</b>	<b>10,890</b>	<b>2,581</b>	<b>51,421</b>

**Indicator: Jobs per cubic metre**

The AAC volume harvested in 2002 was 581,067 m<sup>3</sup>. TFL 19 generated employment for 1,990 individuals in 2002. Operations produced 90,696 person days of direct employment (Appendix XVIII). This equates to over 504 full-time positions based on 180 days per full-time equivalent. This amounts to one full-time equivalent job per 1,124 m<sup>3</sup> of scaled volume harvested.

### 2.3.4 Compliance

**Objective: Provide adequate training**

**Indicator: Number of training hours**

The Company employs a number of systems to promote safety, environmental protection, and best management practices. Compliance with legislation and regulations as well as with certification standards requires that employees and contractors receive training and updates regularly. Table 17 provides a summary of the training provided by the Company to its employees and contractors.

**Table 17: Training Summary Hours**

Category	Gold River	Nootka Contract Administration	Zeballos	Total
Safety and First Aid	1435	292	1227	2954
Environmental Management Systems	360	139	101	600
Standard Operating Procedures	308	104	4	416
Other	836	241	63	1140
<b>TOTAL</b>	<b>2939</b>	<b>776</b>	<b>1395</b>	<b>5110</b>

**Objective:** *Achieve compliance with all legislation and regulations*

**Indicator:** *Proportion compliance*

The Ministry of Forests conducted 111 compliance and enforcement inspections in TFL 19 in 2002. No contraventions were recorded.

### 2.3.5 Employee Relations

**Objective:** *Provide adequate training (see above)*

**Objective:** *Provide regular communication to employees and contractors*

**Indicator:** *Western Matters Newsletter circulation*

The newsletter, Western Matters, published by Western Forest Products, is provided to all employees and contractors twice a year. Here employees and contractors share their experiences and advice for the avoidance of pitfalls or extend knowledge for new best practices. Circulation of the newsletter is approximately 450.

### 2.3.6 Safety

**Objective:** *Provide a safe working environment*

**Indicator:** *Number of lost time accidents*

A total of eight lost time accidents were reported by operations working within the TFL 19. These include accidents that have occurred in adjacent non-TFL tenures managed by Western Forest Products.

### 3.0 OTHER ACCOMPLISHMENTS

#### 3.1 Small Business Forest Enterprise Program (SBFEP)

Two timber sale licences totalling 463,206 m<sup>3</sup> of wood were issued in 2002. There was no scaled volume recorded in 2002. Since the inception of the SBFEP a total of 710,954 m<sup>3</sup> of wood has been available for timber sales. A total of 966,149 m<sup>3</sup> has been sold. (Appendix XXII)

#### 3.2 Saanich Forestry Centre Report

The Saanich Forestry Centre in Saanichton is owned and operated by Western Forest Products Limited to meet its reforestation commitments. The seed orchards at the Saanich Forestry Centre meet Ministry of Forests' standards for the production of genetically superior seed and stocklings for reforestation on managed forest lands. The nursery produces seedlings meeting the industry specifications for reforestation programs.

The Saanich Forestry Centre has ten seed orchards under development or in production at this time. These include two Douglas-fir orchards, two western redcedar orchards, three western hemlock orchards, two Sitka spruce orchards, and a yellow cypress research orchard. In addition, a number of yellow cypress hedge orchards for the production of stocklings are managed.

In 2002, crops were harvested from the Douglas-fir and western redcedar orchards (Appendix XXIII). The Douglas-fir orchards produced an average-size crop, with moderate insect damage from cone midge and cone worm in orchard 169. The seed can be deployed throughout Company tenures to elevations up to 700 m and latitudes up to 52° in the Maritime Seed Planning Zone. The western redcedar crops were produced in the mid-elevation potted stock as well as the young low elevation orchard. The 29.5 thousand seedlings (potential) with five per cent gain at rotation is our first orchard gain (above the standard two per cent) crop produced in this species. These can be deployed to elevations up to 600 m and latitudes up to 52° 51' in the Maritime Seed Planning Zone. The mid-elevation crop can be deployed to elevations up to 800 m and latitudes up to 53° 16' in the Maritime Seed Planning Zone.

Yellow cypress cuttings were harvested to provide material for production of 220.7 thousand stocklings (Appendix XXIII). High gain material (>ten per cent at rotation) comprised more than 60% of the orders. These can be deployed to elevations up to 1000 m and latitudes north up to 53° 30' in the Maritime Seed Planning Zone. The yellow cypress clonal evaluation program investments are now delivering gain through the development of these hedge orchards. In 2003, all material for deployment will be from gain hedges including additional hedges with an average gain of 15%.

The 2002 nursery crop was primarily comprised of western redcedar, western hemlock, and Douglas-fir (Appendix XXIV). Good recoveries were maintained for all species and stock types. Sterilization of used Styrofoam blocks has improved stock quality and stock recoveries. Construction of a steam room for block sterilization was initiated in 2002. This on-site block



sterilization facility will reduce costs, increase efficiency by reducing the shipping of blocks off site, and provide assurance that this procedure will be available when needed.

Other significant species in the Company's planting program include amabilis fir and yellow cypress. Amabilis fir is not grown at the Saanich Forestry Centre because the Centre lies within the balsam woolly adelgid quarantine zone, and most of the amabilis fir deployment areas are outside the quarantine zone. These stocks are contracted and grown by other nurseries located outside of the quarantine zone. Yellow cypress stocklings are not produced at the Saanich Forestry Centre because their production requires environmental control facilities not available at this nursery; thus, they are likewise contracted to private nurseries with the necessary facilities. The yellow cypress stock produced at the Saanich Forestry Centre is from seed (Appendix XXIV).

### 3.3 Certification

TFL 19 operations continue to maintain their ISO 14001 registered environmental management system (EMS). The EMS program was subject to internal and external audits. The Quality Management Institute (QMI), an independent ISO 14001 registrar completed a surveillance audit in 2002. Through audits and internal monitoring the EMS program continues to improve.



The Saanich Forestry Centre hosted the 2002 WFP Foresters' workshop on September 13<sup>th</sup>. More than 30 foresters attended the workshop and field tour. Chief Forester Kerry McGourlick and Forester Jill West were part of the group led on a tour of the Saanich Forestry Centre by Cathy Cook.

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#### **4.0 GOALS – 2003**

The licensee manages TFL 19 consistent with the objectives in Management Plan 9 and applicable higher plans. Appendix XXV outlines progress made in addressing the commitments and outstanding issues with regards to the Management Plan.

The major goals for TFL 19 identified for 2003 are as follows:

- Complete the Vegetative Resource Inventory for TFL 19 that was started in 2001.
  - Continue with current research projects related to fertilization of Hw and Cw growing on salal, deer fern sites.
  - Develop a silviculture strategy to increase the quantity of future timber supply.
  - Participate in the Forest Stewardship Plan (FSP) pilot project in conjunction with the MOF, MSRM and MWLAP.
  - Work with MWLAP to complete the ungulate winter range plan for TFL 19.
  - Initiate landscape unit planning for the Gold, Burman, Kleeptee, Tlupana, Tahsis and Zeballos landscape units.
  - Maintain ISO 14001 certification of WFP's environmental management system which is due for re-registration in 2003.
-

## 5.0 FORESTRY EXPENDITURES AND RECOVERIES

### 5.1 Forest Management Costs

The following summary presents all TFL 19 forest management costs incurred or expended by Western Forest Products and other agencies at the field level. Planning, supervision, and overhead costs directly related to programs as well as program application costs are included before credits or reimbursements. A prorated share of head office forestry department and Saanich Forestry Centre costs are included as well.

**Table 18: Forest Management Costs**

Section	Costs	Subtotal
<b>2.1 Economically Viable Forest Management</b>		<b>\$239,795</b>
Cutting Permits and CP Cruising	\$131,409	
Residue Assessments	\$29,482	
Special Forest Products	\$14,480	
Recreation	\$17,100	
Research	\$47,324	
<b>2.2 Environmentally Appropriate Forest Management</b>		<b>\$2,918,190</b>
GIS	\$80,315	
Inventories	\$461,816	
Salmon Enhancement Program	\$5,638	
Browse Guards	\$9,917	
Fire Prevention and Suppression	\$1,915	
Basic Silviculture		
Silviculture Prescriptions	\$89,024	
Site Preparation	\$35,192	
Seed Supply	\$57,362	
Planting	\$1,214,463	
Surveys	\$172,386	
Brushing and Weeding	\$99,817	
Records	\$50,058	
Growth and Yield Monitoring	\$12,638	
Riparian Rehabilitation	\$100,662	
Enhanced Silviculture		
Spacing	\$82,993	
Pruning	\$78,470	
Fertilization	\$351,912	
Watershed Restoration	\$13,612	
<b>2.3 Socially Beneficial Forest Management</b>		<b>\$92,715</b>
Community Projects	\$86,183	
Forest Education	\$5,538	
Audits	\$994	
<b>3.0 Additional Forestry Expenditures</b>		<b>\$396,039</b>
Planning	\$70,936	
Administration	\$325,103	
<b>TOTAL</b>		<b>\$3,646,739</b>



## 5.2 Forest Management Reimbursements

The company received funding from government agencies for silvicultural enhancement, integrated resource management, research and tree improvement, and salmon enhancement projects. A summary of the reimbursements received is presented in Table 19.

Table 19: Reimbursement Summary

Section	Credits			Subtotal
	FRBC	FIA	Other	
<b>2.1 Economically Viable Forest Management</b>				<b>\$47,032</b>
Cutting Permits and CP Cruising				
Residue Assessments				
Special Forest Products				
Recreation		\$9,878	\$1,750 <sup>1</sup>	
Research	\$1,180	\$29,801	\$4,423 <sup>2</sup>	
<b>2.2 Environmentally Appropriate Forest Management</b>				<b>\$1,021,114</b>
GIS				
Inventories	\$343,341	\$57,866		
Salmon Enhancement Program				
Browse Guards				
Fire Prevention and Suppression				
Basic Silviculture				
Silviculture Prescriptions				
Site Preparation				
Seed Supply			\$18,600 <sup>3</sup>	
Planting				
Surveys	\$ 406			
Brushing and Weeding				
Records				
Growth and Yield Monitoring		\$8,504		
Riparian Rehabilitation	\$42,803	\$14,411		
Enhanced Silviculture				
Spacing	\$40,357	\$39,577		
Pruning	\$78,196			
Fertilization	\$4,138	\$345,691		
Watershed Restoration	\$13,612			
<b>2.3 Socially Beneficial Forest Management</b>				<b>\$1,007</b>
Community Projects	\$1,007			
Forest Education				
Audits				
<b>3.0 Additional Forestry Reimbursements</b>				<b>\$110,820</b>
Planning		\$556		
Administration	\$57,283	\$34,105	\$18,876	
<b>TOTAL</b>	<b>\$57,283</b>	<b>\$34,661</b>	<b>\$18,876</b>	<b>\$110,820</b>

<sup>1</sup>MOF Contract

<sup>2</sup>FII Funding

<sup>3</sup>OTIP Funding

## APPENDICES

Appendix I – Scaled Production 2002

CUBIC METRES			
Operation	Mark	Volume	Total
Gold River	19/36	-11	
	19/39	4	
	19/40	10	
	19/43	-145	
	19/45	1475	
	19/47	1051	
	19/48	-11	
	19/49	20813	
	19/91	1	
	19/714	1178	
	19/80	32	
	19/83	13	
	19/84	641	
	19/85	8124	
	19/88	-23	
	19/600	37	
	19/601	40185	
	19/602	18697	
	19/603	29362	
	19/604	4944	
	19/81	12012	
	19/93	4826	
	19/94	7762	
	19/95	-21	
	19/96	4232	
	19/97	2700	
	19/98	0	
	19/99A	861	
	19/99B	9928	
	19/605	4591	
	19/608	8864	
	19/609	5317	
	19/610	19068	
	19/613	50051	
	19/614	9742	
	19/616	8041	
	T0472D	4581	
	T0536B	1687	
	19/611	8353	
	19/615	15198	
	19/617	6951	
	19/407	6876	
	19/46	14089	
	19/61	0	
	19/619	9914	
	19/622	6714	
	19/624	4710	
	19/626	0	
	19/627	763	
	19/629	0	
			354 185



[illegible]

Operation	Mark	Volume	Total
Zeballos	19/56	8,774	
	19/59	12,697	
	19/97	11,123	
	19/99A	14	
	19/402	5,107	
	19/403	3,820	
	19/404	11,627	
	19/58	8,221	
	19/405	10,144	
	19/406	5,809	
	19/407	916	
	19/408	0	
			78,252
<b>Grand Total</b>			<b>566,324</b>
Total Company Tenures			6,372
Total Crown			559,952
Grand Total			566,324
Total Company and Phase Contractor			397,581
Total Harvested under Full Contracts			168,743

**Appendix II – Volume Charged to Allowable Annual Cut**

CUBIC METRES				
Mark	Crown Grant	Licences	Crown	Total
19/36			-11	
19/39			4	
19/40			10	
19/43			-145	
19/45			1475	
19/47			1051	
19/48			-11	
19/49			20813	
19/91			1	
19/714			1178	
19/80			32	
19/83			13	
19/84			641	
19/85			8124	
19/88			-23	
19/56			8774	
19/59			12697	
19/600			37	
19/601			40185	
19/602			18697	
19/603			29362	
19/604			9891	
19/717			4176	
19/720			23081	
19/722			728	
19/81			12012	
19/93			4826	
19/94			7762	
19/95			-21	
19/96			7270	
19/97			13823	
19/98			0	
19/99A			1385	
19/99B			9928	
19/605			4591	
19/607			10096	
19/608			17694	
19/609			5317	
19/610			19068	
19/613			50051	
19/614			9742	
19/616			8041	
T0472D		4581	0	
T0536B		1687	0	
19/611			8353	
19/615			15198	
19/617			6951	
19/402			5107	
19/403			3820	
19/404			11627	
19/58			8221	
19/721			469	



Mark	Crown Grant	Licences	Crown	Total
19/728			1,723	
19/729			3,190	
19/733			3,001	
19/735			8,842	
19/730			91	
19/734			9,264	
19/724			0	
19/725			5,156	
19/731			0	
19/719			8,404	
19/112			5,693	
19/736			15,696	
19/405			10,144	
19/406			5,809	
19/407			7,792	
19/408			0	
19/46			14,089	
19/61			0	
19/619			9,914	
19/622			6,714	
19/624			4,710	
19/626			0	
19/627			763	
19/629			0	
19/739			5,238	
19/741			3,771	
19/742			798	
19/743			626	
19/744			6,416	
19/750				
19/752				
CZ017	103			
TOTAL	103	6,268	559,952	566,324
Recognized residue survey volumes associated with 2001 MOF S&R invoices				14,743
<b>TOTAL CHARGEABLE</b>				<b>581,067</b>

**Appendix III – Current Cut Control Period**

Annual Allowable Cut CUBIC METRES		
Year	<sup>1</sup> Allowable Annual Cut Available to Licensee	Chargeable Cut
2002	894,132	581,067
2003		
2004		
2005		
2006		
<b>TOTAL</b>	<b>894,132</b>	<b>581,067</b>

<sup>1</sup> The cumulative cut by the end of the first year of the cut control period is 13% of the five year AAC of 4,470,660 m<sup>3</sup>.

**Appendix IV – Historical Cut Control Performance**

TREE FARM LICENCE 19 1954 to 2002 CUBIC METRES		
Cut Control Period	Allowable Cut Available to Licencee	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	4,275,840	4,043,233
1977-1981	4,820,935	4,714,734
1982-1986	4,901,672	4,472,702
1987-1991	4,759,462	4,730,242
1992-1996	4,660,660	4,367,849
1997-2001	4,644,731	4,006,581
2002	894,132	581,067
<b>TOTAL</b>	<b>36,335,114</b>	<b>34,468,552</b>



Appendix V – Timber Loss Ledger

Year	Source of Damage	Area (ha)	Recoverable Volume (m <sup>3</sup> )	Non-Recoverable Volume (m <sup>3</sup> )	Volume Recovered (m <sup>3</sup> )
2002	WIND	32.4	18,200	8,300	10,300
2001	WIND	15.4	7,000	2,800	0
2000		0	0	0	0
1999	WIND	6.2	2,600	850	1,400
	SLIDE	8.2	0	6,000	0
1998	WIND	4.1	2,300	1,200	0
1997	WIND	9.8	7,300	200	0
1996		0	0	0	0
1995	WIND	35.7	25,800	0	19,000
1994		0	0	0	0
1993	WIND	4.3	2,000	0	0
<b>TOTAL</b>		<b>116.1</b>	<b>65,200</b>	<b>19,350</b>	<b>30,700</b>

### Appendix VI – Coastal Contractor Clause Performance Report

CALENDAR YEAR 2002			
Reference	Description		Source
1)	Total AAC of TFL approved by Chief Forester that is available to the Licencee	894,132 m <sup>3</sup>	CF's approval letter for management plan
2)	AAC attributable to Schedule 'B' lands that is available to the Licencee	849,012 m <sup>3</sup>	Derived from the approved MP
3)	Volume of timber harvested	566,324 m <sup>3</sup>	Obtained from the Regional Timber Officer of the District Manager; the total volume of timber that is billed to the Licensee under the Licence during the calendar year (Section 35.1, subsectoions J, K & L of the Forest Act)
4)	Harvested volume attributed to Schedule 'B' lands	537,746 m <sup>3</sup>	Calculated: (#2 / #1) x #3
5)	Total volume contracted under full and phase contracts	275,187 m <sup>3</sup>	Licensee Records
6)	Total volume contracted as expressed as a per cent of compliance required	102.3 %	Calculated: (#5 / (#4 x 0.5)) x 100

Licensee: Western Forest Products Limited

Completed by: Kerry McGourlick, R.P.F.

Date Report Completed: May 25, 2003

**Appendix VII – Phase and Full Contractors**

<b>Contractor</b>	<b>Phase</b>
Frank Beban Logging Ltd.	Full
	Yarding
	Heli Yarding
	Falling
	Loading
	Hauling
Cypress Creek Logging Ltd.	Falling
	Loading
	Yarding
Friell Lake Logging Ltd.	Full
	Heli Yarding
Lemon Point Logging (1990) Ltd.	Falling
	Loading
	Yarding
Russell & Lilly Limited	Full
Spirit Lake Timber Limited	Falling
	Hauling
	Loading
	Yarding
Stan McLean Trucking Ltd.	Hauling
Totem Bar Contracting Ltd.	Road
Westside Roadbuilding Ltd.	Road
Upland Excavating Ltd.	Road



### Appendix VIII – General Contractors

Name	Work	Operation
All-Brawn Industries	Shake/Shingle Cutters	Zeballos
Alliford Bay Logging	Processor	Gold River
Arcas Consulting Archaeologists	Archaeological Assessments	NCA
Aztec GeoScience	Terrain Assessments	Zeballos
B.A. Blackwell and Associates	Fertilization Trial	Nootka Region, NCA
Baseline Forest Services Ltd.	Archaeological	Gold River, NCA
Beban Logging	Contract Logging	Gold River, NCA
Black Creek Mechanical	Vehicle Maintenance	NCA
Brinkman Associates	Tree Planting	Gold River
Butch Carroll Trucking	Hauling	Gold River
Cave Management Services	Cave Assessments	NCA
Chinga Falling	Contract Falling	NCA
Coast Forest Management	Silv. Eng., Cruising, Archaeological Assess.	Gold River, NCA, Zeballos
Coast Range Contracting	Tree Planting	Zeballos
Coast Range Reforestation	Tree Planting	NCA
Coastal Business Services	Engineering/Clerical/Silviculture	Gold River
Cutting Edge Forestry	Silviculture	NCA
Cypress Creek Logging	Falling, Yarding, Loading	Gold River
Cypress Logging	Poling	Zeballos
D.R. Clough Consulting	Stream Classification	Gold River, NCA
Diamond Tree Services	Incremental Silviculture	Zeballos
Dobson Engineering	Watershed Assessment	Gold River, NCA, Zeballos
Donner Lake Logging	Cedar Poling	Gold River, NCA
Doulyn's Contracting	Deactivation	Gold River
DR Systems	Silviculture Data Management	Gold River, NCA, Zeballos
Ed MacDonald	Seedling Assessment	Gold River, NCA, Zeballos
Fiddick's Consulting and B&B	Tree Cone Est. and Ultce	Gold River
Fishfor Contracting	Fish Surveys	Zeballos, NCA
Frank Beban Logging Ltd.	Full Phase Logging	Gold River, NCA
Friell Lake Logging	Full Phase Logging	NCA
Gold River Contracting	Construction	Gold River
Gold River Crane Services	Bridge Installations	NCA
Gold River Marine Service	Marine Repairs	NCA
Gold River Rainbow Services	Trucking	Gold River, NCA
Gold River Resources Ltd.	Maintenance/Creek Cleaning/Rec	Gold River
Golder and Associates	Terrain, Windthrow Assessments	NR, NCA, Zeballos
Gurney Contracting	Excavator/Deactivation, WRP/Recreation	GR, NCA
H.W.Argent P.Eng	Engineering, Bridge Designs	Zeballos
Harvest Moon Adventure	Shake/Shingle Cutting	Zeballos
Hayes Forest Services Limited	Contract Logging	NCA
Islands West Scaling	Residue Surveys/Scaling	Gold River, Zeballos
JRP	Plant Wizard Establishment	Gold River, NCA, Zeballos
Jack and Sons Silviculture	Silviculture, Creek Cleaning	Zeballos
Jeffery Brown Forestry	Engineering	NCA
Judith Baxter	Cleaning Services	Gold River, NCA, Nootka Region
Kerley and Associates	Cruising	Gold River
Lemon Point Logging	Falling, Yarding, Loading	Gold River
Ludvigsson Land Surveyors	Legal Land Surveys	NCA
Mt. Leighton	Incremental Silviculture/Burning	Gold River
Maquinna Forest Products	Helicopter Logging	Zeballos
Mecredy Cruising & Forest	Cruising, Residue Surveys	NCA

Name	Work	Operation
Consulting Ltd.		
Michelle Thompson	Office Support	Gold River
Monte Generaux	Cedar Salvage	NCA
Noel Roddick Ltd.	Fertilizer Supplier	Gold River
Nootka Sound Service	Freight delivery	Nootka Region, NCA
Northwest Hydraulic Consultants	WRP Site Supervision	Nootka Region
NTS Trucking	Trucking	Gold River
O.H. Forestry	Slash Burning	Gold River
Olympic Resource Management	Cruise Compilation	Nootka Region, NCA, Gold River
Peter Bruce & Associates	Fisheries Assessments	NCA
Precision Forestry Services	Growth & Yield Plot Location	Nootka Region
Quinsam Excavating	Excavator, Deactivation	Gold River
R. Forrest Contracting	Silviculture	NCA
R.A.S. Roots	Public Education	Nootka Region
R.E.M. Contracting Ltd.	Tree Topping	NCA
Rain Forestree	Silviculture	NCA
Renewable Forest Services Ltd.	Engineering	NCA
Ridinger & Cooke Log Scaling	Log Scaling	Gold River, NCA
Russell & Lily Ltd.	Full Phase Logging	NCA
Safety on Site	Traffic Controllers	Gold River
Simard Trucking	Trucking	Gold River
Sitka Silviculture	Tree Planting	Gold River
Spirit Lake Timber Ltd.	Full Phase Logging	NCA
Stan McLean Trucking	Hauling	Zeballos
Stonecroft Project Engineering	Engineering	Gold River, NCA
Strathcona Contracting Limited	Road Building	NCA
Sure Span Construction	Bridge Construction	Gold River, NCA
T.M.R. Enterprises	Engineering	NCA, Zeballos
Tatchu Enterprises	Engineering	Zeballos
Taylor Contracting	Cedar Salvage	NCA
Thurber Engineering	Terrain Assessments	Nootka Region, GR, NCA, Zeb
Timberline Forest Inv Consultants	Mapping	NCA, Zeballos
Totem Bar Contracting	Road Construction	Zeballos
Tsitika Contracting	Cedar Salvage	Gold River
Vancouver Island Helicopter	Logging/Transportation	Nootka Region, NCA
West Side Roadbuilding	Road Building	Gold River, NCA
Western Aerial Applications	Aerial Fertilization	Gold River
Western Oil Services	Fuel Facility Maintenance	Gold River, NCA
Westview Towing	Barging	NCA
Westwood Contracting	Road Maintenance/Deactivation	Zeballos



Appendix IX – Special and Non-Timber Forest Products

PROGRAM	PRODUCT		GOLD RIVER	NOOTKA CONTRACT ADMINISTRATION	ZEBALLOS	TOTAL
Special Products	Shake Bolts	m <sup>3</sup>	596.6	225.9	311.5	1134.0
		value	207,875	78,711	108,537	395,123
	Shingle Blocks	m <sup>3</sup>	24.7	149.2	92.1	266.0
		value	4,303	25,993	16,045	46,341
	Cypress Cants	m <sup>3</sup>	0	0	0	0
		value	0	0	0	0
	Cedar Log Salvage	m <sup>3</sup>	0	0	0	0
		value	0	0	0	0
Non-Timber Forest Products	Honey	kg	0	0	0	0
		value	0	0	0	0
	Salal	kg	1894	0	0	1894
		value	5,000	0	0	5,000
	Yew Bark	kg		0	0	0
		value		0	0	0
	Cedar Oil	l		0	0	0
		value		0	0	0
	Sand and Gravel	m <sup>3</sup>		0	0	0
		value		0	0	0
	Chanterelle Mushroom	kg	1364	0	0	1364
		value	9,000	0	0	9,000
	Pine Mushroom	kg	909	0	0	909
		value	50,000	0	0	50,000



## Appendix X – Logging and Engineering Summary

Program	Project		GOLD RIVER	NOOKA CONTRACT ADMINISTRATION	ZEBALLOS	TOTAL
Denudation	Total Company	ha	436.5	159.3	277.6	873.4
	Crown / Licence	ha	436.5	159.3	277.6	873.4
	Crown Grant (MF)	ha	0	0	0	0
	SBFEP	ha	0	0	0	0
	TOTAL	ha	436.5	159.3	277.6	873.4
Accidental Fires	No.		0	0	0	
	ha		0	0	0	
Residue Assessment Plots	#		87	71	87	245
CP Cruising Plots	#		750	205	88	1043
Roads	Constructed	km	23.5	14.2	10.7	48.4
	Rebuilt	km	19.1	12.8	0.4	32.3
	Maintained	km	292.1	264.0	47.0	603.1
	Deactivated					
	Temporary	km	16.5	36.0	25.0	77.5
	Semi-Permanent	km	23.0	0	7.6	30.6
	Permanent	km	6.7	14.8	1.4	22.9
Roadside Treatments	Brushing	km	18.0	5.0	0	23.0
	Herbicide	km	0	0	0	0
	Seeding	km	5.0	0	0	5.0
Site Stabilization	ha		5.0	0	0	5.0
Permanent Access (Site Degradation)	%		6.5	4.2	0	5.6
Riparian Management Area	ha		39.8	35.7	14.6	90.1

**Appendix XI – Timber Harvesting Operability Report – 2002**  
**AREA HARVESTED (HA) WITHIN EACH OPERABILITY CATEGORY**

Actual Harvest Method	Operability	Leading Species	Height Class					Total (ha)
			2	3	4	5	6	
Conventional	Conventional	Ba		2.5	22.7	39.9	26.4	91.5
		Cw	3.1	12.4	68.0	25.9	1.1	110.5
		Fd	0.1	20.8	41.9	36.5	1.1	100.4
		Hw	2.3	50.3	229.5	98.6	17.1	397.8
		Pl	0.5	1.2				1.6
		Yc	0.0	36.1	32.5			68.6
	Helicopter	Ba				0.1		0.1
		Fd			1.4	0.3		1.7
		Hw		0.3	11.6	29.8	4.8	46.5
		Yc	0.1					0.1
	Conventional (economic constraint)	Cw			2.2			2.2
		Hw				1.1		1.1
		Yc		1.0				1.0
	Helicopter (economic constraint)	Cw		0.5				0.5
		Hw		3.9	0.4			4.3
		Yc		1.0				1.0
	Inoperable	Ba			0.3	0.6	0.8	1.7
		Cw		0.5	2.4	0.5		3.4
		Fd		0.4	1.1	0.4		2.0
		Hw		2.7	11.5	3.9	1.1	19.1
		Yc	8.5	2.4	0.2			11.2
Sub Total			14.7	135.9	425.6	237.5	52.4	865.9
Helicopter	Conventional	Hw			0.9			0.9
	Helicopter (economic constraint)	Cw			4.6			4.6
		Hw			0.3			0.3
	Inoperable	Cw			0.5			0.8
	Hw			0.8			0.8	
Sub Total					7.1			7.1
TOTAL			14.7	135.9	432.7	137.5	52.4	873.0

AREA HARVESTED (HA) FROM TERRAIN STABILITY CLASS IV AND V AREAS

Leading Species	Ht Class	Terrain Stability Class V		Class IV Total	Terrain Stability Class V		Class V Total	Total
		<80% Slope	>=80% Slope		<80% Slope	>=80% Slope		
Fdc	2	0.2		0.2				0.2
	3	4.1	0.9	5.0	0.2		0.2	5.2
	4	2.8	1.2	4.0	0.1		0.1	4.1
	5	11.3	1.8	13.1		0.1	0.1	13.2
Fdc Total		18.4	4.0	22.4	0.3	0.1	0.4	22.7
Cw	3	2.9	0.2	3.1	0.1		0.1	3.2
	4	19.0	1.0	20.0	5.1	0.1	5.3	25.3
	5	1.7	0.1	1.8	1.6	0.0	1.6	3.4
	6	0.6	0.3	0.9				0.9
Cw Total		24.2	1.7	25.8	6.8	0.1	7.0	32.8
Hw	2	0.7		0.7	0.0		0.0	0.7
	3	8.2	1.8	10.0	1.1	0.3	1.4	11.4
	4	76.0	15.6	91.7	6.7	0.8	7.6	99.2
	5	25.2	5.6	30.8	2.6	0.6	3.2	33.9
	6	3.7		3.7	1.1	0.1	1.2	4.9
Hw Total		113.8	23.0	136.8	11.5	1.8	13.3	150.1
Ba	3	1.6		1.6	0.2		0.2	1.8
	4	3.9	1.9	5.7				5.7
	5	2.7	0.0	2.8	0.0		0.0	2.8
	6	6.8	0.2	6.9				6.9
Ba Total		15.0	2.1	17.1	0.2		0.2	17.3
Yc	2	0.4	0.4	0.8	0.0		0.0	0.8
	3	5.7	1.0	6.7	1.1	0.0	1.1	7.8
	4	2.9		2.9	1.0		1.0	3.9
Yc Total		9.1	1.4	10.4	2.2	0.0	2.2	12.6
PI	2	0.3		0.3				0.3
	3	0.1		0.1				0.1
PI Total		0.4		0.4				0.4
Total		180.9	32.1	212.9	20.9	2.0	22.9	235.9



Appendix XII – Research Summary

PERMANENT PLOTS AND TRIALS				
Trial (Year Established)	Operation(s)	Measurement (Years) <sup>1</sup>	Reports (Years)	Other
<b>FOREST NUTRITION</b>				
CEDAR AND AMABILIS FIR VOLUME TRIALS (2001)	ZEBALLOS, NESOOK BAY, WEST ROAD, GALIANO BAY	2000	EST. REP. (2001)	
CEDAR AND AMABILIS FIR SCREENING TRIALS (1999)	ZEBALLOS, GOLD RIVER, NOOTKA CONTRACT	2000, 1999	EST. REP. (2000)	
HEMLOCK AND CEDAR SCREENING TRIALS (1996)	GALIANO	1997	EST. REP. (1998)	
AMABILIS FIR FERTILIZATION TRIAL (1996)	SAUNDERS	2000, 1998, 1997, 1996, 1995	Est. Rep. (1997)	
<b>GROWTH AND YIELD MONITORING</b>				
SURVEY PLOTS (1994)	GOLD RIVER	1994		
SURVEY PLOTS (1993)	GOLD RIVER	1993 – 2002		
SURVEY PLOTS (1992)	GOLD RIVER	1992		
SURVEY PLOTS (1991)	GOLD RIVER	1991 – 2002		
SURVEY PLOTS (1990)	GOLD RIVER	1990 – 2002		
SURVEY PLOTS (1979)	GOLD RIVER	1979 – 2002		
SURVEY PLOTS (1978)	GOLD RIVER	1978 – 2002		
SURVEY PLOTS (1977)	GOLD RIVER	1977 – 2002		
SURVEY PLOTS (1976)	GOLD RIVER	1976 – 1991		
SURVEY PLOTS (1975)	GOLD RIVER	1975 – 1990		
SURVEY PLOTS (1974)	GOLD RIVER	1974 – 2002		
SURVEY PLOTS (1969)	TAHSIS, ZEBALLOS	1969 – 1990		
SURVEY PLOTS (1968)	GOLD RIVER	1968 – 2002		
SURVEY PLOTS (1967)	GOLD RIVER	1967 – 1990		
SURVEY PLOTS (1966)	GOLD RIVER	1966 – 1988		
SURVEY PLOTS (1964)	GOLD RIVER	1964 – 1988		
SURVEY PLOTS (1963)	GOLD RIVER, TAHSIS	1963 – 2002		
SURVEY PLOTS (1961)	GOLD RIVER, TAHSIS	1961 – 1978		
SURVEY PLOTS (1957)	GOLD RIVER	1957 – 2002		
<b>OTHER</b>				
PLANTING TECHNIQUE TRIAL (1997)	GOLD RIVER	1998, 1997		
SITE STABILIZATION – GRASS SPECIES (2001)	TAHSIS	2001, 2002	Vartnou Report (2002)	

<sup>1</sup>Year indicates last growing season.

### Appendix XIII – Vulnerable Species

Vulnerable, Threatened, and Endangered Species, and Measures to Conserve.				
Species	Status		Measures	
	COS EWIC	CDC		
Common Water Shrew ( <i>S. palustris brooksi</i> )		S2	◆	The genetics of the brooksi variant on Vancouver Island are not well known but occurrence records suggest it is widely distributed. The species is thought to be riparian associated and therefore current riparian retention practices should significantly address core habitat needs.
Keen's Long-eared Myotis	S	S1S3	▲	Roosting sites include caves and tree cavities and crevices. OGMAs, WTPs, stand level retention, and riparian restoration strategies should ensure that suitable tree roosts are maintained. In TFL 19 the first Wildlife Habitat Area designation for this bat was made to protect a known roosting cave and surrounding forest.
Ermine (haidarum subsp)		S3	◆	The Vancouver Island variant of the ermine is little studied but elsewhere diets are variable and adaptable and early successional stages, which ongoing forest harvesting will maintain at approximately current levels, are thought important. No specific management actions are being undertaken.
Vancouver Island wolverine		S1	▲	This Vancouver Island variant of the wolverine, a highly mobile animal with a large home range, has not been sighted for many years and may be extinct. No specific management measures have been undertaken and none are contemplated unless a den sighting is confirmed.
Roosevelt Elk		S2S3	▲	Roosevelt elk populations are considered healthy. Harvesting plans will incorporate strategies to ensure that important wintering and calving habitats are provided. Modeling algorithms have been developed to predict suitable habitats from forest inventory and timber supply predictions.
Marbled Murrelet	T	S2	◆	OGMAs are expected to incorporate considerable areas of suitable nesting habitat. The company continues to support research efforts directed at better defining the terrestrial nesting needs and adaptability of this largely pelagic species, and has developed predictive algorithms for identifying potential habitat from GIS data.
Northern (Queen Charlotte) goshawk	T	S2	▲	Little is known of the genetics of this coastal variant of the more ubiquitous northern goshawk found throughout much of North America and in Eurasia. To date the company has assisted survey crews and some nests have been located. It is assumed that OGMAs and forest management that retains a significant component of maturing forest will provide sufficient core habitat for the long term survival of this species. WHAs may be established according to WALP guidelines. Research into the genetic linkages among coastal subpopulations and mainland goshawks is needed.
Great Blue Heron	S	S3	◆	Although feeding birds are commonly sighted, no heronries are known within WFP tenures. Unless the usually obvious nesting sites are located, no special management practices are anticipated.
Green Heron		S3S4	◆	Nests tend to be singular in trees and associated with water and therefore are expected to be within reserved zones. No special management practices are implemented.
Peregrine falcon <i>pealei</i>	S	S3	◆	Nest sites are typically in steep, rocky areas where timber productivity and operability is very low; hence no special management is thought necessary to protect potential nest habitat. Known nest locations are kept confidential to prevent disturbance.
Western screech owl <i>kennicottii saturatus</i>		S3	◇	A small cavity nester assumed similar in habit to its widely distributed continental cousin. OGMAs, WTP and stand-level retention strategies should supply nesting habitats for this owl.
Northern pygmy owl <i>swarthy</i>		S3	▲	The Vancouver Island race of this small western North American owl is a cavity nester and thought associated with forest edge like the continental races which occupy a variety of semi-open to open habitat types. Riparian and stand-level retention strategies should provide ample nesting opportunities.
Band-tailed pigeon		S3S4	◆	Generally this neo-tropical migrant is not thought adversely affected by forest management in B.C. where a greater proportion of earlier seral stages may provide additional foraging and nesting habitat.
Dolly Varden		S3S4	◆	This char is common to many waterways within our tenures. No specific management interventions are directed at this species, although the aforementioned measures should ensure the survival local races that may be present.
Coastal Cutthroat trout		S3S4	◆	As per salmon and steelhead with special attention to the smallest streams.
Northern Red-legged Frog	S	S3S4	◆	Although this frog may forage away from riparian areas, it is strongly associated with breeding ponds. It may be sensitive to water temperature but current riparian management practices should provide effective protection for breeding sites.
Small bedstraw		S1S3	▲	Thought to be a riparian species occurring in open environments. Normal riparian management practices should provide protection.
Status	S special concern or vulnerable S2 imperilled (CDC) S4 uncommon but not rare (CDC)	S1 critically imperilled S3 vulnerable (CDC) T threatened (COSEWIC)	Presence	▲ Sighted: CDC recorded collection or expert sighting ◆ Likely: within published range or anecdotal/unofficial sightings ◇ Possible: no sightings but suitable habitat and proximity to known range



**Appendix XIV – Regeneration Projects Summary (Basic Silviculture)**

Program	Project		GOLD RIVER	NOOTKA CONTRACT ADMINISTRATION	ZEBALLOS	TOTAL
Site Preparation	Broadcast Burn	ha	0	0	0	0
	Pile Burn	ha	4.5	2.0	5.3	11.8
	Mechanical	ha	0	0	0	0
	Crown / Licence	ha	4.5	2.0	5.3	11.8
	Crown Grant (MF)	ha	0	0	0	0
TOTAL AREA SITE PREPARED		ha	4.5	2.0	5.3	11.8
Planting	Original	ha	637.3	246.7	134.2	1,018.2
	Replanting (Plantations)	ha	0	0	0	0
	Fill Planting (Natural)	ha	21.8	0	0	21.8
TOTAL AREA PLANTED		ha	659.1	246.7	134.2	1,040.0
Number of Seedlings (000s)	Cw		132,903	86,490	50,110	269,503
	Hw		154,432	30,850	41,580	226,862
	Ba		86,640	31,010	7,023	124,673
	Fdc		169,523	32,350	12,345	214,218
	Yc		91,860	14,775	22,433	129,068
	Ss		11,410	440	0	11,850
	P		5,619	0	0	5,619
	Misc		45,625	0	0	45,625
TOTAL SEEDLINGS PLANTED			698,012	195,915	133,491	1,027,418
TOTAL SEEDLINGS FERTILIZED			698,012	195,915	133,491	1,027,418
Browse Guard Installations	#		1,400	0	0	1,400
	ha		45.0	0	0	45.0
Plantation Survival Assessments	First Year Restocked	ha	654.4	382.3	0	1,036.7
	Crown / Licence	ha	651.4	382.3	0	1,033.7
	Crown Grant (MF)	ha	3.0	0	0	3.0
	First Year NSR	ha	0	0	0	0
	Crown / Licence	ha	0	0	0	0
	Crown Grant (MF)	ha	0	0	0	0
Stocking Surveys	Third Year Restocked	ha	364.6	262.0	44.2	670.8
	Crown / Licence	ha	364.6	262.0	44.2	670.8
	Crown Grant (MF)	ha	0	0	0	0
	Third Year NSR	ha	1.4	1.2	0	2.6
	Crown / Licence	ha	1.4	1.2	0	2.6
	Crown Grant (MF)	ha	0	0	0	0
Free Growing Surveys	Free Growing	ha	448.1	707.3	118.9	1,274.3
	Crown / Licence	ha	426.2	702.8	118.9	1,247.9
	Crown Grant (MF)	ha	21.9	4.5	0	26.4
	Not Free Growing	ha	232.6	96.5	40.1	369.2
	Crown / Licence	ha	225.3	96.5	40.1	361.9
Crown Grant (MF)		ha	7.3	0	0	7.3
TOTAL OF ALL SURVEYS		ha	1,701.1	1,449.3	203.2	3,53.6
Brushing and Weeding	Manual	ha	0	1.5	84.9	86.4
	Mechanical	ha	0	0	0	0
	Stem Injection	ha	0	0	0	0
	Aerial Foliar	ha	0	0	0	0
	Basal Bark	ha	0	71.2	0	71.2
	Crown / Licence	ha	0	72.7	84.9	157.6
	Crown Grant (MF)	ha	0	0	0	0
TOTAL AREA TREATED		Ha	0	72.7	84.9	157.6
Silviculture Prescriptions	No.		13	17	5	35
	ha		347.0	292.5	102.6	742.1



**Appendix XV – Tree Planting History**

All Tenures – Western Forest Products						
Number of Seedlings (000s)						
Year	TFL 6	TFL 19	TFL 25	WFP Misc Properties	Other Properties	TOTAL
Pre 1965	701.4	3502.0	2531.1	3782.4		10 516.9
1965	361.5	425.0	298.5	247.7		1 332.7
1966	325.3	726.0	432.8	0.0		1 484.1
1967	422.9	434.0	547.6	285.8		1 690.3
1968	444.9	539.0	645.2	46.7		1 675.8
1969	989.6	474.0	446.1	327.3		2 237.0
1970	751.7	535.0	341.4	136.5		1 764.6
1971	529.4	1123.0	586.7	158.2		2 397.3
1972	912.6	912.0	295.3	407.0		2 526.9
1973	600.5	699.0	772.4	162.0		2 233.9
1974	459.4	1324.0	363.8	58.0		2 205.2
1975	777.7	942.0	199.4	68.0		1 987.1
1976	777.0	709.0	807.2	58.2		2 351.4
1977	553.9	631.0	757.6	172.4		2 114.9
1978	494.0	494.0	555.6	38.8		1 582.4
1979	662.8	524.0	749.0	12.3		1 948.1
1980	491.5	473.0	493.6	24.2		1 482.3
1981	1047.6	579.0	803.9	29.9		2 460.4
1982	1198.3	735.0	827.7	16.9		2 777.9
1983	888.0	566.0	669.0	55.4		2 178.4
1984	882.4	325.0	809.0	102.7		2 119.1
1985	701.8	452.0	522.0	69.6		1 745.4
1986	1347.1	346.0	631.0	57.0		2 381.1
1987	2256.6	686.0	1297.8	329.3		4 569.7
1988	1844.0	563.0	982.8	173.0		3 562.8
1989	1169.2	755.0	735.6	287.8		2 947.6
1990	1405.7	707.0	712.4	354.2		3 179.3
1991	1491.1	439.0	842.8	60.1		2 833.0
Pre 1992	0.0	0.0	0.0	0.0	5268.8	5 268.8
1992	1550.9	757.0	673.9	95.7	232.8	3 310.3
1993	1574.6	683.0	639.8	240.6	377.6	3 515.6
1994	1712.2	674.0	546.0	226.2	790.6	3 949.0
1995	2003.4	1040.0	853.0	160.4	894.5	4 951.3
1996	2111.0	1140.0	1090.0	579.4	3.6	4 924.0
1997	1944.8	1067.0	951.9	52.2	0.0	4 015.9
1998	1473.6	675.6	652.2	1522.4	28.8	4 352.6
1999	1088.0	382.9	413.0	901.6	21.9	2 807.4
2000	1042.0	858.4	752.5	1238.6	0.0	3 891.5
2001	1217.3	1248.4	744.5	1197.1	54.9	4227.1
2002	1270.0	1027.4	652.4	428.1	64.8	3442.7
<b>TOTAL</b>	<b>41475.7</b>	<b>30172.7</b>	<b>27626.5</b>	<b>14163.7</b>	<b>7738.3</b>	<b>120941.8</b>

**Appendix XVI – Forest Management Projects Summary**

Program	Project		GOLD RIVER	NOOTKA CONTRACT ADMINISTRATION	ZEBALLOS	TOTAL
Juvenile Spacing	Total	ha	13.3	0	29.4	42.7
	Crown / Licence	ha	13.3	0	29.4	42.7
	Crown Grant (MF)	ha	0	0	0	0
Pruning	Total	ha	36.2	0	0	36.2
	Crown / Licence	ha	36.2	0	0	36.2
	Crown Grant (MF)	ha	0	0	0	0
Fertilization	Total	ha	1227.0	0	0	1227.0
	Crown / Licence	ha	1227.0	0	0	1227.0
	Crown Grant (MF)	ha	0	0	0	0
Commercial Thinning	Total	ha	0	0	0	0
	Crown / Licence	ha	0	0	0	0
	Crown Grant (MF)	ha	0	0	0	0
Stand Management Prescriptions	No.		4	0	0	4
	ha		13.4	0	0	13.4

Appendix XVII – Historical Summary of Activities

Year	Denuded (ha)	Broadcast Burning (ha)	Mechanical Site Prep. (ha)	Planted (ha)	Trees Planted (000s)	Brushing (ha)	Fertilization (ha)	Spacing (ha)	Pruning (ha)	Commercial Thinning (ha)
Pre 1965	5 065	3 089	0	4 731	3 502 000	70	0	83	0	0
1965	420	577	0	483	425 000	5	0	28	0	0
1966	585	382	37	790	726 000	49	0	12	0	0
1967	547	616	0	564	434 000	178	0	140	0	0
1968	683	545	0	639	539 000	98	0	155	0	0
1969	683	340	0	744	474 000	92	0	204	0	0
1970	825	594	0	682	535 000	0	0	274	0	0
1971	1 205	588	0	1 533	1 123 000	16	0	57	0	0
1972	623	299	0	1 411	912 000	15	0	56	0	0
1973	1 241	377	0	995	699 000	28	0	99	0	0
1974	885	333	0	1 499	1 324 000	38	0	90	0	0
1975	469	300	0	1 307	942 000	33	0	29	0	0
1976	1 055	831	0	1 009	709 000	0	0	30	0	0
1977	1 236	963	0	1 085	631 000	48	0	30	0	0
1978	1 178	113	0	889	494 000	176	0	52	0	0
1979	1 108	111	0	1 181	524 000	310	0	314	0	0
1980	1 296	17	0	955	473 000	190	1 296	424	0	0
1981	922	295	56	1 195	579 000	10	1 042	564	0	0
1982	800	71	0	1 228	735 000	54	990	235	0	0
1983	1 116	102	0	792	566 000	184	1 052	804	0	0
1984	1 136	0	3	562	325 000	877	0	397	0	0
1985	1 190	16	0	973	452 000	311	0	554	0	0
1986	953	0	0	742	346 000	358	0	114	0	0
1987	1 446	0	0	1 304	686 000	302	0	874	14	0
1988	966	6	0	930	563 000	435	0	467	24	0
1989	889	0	0	1 252	755 000	165	0	473	43	0
1990	1 068	0	0	1 122	707 000	80	0	140	0	0
1991	1 297	0	0	784	439 000	77	0	608	0	0
1992	976	1	19	1 346	757 000	113	0	300	0	0
1993	887	10	36	1 221	683 000	153	0	161	0	0
1994	856	39	80	967	674 000	57	0	266	137	0
1995	923	15	20	1 665	1 040 000	292	0	226	39	0
1996	1 071	51	28	1 772	1 140 000	61	188	249	20	0
1997	1 000	8	14	1 512	1 067 000	88	0	163	111	0
1998	631	14	2	719	675 550	5	0	165	40	0
1999	650	39	3	466	382 881	26	764	303	117	0
2000	1 110	8	6	993	858 364	46	953	256	233	0
2001	1 172	4	0	1 348	1 248 436	91	1 363	116	66	0
2002	873	12	0	1 040	1 027 418	158	1 227	43	36	0
<b>TOTAL</b>	<b>41 108</b>	<b>10 766</b>	<b>304</b>	<b>44 430</b>	<b>30 172 649</b>	<b>5 289</b>	<b>8 875</b>	<b>9 555</b>	<b>880</b>	<b>0</b>



### Appendix XVIII – Direct Employment Statistics

Operation	Home Region	Contractor Personnel		Company Personnel		Total Personnel	
		People	Person Days	People	Person Days	People	Person Days
Planning And Development							
Gold River Forestry	Gold River	7	487	22	3,828	29	4,315
	Campbell River	6	78	1	142	7	220
	Courtenay	3	36	8	1,136	11	1,172
	Vancouver Isl(other)	11	141	1	142	12	283
	Lower Mainland	10	71	0	0	10	71
	BC (other)	2	12	0	0	2	12
Nootka Contract Administration	Gold River	4	209	7	934	11	1,143
	Tahsis	10	520	0	0	10	520
	Campbell River	7	317	1	70	8	387
	Courtenay	5	245	0	0	5	245
	Vancouver Isl(other)	7	155	0	0	7	155
	Lower Mainland	3	59	0	0	3	59
	BC (other)	1	54	0	0	1	54
Zeballos	Gold River	0	0	1	230	1	230
	Zeballos	1	180	12	1,592	13	1,772
	Campbell River	0	0	1	121	1	121
	Vancouver Isl(other)	2	20	1	9	3	29
	BC (other)	8	412	0	0	8	412
Subtotal		87	2,996	55	8,204	142	11,200
Harvesting							
Gold River Forestry	Gold River	3	493	73	11,070	76	11,563
	Campbell River	7	233	16	2,272	23	2,505
	Courtenay	0	0	22	3,300	22	3,300
	Vancouver Isl(other)	0	0	3	426	3	426
Nootka Contract Administration	Gold River	29	1,988	7	797	36	2,785
	Tahsis	15	885	0	0	15	885
	Campbell River	11	825	1	58	12	883
	Courtenay	14	795	0	0	14	795
	Vancouver Isl(other)	17	1,037	0	0	17	1,037
	Lower Mainland	2	100	0	0	2	100
Zeballos	Gold River	2	263	0	0	2	263
	Tahsis	2	69	0	0	2	69
	Zeballos	1	130	29	3,096	30	3,326
	Campbell River	3	45	10	980	13	1,025
	Courtenay	0	0	15	1,286	15	1,286
Vancouver Isl(other)	5	224	6	411	11	635	
Subtotal		111	7,087	182	23,696	293	30,783
Silviculture and Integrated Resource Management							
Gold River	Gold River	23	935	4	717	27	1,652

Operation	Home Region	Contractor Personnel		Company Personnel		Total Personnel	
		People	Person Days	People	Person Days	People	Person Days
Forestry	Campbell River	18	235	0	0	18	235
	Courtenay	7	248	0	0	7	248
	Vancouver Isl(other)	17	417	0	0	17	417
	Lower Mainland	15	243	0	0	15	243
	BC (other)	19	338	3	252	22	590
Nootka Contract Administration	Gold River	1	25	2	310	3	335
	Tahsis	3	250	0	0	3	250
	Campbell River	2	20	1	40	3	60
	Courtenay	5	117	0	0	5	117
	Vancouver Isl(other)	8	229	0	0	8	229
	Lower Mainland	4	155	2	160	6	315
	BC (other)	4	104	3	240	7	344
Zeballos	Zeballos	45	1,426	1	230	14	1,656
	Vancouver Isl(other)	0	0	1	166	1	166
Saanich Forestry Centre	Vancouver Island (Other)			51	813	51	813
Head Office	Campbell River			4	161	4	161
	Lower Mainland	19	670			19	670
<b>Subtotal</b>		<b>190</b>	<b>5,412</b>	<b>72</b>	<b>3,090</b>	<b>262</b>	<b>8,502</b>
<b>Transportation</b>							
Head Office	Lower Mainland	115	5,286	1	40	116	5,326
<b>Subtotal</b>		<b>115</b>	<b>5,286</b>	<b>1</b>	<b>40</b>	<b>116</b>	<b>5,326</b>
<b>Processing</b>							
Squamish Pulp Mill	Lower Mainland			324	9,089	324	9,089
Western Pulp Head Office	Lower Mainland			17	265	17	265
Duke Point Sawmill	Vancouver Island (Other)			92	1,416	92	1,416
Nanaimo Sawmill	Vancouver Island (Other)			148	6,917	148	6,917
Saltair Sawmill	Vancouver Island (Other)			110	6,164	110	6,164
Vancouver Sawmill	Lower Mainland			215	3,274	215	3,274
Silvertree Sawmill	Lower Mainland			138	2,186	138	2,186
Nanaimo Log Merchander	Vancouver Island (Other)			33	1,095	33	1,095
Log Trading and Sales	Vancouver Island (Other)			32	1,424	32	1,424
<b>Subtotal</b>				<b>1,109</b>	<b>31,830</b>	<b>1,109</b>	<b>31,830</b>
<b>Administration</b>							
Nootka	Gold River	1	260	2	336	3	596

Operation	Home Region	Contractor Personnel		Company Personnel		Total Personnel	
		People	Person Days	People	Person Days	People	Person Days
Region	Courtenay	0	0	1	170	1	170
	Vancouver Island (other)	0	0	1	170	1	170
Head Office	Campbell River			7	202	7	202
	Vancouver Island (other)			36	1,131	36	1,131
	Lower Mainland	3	101	17	685	20	787
<b>Subtotal</b>		<b>4</b>	<b>361</b>	<b>64</b>	<b>2,694</b>	<b>68</b>	<b>3,056</b>

Summary by Home Region							
	Gold River	70	4,660	118	18,222	188	22,882
	Tahsis	30	1,724			30	1,724
	Zeballos	47	1,736	42	4,918	89	6,654
	Campbell River	54	1,753	42	4,046	96	5,799
	Courtenay	34	1,441	46	5,892	80	7,333
	Vancouver Island (Other)	67	2,223	515	20,284	582	22,507
	Lower Mainland	171	6,685	714	15,700	885	22,385
	BC (Other)	34	920	6	492	40	1,412
<b>TOTAL</b>		<b>507</b>	<b>21,142</b>	<b>1,483</b>	<b>69,554</b>	<b>1,990</b>	<b>90,696</b>



### Appendix XIX – Corporate Employment Statistics

Person-days							
	Planning and Development	Harvesting	Transportation	Processing	Silviculture and Integrated Resource Management	Administration	TOTAL
TFL 6	16,064	85,214	7,878	128,576	13,264	6,840	257,837
TFL 19	11,200	30,783	5,325	31,830	8,502	3,055	90,695
TFL 25	4,526	12,023	6,058	21,181	8,127	1,185	53,101
FL A19240 Kingcome	553	2,468	90	4,388	644	224	8,367
FL A19231 Strathcona	2,019	4,527	1,097	8,891	1,537	1,004	19,075
FL A16845/ FL A16847 MidCoast	1,970	7,769	1,434	7,275	1,869	426	20,743
FL A19205 Fraser	90	1,000	136	1,595	418	109	3,348
FL A19228 Sunshine	190	1,870	119	2,235	426	131	4,971
FL A19216 Soo	90	900	184	2,182	475	127	3,958
Other WFP Tenures	321	974	23	13,609	113	278	15,318
Nootka Sound Economic Development Corporation	76	167	0	0	55	129	427
Non-WFP Tenures	0	0	0	91,760	0	2,090	93,850
<b>TOTAL</b>	<b>37,099</b>	<b>147,695</b>	<b>22,344</b>	<b>313,522</b>	<b>35,430</b>	<b>15,598</b>	<b>571,690</b>

Appendix XX – First Nations Silviculture Contracts

Employment Summary				
	North Vancouver Island Region	Mainland Islands Region	Nootka Region	TOTAL
TFL 6	718			718
TFL 19			463	463
TFL 25		244		244
FL A19240 Kingcome	17			17
FL A19231 Strathcona			138	138
FL A16845/FL A16847 MidCoast		213		213
FL A19205 Fraser				27
FL A19228 Sunshine		36		36
FL A19216 Soo				14
Other WFP Tenures				
Nootka Sound Economic Development Corporation				
<b>TOTAL</b>	<b>735</b>	<b>493</b>	<b>601</b>	<b>1,829</b>
<b>Total Contractor Days</b>	<b>6,145</b>	<b>5,560</b>	<b>4,742</b>	<b>16,447</b>
<b>% FN Employment</b>	<b>12.0</b>	<b>8.9</b>	<b>12.7</b>	<b>11.1</b>
<b>% WFP Goal Achieved</b>	<b>59.8</b>	<b>44.3</b>	<b>63.4</b>	<b>55.6</b>

Appendix XXI – Log Flow and Wood Consumption

(Approximate)														
WESTERN FOREST – WESTERN PULP – DOMAN INDUSTRIES – DOMAN WESTERN LUMBER														
SAWMILL PULPMILL	Tenure / Source (Thousand Cubic Metres)										Inventory /		Chips to Woodfibre (Thousand Units)	
	TFL 6	TFL 19	TFL 25	FL A19231 Strathcona	FL A19240 Kingcome	FL A16845 Mid Coast	FL A16847 Mid Coast	FL A19205 Fraser	FL A19228 Sunshine	FL A19216 Soo	Other Tenures	Purchase		Total Consumption
Duke Point	231	20	4	5	8		3				6	43	320	44
Chemainus														
Ladysmith	51		11		2						2	101	167	
Cowichan	236		51		7						4	132	430	
Silvertree	16	22	20	13	5		7	1	1		2	-23	64	7
Vancouver	62	27	58	11			9	1	2	2	2	-30	144	21
Tahsis													0	
Saltair		111	10	28			23	9	13	13	8	230	445	
Nanaimo	291	113	12	22	7		30	5	10	7	8	58	563	
Log Merchandiser	86	115	66	26	3		1	6	6	9	7	276	601	283
Port Alice Pulp Mill	359				12		10				8	-71	318	
Trades / Sales	299	158	85	50	14		26	6	3	3	8	129	781	-3
Squamish Pulp Mill Chips														
• Purchased														185
• Consumed														555
TOTAL LOGS	1631	566	317	155	58	0	109	28	35	34	55	903	3,891	



Appendix XXII – Small Business Forest Enterprise Program Summary

Year	Volume Available to SBFEP (m <sup>3</sup> )	Volume Allocated (m <sup>3</sup> )	Licence No.	Licencee	Area Logged (ha)	Volume Scaled (m <sup>3</sup> )	Residue (m <sup>3</sup> )	Chargeable Volume (m <sup>3</sup> )
1988	22 934				0			
1989	45 868				0			
1990	45 868				0			
1991	45 868				0			
1992	45 868	46 179	A3880	Dorman Logging	59.5	46 179	2 207	48 386
1993	45 868	25 996	A39588	CR Mills	43.4	25 996	283	26 279
		76 135	A34814A	Coulson Heli	85.9	76 135		76 135
1994	45 868	2 240	D72095	CR Mills	3.2	2 240		2 240
		8 692	A34814A	Mokko Manufacturing	9.0	8 692		8 692
		44 009	A34814C	Mokko Manufacturing	54.7	44 009		44 009
1995	45 868	6 742	A34814C	Mokko Manufacturing	7.9	6 742		6 742
		58 013	A34814D	Mokko Manufacturing	62.2	58 013	2 679	60 692
		9 590	A34814A	Mokko Manufacturing	12.0	9 590	966	10 556
1996	45 868				0			
1997	45 868	14 297	A43314	Hayes	14.0	14 297	692	14 989
		14 553	A34814H	Mokko Manufacturing	17.4	14 553	569	15 122
1998	45 868	23 592	A34814B	Mokko Manufacturing	20.5	23 592	1 319	24 911
		55 345	A34814M	Mokko Manufacturing	54.9	55 345	4 592	59 937
		23 654	A34814J	Mokko Manufacturing	25.4	23 654	2 191	25 845
1999	45 868				0			
2000	45 868	11 381	A34814P	Mokko Manufacturing	14.2	11 381	1 071	12 452
		25 135	A34814Q	Mokko Manufacturing	23.6	25 135	1 839	26 974
		15 858	A34814U	Mokko Manufacturing	22.7	15 858	3 125	18 983
		17 452	A39591B	Green River Timber	20.5	17 452	452	17 904
		24 080	A39591C	Green River Timber	21.2	24 080	373	24 453
2001	45 868							
2002	45 868	13 206	A64700	Baumel	0			
		450 000	A48832	Fuso Enterprises Ltd.	0			
	710 954	966 149			572.2	502 943	22 358	525 301

**Appendix XXIII – Seed Orchard Production Report**

Seedlot	Species	Orchard	Zone	BV (vol 60)	Elevation (m)	Latitude	Volume (hl)	Seed Weight (kg)	Seedlings (000s)	Comments
61176	Fdc	166	M	11	352	49° 12'	12.7	4.81	135.5	
61177	Fdc	169	M	11	251	49° 03'	14.0	4.64	148.7	
SUBTOTAL							26.7	9.45	284.2	
61199	Cw	Pots	M	2	411	50° 16'	0.6	0.41	116.4	Custom Lot – High Elevation
61200	Cw	189	M	5	195	49° 51'	0.3	0.11	29.6	
SUBTOTAL							0.9	0.52	146.0	
TOTAL							27.6	9.97	430.2	

Vegetation Lot	Species	Zone	BV (vol 60)	Elevation (m)	Latitude	Seedlings (000s)	Comments
V0428	Yc	M	0	784	49° 48'	7.0	
V0429	Yc	M	0	983	49° 10'	70.0	
V0432	Yc	M	10	816	49° 37'	51.5	
V0433	Yc	M	13	845	49° 30'	92.2	
TOTAL						220.7	

Appendix XXIV – Nursery Production Report

Species	Size	Seedlings Produced (000s)			Crop Portion
		Fall	Spring	Total by Size	
Cw	313B	10,560	575,180	585,740	
	410A		281,920	281,920	
	415C	5,520	108,780	114,300	
	412A	38,640	271,090	309,730	
	415D		89,450	89,450	
	615A		28,570	28,570	
<b>Subtotal</b>		<b>54,720</b>	<b>1,354,990</b>	<b>1,409,710</b>	<b>48.1%</b>
Fdc	410A		60,190	60,190	
	415C		276,690	276,690	
	412A	24,570	83,220	107,790	
	415D		142,540	142,540	
<b>Subtotal</b>		<b>24,570</b>	<b>562,640</b>	<b>587,210</b>	<b>20.0%</b>
Hm	410A		22,400	22,400	
	412A	26,330		26,330	
<b>Subtotal</b>		<b>26,330</b>	<b>22,400</b>	<b>48,730</b>	<b>1.7%</b>
Hw	313B		245,530	245,530	
	410A		77,530	77,530	
	415C	2,100	132,880	134,980	
	412A	106,050	126,700	232,750	
<b>Subtotal</b>		<b>108,150</b>	<b>582,640</b>	<b>690,790</b>	<b>23.5%</b>
Ss	410A		97,270	97,270	
<b>Subtotal</b>			<b>97,270</b>	<b>97,270</b>	<b>3.3%</b>
Sx	415C	6,720	18,840	25,560	
<b>Subtotal</b>		<b>6,720</b>	<b>18,840</b>	<b>25,560</b>	<b>0.9%</b>
Yc	412A	72,980		72,980	
<b>Subtotal</b>		<b>72,980</b>		<b>72,980</b>	<b>2.5%</b>
Misc	410A	380		380	
	415C	360		360	
	412A	120		120	
	415D	170		170	
<b>Subtotal</b>		<b>1,030</b>		<b>1,030</b>	<b>N/A</b>
<b>TOTAL</b>		<b>294,500</b>	<b>2,638,780</b>	<b>2,933,280</b>	<b>100.0%</b>



**Appendix XXV – Summary of Issues – Management Plan 9**

Issue	Task	Status
Assess accuracy of operability categories	Report annually area harvested by harvest method within each operability category, sorted by leading species and by height class.	Report in TFL Annual Report.
Operability	Confirm operability in the Upper Leiner and Burman Rivers.	Will be completed during term of Management Plan 9.
Inventory	Complete the Terrestrial Ecosystem Mapping (TEM)	TEM mapping completed in 2001.
Operability, harvesting steep slopes	Report annually the amount of area harvested from each of terrain stability class IV and V areas, as delineated in mapping used for base case analysis.	Reported in TFL Annual Report.
Salvage harvesting	Track the incidence of and amount of salvage related to landslides, windthrow, insect outbreaks and fire.	Salvage harvesting reported in TFL Annual Report.
Site Productivity	Strengthen the basis for site index assumptions.	Completion of TEM and VRI will improve site index assumptions.
Harvesting Practices	Document harvesting practices in riparian management zones.	To be completed during term of MP9.
	Document site productivity losses to roads, trails and landings.	Losses due to permanent access structures to be reported in Annual Report.