



Doman-Western Lumber Ltd.

Tree Farm Licence 19
1998
Annual Report



Western Forest Products Limited

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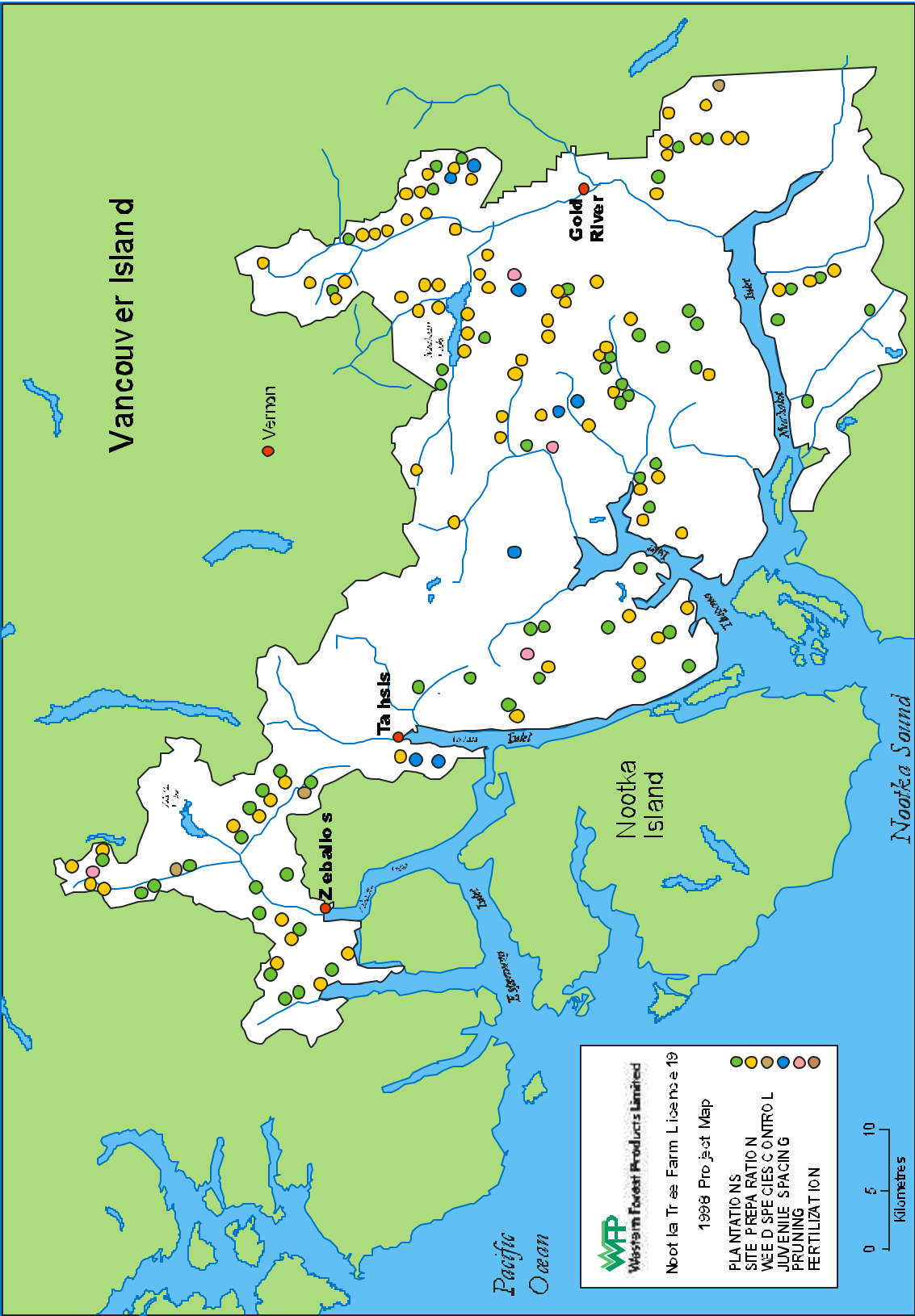
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SUMMARY OF ACTIVITIES AND ACCOMPLISHMENTS – 1998

Depletion	Scaled Volume	524 622.4 m ³
	Volume Charged to Allowable Annual Cut	544 599.0 m ³
	Area Logged (Western Forest Products)	631.1 ha
	Area Logged (SBFEP)	32.4 ha
Reforestation	Silviculture Prescriptions	1 045.3 ha
	Site Preparation	15.0 ha
	Seedlings Planted	675 540 trees
	Seedlings Fertilized	203 800 trees
	Area Planted (Initial)	719.3 ha
	Stocking Surveys	1 560.4 ha
	Plantation Survival Assessments	870.3 ha
	Free Growing Surveys	3 802.4 ha
Stand Management	Juvenile Spacing	165.3 ha
	Brushing and Weeding	4.7 ha
	Pruning	39.8 ha
	Broadcast Fertilization	0.0 ha
Inventory	Cutting Permit Cruising	774 plots
	Residue Assessment	465 plots
Engineering	Roads Built	49.9 km
	Roads Rebuilt	16.5 km
	Roads Maintained	427.0 km
	Roads Deactivated	216.4 km
	Site Stabilization	2.0 ha
Protection	Accidental Fires	1
Contracting	Contractor Obligation	249 307 m ³
	Contracted	258 249 m ³
	Compliance	103.6 %
Minor Products	Shake and Shingle	2 333.1 m ³
	Cypress Cants	116.0 m ³
Employment	Direct Employment	112 220 person-days

PROJECT MAP



1.0 INTRODUCTION

1.1 Statement of Stewardship

Tahsis Tree Farm Licence 19, held by Doman-Western Lumber Ltd. and managed by Western Forest Products, is located on the west coast of Vancouver Island in the vicinity of Nootka Sound. The Licence was granted to the Company's predecessor, Tahsis Company Limited, as Tahsis Forest Management Licence 19 on December 23, 1954. The Company assumed control from Pacific Forest Products in December, 1997. Since the awarding of the Licence 44 years ago, a total of 31 million cubic meters of timber have been logged in TFL 19.

The total area of TFL 19 is 191 530 ha, of which 144 510 ha are considered productive forest land. More than 67 per cent of the total TFL forest area still remains in an old growth condition. About 52 400 ha are classed as mature operable and 47 730 ha as immature operable for a total operable land base of 100 130 ha (52 per cent of total area).

Forestry and milling activities supported by logging in TFL 19 sustain more than 600 direct jobs on Vancouver Island and are critical to the local economies of Gold River, Tahsis, and Zeballos. Campbell River and the Comox Valley communities are also directly affected. Western Forest Products works with First Nations groups whose traditional territories lie within TFL 19 to create economic activities and build capacity for forest management.

Forest planning policies, practices, and activities in the TFL are prescribed in Western Forest Products' TFL Management Plans, Forest Development Plans, and silviculture strategies. These are developed regionally and implemented locally by a team of dedicated professional foresters, other planning specialists, and operations staff. Western Forest Products maintains a comprehensive system of public opportunities for reviewing all plans, and reports annually on TFL activities through this Annual Report.

The Company is proud of the level of forest management applied to TFL 19 that integrates the public interest in economic development and employment with environmental stewardship. Western Forest Products supports local salmon enhancement projects in Nootka Sound that are focused on four major watersheds in the TFL. In conjunction with the Ministry of Forests, the Company maintains four campsites plus a number of day-use picnic areas, trails, and karst viewing areas in the TFL. Western Forest Products welcomes public comment on all its practices. Further information is available on the Company's web site at www.westernforest.com.



Western Forest Products manages Tree Farm Licence 19 on behalf of the licensee, Doman-Western Lumber Ltd. New highway signs were installed during the year.

1.2 Operations Highlights

Western Forest Products' parent company, Doman Industries, had another difficult financial year due to hemlock lumber market problems particularly in Asia, continued low pulp prices, and high stumpage and logging costs. As a result, losses for the year were \$74.6 million compared to \$2.3 million loss in 1997. Sales for the year were \$779 million compared to \$737 million in 1997. The outlook for 1999 was not expected to be significantly better, but by year-end lumber prices started to improve, and pulp prices increased. The Company was successful in significantly reducing pulp and lumber inventories by year-end. Poor markets resulted in the Company achieving only 68 per cent of the Allowable Annual Cut in all its forest operations in 1998.

Cost reduction and controlling increased bureaucracy and administrative burden were a major focus during the second half of the year. Government provided some stumpage relief on June 1, 1998, in an attempt to keep logging operations active, but early in the fourth quarter all logging operations ceased. Joint Industry-Government committees and action teams were put in place to design relief packages that would allow the forest sector to return to profitability in 1999. Appendix XVIII summarizes the operating statistics for the Doman group of companies.

Company Highlights

- On October 1, 1998, the consolidation of TFL 24 into TFL 25 as Block 6 and the addition of TFL 25 Block 4 into TFL 6 was approved by the Minister of Forests.
- Western Forest Products announced it was proceeding with Forest Certification including Forest Stewardship Council, ISO 14001, and Canadian Standards Association – Sustainable Forest Management systems.
- The Company signed a \$70 million five-year Agreement with Forest Renewal BC to finance a large program of watershed restoration, enhanced forestry, and operational inventory.

Ron Bronstein, Roger Stanyer, Herb Doman, and Vic Woods participated in the formal signing of the Western Forest Products – Forest Renewal BC \$70 million multi-year agreement at Port McNeill. The TFL 19 Forest Renewal BC program involves watershed restoration, enhanced forestry, and other programs totalling \$8 million over the next five years.



- Western Forest Products celebrated the planting of the Company's 75 millionth tree.
- The consolidation of the Lost Lake and Saanich Forestry Centre tree improvement orchards was initiated in 1998. A number of orchards were removed and others enhanced. High breeding value clones were moved from Lost Lake and used to upgrade the Saanich orchards.

Specific TFL 19 Highlights

- The independent Forest Practices Board completed an audit of 98 cut-blocks and 575 km of road in TFL 19 during the year. The audit results were not released by year-end. From preliminary Board feedback, compliance was very good, reflecting the high level of diligence and concern shown by all Nootka Region employees.
- An estimated 58,000 visitors utilized the Company's major forest recreation sites in TFL 19 during the year.
- At the Zeballos Forest Operation there were significant management changes with the arrival of a new manager, a new bull bucker, and a new accountant.
- The Company's aggressive creek cleaning program was reviewed and changes made to improve its efficacy.
- All Nootka Region personnel received training in Standard Operating Procedures and other Western Forest Products' policies.
- The Company worked closely with the Ministry of Forests' Compliance and Enforcement personnel to improve procedures, streamline administrative bottlenecks, and achieve full compliance with the Forest Practices Code.
- As part of the Company's commitment to forest certification, a team from SGS Forestry of Oxford, England, completed a pre-assessment of several operations in TFL 19.
- The Company continued active involvement of First Nations in forestry activities in the TFL. With support and encouragement of the three local Bands it is expected these opportunities will increase in the future.
- The Ministry of Forests' Regional Manager granted a TFL 19 carry forward of 177 906 m³ of AAC from the 1992 – 1996 Cut Control Period.

2.0 MANAGEMENT AND OBLIGATION PERFORMANCE

2.1 Volume

The scaled production for the year was 524 622.4 m³. Volumes by timber mark and Operation are summarized in Appendix I. The volume charged to the allowable cut was 544 599.0 m³. This includes the scaled production and the residue survey volumes (Appendix II). The Chargeable Cut was adjusted by one fifth of the 177 906 m³ of Allowable Cut carried forward from the last Cut Control Period, thus 509 018 m³ were charged against the Allowable Cut of 887 726 m³ for 1998 (Appendix IV).



This 78 m³ Douglas-fir snag from Block G6 in the Kleeptee Drainage required two trucks to haul it to the dryland sort. These veteran fir snags are common in much of the area around Nootka Sound.

2.2 Area

The Company harvested timber from 631.1 ha during the year. Appendix III summarizes the denudation by Operation. Road construction activities converted 49.9 ha from productive forest land to non-productive forest land. Road rehabilitation activities brought 1.5 ha back into productive forest land.

2.3 Contractor Compliance

Harvesting and forest management activities on TFL 19 during the year employed contractors and Company personnel. The volume harvested by full and phase contractors totalled 258 249 m³. The Contractor Clause Performance for harvesting was 103.6 per cent (Appendix VI). Appendix VII lists the phase and full harvesting contractors. Appendix VIII lists all contractors employed by the Company in TFL 19.

2.4 Planning

2.4.1 Land and Resource Management Plans

The Vancouver Island Land Use Plan activity was minimal this year, leaving several outstanding issues to be resolved. Government and conservation groups raised concerns regarding progress on special harvesting techniques and strategies within Special Management Zones.

2.4.2 Landscape Unit Plans

No Landscape Unit Plans have been approved to date. In the absence of approved Plans, the Company is using draft Landscape Units, Biodiversity Emphasis Options, and Resource Management Zone objectives as planning guidelines.

2.4.3 Management Plan

A status report on issues identified in the Management Plan 8 rationale was completed (Appendix XIX). Costs for higher level planning were \$68,615.

2.4.4 Forest Development Planning

Gold River Forest Operation submitted an 18-month Forest Development Plan in 1997, and therefore did not submit a plan in 1998.

The Nootka Contract Administration 1998 – 2002 Forest Development Plan was presented for review to the Ministry of Forests, the Ministry of Environment, Lands, and Parks, the Department of Fisheries and Oceans, the Mowachaht/Muchalaht First Nations, the Nuchatlaht First Nations, the Kyoquot First Nations, and the Speleological Federation. A copy of the maps was sent to the Ehattesaht First Nations. The plan was approved in late 1998.

The Zeballos Forest Operation 1997 – 2002 Forest Development Plan was approved following extensive stakeholder consultations. Work on the 1999 – 2004 Plan was initiated for planned submission in summer, 1999.

Costs to the Forestry Department for Forest Development Planning totalled \$82,540.

2.4.5 Silviculture and Harvest Planning

2.4.5.1 Cutting Permits and Cutting Permit Cruising

The number of active Cutting Permits in TFL 19 stabilized. In 1998, 63 permits were active, the same number as the previous year. Table 1 lists the active Cutting Permits, expiration dates, and locations.

Cutting permit cruising plot costs decreased, on average, from 1997 costs. Average costs per established plot were \$98, and average costs per compiled plot were \$112. The cost reduction

resulted from the high proportion of plots in favourable cruising locations, and the contractors' participation in the Company cost reduction efforts to deal with the difficult economic situation in 1998. A total of 774 plots were established in TFL 19. Twenty-two cruise reports were compiled. Cutting permits and cutting permit cruising costs totalled \$124,968.

Table 1: Active Cutting Permits

CP	Expiry Date	Location	CP	Expiry Date	Location
1	Feb 29/00	Gold River			
9	Feb 28/99	Gold River	61	Jun 26/99	Head Bay
14	Mar 15/99	Nesook	62	Jun 26/99	Jacklah
21	Apr 30/99	Gold River	65	Oct 30/99	McCurdy
22	Feb 29/00	Nesook	66	May 14/99	Head Bay
24	Mar 17/99	Gold River	67	May 22/99	Head Bay
28	Apr 30/99	Gold River	68	Aug 20/00	Head Bay
31	Jan 16/98	Gold River	71	Sept 2/99	Head Bay
32	Jan 31/00	Nesook	73	Jun 5/99	McCurdy
33	Jul 31/99	Gold River	75	Feb 5/99	Head Bay
34	Dec 19/99	Gold River	76	Jul 31/99	McCurdy
35	Nov 17/99	Gold River	77	Oct 24/99	Head Bay
36	Dec 12/99	Nesook	78	Jun 16/99	Houston
37	Oct 15/99	Gold River	79	Jan 8/99	Jacklah
38	Nov 28/99	Nesook	700	May 26/99	Head Bay
39	May 12/99	Gold River	701	May 11/99	Tsowwin
40	Mar 31/99	Nesook	702	Apr 6/99	Head Bay
41	Feb 3/00	Nesook	704	Oct 13/99	Houston
42	Sep 18/99	Nesook	705	Nov 23/00	Houston
43	Sep 22/99	Nesook	706	Jan 19/00	West Tahsis
44	Apr 30/99	Gold River	708	Dec 2/99	Silverado
45	Jul 15/99	Nesook	709	Jun 22/00	McCurdy
46	Aug 29/99	Gold River	711	Apr 6/00	Silverado
47	Mar 12/00	Nesook	713	Aug 11/00	McCurdy
48	Jan 18/00	Nesook	12	Jun 15/99	Zeballos
49	May 22/00	Gold River	26	Jun 30/99	Zeballos
82	Jan 21/00	Nesook	30	Aug 31/99	Zeballos
90	Feb 23/99	Gold River	50	Sep 30/99	Zeballos
90A	Dec 14/00	Nesook	51	Apr 30/99	Zeballos
91	Apr 16/00	Nesook	53	Sep 5/99	Zeballos
13	Apr 30/99	Houston	54	Jun 29/99	Zeballos
23	Sep 30/99	Head Bay	55	Aug 7/99	Zeballos

2.4.5.2 Road Permits

The Company maintained 10 Road Permits in 1998, as listed in Table 2, throughout TFL 19 Operations.

Table 2: Road Permits by Operation

Road Permit	Location	Road Permit	Location
RO6780	Gold River	RO6864	Head Bay
RO6863	Nesook	RO6865	Tsowwin
RO6860	Houston	RO6866	West Tahsis
RO7430	Jacklah	RO80905	Silverado
RO6861	McCurdy	RO6868	Zeballos

2.4.5.3 Silviculture Prescriptions

Forty-one silviculture prescriptions were submitted to the Ministry of Forests in the year (Table 3). The total area for which new silviculture prescriptions were submitted was 1 045.3 ha. Average block size including reserves was 25.5 ha on the submitted prescriptions. Average reserve area varied from 10 per cent in Nootka Contract Administration to 16 per cent in Gold River Forest Operation.

Amendments to silviculture prescriptions reflecting new information or objectives continue to occupy significant amounts of staff time. Forestry costs for new silvicultural prescriptions and amendments to previously submitted prescriptions totalled \$89,300 or \$97 per ha.

Table 3: Silvicultural Prescription Statistics by Operation

Operation	Submitted SPs (#)	Total Area (ha)	Average Block Size (ha)	Minimum Block Size (ha)	Maximum Block Size (ha)	Average Reserve (per cent)
GRFO/GRCO	17	542.8	31.9	14.7	53.7	16
NCA	24	502.5	20.9	1.6	38.4	10
Zeballos	0	0	na	na	na	na
	41	1 045.3	25.5	1.6	53.7	13

2.5 Public Involvement

2.5.1 Forest Development Plan

The Gold River Forest Operation and the Nootka Contract Administration hosted public reviews of Forest Development Plans throughout the year. A total of ten information and review sessions were hosted for these Plans (Table 4). Concerns raised by participants and correspondents were addressed. Plan viewing costs were \$27,290.

As part of government policy and the Company's commitment to public consultation, more than 40 public information sessions are held annually throughout the Company's operations. Peter Scharf, Resident Engineer, and Nels Nielsen, Resident Forester from the Gold River Operation, staff the Company's display at the Gold River Trade Fair.



Table 4: Public Reviews

Operation	Plan	Location	Attendance	Written Responses
GRFO	GRFO Forest Development Plan 1997 - 2001	Gold River	16	4
		Tahsis	3	
		Tsaxana	7	
		Campbell River	4	
NCA	Nootka Contract Forest Development Plan 1998 - 2002	Campbell River	12	
		Zeballos	5	
		Gold River	18	
		Tahsis	6	1
		Tsaxana	6	1
		Victoria	1	1
Nootka Region	Certification	Nootka Resource Board	15	3
TOTAL	3	11	93	10

2.5.2 Forest Education and Public Relations

Western Forest Products Limited continued to raise the profile of forest stewardship in Coastal British Columbia with school and special interest group tours throughout the year.

The Gold River Forest Operation hosted nine tours for the general public and 2 tours for school groups during the year for a total of 77 participants. Nootka Contract Administration provided a school tour to ten students from the Tahsis School. Zeballos hosted a presentation for 10 students from Zeballos Elementary Junior Secondary School. Additionally, Zeballos hosted a picnic during Occupational Health and Safety Week to promote awareness of occupational health and safety to more than 100 of the employees and their families.



Members of the Gold River Sparks helped with tree planting on a site heavily browsed by deer and elk in Block K94 in the Gold River Forest Operation.

The In-School Forestry Education Program continued. Grades 3 and 5 students from Ray Watkins Elementary School (Gold River) and Captain Meares Elementary Secondary School (Tahsis) received ten forestry modules. Forest education costs totalled \$58,033.

2.6 Inventories and Mapping

2.6.1 Geographic Information System (GIS) and Electronic Mapping

Five PAMAP GIS stations were used for corporate resource inventory mapping and analysis. The purchase of ten PAMAP Viewer licences and increased use of Microstation at forest operations enabled expanded use of digital map data throughout the Company. These two mapping formats allow data exchange.

Dendron Resource Surveys Inc. prepared external dBase entry application software to enable use of expanded databases associated with new vegetation resources inventory. Training opportunities provided by PCI-Pacific and BCIT were used to advance the skills of GIS personnel.

GIS costs, prorated for TFL 19, totalled \$42,248.

2.6.2 Forest Inventory

Reformat of the TFL 19 forest resources inventory from ArcInfo and Microstation to PAMAP GIS commenced. Besides hardcopy, additional data sources available to prepare the replacement digital files included Simons Reid Collins (T. Lewis) terrain stability classification in IGDS format, Ministry of Forests (Reid Collins) forest inventory, also in IGDS, and BC TRIM base and contour levels in both Positional and MOEP binary formats.

Prior to reformat commencement, Timberline Forest Inventory Consultants Ltd made the major portion of the TFL that has been maintained in ArcInfo current for Forest Development Plan purposes. The balance of the inventory, maintained in-house in Microstation, was current for Forest Development Plan purposes. Dendron Resource Surveys Inc., who have software capability in all of the formats being utilized to achieve the project objective, converted the various data formats to PAMAP.

Base levels including water features, cadastral points, management boundaries, roads, man-made features, compartments, ownership, 20 m contours, map identification, geographic annotation, UTM and geographic ties, and annotations and neatlines were completed. Resource inventory levels completed or nearly complete by year-end included terrain stability (Dr. T. Lewis, 1997) biogeoclimatic zones (MoELP), visual landscape (Recreation Resources Limited, 1994), recreation including ROS - Recreation Opportunity Spectrum (Recreation Resources Limited, 1993), and existing operability classification. The forest cover inventory (Simons Reid Collins, 1989) was scheduled for the new year.

The resulting TFL 19 digital files will be at the scale of 1:10 000 on the BCGS UTM grid in NAD83 datum. The files will also be available at the scale of 1:20 000 as merged from the 1:10 000 files.

Costs for the inventory program were \$84,981.

2.6.3 Ecosystem Mapping

Madrone Consultants Ltd., in association with Laurie Kremsater (Wildlife Consultant) and Terrence Lewis (Ecosystem and Terrain Consultant) resumed a wildlife and ecosystem project undertaken in 1996 – 1997 for part of the TFL, but left incomplete due to fiscal constraints at that time. Project progress was limited to evaluation and planning towards completion of ecosystem mapping and application of refined wildlife rating tables for TFL compartments N (Gold River) and Q (Conuma). The project includes design of Predictive Ecosystem Mapping (PEM) algorithms that link existing digital terrain-bioterrain classification mapping, biogeoclimatic zone data, and BC TRIM slope and aspect modelling. Preliminary algorithm development was scheduled for early 1999. Costs for ecosystem mapping were \$19,828.

2.6.4 Terrain Stability

The terrain stability classification, completed to the Ministry of Forests' standards by Dr. T. Lewis in 1997, was reformatted to PAMAP. The terrain classification, not previously attached to the GIS, was incorporated into the database and map polygon labels by Dendron as noted in Section 2.6.2. Costs to the Forestry Department were \$2,910.

2.6.5 Geotechnical Analyses

Engineering consultants completed geotechnical analyses of cutblocks and road construction projects throughout TFL 19. Geotechnical assessments are completed in areas where indicated by terrain stability class, and engineered to protect sensitive areas. Table 5 presents a summary of analyses by Operation. Costs for geotechnical analyses are included in logging costs.

Table 5: Geotechnical Analyses

Operation	Geotechnical Firm	Areas	Roads
GRFO	Thurber Engineering	19	
	Stonecroft		3
NCA	Golder & Associates	10	
	Stonecroft		8
Zeballos	Arbour Tech	3	
	Golder & Associates	1	
	H.W. Argent		2
TOTAL		33	13

2.6.6 Integrated Resource Management Inventories

Numerous inventories of non-timber forest resources were implemented during the year. Costs for these inventories to the Forestry Department totalled \$220,184. Reimbursements from Forest Renewal BC were \$137,408.

2.6.6.1 Archaeology

Arcas Consulting Archaeologists assessed three areas in the Gold River and Head Bay Operations. These assessments examined archaeological resources on 83 ha. All defined archaeological resources were conserved in the final engineering of the areas.

2.6.6.2 Streams

Stream classification and inventories were completed in eighteen areas throughout the TFL in advance of final cutblock engineering. All Operations employed consultants to complete the inventories. Based on the findings of the stream surveys, riparian areas were engineered to conserve valued resources.

2.6.6.3 Coastal Watershed Assessments

Dobson Engineering completed 16 Coastal Watershed Assessment Procedure (CWAP) surveys in the year. These examine the potential cumulative effects of past and proposed harvesting activities on watersheds. CWAP findings were incorporated into all planning processes as appropriate.

2.6.6.4 Wildlife

Wildlife habitat assessments were completed by wildlife biologist Ron McLaughlin in 4 areas covering 112 ha. These assessments assisted in ensuring that final engineering and planning minimized wildlife impacts.

2.6.6.5 Recreation

Cave Management Services examined 27 ha in the Head Bay area prior to final cutblock and road engineering. Information provided by these assessments was used to ensure that final engineering conserved these resources.

2.6.6.6 Visual Impact Assessments

Western Forest Products' personnel completed visual impact assessments of 8 planned logging areas covering 224 ha in the Gold River Operation. The Company is sensitive to visual quality concerns in all cutblocks that impact on publicly visible landscapes.

3.0 MANAGEMENT OBJECTIVE ACHIEVEMENTS

3.1 Management and Utilization of Timber Resources

3.1.1 Harvesting Methods

Five main logging systems were used in TFL 19 in 1998 including grapple, supersnorkel, tower, hoe-forward, and heli-logging (Figure 1). All systems were employed at the Gold River Forest Operation, led by volumes harvested with grapple yarders. Heli-logging and harvesting with a supersnorkel were undertaken only in Gold River Operations. All right – of – way harvesting was attributed to supersnorkel and cherry picking.

Grapple yarders were the exclusive method of harvest used by contractors at Port Eliza and Houston Contract Forest Operations. Contractors at Head Bay and Tahsis Contract Forest Operations employed both hoe-forwarding and grapple yarding. At the Zeballos Forest Operation, harvesting was completed using grapple and tower yarding systems.

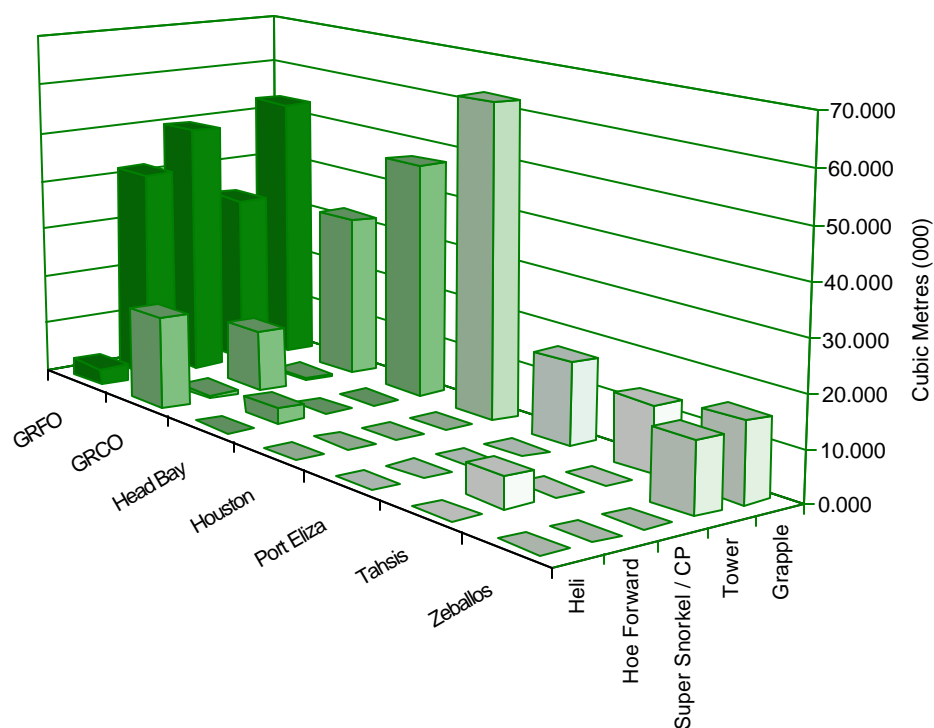


Figure 1. Logging Volumes by Harvest System and Operation.

One of Cypress Creek Logging's hydraulic loaders operates next to a high lead tower in Block P72 near Muchalat Lake for Gold River Forest Operation.



3.1.2 Silviculture Systems

Company foresters prescribed the clearcut silviculture system with modifications for protection and conservation of non-timber resources throughout all operations. Clearcut with reserves for wildlife, streams, and other resources is the dominant system (Table 6). Ninety per cent of the blocks engineered in the year, and eighty per cent of those harvested included one or more reserve(s). Of the harvested blocks, the average area under reserve exceeded 20 per cent.

Table 6: Silvicultural Systems

System	Blocks Engineered (#)	Average Block Size (ha)	Minimum Block Size (ha)	Maximum Block Size (ha)
Clearcut	3	24.2	11.4	38.3
Clearcut with Reserves	27	28.3	10.2	44.8
Irregular Shelterwood	1	54.4	54.4	54.4
TOTAL	31	28.7	10.2	54.4
System	Blocks Harvested (#)	Average Block Size (ha)	Minimum Block Size (ha)	Maximum Block Size (ha)
Clearcut	5	15.5	3.6	25.7
Clearcut with Reserves	19	32.2	2.8	63.8
TOTAL	24	28.1	2.8	63.8



Block K502A in Gold River Forest Operation was logged using a shelterwood silviculture system. The goal of the project was to convert a stand with Douglas-fir veterans and hemlock understory to Douglas-fir and to gain experience with an alternate silviculture system.

3.1.3 Felling, Bucking, and Utilization Specifications

3.1.3.1 Specifications

Utilization standards in cutting permits outline the obligatory and optional specifications for harvesting. Obligatory minimum standards in TFL 19 include the following:

- i. maximum stump height of 30 cm on the uphill side;
- ii. all coniferous trees containing X grade logs or better will be utilized to a top diameter of 15 cm inside bark;
- iii. all conifer trees or parts of these trees exceeding 3 m in length which contain X grade logs or better will be removed;
- iv. logs or parts of logs less than 3 m in length and broken at both ends are classed as breakage; and
- v. logs will not be bucked or trimmed in a manner that reduces grade.

These obligations apply to all living and dead trees that meet the standards. These minimum standards must be met to minimize waste unless unsafe to do so. Utilization of Y grade logs is optional. Achievement for felling, bucking, and utilization standards are measured using residue survey data.

3.1.3.2 Residue Assessments

Western Forest Products continues to survey and report residue volumes on a calendar year basis for all cutblocks where logging was completed during the year. The official Ministry of Forests residue volume used for the Allowable Annual Cut depletion is determined by summing the volumes from the Scale and Royalty residue invoices billed during the calendar year. As a consequence, 1998 depletion includes residue volumes from 1997 and 1998 surveys as determined by the billing date.

For 1998, the billable waste totalled 10 736.5 m³ and the Allowable Annual Cut depletion totalled 21 796.2 m³ (Table 7). Total costs of residue assessments for the 465 plots were \$76,668.

Table 7: Residue Assessment Survey Summary

FOREST OPERATION	SURVEY AREA		AAC DEPLETION		BILLABLE WASTE TOTAL VOLUME		NUMBER OF PLOTS				
	Gross (ha)	Net* (ha)	m ³ /ha	m ³	m ³ /ha	m ³	Slash	Road Side	Pile & RMZs	Other	TOTAL
Port Eliza	40.9	39.8	20.5	814.8	12.4	492.7	19	4	10	0	33
Gold River (Conventional)	554.6	418.7	20.0	8367.4	10.9	4578.5	59	82	30	12	183
Gold River (Heli)	72.3	72.0	24.9	1793.4	12.8	924.8	23	0	12	0	35
Zeballos (Conventional)	63.3	61.5	31.0	1908.6	13.7	843.5	36	23	9	9	77
Zeballos (Heli)	0.6	44.9	29.7	1332.7	12.4	557.3	20	0	6	6	32
Tahsis	21.2	17.9	16.7	300.3	13.1	234.4	11	0	6	0	17
Kendrick Inlet	19.9	19.2	126.6	2432.4	18.2	349.3	9	0	9	0	18
Houston	60.3	60.3	53.7	3239.6	31.0	1867.5	18	2	4	0	24
Head Bay	71.9	71.3	22.5	1607.0	12.5	888.5	22	6	18	0	46
TOTAL	905.0	805.6	27.1	21796.2	13.3	10736.5	217	117	104	27	465

3.1.3.3 Minor Products

Minor products including cedar shake and shingle and cypress cant timber volumes were harvested from TFL 19. All Operations conducted salvage operations for timber by-products (Appendix XI) for a total of 2 333.1 m³ of shake and shingle wood. Gold River and Zeballos reported salvage of 116.0 m³ of cypress cants. Costs to administer the minor products program were \$1,604.

Brian Green and Brian Logan, local shake cutters working in the Gold River Forest Operation, convert logs recovered in roads and culverts during Watershed Restoration Program road deactivation into high-grade western redcedar shake and shingle blocks. More than 2 300 m³ of cedar were converted to these minor products during the year.



3.1.4 Harvest Profile

An obligation of Management Plan 8 for TFL 19 is the annual comparison of the timber harvest by inventory height class compared to the inventory profile. During the year, 44 per cent of all timber harvested originated from height class 5 stands which comprise 34 per cent of the inventory profile. A total of 28 per cent of all timber harvested was height class 4, and it comprised 38 per cent of the inventory profile. The harvest of height class 3, at 19 per cent, was above the inventory profile of 9 per cent. The harvest of height class 6 was at 5 per cent, compared to the inventory profile of 16 per cent (Appendix IX).

Of the total harvest, 87 per cent was from the conventional operability land base, 10 per cent was from the heli-operable land base, and 3 per cent was from the inoperable land base (Appendix IX).

3.1.5 Allowable Annual Cut and Cut Control Performance

The Allowable Annual Cut for TFL 19 in 1998 was 887 726 m³ (Appendix IV). In the year, the chargeable cut was 509 018 m³ including scaled production and recognized residue survey volumes. This includes an annual undercut carry-over from the previous period of 35 581 m³. After two years of the Current Cut Control Period, 27 per cent of the five year Allowable Cut has been utilized (Appendix IV). The Company intends to harvest the full Allowable Cut for the current cut control period and be in compliance with the cut control regulations.

The Historical Cut Control Performance is included in Appendix V. Since the establishment of the Tree Farm Licence in 1951, the Allowable Cut available to the Licencee totalled 32 614 892 m³. In that period, the Chargeable Cut was 31 286 412 m³ or 96 percent of the available volume.

3.1.6 Small Business Forest Enterprise Program

The TFL 19 Small Business Forest Enterprise Program (SBFEP) has been in place since 1988. To date, 527 237 m³ of wood has been allocated to the SBFEP (Appendix X). To the end of 1998 the scaled volume under the program was 383 215 m³ and the residue volume totalled 10 056 m³. In 1998 Mokko Manufacturing logged 32.4 ha.

3.2 Protection and Conservation Measures

Western Forest Products protected and conserved resource values throughout its area of operation during the year. The following discussions pertain to 30 engineered blocks that were submitted in the year, and 24 harvested blocks for which harvest completion reports were dated for the year. Blocks for which amendments were submitted, and blocks in which harvesting was not completed, are not included. The Company reviews every cut block to ensure that legal and forest stewardship commitments are recognized in harvest planning.

Helicopters are integral to forestry and planning operations today and are used for transporting foresters, engineers, and fallers in steep, difficult terrain such as Block J94 in the Nesook River Drainage.



3.2.1 Visual Quality

Visual quality was addressed for all cutblocks proposed in scenic areas. Seven of the 30 blocks engineered during the year required special engineering to conserve visual landscape resources (Table 8). Nine of the 24 blocks harvested during the year had been similarly modified. Modifications included movement of back lines and the locating of reserves to minimize the visual impacts of harvesting. Areas where visual qualities are of concern were identified in the current Forest Development Plan.

3.2.2 Biological Diversity

Specific engineering to conserve biological diversity resources occurred in one block during the year (Table 8). Modifications for other values effectively conserve biological diversity as well. Many of the biological conservation objectives are met at the landscape level through the pattern of cut block layout, road design, and protection of riparian areas and wildlife habitats.

Table 8: Protection and Conservation Measures

	TOTAL	Number of Blocks Requiring Special Consideration						
		Visual Quality	Biological Diversity	Soil Stability	Water Quality	Cultural Heritage	Fish Habitat	Wildlife Habitat
Blocks Engineered	30	7	1	15	11	2	14	7
Blocks Harvested	24	9	0	17	16	0	13	13

3.2.3 Soil Stability Maintenance

3.2.3.1 Conservation

Soil stability was addressed through engineering, harvesting, road building, and erosion control measures implemented throughout the year. Of the engineered blocks, 15 included additional soil conservation plans beyond Company Standard Operating Procedures. Of the harvested blocks, 17 received additional soil stability consideration (Table 8).

3.2.3.2 Operational Site Stabilization Program

Revegetation progressed following harvesting and road building operations throughout the TFL. Grass seeding was completed within acceptable biological windows. The riparian reserve in Block J113 (Tlupana River) suffered a major blowdown event in November 1998. The area was revegetated in early December with a grass and legume mix specifically formulated to maximize winter and early spring germination.

Operational site stabilization costs were \$29,368.

3.2.3.3 Watershed Restoration Program

Backlog road deactivation funded through the Watershed Restoration Program was successfully completed in the headwaters of the Zeballos River watershed. Work was nearing completion in the Muchalat watershed, and was underway in the Upper Gold watershed. Road assessments and fish habitat inventories have been completed for the Upper Gold, the Gold, and the Spud watersheds. Program costs including implementation and administration were \$486,731 and were fully covered by Forest Renewal BC. Table 9 includes a summary of the progress in 1998.

Table 9: Watershed Restoration Summary

Watershed	1998 Project Progress			
	Level II	Road Deactivation	Fish Habitat Restoration	Spending
Muchalat Lake	-	15.0 km	In Progress	242,727
Twaddle / Upper Gold	-	8.0 km	na	103,129
Upper Zeballos	In Progress	13.5 km	na	131,860
Gold, Nomash, and Upper Artlish	In Progress		na	9,015
TOTAL		36.5 km		\$486,731

3.2.4 Water Quality

The Company installed a hydrological monitoring station on Leagh Creek. Leagh Creek drains into the Conuma River above the Conuma River Fish Hatchery. The baseline data gathered at the site will be used to determine if there are changes in the hydrological flow and turbidity in the watershed during road construction and harvesting. Development in the watershed will be implemented in 2002. Funding for the project and for monitoring is through Forest Renewal BC.

A hydrological monitoring station was also installed at McKelvie Creek to record water levels and quality. Funding to implement this project was provided jointly by the Company and Forest Renewal BC.

The Village of Zeballos submitted a request to remove the Community Watershed designation for the Zeballos watershed. The Company funded the development of a well that will provide the community with a back-up for the existing well.

Water quality issues were specifically addressed in 11 engineered blocks and 16 harvested blocks in the year.

The Company is conducting environmental monitoring and establishing base line data for hydraulic flow and turbidity on Leagh Creek, a tributary of the Conuma River, which is an important salmon stream with a major hatchery. Bob Craven, the new Resident Engineer for Gold River, Kevin Somerville, Operations Engineer, and Jason Laird, Assistant Engineer, worked with Dobson Engineering to install a flow gauge.



3.2.5 Recreation Resources

3.2.5.1 Public Recreation Sites

Western Forest Products maintained recreation sites co-operatively with the Ministry of Forests throughout TFL 19. Overnight facilities were maintained at Muchalat Lake, Cougar Creek, and Leiner River. The Company has also enhanced many day-use areas including fresh and salt water fishing, caving, forest education walks, hiking, hunting, and landscape viewpoints.



During 1998 Conuma Excavating completed a major site upgrading project funded by the Ministry of Forests on the Company's Muchalat Lake Recreation Site. Muchalat Lake is a popular campground that experiences close to 13,000 visitor-days during the year.

Specific improvements implemented by the Company included the following:

- repaired storm-damage to the breakwater at Cougar Creek Recreation Area;
- improved five camp sites at Muchalat Lake Recreation Area;
- undertook snag removal, outhouse maintenance, and brushing at Leiner River Campsite;
- completed outhouse and picnic table repairs, improved parking areas and roads at Tahsis Lookout;
- developed sites for camping at Santiago Creek.

The Company expenditures on recreation facilities totalled \$63,499. Reimbursements from Ministry of Forests contracts covered the costs.

3.2.5.2 Recreation Use

The Company continued to promote recreation use in TFL 19 through signage, advertisements, and visitor maps. Estimates of annual use are presented in Table 10. These estimates are based on site monitoring, reports from maintenance workers, and information from the tourism industry.



The Cougar Creek Recreation Site on Tlupana Inlet is very popular as a camping and boat-launching site that provides access to Nootka Sound and the West Coast. This Company campsite was used for 33,000 visitor-days in 1998.

Table 10: Recreation Use Estimates

Activity	User Days By Operation			
	Gold River	Nootka Contract	Zeballos	Total
Beach Use	na	200	60	260
WFP Sites and Trails	52,500	5,400	40	57,940
Hunting	5,000	2,100	50	7,150
Fishing (Freshwater)	2,000	100	60	2,160
Fishing (Saltwater)	45,000	11,500	200	56,700
Firewood Cutting	500	500	150	1150
Food Gathering	50	50	10	110
Kayaking	500	6,000	10	6,510
Auto Touring	1,000	1,300	30	2,330
Hiking and Caving	2,400	2,500	25	4,925
TOTAL	108,950	29,650	635	139,235

3.2.6 Cultural Heritage Resources

Two of the blocks engineered in the year were modified for archaeological values (Table 8), based on inventories completed. Cultural heritage resources were not encountered in any blocks harvested in the year.

3.2.7 Fish Habitat

3.2.7.1 Conservation

Fisheries resources were recorded in numerous blocks harvested and engineered in 1998. Modifications to 13 harvested blocks and 14 engineered blocks reflected stream classification inventories (Table 8).

3.2.7.2 Salmonid Enhancement Program

Western Forest Products assisted the Zeballos Hatchery by co-ordinating work with an Environmental Youth Team work crew. The Hatchery released 50,000 chinook salmon fry into the Zeballos River in 1998. Western Forest Products also assisted the Gold River Chinook Project by providing helicopter transportation for brood stock and fry to the Burman River. In the TFL, a total of 49,000 Chinook fry were released in the Burman River, and 385,000 were released in the Gold River. Costs for the program to the Forestry Department were \$3,887.

3.2.8 Wildlife Habitat

Seven engineered blocks and 13 harvested blocks were modified to conserve wildlife values (Table 8). Additional habitat was maintained through modifications for other resource values as

well. Spacing, pruning, and fertilization undertaken in the TFL improved wildlife habitat in juvenile stands.

Roosevelt elk have expanded their range into areas not traditionally occupied by elk. Herds move into areas following harvesting. The elk take advantage of the increased browse availability in new cutblocks.

3.3 Integration of Harvesting Activities

Timber development within TFL 19 has created access for commercial and recreational users. Due to provisions in the Forest Practices Code Act, Western Forest Products is required to deactivate many roads following harvesting. Where possible, access is maintained while achieving forest site productivity, maintenance, and erosion control objectives. A summary of non-timber resource stakeholders is in Table 11.

The Company works with the Mowachaht/Muchalaht Band to ensure that culturally significant areas and culturally modified trees are identified. Harvesting proceeds when a mutually agreeable plan is developed.

Table 11: Summary of Commercial Stakeholders

Commercial Stakeholders	#	Commercial Stakeholders	#
Trappers	12	Guide Outfitters	15
Mushroom Pickers*	20	Bee Keepers	1
Kayak Operations	3	Fishing Guides *	20
Marina	1	Caving	1
Mining Exploration	1	Fishing Camps*	6

* Estimates

3.4 Forest Fire Management

3.4.1 Prevention

Fire Preparedness Plans were updated as per annual obligation. Ground and aerial patrols were undertaken during times of 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 the slash pile-burning program in October and November.

The summer of 1998 was very hot and dry. There was a record low rainfall of 175 mm in the months from May through September in Gold River. Due to scheduled shutdowns over the majority of the summer, Gold River Forest Operation was only down due to hazardous fire weather indices for nine days during a summer that recorded 52 days of extreme fire weather. Despite the hazardous conditions, risk reduction and the patrol systems proved economical and effective. Fire management costs were \$10,131.

3.4.2 Suppression

In spite of the high-risk situation, only one accidental fire occurred. In Zeballos, an escape from a slash pile burned 2.6 ha. Crews with two tankers, hand tools, pumps, and hoses controlled the fire within five hours. Control, mop-up, and monitoring the burn required 27 person-days.

3.4.3 Fuel Management

Piling and burning roadside slash accumulations concurrent with area cleanup reduced fuel and fire hazards.

3.5 Forest Health Management

3.5.1 Disease Management

No significant outbreaks of disease were detected during the year. Forestry personnel routinely monitor forest health informally in conjunction with silviculture surveys.

3.5.2 Insect Management

Trapping of ambrosia beetles occurred at the dryland sorts at Nesook, Head Bay, West Tahsis, Houston, McCurdy, Silverado, and Zeballos. A summary of the trapping program is in Table 12.

Table 12: Ambrosia Beetle Trapping

Location	Traps	Beetles Trapped
Nesook Dryland Sort	22	525 100
Head Bay Dryland Sort	30	725 150
West Tahsis Dryland Sort	25	497 400
Houston Dryland Sort	27	367 800
McCurdy Dryland Sort	15	6 100
Silverado Dryland Sort	14	20 900
Zeballos Dryland Sort	29	1 063 550
TOTAL	162	3 206 000

3.5.3 Ungulate Management

In areas with high Roosevelt elk and black-tailed deer populations, seedlings were protected from browse and trampling with Tree Pro, cage, or tree cone seedling protectors. The seedling protectors are removed from the seedling after an average of four years, when the seedlings are large enough to withstand browsing. Protectors require maintenance every one to two years. Costs to the Forestry Department were \$37,046.

3.5.4 Abiotic Factors

Measures to reduce blowdown on susceptible areas included feathering cutblock edges, changing cutblock design, harvesting to wind-firm buffers, and aerial pruning. Blowdown specialists conduct assessments prior to harvest in areas that may be prone to blowdown. Heavy winds and atypical wind directions caused blowdown in block J113 (Tlupana River).

3.6 Silviculture

3.6.1 Reforestation

3.6.1.1 Seed Acquisition

No wild stock seed collections were made in TFL 19 during the year.

Lost Lake Seed Orchard in Victoria and the Saanich Forestry Centre in Saanichton are owned and operated by Western Forest Products Limited. They are licensed by the Ministry of Forests to produce genetically superior seed and stocklings for reforestation on managed forest lands. Seed orchards managed for seed production include two western redcedar orchards, two western hemlock orchards, one Sitka spruce orchard, one coastal Douglas-fir orchard, one yellow cypress clonal orchard, and one cottonwood clonal orchard (Appendix XXI).

Approximately 20.9 hl of cones were harvested from the western redcedar orchards with an estimated seedling potential of 2.8 million. The producing western hemlock seed orchard yielded 2.3 hl of cones with an estimated seedling potential of 0.4 million. Of the western hemlock seed, 15 per cent resulted from elite crosses.

All the coastal Douglas-fir seed collections resulted from elite crosses. The 1.5 hl of cones harvested have an estimated yield of 28,000 seedlings. This high gain custom seedlot is projected to yield a 17.5 per cent volume gain at rotation. Costs for this project were \$7,854 and were covered by Forest Renewal BC through the Operational Tree Improvement Program.

Cuttings from the yellow cypress clonal hedges yielded 300,000 stocklings. The cottonwood stools yielded 2,800 whips. The prorated share of cost for seed collection and acquisition were \$78,376. The prorated share of seed sales was \$11,486.

3.6.1.2 Tree Improvement

Orchard management included consolidation of the second-generation western hemlock orchards. High breeding value clones were removed from Lost Lake Seed Orchard (Orchard Hw 176) and incorporated into the Saanich Forestry Centre Seed Orchard (Orchard Hw 170). The projected volume gain at rotation was thereby increased from 7 per cent to 14.5 per cent. Costs for this project were \$19,146. Funding was received from Forest Renewal BC through the Operational Tree Improvement Program. A number of orchards were removed from the Saanich

Forestry Centre, including one and a half coastal Douglas-fir orchards, a western white pine orchard, and a yellow cypress orchard.

Special management techniques were applied to enhance genetic gain at the seed orchards. Polycross breeding of selected western redcedar clones produced seed for progeny testing. Forest Renewal BC through the Science Council of BC funded this work (\$24,000).

Phase 1 of the Second Generation Western Redcedar Seed Orchard is underway. To date, 150 trial clones were re-propagated by rooted cuttings. These will be rogued after results of the progeny trials are analysed. Those clones with high breeding values will be included in the second-generation orchard. Forest Renewal BC funded the program for \$15,400.

Gibberellic acid was applied to approximately 600 trees in two western redcedar orchards to induce seed production. This will provide several years' supply of A class seed. Forest Renewal BC funded this program through the Operational Tree Improvement Program (\$13,970).

Field testing of the clonal yellow cypress hedges continued in 1998 with the establishment of two trials at Port McNeill. Four seedlots represented by 250 clones were included in the trials. Data collection and analyses of earlier trials continued. The final phase of testing will be established in the spring of 1999. Holding areas for the trial material were established at the Saanich Forestry Centre. Costs for this project, funded by Forest Renewal BC through the Science Council of BC, totalled \$80,000.

Evaluation of the yellow cypress clonal material has led to the establishment of a High Gain Yellow Cedar Clonal Orchard. To date the top 46 clones out of 1,700 tested were selected for inclusion and are now being rejuvenated in a nursery. The average computed volume gain at rotation, based on 7-year data, is 18 per cent. Costs for this project, funded by Forest Renewal BC through the Operational Tree Improvement Program, were \$13,440.

3.6.1.3 Site Preparation

Site preparation was implemented to improve regeneration efforts. In areas where excess slash or competition has reduced the availability and distribution of planting spots, burning or mechanical site preparation was employed. Costs for all site preparation in the TFL totalled \$158,520.

3.6.1.3.1 Broadcast Burning

No broadcast burning was undertaken in the TFL in 1998. At the time of hazard abatement burning throughout the 1970s, annual broadcast burning was at 450 ha per year on average. In the 1980s this had dropped to 50 ha per year. In the current decade, annual broadcast burning in TFL 19 has averaged below 20 ha per year. Changes in harvesting practices have reduced the availability of this significant silvicultural tool.

3.6.1.3.2 Pile Burning

All Operations implemented pile burning during the year. At Gold River, 7.5 ha of roadside piles were burned in 43 harvested blocks. Nootka Contract Administration burned 3.9 ha in 16 harvested blocks, and Zeballos Operation burned 2.1 ha in 13 harvested blocks (Appendix XI). Piling and burning reduced the amount of slash and increased the number of plantable spots for regeneration. Costs for pile burning were \$139,105.



Logging debris was piled and tarped to improve ignition and burning during wet fall weather in Block K502A near Gold River. This program improves plantability of roadside logging sites.

3.6.1.3.3 Mechanical Site Preparation

Only Zeballos Forest Operation implemented mechanical site preparation in 1998 (Appendix XI). One and a half hectares of deactivated road were treated to improve the site for conifer regeneration. Costs for mechanical site preparation were \$19,415.

3.6.1.4 Planting

Silvicultural contractors planted more than 675 000 seedlings throughout TFL 19. Original plantations encompassed 719.3 ha (Appendix XI). As well, 195 ha of previously planted areas required additional planting to meet the required stocking standards, and 18.8 ha of roadside areas were planted following pile burning. Original and roadside plantings were credited to the Regeneration Balance (Appendix XII). More than 26 million seedlings have been planted in TFL 19 since 1954 (Appendix XIII).

Fertilization at time of planting improved the competitiveness of conifers in areas of high brush hazard. Seedlings planted in areas with poor soil nutrient levels and in replant areas were also fertilized. Gold River Forest Operation fertilized 98 300 seedlings; Nootka Contract Administration fertilized 20 200 seedlings, and Zeballos fertilized 85 300 seedlings at time of planting.

Western redcedar was planted most abundantly in 1998, followed by western hemlock and amabilis fir. These three species accounted for 80 per cent of the planting program. Douglas-fir

accounted for 14 per cent of the seedlings planted in the year. The remainder were yellow cypress, Sitka spruce, western white pine, noble fir, and mountain hemlock.

Costs for the planting program were \$775,787 including stock purchase, inspection, planting, and co-ordination. Average costs were \$1,079 per hectare, or \$1.15 per seedling. Forest Renewal BC funded the backlog replanting undertaken in the year (\$3,046).

Mr. Herb Doman, Chairman and President of Western Forest Products, plants the Company's 75 millionth seedling with the Junior Forest Wardens at Port McNeill.



3.6.1.5 Stocking

Surveys

Stocking surveys of enhanced regeneration took place in all Operations (Appendix XI). Gold River examined 917 ha of which 713 ha were satisfactorily regenerated. Nootka Contract Administration assessed 510 ha of which 476 ha met stocking standards. Zeballos Forest Operation assessed 133 ha of which 113 ha were satisfactorily restocked. Areas that did not meet the stocking standard were debited to the Regeneration Balance (Appendix XII).

Costs for implementing stocking surveys totalled \$44,441 or on average \$28 per hectare.

3.6.1.6 Planting Survival Assessments

Gold River and Zeballos Forest Operations conducted survival assessments in 1998. Average survival exceeded 90 per cent on the 870 ha examined (Appendix XI).

Costs of planting survival assessments were \$8,143 or \$9.35 per hectare.

3.6.1.7 Free Growing Surveys

Gold River Forest Operation conducted free growing surveys of 413 ha in 1998. Of this area, 97 ha met free growing standards (Appendix XI). Nootka Contract Administration completed 1 488 ha of green-up (adjacency) surveys.

Costs for free growing and green-up surveys were \$21,703 or \$11 per hectare. Forest Renewal BC reimbursed the Company for free growing surveys of backlog areas.

3.6.2 Stand Management

3.6.2.1 Brushing and Weeding

Gold River Forest Operation applied ground foliar herbicide treatment to a 0.6 ha portion of a block to reduce seedling competition by salmonberry (Appendix XI). The Company funded the program. Zeballos Forest Operation manually treated 4.1 ha of salmonberry with chainsaws; 2.2 ha were funded through Forest Renewal BC's Backlog Program, and 1.9 ha were funded by the Company.

Costs for brushing and weeding were \$27,278 or \$5,803 per ha. Forest Renewal BC and Ministry of Forests reimbursements totalled \$13,973.

3.6.2.2 Juvenile Spacing

A total of 165.3 ha were spaced in areas designated as industry outstanding (logged prior to 1987) and was funded by Forest Renewal BC (Appendix XI).

First Nations contractors completed 113.3 ha at Gold River and Zeballos Operations. Three displaced forest workers trained through New Forest Opportunities were employed with contractors working in the Gold River and Nootka Contract Administration Operations.

Costs for spacing were \$336,506 or \$2,036 per hectare.

3.6.2.3 Pruning

Silviculture contractors completed pruning of 39.8 ha in the year (Appendix XI). First Nations contractors completed 10.6 ha in the Zeballos area, and 12.0 ha in the Gold River Operation. Three displaced forest workers trained through New Forest Opportunities were employed with contractors working in the Gold River and Nootka Contract Administration Operations.

Costs for pruning were \$44,737 or \$1,124 per hectare. Forest Renewal BC funded the pruning program.

Josh James, a grade 5 student at Ray Watkins's Elementary School in Gold River, helps out on first lift pruning in Block N42 on the West Road during a school forestry tour.



3.6.2.4 Fertilization

No broadcast fertilization was undertaken in 1998. Expenses were incurred in planning for an extensive aerial fertilization program in 1999. Costs for the program were \$10,672 and were reimbursed by Forest Renewal BC.

3.7 Roads and Bridges

3.7.1 Construction

Road construction continued in 1998 with a total of 50 km of new road and 16 km of rebuilt road (Table 13). Twenty bridges were constructed.

Table 13: Road and Bridge Construction Summary

Forest Operation	New Roads (km)	Rebuilt Roads (km)	Bridges (#)
Gold River	28.3	10.0	13
Houston Contract	5.7	2.0	0
Tahsis Contract	5.8	1.5	0
Head Bay Contract	6.3	1.0	0
Port Eliza Contract	3.6	2.0	7
Zeballos	0.2	0.0	0
TOTAL	49.9	16.5	20

3.7.2 Maintenance

Among the Operations, 427 km of road were maintained in TFL 19. Appendix XI provides a summary by Operation.

3.7.3 Current Deactivation

Road deactivation is completed to maintain site stability and increase forest productivity. Level of deactivation (temporary, semi-permanent, and permanent) is determined prior to harvesting and outlined in the silviculture prescription. A total of 125 km in all TFL 19 Operations was temporarily deactivated. Semi-permanent deactivation of 52 km of road and permanent deactivation of 39 km of road brought the road deactivation total to 216 km. Appendix XI summarizes the road deactivation program by type and Operation.

3.8 Employment and Economic Opportunities

3.8.1 Direct Employment

3.8.1.1 Planning and Development

Planning and development relating to TFL 19 occurred at each of the Operations and at the Company's corporate office in Vancouver. Engineering and road construction employed over 100 people for an estimated 8 837 person-days. Contractors were responsible for 43 per cent of the operational person-days in planning and road construction.

The mapping department in Vancouver provided support to the planning and development at the Operations. Throughout the year five WFP employees and three contractors (estimated) generated maps required for the planning processes. The estimated pro-rated share of Company personnel person-days was 209. Contractors worked 101 days (Appendix XV -A)

3.8.1.2 Harvesting

All direct harvesting employment, from stump to dump, occurred at the Operations on central Vancouver Island. Nearly all direct harvesting employees, both contract and Company, reside on Vancouver Island, and the majority reside in the vicinity of the TFL. Contract employees comprised 49 per cent of the harvesting work force. Harvesting person-days totalled 38 287 (Appendix XV -A).

3.8.1.3 Transportation

Transportation of logs from the log dump sites to processing facilities and log trade markets occurred by barge and boom. An estimated 3 536 person-days were generated in log transportation.

3.8.1.4 Processing

Eight coastal processing facilities owned by Doman Industries received logs from TFL 19, and surplus logs were traded and sold. For purposes of analysis, all employment was assumed to be generated within the vicinity of the processing facility. Facilities included the Ladysmith,

Cowichan, Silvertree, Vancouver, Tahsis, Saltair, and Nanaimo Sawmills, and the Nanaimo Log Merchandizer.

Prorated direct employment based on wood flow and consumption estimates totalled 51 309 person-days (Appendix XV-A). Close to 1 200 people were employed for a portion of the year in processing wood from TFL 19.

3.8.1.5 Silviculture and Integrated Resource Management

Basic and enhanced silviculture and integrated resource management projects employed 246 people throughout TFL 19. Of these, 77 per cent were contract employees with 58 per cent of the person-days in silviculture in the TFL. More than 90 per cent of the employees were from Vancouver Island, and the majority reside in the vicinity of the TFL.

A prorated share of employment at the Saanich Forestry Centre was included for TFL 19. Forty-six company employees amassed 963 person days of employment.

Silviculture and Integrated Resource Management generated 5 918 person days of employment in the year (Appendix XV-A). With delays in implementation of the Forest Renewal BC Multi-year Agreement and with cost controlling measures implemented in 1998, employment in these activities was reduced over previous years.

As part of the acquisition of Pacific Forest Products, Western Forest Products assumed ownership of the Saanich Forestry Centre and its 4 million tree capacity nursery. Planting stock is packed in mid-winter for shipping to Company Operations for spring 1999 planting.



3.8.1.6 Administration

Administrative employment occurred locally with the Regional staff, and in Vancouver, at the Company's corporate office. The prorated share of administrative employment included 56 Company personnel for 3 693 person-days in the year and three contract employees for 330 person days.

3.8.2 Indirect Employment

TFL 19 supported indirect employment in the local communities of Gold River, Zeballos, and Tahsis, as well as in Campbell River and the Comox Valley. In the vicinity of the processing facilities supplied by TFL 19, significant amounts of indirect employment were likewise generated. Additional indirect and induced employment were supported province-wide through services and supplies.

The ratio of direct employment to indirect and induced employment used in this analysis is 1:2 (Price-Waterhouse). For every employee directly employed by TFL 19 activities, two additional people are indirectly employed through private and public sector agencies. The estimated number of person days of indirect employment generated by TFL 19 in 1998 was 224 440 person-days.



The Avenor Gold River pulp mill was sold to Bowater Incorporated during 1998. Bowater announced the closure of the mill in October. The loss of the pulp mill has negatively affected the town's stability.

3.8.3 First Nations Employment and Initiatives

The Company has a strong history of First Nations involvement in Tree Farm Licence 19 activities. In spite of a difficult year for employment in the TFL, there was an increase in First Nations involvement. Relationships continued to develop with the Ehattesaht and the Mowachaht/Muchalaht Bands involving creek cleaning and enhanced silviculture work. An estimated 12 of the Company's local logging employees are from First Nations Bands.

3.9 Performance Monitoring

During the year, 122 harvest inspections were undertaken as part of Compliance and Enforcement activities in TFL 19. Of the total, 71 inspections confirmed full compliance with all

requirements of the Forest Act and the Forest Practices Code. Of the balance, most issues were insignificant. A large number of tickets initially issued to the Company were subsequently re-issued to the former licence holder, Pacific Forest Products. The remaining outstanding tickets are being reviewed as to their applicability to Western Forest Products.

During the year, the Forest Practices Board undertook an extensive independent audit of harvesting and road construction activities within Tree Farm Licence 19. The result had not been announced by year-end but initial feedback indicated a clean audit. There were no significant issues of concern.

Workshops were held with agency compliance staff and Company supervisors to develop strategies and put in place Standard Operating Procedures for streamlining administration and ensure full compliance with legislation. Since those meetings and specific training for Nootka Region employees were completed, the Company has been assessed in full compliance.

Nootka Region Operations staff attended several training sessions on Forest Practices Code compliance, Western Forest Products' Standard Operating Procedures, and general due diligence issues as part of employee development in TFL 19.



The Company also conducted internal audits of each of its Operations on a bi-annual basis. During 1998, Zeballos Forest Operation was subject to internal audit by an external team of forestry and engineering specialists. Eleven cutblocks and 6.5 km of road were assessed. The results indicated generally good compliance. Recommendations included the following:

- ensuring that field maps contain all required information,
- ensuring no isolation of timber in harvest planning,
- ditch cleaning and temporary deactivation procedures to be a focus,
- improved protection of culverts during harvesting operations.

Action Plans were prepared that addressed all outstanding issues identified in the audits.

4.0 TIMBER PROCESSING

An estimated 324 thousand cubic metres of wood from TFL 19 were processed in Doman Industries' manufacturing facilities. As well, log trades and sales consumed 201 thousand cubic metres of volume from TFL 19. Estimates of log flow and utilization are summarized in Appendix XVI and Table 14.

Table 14: TFL 19 Log Processing

Primary Processing Facility	Log Volume (m ³)	Portion of 1998 Processing (%)
Ladysmith Sawmill	10 000	3
Cowichan Sawmill	24 000	6
Silvertree Sawmill	80 000	23
Vancouver Sawmill	12 000	4
Tahsis Sawmill	154 000	51
Saltair Sawmill	7 000	2
Nanaimo Sawmill	24 000	5
Nanaimo Log Merchandizer	13 000	4
TOTAL	324 000	

Other Doman – owned processing facilities including the Duke Point Sawmill received wood from other Company tenures in 1998. The Chemainus Value-Added Mill re-manufactured 130 000 cubic metres of lumber from the primary processing facilities. The Squamish Pulp Mill consumed 608 000 units of chips, a by-product of the primary processing facilities.



Up to 500 million board feet of Company lumber remained in inventory in 1998 reflecting lack of access to American markets and the weak Japanese market. These high inventories were one of the major factors resulting in curtailed TFL 19 logging operations.

5.0 RESEARCH

Golder and Associates completed a creek cleaning study comparing the effects of different stream management techniques and a report entitled "Small stream management review - Western Forest Products Zeballos and Gold River Forest Operations". The report concluded that the small class S5 and S6 streams were being excessively cleaned; it would be of benefit to leave more material in the creeks to slow water flows.

The Company has implemented other research projects in TFL 19. A summary of these projects appears in Appendix XVII. Costs for research initiatives in the TFL, including the prorated share of tree improvement research, totalled \$101,593. Research was fully funded by Forest Renewal BC.

6.0 GOALS AND INITIATIVES

Western Forest Products manages TFL 19 according to objectives outlined in applicable higher level plans, including the Management Plan. Appendix XIX outlines the commitments and outstanding issues with regard to the Management Plan.

The major goals in TFL 19 identified for 1999 are as follows:

- Wildlife suitability and terrain ecosystem mapping resource inventory projects are to be continued.
 - FRBC Watershed Restoration Program projects, enhanced forestry projects (intensive silviculture) and backlog reforestation projects will continue. Areas not completed in the 1998/99 fiscal year due to higher than average snow levels will be transferred to the 1999/2000 fiscal year.
 - The Company will work with the Ministry of Forests to implement the Identified Wildlife Management Strategy and to develop Landscape Unit Planning.
 - Updating resource inventories identified in Management Plan 8 will be continued.
 - Management Plan 9 Statement of Management Objectives, Options and Procedures (SMOOP) and consultation data will be completed.
 - The Company and First Nations groups will cooperate to further develop forest management initiatives in the TFL.
 - The internal audit program will be continued. Operations personnel will work to achieve 100% compliance in the Ministry of Forest harvest inspections.
 - Work will continue towards achieving certification with the Forest Stewardship Council (FSC), ISO 14001, and the Canadian Standards Association (CSA) Sustainable Forest Management System.
-



Company faller Rick Brown developed new technology for use as a portable helicopter pad with telescoping legs that can adapt to steep, broken terrain. The pad is marketed by Touchdown Enterprises Limited.

7.0 ADMINISTRATION

The costs of supervision and overhead relating to specific operational projects are included in the reported project costs. However, many administrative costs are broadly defined as general management and overhead. These include Company prorated charges to the Forestry Department for rentals, services, salaries, and expenses to perform administrative functions. Total costs for administration were \$633,843.

8.0 FINANCIAL STATEMENTS

8.1 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 corporate office forestry department costs is included as well.

Program	Section		Sub-Total
Planning			\$365,423
	Higher Level Planning	\$68,615	
	Forest Development Planning	\$82,540	
	Cutting Permits and CP Cruising	\$124,968	
	Silviculture Prescriptions	\$89,300	
Public Involvement			\$85,323
	Plan Viewings	\$27,290	
	Forest Education	\$58,033	
Inventories and Mapping			\$370,151
	Geographic Information System	\$42,248	
	Forest Inventory	\$84,981	
	Ecosystem Mapping	\$19,828	
	Terrain Stability Mapping	\$2,910	
	Integrated Resource Management	\$220,184	
Utilization			\$78,272
	Residue Assessments	\$76,668	
	Minor Products	\$1,604	
Conservation and Protection			\$167,748
	Operational Site Stabilization	\$29,368	
	Recreation Resources	\$63,499	
	Salmon Enhancement Program	\$3,887	
	Fire Management	\$10,131	
	Forest Health	\$37,046	
	Audits	\$23,817	
Silviculture			\$1,506,163
	Seed Procurement	\$78,376	
	Site Preparation	\$158,520	
	Planting	\$775,787	
	Stocking Surveys	\$44,441	
	Survival Assessments	\$8,143	
	Free Growing / Green-up Surveys	\$21,703	
	Juvenile Spacing	\$336,506	
	Brushing & Weeding	\$27,278	
	Pruning	\$44,737	
	Fertilization	\$10,672	
Research			\$101,593
	Research	\$101,593	
Administration			\$633,843
	Administration	\$633,843	
TOTAL			\$3,308,516

8.2 Forest Management Reimbursements

Western Forest Products Limited received funding from government agencies for silvicultural enhancement, integrated resource management, and salmonid enhancement projects. A summary of the reimbursements received is presented below.

Program	Project	TFL 6	TFL 19	TFL 25	TOTAL
Enhanced Forestry	Juvenile Spacing	141,896	356,177	501,306	999,379
	Pruning	553,606	148,701	689,483	1,391,790
	Fertilization	12,855	10,029	14,869	37,753
Forest Renewal BC					
Backlog Forestry	Surveys	72,871	31,679	4,150	108,700
	Planting	17,427	3,046		20,473
	Brushing	696,062	6,685	313,474	1,016,221
Forest Renewal BC	Site Rehabilitation		34,017		34,017
Recreation					
Recreation	Recreation	24,942	2,208	7,780	34,930
Forest Renewal BC					
Operational Inventory	Cultural Heritage		8,551		8,551
	Streams	68,893	16,514		85,407
	Timber			116,320	116,320
Forest Renewal BC	Wildlife	38,427	78,326	105,482	222,235
	Water Quality		34,017		34,017
Science Council	Research	330,268	121,129	82,878	534,275
	Seed Orchard Development	22,973	11,486	7,859	42,318
Forest Renewal BC					
Department of Fisheries and Oceans	Salmonid Enhancement Program	15,000			15,000
Ministry of Forests	Brushing		7,288		7,288
	Planting		23,286		23,286
	Surveys			9,316	9,316
	Recreation		94,979	9,747	104,726
	Research	13,635	2,280	1,560	17,475
South Moresby FRA	Juvenile Spacing			247,086	247,086
	Wildlife Inventory			75,000	75,000
TOTAL		2,008,855	990,398	2,186,310	\$5,185,563

APPENDICES

APPENDIX I

TREE FARM LICENCE 19
1998 SCALED PRODUCTION

CUBIC METRES

FOREST OPERATION	MARK	VOLUME	TOTAL
Gold River	19/1	165.8	
	19/14	1420.3	
	19/21	1.6	
	19/22	5159.2	
	19/28	-0.4	
	19/32	8384.9	
	19/33	12689.8	
	19/34	16122.4	
	19/35	5619.3	
	19/36	38243.4	
	19/37	-22.7	
	19/38	5653.0	
	19/39	23275.7	
	19/40	22875.8	
	19/41	6305.8	
	19/43	32204.2	
	19/44	90.7	
	19/45	45570.0	
	19/46	84646.7	
	19/47	5925.5	
	19/48	10082.4	
	19/49	1792.5	
	19/63	-7.6	
	19/65	-8.4	
	19/69	-14	
	19/71	0.8	
	19/75	83.2	
	19/76	558.6	
	19/77	0.6	
	19/78	2.6	
	19/82	2190.6	
	19/90	111.8	
	19/91	9626.3	
	AZ002	2666.6	
	HZ009	2.5	
	HZ043	0	
	HZ063	-9.2	
	T0472A	0	
	T0484	4.1	
	T0495A	18.7	
	T0536A	6617.5	
	T0571A	2.0	
	T0627A	5.0	
			348057.6
Head Bay	19/23	0	
	19/61	1792.0	
	19/67	-8.2	
	19/68	6988.8	
	19/700	18511.6	
	19/702	11135.8	
	T0571B	11363.5	
			49783.5

FOREST OPERATION	MARK	VOLUME	TOTAL
Houston	19/13	475.6	
	19/704	0	
	19/708	38388.0	
	19/709	6282.2	
	19/711	15652.9	
	19/73	0	
			60798.7
Kendrick Inlet	19/701	0	
	T0582A	0	
			0.0
Port Eliza	19/62	17722.1	
	19/79	0	
	T0397A	0	
			17722.1
Tahsis	19/706	19049.1	
			19049.1
Zeballos	19/12	799.3	
	19/26	-12.1	
	19/30	3.0	
	19/53	2376.3	
	19/54	266.4	
	19/55	25778.5	
			29211.4
Total Company Tenures			20670.7
Total Crown			503951.7
Grand Total			524622.4
Total Company and Phase Contractor Operations			354118.4
Total Harvest under Full Contracts			170504.0

APPENDIX II

TREE FARM LICENCE 19
1998 VOLUME CHARGED TO ALLOWABLE CUT

CUBIC METRES

MARK	CROWN GRANT	LICENCES	CROWN	TOTAL
19/1			165.8	
19/12			799.3	
19/13			475.6	
19/14			1420.3	
19/21			1.6	
19/22			5159.2	
19/23				
19/26			-12.1	
19/28			-0.4	
19/30			3.0	
19/32			8384.9	
19/33			12689.8	
19/34			16122.4	
19/35			5619.3	
19/36			38243.4	
19/37			-22.7	
19/38			5653.0	
19/39			23275.7	
19/40			22875.8	
19/41			6305.8	
19/43			32204.2	
19/44			90.7	
19/45			45570.0	
19/46			84646.7	
19/47			5925.5	
19/48			10082.4	
19/49			1792.5	
19/53			2376.3	
19/54			266.4	
19/55			25778.5	
19/61			1792.0	
19/62			17722.1	
19/63			-7.6	
19/65			-8.4	
19/67			-8.2	
19/68			6988.8	
19/69			-14.0	
19/700			18511.6	
19/701				
19/702			11135.8	
19/704				
19/706			19049.1	
19/708			38388.0	
19/709			6282.2	
19/71			0.8	
19/711			15652.9	
19/73				
19/75			83.2	
19/76			558.6	
19/77			0.6	
19/78			2.6	
19/79				
19/82			2190.6	

MARK	CROWN GRANT	LICENCES	CROWN	TOTAL
19/90			111.8	
19/91			9626.3	
AZ002	2666.6			
HZ009		2.5		
HZ043				
HZ063				
T0397A				
T0472A				
T0484		4.1		
T0495A		18.7		
T0536A		6617.5		
T0571A		2.0		
T0571B		11363.5		
T0582A				
T0627A		5.0		
Grand Total	2666.6	18004.1	503951.7	524622.4
Residue				
Recognized residue survey volumes associated with 1998 MOF S&R invoices				19976.6
Total Chargeable				544599.0

APPENDIX III

TREE FARM LICENCE 19
AREA DENUDED – 1998

HECTARES

Forest Operation	Crown Grant	Crown / Licence	TOTAL
Gold River Forest Operation		480.8	480.8
Head Bay		61.4	61.4
Houston		53.1	53.1
Tahsis		18.7	18.7
Zeballos		17.1	17.1
TOTAL COMAPANY		631.1	631.1
SBFEP		32.4	32.4
TOTAL TFL 19		663.5	663.5

APPENDIX IV

TREE FARM LICENCE 19
CURRENT CUT CONTROL PERIOD
ALLOWABLE ANNUAL CUT

CUBIC METRES

YEAR	ALLOWABLE CUT AVAILABLE TO LICENCEE ¹	CHARGEABLE CUT ²
1997	930 915	825 328
1998	887 726	509 018
1999	887 726	
2000	887 726	
2001	887 726	
TOTAL	4 481 819	1 334 346

¹ The Allowable Cut available to Licencee for 1997 was adjusted to reflect the 5 per cent take-back effective December 22, 1997 with the Doman purchase of the Pacific licences. The 1998 Allowable Cut has the full reduction. Negotiations continue regarding a proposal under the Jobs and Timber Accord.

² The cumulative volume charged by the end of the second year of the cut control period is 1 334 346 m³ or 30 per cent of the five-year Allowable Cut. The five year Chargeable Cut includes an annual undercut of 35 581 m³ from the 1992 to 1996 Cut Control Period. The 1997 and 1998 Chargeable Cuts have been adjusted. This reflects the approval by the Vancouver Region Manager of the Ministry of Forests on August 27, 1998 of a total carry forward of 177 906 m³.

APPENDIX V

**TREE FARM LICENCE 19
HISTORICAL CUT CONTROL PERFORMANCE
1951 - 1998**

CUBIC METRES

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	4 729 462	4 730 242
1992 – 1996	4 660 660	4 367 849
1997 - 1998 ¹	1 818 641	1 405 508 ²
TOTAL	32 614 892	31 286 412

¹ Completed portion of the 1997 – 2001 Cut Control Period.

² Includes Chargeable Cut before carry-forward adjustments to end of 1998.

APPENDIX VI

**TREE FARM LICENCE 19
COASTAL CONTRACTOR CLAUSE PERFORMANCE REPORT**

CALENDAR YEAR 1998

Referenc	Description	Volume	Source
1)	Total AAC of TFL approved by Chief Forester (CF) that is available to Licencee	887 726 m ³	Chief Forester's approval letter for Management Plan
2)	AAC attributable to Schedule "B" lands that is available to Licencee	843 716 m ³	Derived from the approved MP
3)	Volume of timber harvested	524 622 m ³	Obtained from the Regional Tenures Manager; the total volume of timber that is billed to the Licencee under the Licence during the calendar year (Section 49.1 of the Forest Act)
4)	Harvested volume attributed to Schedule "B" lands	498 614 m ³	Calculated: (#2/#1) X #3
5)	Total volume contracted under full and phase contracts	258 249 m ³	Licencee Records
6)	Total volume contracted expressed as a per cent of compliance required	103.6 %	Calculated: (#5/(#4 X 0.5)) X 100

Licencee Name: Western Forest Products Limited

Completed by: William Dumont, R.P.F.

Date Report Completed: July 21, 1999

APPENDIX VII

TREE FARM LICENCE 19
PHASE AND FULL CONTRACTORS - 1998

CONTRACTOR	PHASE
Beban Logging	Full Heli-Yarding
Cypress Creek Logging	Falling Loading Yarding
Expediter Log Transport	Hauling
Freill Lake Logging	Full
Lemon Point Logging	Falling Loading Yarding
Russell & Lily Logging	Full
Spirit Lake Timber	Full
Stan McLean Trucking	Hauling
Totem Bar Contracting	Road
R.G. Daines / Butch Carroll Trucking	Hauling
Westside Roadbuilding	Road
Upland Excavating	Road

APPENDIX VIII

TREE FARM LICENCE 19
CONTRACTORS - 1998

NAME	WORK	OPERATION
Accurate Locations	Site Surveys	Zeballos
All-Brawn Industries	Shake/Shingle Cutters	Zeballos
AlSCO Uniform and Linen Services	Laundry	Gold River
Arbour Tech	Terrain Assessments	Zeballos
Arcas Cons. Arch.	Archaeological Assessments	NCA
Avens Resource Management	Fish Surveys	Gold River, Zeballos
Beban Logging	Full Phase Logging	Gold River, Port Eliza
Brinkman and Associates	Tree Planting	NCA
Bruce Contracting	Excavator, Deactivation	Gold River
Butch Carroll Trucking	Hauling	Gold River
C&L	Janitorial Services	Gold River
Cala Creek Construction	Trucking	Gold River
Calverley Forestry Services	Silviculture	NCA
Canadian Air Crane	Heli-Yarding	Gold River
Cave Management Services	Cave Assessments	NCA
Coast Forest Management	Silviculture, Engineering, Cruising	Zeballos
Coast Silviculture	Planting	Zeballos
Coastal Business Services	Engineering/Clerical	Gold River
Conuma Excavating	Excavator, Trucking	Gold River
Coon Creek Log Scaling	Log Scaling	NCA
Cory J Salvage	Chunk Truck (salvage)	Gold River
Cypress Logging	Salvage, Miscellaneous	Zeballos
Cypress Creek Logging	Falling, Yarding, Loading	Gold River
DR Systems	Silviculture Data Management	Gold River, NCA
Dobson Engineering	Watershed Assessment	Gold River, NCA
Donner Lake Logging	Skidder	Gold River
Doug Yeomans	Area Clean-up	Zeballos
Doulyns	Excavator, Deactivation, Trucking	Gold River
Eclipse Forestry Consulting	Silviculture, Slash Pile Burning	Gold River
Empire Rock Services	Rock scaling	Zeballos
Expediter Log Transport	Hauling	Gold River
Extreme Forestry	Silviculture	Zeballos
Fiddick Consulting	Silviculture	Gold River
Forest Engineering	Engineering	Gold River
Forest Smith Consulting	Engineering	Zeballos
French Creek Contracting	WRP Supervision	Gold River
Friell Lake Logging	Full Phase Logging	Houston
Glen Wilson	WRP and Deactivation	Gold River
Gold River Marine Service	Marine Repairs	Gold River
Gold River Rainbow Services	Trucking	Gold River, NCA
Gold River Rod and Gun Club	Recreation Site Maintenance	Gold River
Golder and Associates	Terrain Assessments	NCA, Zeballos
Gurney Contracting	Excavator, Deactivation, Trucking	Gold River, NCA
H.W.Argent P.Eng	Engineering	Zeballos
Hues Forest Management	Silviculture	NCA
Interior Reforestation	Hydroseeding	Zeballos
Islands West Scaling	Residue Surveys	Gold River, Zeballos
Jack Turley Forest Engineering	Engineering	NCA
Jedroc Engineering	Silviculture	NCA
Kelsey Forest Engineering	Engineering	NCA
Ken's Contracting	Shop Foreman	Gold River
L.F.H. Forestry	FRBC/WRP	Zeballos
L.G. Hall Engineering	WRP Supervision	Gold River

NAME	WORK	OPERATION
Lemon Point Logging	Falling, Yarding, Loading	Gold River
Li'l Timber Silviculture	Silviculture, Recreation Site Mtce.	Gold River
M&L Holdings	Tree Planting	NCA
Mamaht Forestry	Silviculture, Creek Cleaning	Zeballos
Melinda Dennison	Mapping	Gold River
Michelle Henderson	Engineering	Gold River
Moh Creek Logging	Road Building	Gold River
Mt. Leighton	Silviculture/Creek Cleaning	Gold River
NTS Trucking	Trucking	Gold River
Norm Hinch	Fire Training	NCA
Osprey Silviculture	Planting	Zeballos
Peter Bruce & Associates	Fisheries Assessments	NCA
Quinsam Excavating	Excavator, Deactivation	Gold River
R.A.S. Roots/Foretext	Public Education	Gold River
R.G. Daines	Hauling	Gold River
R.G. McCredy Forest Consulting	Cruising, Residue Surveys	NCA
R.T. McLaughlin	Wildlife Habitat Assessment	Gold River
Rain Forestree	Silviculture	NCA
Renew Forest Products	Shake/Shingle Cutters	Zeballos
Ridinger & Cooke Log Scaling	Log Scaling	NCA
Rugged Mountain Contracting	Silviculture, Engineering, Creek Cleaning	Zeballos
Russell & Lily Logging	Full Phase Logging	Tahsis
S.R.K. and Associates	Mapping	Gold River/NCA
Sentry Forestry	Silviculture, Creek Cleaning	Zeballos
Simard Trucking	Trucking	Gold River
Simons, Reid Collins	Compilation Services	Gold River
Sitka Silviculture	Planting	Gold River, Zeballos
Spirit Lake Lumber	DLS Services, Full Phase Logging	Gold River, Head Bay
Stan McLean Trucking	Hauling	Zeballos
Sterling Wood Group	Assessments	Gold River
Stoncroft Project Engineering	Engineering	Gold River, NCA
Sudden Service Tech.	Computer Assistance	NCA
Surespan Construction	Bridge Building	Port Eliza
Symbiotic Silviculture	Silviculture	Tahsis
T.M.R. Enterprises	Engineering	Gold River, NCA
Taylor Contracting	Cedar Salvage	NCA
Thurber Engineering	Terrain Assessments	Gold River
Timberline Forest Inv Consultants	Mapping	NCA, Zeballos
Totem Bar Contracting	Road Construction	Zeballos
Tripp Biological Consultants	Creek, Fisheries Assessments	Gold River, NCA
Tsitika	Shake/Shingle Cutters	Gold River
Upland Excavating	Road Building	Head Bay
V.I.H.	Heli-Yarding/Helicopters	Gold River
Watson Forest Services	Cruising	Gold River
West Side Roadbuilding	Road Building	Gold River, Port Eliza
Westwood Contracting	Road Maintenance/Deactivation	Zeballos

APPENDIX IX

TREE FARM LICENCE 19
TIMBER HARVESTING OPERABILITY REPORT - 1998

OPERATION	VOLUME BY HEIGHT CLASS ACTUAL (PER CENT)						TOTAL SCALED VOLUME (m ³)	VOLUME BY OPERABILITY (PER CENT)		
	HC 2	HC 3	HC 4	HC 5	HC 6	HC 7		CONV	HELI	INOP
Gold River	5	23	26	44	2	0	337 028	87	10	3
Nootka Contract	13	30	45	12	0	0	142 797	94	0	6
Zeballos	2	50	48	0	0	0	28 699	40	57	3
Total Nootka Region	4	19	28	44	5	0	508 524	87	10	3
INVENTORY PROFILE		9	38	34	16	2				

APPENDIX X

TREE FARM LICENCE 19
SMALL BUSINESS FOREST ENTERPRISE PROGRAM
HARVESTING REPORT – 1998

Year	Volume Available to SBFEP m ³	Licence No.	Licencee	Area Logged ha	Volume Scaled m ³	Residue m ³	Chargeable Volume m ³
1988	22934						
1989	45868						
1990	45868						
1991	45868						
1992	45868	A3880	Dorman Logging	59.5	46179	2207	48386
1993	45868	A39588	Coulson Heli	43.4	25996	283	26279
		A34814A*	Coulson Heli	50.0	45000		45000
1994	45868	D72095	CR Mills	3.2	2240		2240
		A34814A*	Mokko Manufacturing	56.9	49387	966	50353
		A34814C	Mokko Manufacturing	54.7	44009		44009
1995	45868	A34814C	Mokko Manufacturing	76.8	59351	1341	60692
		A34814D	Mokko Manufacturing	62.2	58013	2679	60692
1996	45868						
1997	47085	A43314	Hayes	14.0	14297	692	14989
		A34814H	Mokko Manufacturing	17.4	15151	569	15720
1998	90274	A34814B	Mokko Manufacturing	32.4	23592	1319	24911
TOTAL	527237			470.5	383215	10056	393271

APPENDIX XI

Project Summary – 1998						
Project			Gold River	Nootka Contract Administration	Zeballos	TOTAL
Denudation	Total Company	ha	480.8	133.2	17.1	631.1
	Crown / Licence	ha	480.8	133.2	17.1	631.1
	Crown Grant (MF)	ha				
	SBFEP	ha		32.4		32.4
	TOTAL	ha	480.8	165.6	17.1	663.5
Accidental Fires		No.	0	0	1	1
		ha	0	0	2.6	2.6
Site Preparation	Prescribed Burning	ha	0	0	0	0
	Pile Burning	ha	7.5	3.9	2.1	13.5
	Mechanical	ha	0	0	1.5	1.5
	Crown / Licence	ha	7.5	3.9	3.6	15.0
	Crown Grant (MF)	ha				
Planting	Original	ha	451.2	201.7	66.4	719.3
	Replants	ha	134.7	18.9	41.4	195.0
	Roadsides	ha	14.6	3.6	0.6	18.8
	Total	ha	599.5	224.2	108.4	932.1
	Crown / Licence	ha	599.5	224.2	108.4	932.1
	Crown Grant (MF)	ha				
	Number of Seedlings	Cw	97480	96500	27618	221598
		Hw	128992	43400	26695	199087
		Ba	72059	27100	20065	119224
		Fdc	54942	27700	9585	92227
		Yc	19100	4000	1220	24320
		Ss	8346	0	45	8391
		P	150	0	0	150
		Misc	10493	0	50	10543
	Total		391562	198700	85278	675540
Stocking	Plantation Regeneration	ha	917.2	510.2	133.0	1560.4
Surveys	Sufficiently Restocked	ha	713.0	476.2	112.9	1302.1
	Crown / Licence	ha	713.0	476.2	112.9	1302.1
	Crown Grant (MF)	ha				
	Not Sufficiently Restocked	ha	204.2	34.0	20.1	258.3
	Crown / Licence	ha	204.2	34.0	20.1	258.3
	Crown Grant (MF)	ha				
Silviculture Prescriptions		ha	542.8	502.5	0.0	1045.3
		No.	17	24	0	41
Plantation Survival Assessments		ha	710.3	0.0	160.0	870.3
		%	92.5	0.0	88.0	91.7
Free Growing Surveys	Total	ha	413.2	1488.0		1901.2
	Free Growing	ha	96.7			96.7
	Crown / Licence	ha	96.7			96.7
	Crown Grant (MF)	ha				
	Not Free Growing	ha	316.5			316.5
	Crown / Licence	ha	316.5			316.5
	Crown Grant (MF)	ha				
	Green-Up			1488.0		1488.0
	Crown / Licence			1488.0		1488.0
	Crown Grant (MF)					
	Other Classification	ha				
	Crown / Licence	ha				
	Crown Grant	ha				

Project Summary – 1998

Project			Gold River	Nootka Contract Administration	Zeballos	TOTAL
Brushing and Weeding	Total	ha	0.6		4.1	4.7
	Manual	ha			4.1	4.1
	Mechanical	ha				
	Stem Injection	ha				
	Aerial Foliar	ha				
	Ground Foliar	ha	0.6			0.6
	Crown / Licence	ha	0.6		4.1	4.7
Juvenile Spacing	Total	ha	73.2	73.0	19.1	165.3
	Crown / Licence	ha	73.2	73.0	19.1	165.3
	Crown Grant (MF)	ha				
Pruning	Total	ha	12.0	16.0	11.8	39.8
	Crown / Licence	ha	12.0	16.0	11.8	39.8
	Crown Grant (MF)	ha				
Fertilization	Total	ha				
	Crown / Licence	ha				
	Crown Grant (MF)	ha				
Residue Assessment Plots						465
CP Cruising Plots			374	531		905
Minor Products	Cedar Shakes	m ³	496.7	879.5	833.7	2209.9
	Cedar Shingles	m ³	123.2			123.2
	Cypress Cants	m ³	9.2		106.8	116.0
Engineering	Roads Constructed (New)	km	28.3	21.4	0.2	49.9
	Roads Rebuilt	km	10.0	6.5	0.0	16.5
	Roads Maintained	km	215	182	30	427
	Roads Deactivated					
	Temporary	km	82.3	38.0	5.0	125.3
	Semi-Permanent	km	46.6	2.0	3.0	51.6
Roadside Treatments	Permanent	km	32.2	2.4	4.9	39.5
	Mechanical Brushing	km				
	Chemical Spraying	km				
Site Stabilization	Hydro and Dry Seeding	km	78.9	4.0	2.1	85.0
		ha	2.0			2.0

Appendix XII

**Western Forest Products
Regeneration Balance Sheet
to December 31, 1998**

Item	TFL 6	TFL 19	TFL 25	Total
Opening Balance (NSR at 1998 01 01)	1 951 ha	1 037 ha	2 262 ha	5 250 ha
Debits				
1998 Denudations	1 132 ha	631 ha	448 ha	2 211 ha
1998 Surveys	43 ha	258 ha	106 ha	407 ha
Credits				
1998 Planting	1 341 ha	738 ha	651 ha	2 730 ha
1998 Surveys (Natural Regeneration)	180 ha	0 ha	14 ha	194 ha
Other	4 ha	0 ha	35 ha	39 ha
Closing Balance (NSR at 1998 12 31)	1 601 ha	1 188 ha	2 116 ha	4 905 ha

Appendix XIII

TREE FARM LICENCE 19
HISTORICAL SUMMARY OF ACTIVITIES

Year	Denuded (ha)	Planted (ha)	No. Trees Planted	Juvenile Spacing (ha)	Brushing (ha)	Prescribed Burning (ha)	Mechanical Site Prep. (ha)	Fertilization (ha)	Pruning (ha)
Pre 1965	5065	4731	3502000	83	70	3089	0	0	0
1965	420	483	425000	28	5	577	0	0	0
1966	585	790	726000	12	49	382	37	0	0
1967	547	564	434000	140	178	616	0	0	0
1968	683	639	539000	155	98	545	0	0	0
1969	683	744	474000	204	92	340	0	0	0
1970	825	682	535000	274	0	594	0	0	0
1971	1205	1533	1123000	57	16	588	0	0	0
1972	623	1411	912000	56	15	299	0	0	0
1973	1241	995	699000	99	28	377	0	0	0
1974	885	1499	1324000	90	38	333	0	0	0
1975	469	1307	942000	29	33	300	0	0	0
1976	1055	1009	709000	30	0	831	0	0	0
1977	1236	1085	631000	30	48	963	0	0	0
1978	1178	889	494000	52	176	113	0	0	0
1979	1108	1181	524000	314	310	111	0	0	0
1980	1296	955	473000	424	190	17	0	1296	0
1981	922	1195	579000	564	10	295	56	1042	0
1982	800	1228	735000	235	54	71	0	990	0
1983	1116	792	566000	804	184	102	0	1052	0
1984	1136	562	325000	397	877	0	3	0	0
1985	1190	973	452000	554	311	16	0	0	0
1986	953	742	346000	114	358	0	0	0	0
1987	1446	1304	686000	874	302	0	0	0	14
1988	966	930	563000	467	435	6	0	0	24
1989	889	1252	755000	473	165	0	0	0	43
1990	1068	1122	707000	140	80	0	0	0	0
1991	1297	784	439000	608	77	0	0	0	0
1992	976	1346	757000	300	113	1	19	0	0
1993	887	1221	683000	161	153	10	36	0	0
1994	856	967	674000	266	57	39	80	0	137
1995	923	1665	1040000	226	292	15	20	0	39
1996	1071	1772	1140000	249	61	51	28	188	20
1997	1000	1512	1067000	163	88	8	14	0	111
1998	631	719	675550	165	5	0	2	0	40
TOTAL	37231	40583	26655550	8837	4968	10689	295	4568	428

Appendix XIV

Western Forest Products Tree Planting History

Number of Seedlings						
Year	TFL 6	TFL 19	TFL 25	WFP Misc. Properties	Other Properties	TOTAL
Pre 1965	701400	3502000	2531100	3782450		10516950
1965	361500	425000	298500	247700		1332700
1966	325300	726000	432800	0		1484100
1967	422950	434000	547650	285800		1690400
1968	444900	539000	645250	46700		1675850
1969	989650	474000	446100	327300		2237050
1970	751700	535000	341450	136500		1764650
1971	529350	1123000	586700	158250		2397300
1972	912650	912000	295300	407000		2526950
1973	600500	699000	772450	162000		2233950
1974	459350	1324000	363850	57950		2205150
1975	777700	942000	199450	67950		1987100
1976	777050	709000	807250	58250		2351550
1977	553900	631000	757550	172350		2114800
1978	493950	494000	555600	38800		1582350
1979	662850	524000	749000	12300		1948150
1980	491500	473000	493650	24150		1482300
1981	1047600	579000	803900	29900		2460400
1982	1198300	735000	827700	16900		2777900
1983	888000	566000	669050	55450		2178500
1984	882400	325000	809000	102700		2119100
1985	701800	452000	522050	69550		1745400
1986	1347100	346000	630950	57000		2381050
1987	2256650	686000	1297750	329300		4569700
1988	1844050	563000	982850	172950		3562850
1989	1169250	755000	735600	287750		2947600
1990	1405700	707000	712350	354150		3179200
1991	1491100	439000	842850	60150		2833100
Pre 1992					5268800	5268800
1992	1550900	757000	673900	95700	232850	3310350
1993	1574650	683000	639750	240600	377550	3515550
1994	1712150	674000	546000	226200	790600	3948950
1995	2003400	1040000	853050	160400	894500	4951350
1996	2110950	1140000	1089750	579400	3550	4923650
1997	1944750	1067000	951900	52150	0	4015800
1998	1473600	675550	652250	1522400	28750	5826150
TOTAL	36858550	26655550	25064300	10398100	7596600	108046700

- TFL 6 Summary amended to include the former TFL 25 Block 4
- TFL 25 Summary amended to include the former TFL 24, and exclude the former TFL 25 Block 4

Appendix XV – A
Direct Employment Summary – TFL 19

Operation	Home Region	Contractor Personnel		Company Personnel		TOTAL	
		People	Person Days	People	Person Days	People	Person Days
Planning and Development							
Head Office	South Mainland	3	101	5	209	8	310
Gold River Forest Operation	Gold River	8	712	25	4112	33	4824
Nootka Contract Administration	Gold River	42	2945	13	570	55	3515
Zeballos	Gold River	1	45	0	0	1	45
	Zeballos	0	0	4	400	4	400
	Vancouver Island (other)	3	12	0	0	3	12
	South Mainland	9	41	0	0	9	41
SUBTOTAL		66	3856	47	5291	113	9147
Harvesting							
Gold River Forest Operation	Gold River / Tahsis	51	4621	122	17184	173	21805
	Vancouver Island (Other)	24	2150	11	1529	35	3679
Nootka Contract Administration	Gold River / Tahsis / Port Eliza	104	8050	5	390	109	8440
Zeballos	Zeballos	15	1204	39	1638	54	2842
	Vancouver Island (Other)	10	187	32	1334	42	1521
SUBTOTAL		204	16212	209	22075	413	38287
Silviculture and Integrated Resource Management							
Gold River Forest Operation	Gold River	16	886	7	1232	23	2118
	Vancouver Island (Other)	24	777	2	14	26	791
Nootka Contract Administration	Gold River / Tahsis / Port Eliza	106	1460	1	175	107	1635
Zeballos	Gold River / Zeballos	10	116	1	125	11	241
	Vancouver Island (Other)	19	56	0	0	19	56
	South Mainland	14	114	0	0	14	114
Saanich Forestry Centre	Vancouver Island (Other)	0	0	46	963	46	963
SUBTOTAL		189	3409	57	2509	246	5918
Transportation							
Vancouver	South Mainland	72	3536			72	3536
SUBTOTAL		72	3536			72	3536

Operation	Home Region	Contractor Personnel		Company Personnel		TOTAL	
		People	Person Days	People	Person Days	People	Person Days
Processing							
Ladysmith Sawmill	Vancouver Island			90	1304	90	1304
Cowichan Sawmill	Vancouver Island			79	2903	79	2903
Silvertree Sawmill	South Mainland			120	11450	120	11450
Vancouver Sawmill	South Mainland			130	826	130	826
Tahsis Sawmill	Vancouver Island			167	9545	167	9545
Saltair Sawmill	Vancouver Island			121	622	121	622
Nanaimo Sawmill	Vancouver Island			126	2142	126	2142
Nanaimo Log Merchandizer	Vancouver Island			36	457	36	457
Squamish Pulp Mill	South Mainland			292	6655	292	6655
Log Trading and Sales	South Mainland			35	15405	35	15405
SUBTOTAL				1196	51309	1196	51309
Administration							
Head Office	South Mainland			34	1421	34	1421
Gold River Forest Operation	Gold River	2	100	7	1472	9	1572
Nootka Contract Administration	Gold River	1	230	4	300	5	530
Zeballos	Zeballos			5	245	5	245
	Vancouver Island (Other)			6	255	6	255
SUBTOTAL		3	330	56	3693	59	4023
Summary – By Home Region							
	Nootka Region	356	20369	233	27843	589	48212
	Vancouver Island	80	3182	716	21068	796	24250
	South Mainland	98	3792	616	35966	714	39758
TOTAL		534	27343	1565	84877	2099	112220

Appendix XV - B

**Western Forest Products
Direct Employment Summary
(person-days*)**

	Planning, Engineering, and Road Development	Harvesting	Transportation	Processing	Silviculture and Integrated Resources Management	Administration	TOTAL
TFL 6	13709	60160	7071	75628	13377	4232	174177
TFL 19	9147	38287	3536	51309	5918	4023	112220
TFL 25	7723	16010	2232	32461	7992	1280	67698
MF 61	0	0	0	0	147	0	147
FL A16845	2181	6194	**	12574	1682	611	23242
FL A16847	2908	6419	**	14918	1418	677	26340
FL A19205	683	1487	**	2908	186	132	5396
FL A19216	1804	5655	**	8287	304	316	16366
FL A19228	128	1772	**	3819	77	52	5848
FL A19231	4210	24373	**	**	1261	2269	32113
FL A19240	11	0	**	32724	1122	84	33941
FL A53746	236	910	**	**	170	214	1530
Other Tenures	0	0	5768	15250	1531	0	22549
Campbell Island	0	0	0	0	571	0	571
TOTAL	42740	161267	18607	249878	35756	13890	499874

* Includes Company and Contract Personnel.

** See Other Tenures

Appendix XV - C

Western Forest Products
First Nations Silviculture Contracts Employment Summary
1998

	TFL 6	TFL 19	TFL 25	Campbell Island	FL A16845	FL A19228	FL A53746 Zeballos Community	FL A19231	FL A19240	MF 61	Total	Total Contractor Days	Percent First Nations Employment	Percent WFP Goal
Holberg	475										475	2333	20	100
Jeune Landing	270										270	1428	19	95
Port McNeill	1242		2								1244	2519	49	245
Central Coast			477	491	50						1018	3201	32	160
Mainlands Islands			954			12					966	4037	24	120
Zeballos		32					170	592			794	1148	69	345
Gold River		514									514	1663	31	155
Nootka Contract Admin		0									0	1460	0	0.0
TOTAL											5281	17785	30	150

Appendix XVI

WESTERN FOREST – WESTERN PULP – DOMAN INDUSTRIES – DOMAN WESTERN LUMBER

1998 Log Flow and Wood Consumption

(Approximate)

SAWMILL PULPMILL	TENURE / SOURCE (THOUSAND CUBIC METRES)													Chips to Woodfibre (Thousand Units)
	TFL 6	TFL 19	TFL 25	FL A19240 Strathcona	FL A19240 Kingcome	FL A16845 Mid Coast	FL A16847 Mid Coast	FL A19205 Fraser	FL A19228 Sunshine	FL A19216 Soo	Other Tenures	Inventory / Purchase	Total Consumption	
Duke Point	259											15	274	34
Chemainus												130	130	9
Ladysmith	111	10	79	5	7	25			1	2	9	146	395	22
Cowichan	23	24	55	16	2	8	3	1	1	4	24	214	375	25
Silvertree	80	80	81	54	6	11	13	1		2	26	1	355	51
Vancouver	44	12	100	6	19	37					13	102	333	46
Tahsis		154		80							8	62	304	10
Saltair		7		1			29	8	14	31	5	355	450	24
Nanaimo	33	24	4	1		3	56	12	16	27	12	315	503	10
Log Merchandizer	31	13	54	6	2	8		1	2	2	10	218	347	160
Port Alice Pulp Mill	176		21		11	16					5	346	575	
Trades / Sales	111	201	86	102	9	16	43	6	2	13	28	115	732	(7)
Squamish Pulp Mill Chips														
• Purchased														219
• Consumed														608
TOTAL LOGS	868	525	480	271	56	124	144	29	36	81	140	2019	4773	

Appendix XVII

Western Forest Products Limited Forest Research Summary Permanent Plots and Trials

Growth and Yield

Trial (Year Established)	Location	Measurements (Year indicates last growing season)	Reports	Other
<i>Growth and Yield Surveys (1991)</i>	Gold River	1996		

Forest Nutrition

Trial (Year Established)	Location	Measurements (Year indicates last growing season)	Reports	Other
<i>Hemlock and Cedar Fertilization Screening Trial (1996)</i>	Galiano	1997	1998	
<i>Amabilis Fir Fertilization Trial</i>	Saunders	1996	1997	

Other

Trial (Year Established)	Location	Measurements (Year indicates last growing season)	Reports	Other
<i>Planting Technique Trial (1997)</i>	Gold River	1998, 1997		

Appendix XVIII



Doman Forest Products Limited Western Pulp Inc. Western Forest Products Limited Doman – Western Lumber Ltd.

Operating Statistics

Productive Forest Land Managed	885 000 ha
Operable Forest Land	550 000 ha
Forest Tenures	3 Tree Farm Licences 7 Forest Licences 5 Managed Forests 127 Timber Licences
Logging Operations	30
Employees and Contractors	4 200 people (est)
Annual Timber Harvest	4 200 000 m ³
Annual Timber Purchase	800 000 m ³
Mills	2 Pulp Mills – 1 Kraft, 1 Sulphite 9 Sawmills 1 Value Added Plant 1 Log Merchandiser
Products: Lumber and Solid Wood	800 000 000 board feet
Pulp	400 000 tonnes
Annual Product Sales	over \$800 million
Annual Roads Construction	335 km
Annual Roads Maintenance	2 100 km
Annual Logging	5 500 ha
Annual Planting	5 100 ha
Annual Natural Regeneration	400 ha
Annual Number of Seedlings Planted	5 000 000 trees
Average Survival of 3-year Old Plantations	90 %
Annual Site Preparation	700 ha
Annual Brushing and Weeding	2 300 ha
Annual Juvenile Spacing	1 600 ha
Annual Pruning	1 000 ha
Annual Fertilization	3 000 ha
Annual visitors to Forest Lands	over 300 000 visitors
Annual Salmon Enhancement Production (4 hatcheries)	750 000 fry
Recreation Sites and Trails	45
Forest Enhancement Person-Days	over 40 000

Appendix XIX

Tree Farm Licence 19 Status Report Summary of Obligations and Commitments – Management Plan 8

OBLIGATION	TARGET COMPLETION DATE	CURRENT STATUS
Harvest performance reporting: Volume harvested by: ➤ Height class ➤ Operability type ➤ Harvest system	April – Annual Submission	Part of TFL Annual Report to be submitted early in 1999
Review and update operability mapping	Submit with draft MP 9	New terms of reference for operability mapping dated February 24, 1999 submitted
Explore commercial thinning opportunities	During term of MP	Roughly 1 000 ha identified on 1998 FDPs. Economic conditions have precluded any CT initiation to date.
Develop a detailed strategy for wildlife habitat	August 1, 1998	EW1 areas made 'known' as ungulate winter ranges Nov. 1998. EW2 areas to be covered under MoF/MoELP MoU. WFP active in development of VILUP, LU planning, and IWMS. Implementation of biodiversity strategies identified in higher level plans and/or landscape unit planning will be used to manage wildlife in the TFL.
Biodiversity planning	Submit with draft MP 9	Planning for biodiversity at the landscape level will be done as part of Landscape Unit Planning. Stand level biodiversity is currently managed as per Regional Manager's letter dated May 22, 1996 which recommends 10 % of the area in each cutblock be set aside as wildlife tree patches.
Recreation strategy including review of cover, constraints, and/or land base deductions	Submit with draft MP 9	Maintenance and upgrading has taken place at several campsites and other recreation sites. New facilities have been constructed at Little Espinosa and Santiago Creek.
Non-recoverable losses	During term of MP	Non-recoverable losses are being monitored and recorded for the TFL. Minor blow events (i.e. within riparian areas) are being recovered where practical and/or allowable under the FPC
Terrain Stability Mapping	December, 1996	Mapping completed November 1996 and is now being used in operational. Updated mapping will be used in preparation of MP 9.
Visual Quality Objectives	During Term of MP	Recommended visual quality objectives are used to guide management of scenic values. WFP staff have worked with MoF staff to revise some visual polygons as part of VQO buy-back project completed in 1998.

APPENDIX XX

Saanich Forestry Centre
Seedling Production Report

Species	Size	Surplus	Fall	Seedlings Produced		Total by Species	%
				Spring	Total by Size		
Cw	313B	0	0	552,480	552,480		
Cw	410A	0	0	244,020	244,020		
Cw	415C	7,690	1,182	720,170	729,042		
Cw	615A	0	800	25,615	26,415	1,551,957	50.25
Dr	415B	0	0	23,068	23,068	23,068	0.75
Ds	415B	0	0	38,160	38,160	38,160	1.24
Fc	313B	0	0	50,020	50,020		
Fc	410A	0	35,280	8,420	43,700		
Fc	415C	0	273	486,533	486,806		
Fc	615A	0	0	21,924	21,924	602,450	19.51
Hm	410A	0	0	18,370	18,370	18,370	0.59
Hw	313B	89,980	0	192,840	282,820		
Hw	415C	34,900	500	258,130	293,530	576,350	18.66
Pw	415B	0	0	5,296	5,296	5,296	0.17
Ss	313B	0	0	72,640	72,640		
Ss	410A	0	0	17,410	17,410		
Ss	415C	0	480	92,510	92,990	183,040	5.93
Sx	415C	6,770	0	41,570	48,340	48,340	1.57
Sxs	415C	0	12,400	3,030	15,430	15,430	0.50
Yc	410A	0	0	25,100	25,100	25,100	0.81
Misc.	313B	0	40	0	40		
Misc.	410A	0	100	0	100		
Misc.	415C	0	480	0	480	620	0.02
Total		139,340	51,535	2,897,306	3,088,181	3,088,181	100.00

Appendix XXI

Saanich Forestry Centre and Lost Lake Seed Orchard Seed Production Report

Seedlot	Species	Orchard	Zone	BVvol60 ¹ (%)	Elevation (m)	Latitude	Longitude	Volume (hL)	Seed Weight (Kg)	Seedlings (estimated)	Comments
60350	Fdc	166	M/GL	17.5	304	49°13"	123°35"	1.485	0.578	28,113	Elite Crosses (FRBC Funded)
60351	Hw	126	M	15.7	121	50°02"	125°52"	0.364	0.252	61,039	Elite Crosses (FRBC Funded)
60352	Hw	126	M	7.9	95	50°30"	126°53"	1.928	1.334	323,304	High BV Bulk collections
60353	Cw	128	M	N/A	168	50°45"	127°35"	5.026	3.129	616,172	22% midge - 1/2 crop extracted MoF
60355	Cw	128	M	N/A	168	50°45"	127°35"	5.026	3.129	616,172	22% midge - 1/2 crop extracted YPP
60354	Cw	155	M	N/A	252	52°42"	131°39"	5.487	4.029	793,403	8% midge - 1/2 crop extracted MoF
60356	Cw	155	M	N/A	252	52°42"	131°39"	5.487	4.029	793,403	8% midge - 1/2 crop extracted YPP
Total:									16.48	3,231,606	

¹ Expected gain in volume over wild seedlots at rotation.