SUSTAINABLE FOREST MANAGEMENT PLAN

2000 STATUS REPORT
Periodic Assessment No. 1

Canadian Forest Products Ltd.
Coastal Operations — Englewood DFA

Canadian Forest Products Ltd.
Englewood Logging Division
Woss, BC V0N 3P0

February 2001

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1 INTRODUCTION & OVERVIEW

Canadian Forest Products Ltd. (Canfor) achieved registration under the Canadian Standards Association CAN/CSA Z809-96 Sustainable Forest Management Standards for Tree Farm Licence (TFL) 37's forestry operations in August 2000. In partial fulfilment of achieving that registration, a public group — The Nimpkish Woodlands Advisory Committee (NWAC) — was formed at the beginning of 2000 to help Canfor identify quantifiable local-level Indicators and Objectives of sustainable forest management. The 49 Indicators and Objectives identified by the NWAC were detailed with associated forest management practices to achieve those objectives in a Sustainable Forest Management Plan (SFMP) for the Englewood DFA (Canfor SFMP, July 2000). This report summarises the status of each of those indicators.

This report is prepared as part of the first (6-month) periodic assessment to confirm Canfor's continued implementation of the registered CSA SFM. This report provides a status, to the end of 2000, of the 49 Indicators and Objectives of the SFMP. In this report, each Indicator is reiterated, and a brief status report is provided. For further reference to the intent of the Indicators and Objectives, or the practices involved, the reader should refer to Canfor's Sustainable Forest Management Plan for the Englewood DFA (Canfor SFMP, July 2000).

1.1 OVERVIEW

Generally, status of the Indicators have changed little since they were first reported in July's SFMP. Given the long-term nature of forest management and forest management practices, these small changes are not surprising. Continued harvesting and growing forests have resulted in some changes to the seral stage and old growth representation, but generally either the Objectives are still being met, or results are expected in the long-term.

Progress has been made on Objectives such as developing management strategies for identified wildlife (Indicator 8) and the identification of Old Growth Management Areas (Indicator 1), but other Objectives such as interior forest representation (Indicator 3) will require more time for further quantification. Social Objectives such as involvement of the First Nations in the Nimpkish Woodlands Advisory Committee (Indicator 46) are somewhat beyond Canfor's control, but progress is being made towards meeting those Objectives. Further review during preparation of this report has shown that some time lines for either completion or reporting of Objectives will require revision. Those suggested revisions are explained throughout this report.

The format of the remainder of this document and the detailed status of each indicator are provided below. *This document is subject to review by the Nimpkish Woodlands Advisory Committee (NWAC).*

2 SFM INDICATORS AND OBJECTIVES

This document is presented in a format similar to the original SFMP, with each Indicator identified in a second-order heading. The text provides a simple report of the status of the Indicator to the end of 2000. For further details on the Indicators and Objectives, the reader should refer to the July 2000 SFMP (Canfor SFMP, July 2000).

The format of each status report is described below:

X.X INDICATOR NAME

Indicator:	Objective:
#. A reiteration of the Indicator as identified in the SFM matrix.	A reiteration of the Objective as identified in the SFM matrix.

STATUS AND COMMENTS

This section provides an update on the status of each Indicator and Objective. The best information available up to and including December 31 2000 was used for the preparation of this status report. New information presented in tables is usually highlighted to direct the reader's attention.

REVISIONS

When required, this section describes Canfor's suggested revisions to details (i.e., wording, reporting periods) of the Indicator and Objective. These revisions will be presented to the NWAC for their review.

2.1 OLD GROWTH RETENTION

Indicator:	Objective:
1. Percent cover old growth by Landscape Unit (LU) and Biogeoclimatic Ecosystem Classification (BEC) variant	Achieve old growth management area (OGMA) Objectives (±10%) by LU and BEC variant. Complete by June 1, 2001.

STATUS AND COMMENTS

Canfor developed its' first OGMA coverage in mid-October 1999, but found that there were too many inconsistencies with the physical operability limits coverage to not make further analyses worthwhile. Data sets were updated, and OGMA coverage was again reviewed in December 2000. Canfor identified all old growth polygons that were ≥ 95% constrained (physically inoperable, parks, Class V terrain, Ungulate Winter Range, Uneconomic, Riparian Reserve Zones, and Wildlife Tree Patches > 2 ha). Database coverages still require some adjustments to improve accuracy in area determination.

Canfor is currently conducting meetings with MoF and MELP to identify discrete Old Growth Management Areas. More meetings are expected in April 2001. The Objective to complete OGMA Objectives by June 1, 2001 is currently being reviewed, but adherence to this deadline is beyond Canfor's control.

Since OGMAs have yet to be established, the percentage of old growth seral stage by BEC variant is still being tracked. **Table 1** lists the current status (to 31 December 2000) and the projected (to 31 December 2006) old growth forest by Landscape Unit and BEC variant.

There is currently enough old growth seral stage to either meet or exceed the Objectives in each BEC variant and Landscape Unit. The CWHxm2 forest > 250 years old in the Lower Nimpkish is projected to be 7.3% which is below the long-term target, but still above the short-term target of 6% (½ the long-term target) as outlined in the *Vancouver Island Land Use Plan*. Due to the presence of regionally significant CWHxm2 forests >250 years old and Identified Wildlife habitat, Canfor's old target is 6% ($^2/_3$ of the long-term target). Canfor's strategy to meet the full 9% target is to recruit areas < 250 years old. Approximately 250ha of an available 780 ha will be required as recruitment areas. Recruitment areas will include those currently providing nesting or foraging habitat for Queen Charlotte goshawk and areas of significant cultural values.

Table 1. Percent of forested area that is old growth (> 250 years old) seral stage by BEC variant within a Landscape Unit.

Landscape Unit	BEC variant	Objective %	Old[a]	
			As of 31 Dec/2000 %[b]	Projected % (to 2006)
Tsitika (Canfor portion only) *High biodiversity emphasis*	CWHvm1	>19	47	39
	CWHvm2	>19	74	59
	MHmm1	>28	92	85
	MHmmp	na	87	92
Upper Nimpkish *Intermediate biodiversity emphasis*	CWHxm2	>9	13	10
	CWHmm1	>9	11	10
	CWHvm1	>13	41	36
	CWHvm2	>13	68	58
	MHmm1	>19	87	80
	MHmmp		97	97
Lower Nimpkish *Low biodiversity emphasis*	CWHxm2	>6[c]	9	7
	CWHvm1	>8.6[c]	29	24
	CWHvm2	>8.6[c]	70	61
	MHmm1	>12.6[c]	90	83
	MHmmp		94	98

[a] "Old" is typically >250 years old in all indicated variants. However, older mature stands or partially cut stands can be considered old if they provide the important attributes of an old-aged stand.
[b] Current as of December 31, 2000
[c] Short-term objectives of the Lower Nimpkish Landscape Unit (low biodiversity emphasis). Long term objectives (2 times higher) can be met at end of three rotations. Vancouver Island Land Use Plan Objectives, 9 November 2000.

REVISIONS

Canfor suggests that the completion date be extended to 01 October 2001. This is the point at which maps will be ready for public review.

2.2 SERAL STAGE REPRESENTATION

Indicator:	Objective:
2. Seral stage representation by LU and BEC variant	Achieve seral stage representation objectives (±10%) by LU and BEC variant, within three rotations.

STATUS AND COMMENTS

There were a few changes to the seral stage representation since it was last calculated, most notably in the CWHxm2 and CWHmm1 BEC variants of the Upper Nimpkish LU where the proportion of forestland in early seral stage dropped by 10% and 9% respectively. The result of this is that the early seral stage objective (<36%) is now being met in the CWHxm2 variant of the Upper Nimpkish Landscape Unit. There were no other significant changes to the seral stage representation.

REVISIONS

Canfor suggests that the following wording be added at the end of the Objective of Indicator 2:

"…Review every 5 years."

Canfor suggests this change because quantification of seral stage representation relies on updated forest cover, which are updated in Canfor's database at least every 5 years in conjunction with Management Plan preparation.

2.3 FOREST INTERIOR

Indicator:	Objective:
3. OGMA forest interior representation by LU and BEC variant	Maintain 25% (±5%) of the OGMA objective as forest interior habitat by January 1, 2004.

STATUS AND COMMENTS

Canfor Englewood completed a draft model of forest interior in November 1999. That model is currently being reviewed and output will be field verified by 2003. The model runs will occur after forest cover has been updated in preparation for development of Management Plan 9 (due January 2004).

REVISIONS

Canfor suggests that the following statement be added to the end of the Objective: "Review interior habitat every 5 years."

Canfor suggests this change because model quantification relies on updated forest cover and road locations, which are updated in Canfor's database at least every 5 years in conjunction with Management Plan preparation.

Table 2. Objective and current seral stage representation in the DFA by Landscape Unit and BEC variant (% of forested area within BEC variant). Shaded areas indicate variants that are not currently meeting the objective.

Landscape Unit	BEC variant	Early[a]			Mature + Old[b,c]			Old[d]		
		Objective %	1999 %	2000%	Objective %	1999 %	2000%	Objective %	1999 %	2000%
Tsitika (Canfor portion only) *High biodiversity emphasis*	CWHvm1	<23	51	52	>54	48	47	>19	47	35
	CWHvm2	<23	22	24	>54	77	75	>19	76	74
	MHmm1	<17	5	7	>54	94	92	>28	94	92
	MHmmp		5	12		95	87		92	87
	ATc		6	65		94	35		94	35[1]
Upper Nimpkish *Intermediate biodiversity emphasis*	CWHxm2	<36	39	29	>34	20	20	>9	13	13
	CWHmm1	<36	75	66	>34	13	12	>9	12	11
	CWHvm1	<30	51	50	>36	45	44	>13	42	41
	CWHvm2	<30	26	28	>36	73	69	>13	70	68
	MHmm1	<22	7	8	>36	91	90	>19	88	87
	MHmmp			1		98	98		97	97
	ATc			1		95	99		85	86
Lower Nimpkish *Low biodiversity emphasis*	CWHxm2	n/a	29	29	>17	29	29	>6[e]	9	9
	CWHvm1	n/a	36	35	>19	38	38	>8.6[e]	29	29
	CWHvm2	n/a	24	25	>19	74	73	>8.6[e]	71	70
	MHmm1	n/a	6	7	>19	93	92	>12.6[e]	91	90
	MHmmp		1	3		99	96		98	94
	ATc		2	7		98	93		98	93

1 Recommended seral stage from the BC Forest Practices Code, 1995 *Biodiversity Guidebook*.

a "Early" is <40 years old in all indicated BEC variants.

b "Mature" is >80 years old in all CWH variants, and >120 yr in MHmm1.

c The minimum requirement for the old seral stage is included in the "Mature + Old" category.

d "Old" is typically >250 years old in all indicated variants. However, older mature stands or partially cut stands can be considered old if they provide the important attributes of an old-aged stand.

e Short-term objectives of the Lower Nimpkish Landscape Unit (low biodiversity emphasis). Long term objectives (2 times higher) can be met at end of three rotations. Objectives as defined within the Vancouver Island Land Use Plan (9 November 2000).

2.4 PATCH SIZE REPRESENTATION

Indicator:	Objective:
4. Patch size representation by LU and BEC zone	Maintain percentages of the forest that is ≤ 20 yrs old in variable patch sizes by LU and BEC zone. Review every 5 yrs

STATUS AND COMMENTS

The next review of patch size representation will be on forest conditions as of December 31 2004. This analysis will occur in 2005.

2.5 WILDLIFE TREE RETENTION

Indicator:	Objective:
5. Percent wildlife tree retention by LU and BEC subzone	Maintain variable percentages (≥ -5%) of the Harvest Area as representative wildlife tree areas by LU and BEC subzone (see **Table 3**).

STATUS AND COMMENTS

Silviculture Prescriptions that have been approved by MoF between 01 January 1998 and 09 October 2000 were summarised to determine wildlife tree patch retention (**Table 3**). Current levels of wildlife tree patch retention exceed both the pre-LU and post-LU objectives, except in the MHmm1 of the Upper Nimpkish Landscape Unit where the current state is equivalent to the pre-LU objective (9%).

Table 3. The percent of the harvest area as wildlife tree retention, by BEC variant, for the Englewood DFA.

Landscape Unit	BEC variant	1999 %[1]	To 09 October, 2000 %[2]	Pre-LU Objective %	Post-LU Objective %
Tsitika (Canfor portion only) (High biodiversity emphasis)	CWHvm	n/a (0)	18.2 (5)	10%	8%
	MHmm	n/a (0)	14.1 (1)	10%	2%
Upper Nimpkish (Intermediate biodiversity emphasis)	CWHxm	22.7 (2)	20.9 (11)	14%	11%
	CWHvm	15.6 (6)	15.5 (36)	13%	10%
	MHmm	n/a (0)	9.0 (4)	9%	6%
Lower Nimpkish (Low biodiversity emphasis)	CWHxm	17.0 (3)	21.4 (11)	14%	11%
	CWHvm	13.1 (9)	15.1 (33)	13%	10%
	MHmm	n/a (0)	14.3 (1)	9%	6%

[1] Summary of the results from Silviculture Prescriptions that were approved by MoF in 1999 only (based on combined areas for all prescriptions).

[2] Summary of the results from Silviculture Prescriptions that were approved by MoF from 1 January 1998 to 09 October 2000 (based on combined areas for all prescriptions). Information extracted from Canfor FDP 2001–2006.

2.6 BLACK BEAR HABITAT

Indicator:	Objective:
6. Area in LU and BEC variant managed for black bear habitat.	Define, establish, and delineate habitat management areas as part of black bear habitat model development and management strategy. Develop strategy by March 31, 2002

STATUS AND COMMENTS

Twelve bear den trees were located in the DFA in 2000, and appropriate management areas were established on a den-by-den basis (See Indicator 23).

In late October 2000, Canfor submitted a proposal to the Habitat Conservation Trust Fund (HCTF) for the development of a black bear habitat model. Canfor proposed a one-year project to generate a black bear habitat model, and to map and forecast critical black bear habitat on the Englewood DFA. The proposed project is to include the integration of data collected during a previous black bear study, expert opinion of BC bear biologists, and information from the literature, to generate a black bear habitat model for the Nimpkish Valley. The model will be developed according to provincial guidelines and standards for rating wildlife habitat and those ratings will then be applied to TEM coverage of the Nimpkish Valley to illustrate the distribution of important black bear habitats and to guide forest management planning in the area. The outcome of that proposal is pending.

2.7 UNGULATE WINTER RANGE

Indicator:	Objective:
7. Area in DFA managed for black-tailed deer and Roosevelt elk critical winter range	Maintain a minimum 6000 ha as winter range for ungulates. Develop a strategy by March 31, 2001.

STATUS AND COMMENTS

To date, there are 6, 572 ha of designated UWRs in TFL 37 (including grandparented UWRs in new parks resulting from the 1995 Vancouver Island Land Use Plan). There is also an additional 2,500 ha that have been identified by MELP and Canfor as “areas of interest” (AOI) for deer and elk winter range assessments.

Canfor, MELP and MoF have partnered to rationalise existing ungulate winter range boundaries and propose changes to the boundaries by October 15, 2003. Also, the creation of new ungulate winter ranges may be proposed. Poor quality winter ranges that are not critical or necessary for the survival of the species may be removed from designated UWR status and may or may not be replaced within the TFL.

As part of this review process, the following will occur:

- Final stand-level reports (~25) to MELP by February 15, 2001;
- Map review: by December 15, 2000;
- Revise map by January 15, 2001;
- Draft Landscape level plan by March 1, 2001;
- Final Landscape level plan by March 31, 2001.

2.8 IDENTIFIED WILDLIFE

Indicator:	Objective:
8. Area in LU managed for Identified Wildlife habitat.	Develop habitat models to predict potential identified wildlife habitat by March 31, 2002.

STATUS AND COMMENTS

There are three Identified Wildlife Species that occur within the Englewood DFA. This Indicator concerns the Queen Charlotte Goshawk and Keen's Long-eared Myotis. Marbled Murrelet is discussed in Indicator 9 below.

Queen Charlotte Goshawk — In 1995, Canfor partnered with Western Forest Products, Weyerhaeuser, Interfor, TimberWest and MELP to conduct inventory and research on Queen Charlotte Goshawks. Up to 31 December 2000, there were 11 known Queen Charlotte Goshawk territories composed of 25 nests throughout the DFA (**Table 4**). Since 1996 four to five various territories have been active at one time. MELP is currently monitoring each known nest site and conducting inventories in new areas throughout the TFL. This project will continue in 2001.

A WHA proposal for Queen Charlotte goshawk was received in December 2000. As in interim measure, Canfor is maintaining at least 3.5 ha (3.5 to 100 ha) around Queen Charlotte goshawk nests as they are located. Within the next year, Canfor will be developing an alternative management approach for goshawks as an interim measure to the IWMS approach.

The IWMS was developed with the best available information at that time, but Canfor perceives some problems with that approach. The main problem is maintaining minimal viable populations with a maximum of six IWMS WHAs on Vancouver Island (based on a government cap to balance the social and economic values). Canfor's alternative strategy will involve establishing habitat areas of various sizes on the majority of discovered territories. These habitat areas will be designed to maintain significant if not all of the post fledging areas and some of the foraging areas known for each nest. This strategy offers an alternate approach to protect a number of goshawk territories in TFL 37 rather than just one or two under the IWMS, while minimizing the social and economic impacts. This strategy is currently being reviewed with MELP, MoF and Canfor.

Table 4. Summary of Queen Charlotte goshawk nests located up to 2000 within TFL 37.

Nest	Year found	Year and number of young fledged (NA = Not Active)						
		1994	1995	1996	1997	1998	1999	2000
Loon Lake #1	1994	2	NA		2	NA	NA	
Loon Lake #2	1996			2				
Loon Lake #3	2001							3
Claude Elliot #1	1996			2	failed	2	NA	3
Claude Elliot #2	1996							
Lukwa #1	1996			2	male present	2	NA	
Lukwa # 2	2001							3
Klaklakama #1	1996			1	NA			
Klaklakama #2	1996							
Klaklakama #3	1998							NA
Klaklakama #4	1998					2		
Klaklakama #5	1999						1	
Nimpkish Island#1	1996			failed	NA	NA	NA	NA
Nimpkish Island #2	1998							
Hoomak Lake	1996			failed	adults present	NA	NA	NA
Rona Loop #1	1997				2	NA		NA
Rona Loop #2	1999						2	
Vernon Ridge #1	1997				1	2	NA	3
Vernon Ridge #2	1997							
John Road #1	1999						2	
John Road #2	2000							3
Toad Road#1	1999							
Toad Road#2	2000						at least 1	0 (failed)
Surprise Creek	1999		unknown when last active					
Kaipit	2000							2

Keen's Long-eared Myotis — In 2000, Canfor inventoried two cave systems that had the potential of being a Keen's long-eared myotis hibernaculum. Long-eared bats were detected in one of the caves, but at this time it is not known if the bats were Keen's long-eared myotis or Western long-eared myotis as the morphological characteristics are very similar.

REVISIONS

Given current information, Canfor suggests that this Indicator be split between the individual species. The Objectives will be changed to reflect the different management approaches used for the Queen Charlotte goshawk and Keen's long-eared myotis.

For Queen Charlotte goshawk, Canfor suggests that the Objective read as follows:

"Implement Canfor's Queen Charlotte goshawk management strategy for the DFA by May 2001."

For Keen's long-eared myotis, Canfor suggests that the Objective read as follows:

"Protect Keen's long-eared myotis hibernacula as they are discovered."

Canfor suggests this change because it has proven difficult to define what "habitat" is for Keen's long-eared myotis. Focusing on protection of hibernacula appears to be the best choice for management at this time until more information becomes available.

2.9 MARBLED MURRELET NESTING HABITAT

Indicator:	Objective:
9. Percent of area in LU managed for marbled murrelet	Maintain 10% (±2%) of the original suitable marbled murrelet habitat by LU. Develop strategy by December 2004

STATUS AND COMMENTS

Field verification of a marbled murrelet habitat model was conducted in a portion of the Lower Nimpkish Landscape Unit in 1999/2000. Preliminary results showed that most constrained old growth examined was suitable nesting habitat for marbled murrelets.

In 2000/2001, field verification in the Lower Nimpkish LU was completed and Canfor began field verification of habitat within the Upper Nimpkish LU that will be completed in 2001/2002. Canfor's portion of the Tsitika LU will be completed in 2002/2003. The results of the field verification will be used to propose marbled murrelet wildlife habitat areas under Section 70 of the Operational Planning Regulation. Canfor proposed a marbled murrelet WHA within the Upper Nimpkish LU on 13 December 2000. The results of that proposal are pending. Monitoring of WHAs or potential WHAs will be initiated in 2001/2002.

To determine what *"10% (±2%) of the original suitable marbled murrelet habitat"* there are currently two methods: 1) Canfor will examine 1954 aerial photographs to determine how much old growth was historically suitable and estimate the percent suitable habitat logged prior to 1954. If this procedure is followed, it is expected to begin in 2002; or 2) Determine original suitable habitat by quantifying areas with a site index of >15 (T. Chatwin, pers. comm., MELP, 26 January 2001).

As a preliminary analysis, Canfor summarised the amount of potential MAMU habitat [defined by characteristics outlined in the SFMP (Canfor SFMP, 2000)] that is within potential Old Growth Management Areas (**Table 5**). That summary was derived from Canfor's spatial forest cover, terrestrial ecosystem, and landscape unit databases. The objective is presented as 10% of the area of each Landscape Unit with a site index >15 (discussed above). If the site index objective is used, and the potential OGMA forest proves to make suitable marbled murrelet habitat, then marbled murrelet habitat objectives are met within the current (26 January 2001) potential OGMA forest cover.

2.10 TREE SPECIES DIVERSITY

Indicator:	Objective:
10. Percent of harvested areas regenerated with more than one tree species, as indicated on free growing surveys	100% of harvested areas to be reforested with tree species that are suited for the site.

STATUS AND COMMENTS

Canfor currently plants a mixture of tree species that are ecologically suited to sites, while hemlock and western white pine usually naturally regenerate. On average between 1994 and 2000 at Englewood, 29% of the seedlings planted were Amabilis fir, 28% Western redcedar, 23% Douglas-fir, 14% Yellow-cedar, 5% Western hemlock and 1% Sitka spruce. A diversity of tree species (including hardwoods) is also being retained through Canfor's spacing program

Table 5. Preliminary analysis (to 01 February 2001) of marbled murrelet habitat that is currently in potential OGMAs on the Englewood DFA.

Landscape Unit	BEC variant	No. ha MAMU habitat[2]
Upper Nimpkish	CWHmm1	745.9
	CWHvm1	2647.9
	CWHvm2	2212.5
	CWHxm2	224.9
	MHmm1	3465.9
	Total	9297.1
	Area required with SI >15	5648.8
Lower Nimpkish	CWHmm1	0.0
	CWHvm1	1887.6
	CWHvm2	812.7
	CWHxm2	581.0
	MHmm1	1041.8
	Total	4323.1
	Area required with SI >15	4197.2
Tsitika (Canfor portion)	CWHmm1	0.0
	CWHvm1	295.0
	CWHvm2	361.8
	CWHxm2	0.0
	MHmm1	706.7
	Total	1363.5
	Area required with SI >15	507.0

[2] The estimated (based on GIS analyses) amount of marbled murrelet habitat currently found within potential Old Growth Management Areas.

2.11 RIPARIAN AREA PROTECTION

Indicator:	Objective:
11. Percent of harvested areas adjacent to streams, lakes and/or wetlands that have riparian management areas that are suited to protection of the associated aquatic habitat.	100% of cutblocks adjacent to streams, lakes and/or wetlands must meet or exceed regulatory requirements for riparian management unless the District Manager approves a variance.

STATUS AND COMMENTS

There was one area between 01 January and 31 December 2000 where trees were harvested in a riparian reserve zone:

- K303 — A creek flowing in to and partly through K303 was classified as S5 (no fish present), and a fish sensitive zone (i.e., selective tree removal) was identified. MoF, MELP and DFO reviewed this block prior to harvest, and MoF accepted the Silviculture Prescription. However, during harvest fish were found in the S5 creek, unfortunately not until after some trees were removed from what should have been the riparian reserve zone. Operations were halted and the incident was reported to Canfor's EMS compliance manager on 6 December 2000. The appropriate agencies were notified of the incident. An internal investigation to determine the cause and whether appropriate actions were taken was initiated. As of 5 February 2001 the results of that investigation are pending.

2.12 SEED STOCK

Indicator:	Objective:
12. Percent of Ministry of Forests (MoF) registered seed used	100% of the seed and seed sources used for reforestation must be MoF registered

STATUS AND COMMENTS

Each year, Canfor completes an analysis of seed requirements for reforestation (current to December 2000 in **Table 6**). This analysis is based on site types and elevations projected in forest development plans. This allows Canfor to adjust seed purchase and/or collection strategies accordingly. In 2000, 100% of the seed was MoF registered.

Table 6. Seed inventory for TFL 37 (as of 31 December 2000)

Seedlot	Species	GW	Seeds/gm	Year collected	Location collected	Lat.	Long.	Elev. (m)	Expected germin-ation (%)	Grams	Seedlings ('000s)
39702	BA	B	31	1993	VERNON LAKE	50 00	126 24	305	68	83,495	550.7
39710	BA	B	33	1996	KARMUTSEN RIVE	50 22	127 04	525	61	37,679	231.4
46195	BA	B	37	1996	KARMUTSEN RIVE	50 22	127 04	525	52	3,941	23.5
39713	BA	B	30	1996	KIYUCLUB CREEK	50 06	126 27	730	72	60,448	1,082.40
45789	BA	B	29	1996	CLUB CREEK	50 07	126 19	930	78	33,156	244.1
7871	BA	B	37	1988	NAKA CREEK	50 24	126 26	950	66	23,594	176.0
											2,308.1
9504	BG	B	56	1985	Bainsbridge Lake	49 12	124 44	122	46	1,347	11.2

Seedlot	Species	GW	Seeds/gm	Year collected	Location collected	Lat.	Long.	Elev. (m)	Expected germin-ation (%)	Grams	Seedlings ('000s)
46188	BN	B	34	1991	RED MT	50 00	125 00	1143	42	12,490	60.1
46220	BN	B	25	1978	SKYKOMISH	50 00	125 00	1067	70	7,241	39.5
											99.6
60267	CW	2	679	1999	139 Sechelt			212	80	1,889	339.3
60268	CW	10	636	1999	139 Sechelt			217	83	636	128.6
60634	CW	2	823	1997	152 Mt Newton	49 46	124 20	291	77	774	161.8
39708	CW	B	800	1995	LUKWA CREEK	50 12	126 30	810	81	8,631	1,888.4
40448	CW	B	734	1995	COWICHAN RIVER	48 48	123 54	200	78	2,816	525.2
											3,043.3
60660	FDC	5	94	1999	996 ROCHESTER	48 30	121 54	322	91	10,029	340.6
61064	FDC	5	81	1999	116 SECHELT	49 08	123 28	608	85	7,328	181.2
409	FDC	B	102	1959	NIMPKISH L	50 20	126 53	61	92	37,278	1,373.8
982	FDC	B	116	1966	WOSS CAMP	50 14	126 32	274	87	15,670	600.6
1048	FDC	B	95	1966	GARRETT LK	50 03	125 37	396	92	877	30.0
61059	FDC	2	85	1999	116 SECHELT	49 52	125 56	691	88	13	355.2
7410	FDC	B	96	1985	MOUNT HALL	49 54	123 53	850	95	4,999	200.2
											3,081.6
6883	HW	2	505	1990	133 SECHELT	50 00	124 30	300	86	6,576	1,014.3
60106	HW	8	438	1993	133 SECHELT	50 12	125 08	300	94	9	1.5
60379	HW	16	414	1999	133 SECHELT	50 00	126 00	300	93	2,169	356.3
61007	HW	16	406	1999	133 SECHELT	50 00	125 00	300	88	1,157	156.0
60376	HW	17	460	1996	133 SECHELT	50 00	124 30	300	91	322	53.5
60377	HW	13	406	1996	133 SECHELT	50 00	124 30	500	90	104	14.5
6517	HW	2	454	1992	130 MT. NEWTON	49 19	126 37	525	83	568	75.8
6518	HW	2	427	1992	131 MT. NEWTON	49 15	125 28	649	85	1,459	190.2
60174	HW	2	446	1993	130 MT. NEWTON	49 13	125 20	661	90	6	0.9
3309	HW	B	542	1978	TFL37	50 22	126 52	350	59	194	19.0
3915	HW	B	459	1979	TFL 37	50 07	126 37	580	72	415	42.8
											1,924.8
60657	PW	res	51	1998	Dorena	50 00	126 00	700	95	1,296	27.5
60658	PW	res	44	1998	Dorena	50 00	126 00	700	92	1,316	20.9
60659	PW	res	39	1998	Dorena	50 00	126 00	700	95	1,105	17.9
61061	PW	res	43	1999	174 Sechelt					3,387	40.0
61095	PW	res		2000	Dorena	50 00	126 00	700	95	2,950	35.0
											141.3
1497	SS	B	443	1968	Gordon River	48 35	124 25	366	91	28	4.4
4728	SS	B	385	1966	KINGCOME RIVER	50 58	126 11	0	88	1,353	172.1
40437	SS	B+	438	1993	BIG QUALICUM(Q	49 22	124 36	25	92	435	68.8
											245.3

Seedlot	Species	GW	Seeds/gm	Year collected	Location collected	Lat.	Long.	Elev. (m)	Expected germin-ation (%)	Grams	Seedlings ('000s)
32454	YC	B	214	1990	VERNON AREA	49 56	126 20	670	67	11	0.5
39706	YC	B	223	1995	SURPRISE/LUKWA	50 00	126 17	925	26	1,079	26.3
39711	YC	B	202	1996	GOLD / LUKWA C	50 15	126 35	850	54	2,180	72.6
45788	YC	B	200	1996	TAHSISH RIVER	50 15	127 05	800	49	1,035	32.4
46243	YC	B	212	1998	KLAKLAKAMA LAK	50 09	126 25	1067	43	8,293	244.5
46244	YC	B	222	1998	LUKWA	50 17	126 31	762	40	11,391	349.3
46245	YC	B	214	1998	LUKWA	50 17	126 31	1067	28	1,318	31.9
46246	YC	B	219	1998	GOLD CREEK	50 16	126 35	1067	31	1,114	29.8
											787.3

2.13 DISEASE CONTROL

Indicator:	Objective:
13. Percent of cutblocks in compliance with disease control measures identified in Silviculture Prescriptions (SPs).	100% of cutblocks in compliance with disease control measures in SPs, unless the District Manager approves a variance.

STATUS AND COMMENTS

There were seven blocks planted in 2000 that required root rot management as indicated in the SPs (**Table 7**). Management for root rot included either planting resistant species, or pulling stumps of infected stems.

Table 7. Disease control measures compliance summary for blocks planted in 2000 on TFL 37 where the SP indicated a Forest Health concern.

Block	Planted	Comment
MK019	2000	Root rot areas managed as per SP
MK021A	2000	Root rot areas managed as per SP
MK033	2000	Root rot areas managed as per SP
KT023	2000	Root rot areas managed as per SP
WB020	2000	Root rot areas managed as per SP
WB018	2000	Root rot areas managed as per SP
W028	2000	Root rot areas managed as per SP

2.14 FIRE CONTROL

Indicator:	Objective:
14. Time to control an accidental industrial or recreational fire	All accidental industrial and recreational fires extinguished or under control by 10 am the day after the fire started (± 20% of the reported fires).

STATUS AND COMMENTS

There were three fires reported in 2000, all of which were extinguished or controlled within the stated Objective for Indicator 14:

1. A fire resulted when a small tree blew over and landed on the power lines just north of the intersection of the Woss road and North Island Highway. The fire was extinguished within two hours;
2. A fire started in the Woss wood dump, but was under control by the evening of the day it started; and
3. A small fire was reported in a machine working in the woods. That fire was immediately extinguished with a fire extinguisher.

2.15 FIRE SALVAGE

Indicator:	Objective:
15. Volume of timber salvaged from accidental fires	100% of timber is salvaged from fire outbreak where economically and ecologically appropriate.

STATUS AND COMMENTS

No timber was damaged by fire from 01 January to 31 December 2000, so salvage operations were unnecessary. A fire damage timber file was created to track this Indicator.

2.16 INSECT CONTROL

Indicator:	Objective:
16. Number of hectares/yr of forest lost to insect outbreak	Forest area lost due to insect outbreak not to exceed historical levels.

STATUS AND COMMENTS

There was no loss of timber due to insect outbreak on the Englewood DFA during 2000.

2.17 INSECT DAMAGE SALVAGE

Indicator:	Objective:
17. Volume of timber salvaged from severe insect outbreaks.	100% of timber is salvaged from severe insect outbreak where economically and ecologically appropriate.

STATUS AND COMMENTS

No timber was damaged by insects during 2000, so salvage operations were unnecessary. An insect damage file was created to track this Indicator.

2.18 WINDTHROW SALVAGE

Indicator:	Objective:
18. Volume of timber salvaged from severe windthrow events.	100% of timber is salvaged from severe windthrow events where economically and ecologically appropriate.

STATUS AND COMMENTS

Two windthrow blocks were discovered in 2000: VR061 (2000 m^3) and SW080wf (500 m^3). These blocks have yet to be processed (i.e., engineering, FDP amendment, Silviculture Prescription, Road Permit, Cutting Permit), but harvest is planned for the latter part of 2001. Many blocks discovered at earlier dates, particularly blocks damaged by snowpress during the winter of 1998, are still being salvaged on the TFL.

REVISIONS

Canfor suggests that the following change to the Objective of Indicator 18:

"100% of timber is salvaged from severe windthrow events within two years of discovery, where economically and ecologically appropriate."

Canfor suggests the addition of "within two years of discovery" because for logistical reasons (i.e., engineering), windthrow is rarely salvaged within the year of discovery. Future status reports will report on progress towards salvage of timber in blocks previously discovered, and expected harvest dates for newly discovered blocks.

2.19 FLOODING

Indicator:	Objective:
19. Volume of timber salvaged from severe flooding events.	100% of timber is salvaged from severe flooding events where economically and ecologically appropriate.

STATUS AND COMMENTS

No timber was damaged by flooding during 2000, so salvage operations were unnecessary. A flood damage file was created to track this Indicator.

2.20 REGENERATION SUCCESS

Indicator:	Objective:
20. Percent of successfully regenerated cutblocks.	Regeneration success on ≥ 95% (±5%) of cutblocks. Ongoing evaluations.

STATUS AND COMMENTS

The regeneration status of each cutblock surveyed in 2000 indicated that 100% of the cutblocks were satisfactorily restocked (**Table 8**).

Table 8. Regeneration status of blocks surveyed in 2000 on TFL 37.

Block	Status	Comments	Block	Status	Comments
CE039	SR		NL001	SR	
GC011	SR		NW752	SR	
GC020	SR		R063	SR	
HG009	SR		S116	SR	
KA017	SR		SW052AWF	SR	
KT039	SR		SW054A	SR	
KT122	SR		SW058	SR	
KT129	SR		TH002	SR	
KT158	SR		TK013	SR	
M030	SR		TK020	SR	
MC045	SR		TS004	SR	
MCI007	SR		TS006WF	SR	
MCI011	SR		TS028	SR	
MK003	SR		TS052	SR	
MK011	SR		WB012	SR	
NE033	SR		WK018	SR	SR with amendment to accept Fdc in SU C

* SR = satisfactorily restocked

REVISIONS

Canfor suggests that this Indicator be deleted, as the information is covered in Indicator 30 (Percent of Area Reforested).

2.21 FREE GROWING SUCCESS

Indicator:	Objective:
21. Percent of cutblocks that achieve free growing status as specified in SPs.	100% (-5%) of cutblocks will achieve free growing status within the free growing assessment period specified in SPs.

STATUS AND COMMENTS

By 2000, 12 of 16 (75%) blocks with a late free growing date of 2000 had reached free growing status. Those blocks that did not reach free growing status all are in the process of having their SPs amended. Amendments are being requested for a number of reasons including unanticipated heavy browse by elk, and reclassification of some of a block as NP swamp, and thus not capable of reaching free growing status (**Table 9**). Once the amendments are accepted, the objective of 100% of the cutblocks achieving free growing status within the free growing assessment period will be achieved.

Table 9. Free growing status of cutblocks with a late Free Growing data of 2000 on TFL 37.

Block	Survey year	Status	Hectares	FG ha	NFG ha	Comments
CE011A	1998	FG	53.1	53.1		
D015	1998	FG	63.5	63.5		
GC002	2000		45.8	45.5	0.3	0.3 ha area classified as NP swamp — amendment pending
HI035	1999	FG	25.5	25.5		
HR100	1998	FG	20.8	20.8		
KO047	1998	FG	16.7	16.7		
KT121	1998	FG	10.7	10.7		
KT126	1999		200.1	192.6	7.5	Needs amending for late FG date. Miscalculation of late FG date in SP amendment. Revised to late FG date of 2001.
M027	1998	FG	75.0	75		
NW011	2000	FG	30.8	30.8		
TS003	1997	FG	54.1	54.1		
NE023	1998	FG	22.1	22.1		
NW051WF	2000	FG	4.6	4.6		
CU030	1999		63.7	8.4	55.3	Waiting for approval of amendment (11/2000) back to original SP late date of 14 yrs (thus giving the block a late FG date of >2000).
KX023	1999		39.3	33.9	5.4	Needs amendment — stock heavily browsed by elk
ST015	2000	FG	47.6	47.6		

2.22 SITE DEGRADATION

Indicator:	Objective:
22. Percent of harvest areas at or below site degradation specifications identified in SPs	95% (±5%) of harvest areas in compliance with site degradation objectives specified in SPs.

STATUS AND COMMENTS

In 2000, 44 of 46 harvest areas (96%) were in compliance with site degradation objectives specified in SPs (**Table 10**). The two blocks only exceed the SP by less than 10%, so an amendment to the SP or rehabilitation was not required.

Table 10. Site degradation compliance for blocks harvested in 2000 on TFL 37.

Block	SP %	Actual %	Comments	Block	SP %	Actual %	Comments
BC004	14.9	14		KU040	6.1	6.1	
CA021	6.8	5.8		M030	4.7	1.4	
CU012	3.4	1.8		MCI013	5.8	4.9	
CU020	3.6	3.9	+8.3%	MK009	3.5	1.8	
DL010WF	7.4	2.3		MK033WF	9.9	8.4	
DL013	7	6.3		MK033WF	0	0	all rehabilitated
DL024A	4.7	3.9		NE024	4.8	4.4	
DL025	4.7	3.4		NI020	7.3	5.9	
DR025	4.7	2.7		NW393	4	4.7	
GC015	4.3	3.7		Q027	4.7	3	
HR053	4.4	3.7		SP011	9	9	
HR078	3.2	3.2		SP024	5.1	5.1	
HR081A	5.4	5.9	+9.3%	SW060	4.7	3.4	
HR089	4.4	3.7		SW060	4.7	3.4	
HR102	6.4	4.5		SW063	5.3	3.5	
J010A	6.8	3.9		TH001	6.5	5.6	
KA101	5	3.7		TK022	6.9	5.7	
KH058	6	3.3		TK030	8.8	7.1	
KH073	6.1	5.3		TR393	5.5	4.8	
KH090A	4	3.6		TS035	5.1	3.2	
KT039A	7.6	5.1		VR061	5.7	4.5	
KT158	6.1	5.1		WR013	3.2	3.2	
KU030	5.7	4.3		WT040	6	3.9	
				Average	5.6	4.6	

2.23 SPECIAL HABITAT FEATURES

Indicator:	Objective:
23. Area set aside for special management associated with known habitat features as they are discovered.	Establish management zones around special habitat features, as they are located, and where worker safety will not be compromised.

STATUS AND COMMENTS

Bear den trees, large stick nests, and great blue heron colonies are protected as they are located and where worker safety will not be compromised. Active nests of other bird species are also protected, as they are located. To date, Canfor has documented 94 bald eagle nests, 1 golden eagle nest, 25 Queen Charlotte goshawks nests, 1 sharp-shinned hawk nest, 1 merlin nest, 8 American kestrel nests, 3 red-tailed hawk nests, 80 hairy woodpecker nests, 2 Pacific great blue heron colonies, and 40 black bear den trees (since 1996, and up to October 2000).

Bear dens, large stick nests, and great blue heron colonies were protected from harvest, where worker safety was not compromised. Management of habitat surrounding bear dens occurred

on a site-specific basis. Other wildlife habitat features were managed on a case by case basis as they are discovered.

2.24 AREA LOST TO FOREST ROADS

Indicator:	Objective:
24. Percent of future and existing roads by productive forest area in the DFA	Future and existing roads must occupy ≤ 3.5% (±2%) of the productive forest land base. Ongoing evaluation.

STATUS AND COMMENTS

The next review of percent of future and existing roads by productive forest area will be to December 31 2004. This analysis will occur in 2005 in conjunction with development of the Management Plan 9.

REVISIONS

Canfor suggests that "Ongoing evaluation" be deleted from the Objective and the following wording be added: "Five-year summary analysis." This new wording will reflect actual practice.

2.25 TERRAIN ASSESSMENTS

Indicator:	Objective:
25. Operational plans are consistent with terrain stability assessments.	100% of the operational plans are consistent with the terrain stability assessments.

STATUS AND COMMENTS

In 2000, approximately 60 blocks with terrain >60% slope and/or Class IV, IVR and V terrain were field assessed. Operational plans (e.g., block design and engineering) were consistent with the results of those assessments.

2.26 ROAD DEACTIVATION

Indicator:	Objective:
26. Number of activities related to restoration of significant erosion hazards resulting from road and railways built prior to 1995.	Fix significant erosion hazards on pre 1995 roads on a priority basis. Critical hazards to be fixed within one week of discovery.

STATUS AND COMMENTS

A total of 49,906 m of road and railway built prior to 1995 were deactivated on TFL 37 during 1999–2000 (**Table 11)**. A critical area was found in October 1998. Due to seasonal constraints (i.e., fisheries window), reclamation of the site was not planned until March 1999, and work continued through June when the fisheries window allowed entry in to the wetted perimeter for further work. Equipment work was completed by late June 1999, and green seeding was completed in September 1999.

In 2000–2001 a total of 36,448 m or road and railway built prior to 1995 were deactivated (**Table 12**). There was one critical erosion hazard discovered during the 2000/2001 fiscal year. A problem on KT049 was discovered. The site was surveyed by a geoscientist between 31

October and 2 November 2000, and declared a critical erosion hazard. Work started on 8 November, and was completed on 21 November.

REVISIONS

It is not often that Canfor can correct critical erosion hazards within one week of discovery for several reasons:

1. Can not operate within the fisheries window;
2. Seasonal constraints (weather conditions, snow conditions);
3. Seasonal requirements for some operations (e.g., green seeding).

Because of the reasons noted above, Canfor suggests that the following changes be made to the wording of the Objective:

"Fix significant erosion hazards on pre 1995 roads on a priority basis. Critical hazards to be fixed within one week of discovery, or as soon as seasonal conditions permit."

Table 11. A summary of the 1999/2000 deactivation planning and activities for roads and railways built prior to 1995.

Drainage	Fish concern	Risk rating	Level of deactivation				Total road (m)	Deactivated 1999–2000 (m)
			Maintain (m)	No action (m)	Permanent (m)	Semi permanent (m)		
Unspecified[3]	No	Unspecified			7884		7884	7884
Nimpkish	Yes	Very High			1113		1113	1113
		High	400			2152	2552	
		Medium			2301	14991	17292	5070
		Low			29716	22176	51892	5256
		Unspecified		5286			5286	
	No	High			1235	12031	13266	3427
		Medium			7762	19685	27447	9709
		Low		3403	7413	52602	63418	4765
		Unspecified		20692		385	21077	506
Oktwanch	Yes	High				1593	1593	1573
		Medium				600	600	600
		Low			4602	4634	9236	6653
		Unspecified		234			234	
	No	High				5791	5791	775
		Medium				12157	12157	2093
		Low				5050	5050	482
		Unspecified		1362			1362	
Tsulton	No	Low		505		5793	6298	
Total Road			400	31482	62026	159640	253548	49906
Deactivated			0	506	19863	29537	49906	

[3] Additional roads in unspecified drainage.

Table 12. A summary of the 2000/2001 deactivation planning and activities for roads and railways built prior to 1995.

Drainage	Fish concern	Risk rating	Level of deactivation				Total road (m)	Deactivated 2000–2001 (m)
			No action (m)	Permanent (m)	Semi permanent (m)	Unspecified (m)		
Nimpkish	Yes	High		12022		1560	13582	
		Medium		38237			38237	7247
		Low		9996			9996	
	Yes ?	High ?		650			650	550
	No	High		12534	4020		16554	6407
		Medium		15859	2585		18444	3673
		Low	3403	50831			54234	5618
		Low ?		683			683	
		Unspecified	23920	385			24305	
Oktwanch	Yes	High		1754			1754	
		Medium		1473			1473	
	No	High		5016			5016	3776
		Medium		10064			10064	554
		Low	1092	4568			5660	
		Unspecified	2486				2486	
Tsitika	Yes	Medium		640			640	
	No	Medium		1950			1950	
		Unspecified	893				893	
Tsulton	No	Low		5793			5793	
		Unspecified	505				505	
Unspecified	No	Unspecified				0	0	8663
Total road (m)			32299	172455	6605	1560	212919	36488
Deactivated 2000–2001 (m)				23805	4020	8663	36488	

2.27 CAVE AND KARST FEATURES

Indicator:	Objective:
27. Area managed for cave and karst features, as they are located	Establish management areas for cave and karst features, as they are located.

STATUS AND COMMENTS

Canfor implemented a Regional Supplement within their EMS to guide surface activity management while operating in the proximity of type “B” karst features.

In 2000, a karst feature was located in block NE072. The feature, discovered by a faller, was protected by establishing a special management zone. The SP was amended accordingly. Additionally, cave and karst assessments were completed on blocks NI022 and NI044.

2.28 CONTAMINANT SPILLS

Indicator:	Objective:
28. Number of contaminant spills per year that enter a waterbody	Zero contaminant spills that enter a waterbody.

STATUS AND COMMENTS

Any contaminant spill must be documented and preventative and corrective action implemented immediately. Since January 2000, hydraulic oil has accounted for the majority of spills in the DFA (**Table 13**), but no spills have knowingly entered a waterbody.

Table 13. The spill log from January through December 2000 for the Englewood DFA.

Date	Reported By	Machine Number	Material Spilled	Amount Spilled (L)	Cause	Cause Code				
							h - hose			
							m - mechanical			
							t - transport			
					no spills		p - procedure			
Total Jan				**0**						
Feb 7 2000	RMc	6538	hydraulic oil	227	Blown shock absorber hose	h				
Feb 16 2000	MG	0950	hydraulic oil	25	blown fitting	m				
Feb 18 2000	RS	6537	hydraulic oil	90	blown hydraulic hose	h				
Feb 18 2000	RMc	6538	hydraulic oil	20	blown hydraulic hose	h				
Feb 23 2000	RG	6628	hydraulic oil	15	loose air compressor bolts	m				
Total Feb				**377**						
Mar 27 2000	RT	0419	hydraulic oil	20	blown O ring on valve bank	m				
Total March				**20**						
3-Apr-00	RS	0433	hydraulic oil	23	blown hydraulic hose on back of boom	h				
5-Apr-00	RS	0434	hydraulic oil	45	blown grapple rotation hose	h				
7-Apr-00	RT	0419	hydraulic oil	91	blown swing hose	h				
12-Apr-00	RS	Loci 303	diesel fuel	11	tank vent at BC fueling stn not open	p				
27-Apr-00	F. Holbrook	excavator	hydraulic oil	10	blown hose	h	on excavator in MS001 Heli landing			
Total April				**180**						
May 4 2000	RT	0446	hydraulic oil	45	blown swing hose	h				
May 5 2000	RS		hydraulic oil	55	blown hose near hydraulic pump	h				
May 9 2000	G Lee	L-416	hydraulic oil	60	hydraulic line left open following repairs	h	Lemare Lk Logging			
May 9 2000	RT	0446	hydraulic oil	73	blown swing hose	h				
May 25 2000	D Dyson	loader	hydraulic oil	25	burst travel hose	h	Holbrook/Dyson			
May 25 2000	RS	6537	hydraulic oil	25	blown main boom hose	h				
May 27 2000	RS	0434	hydraulic oil	10	blown main swing hose	h				
Total May				**293**						
June 1 2000	CC	0434	hydraulic oil	68	blown hose	h				
June 2 2000	CC	0434	hydraulic oil	68	blown hose	h				
June 26 2000	MG	0492	hydraulic oil	100	blown travel hose	h				
Total June				**236**						
					no spills reported					
Total July				**0**						
Aug 28 2000	RMacE	6592	hydraulic oil	205	blown seal in travel motor	h				
Total August				**205**						
Sept 15 2000	RS	0434	hydraulic oil	99	ruptured hydraulic hose off main pump	h				
Total September				**99**						
Oct 25 2000	RT	6526	hydraulic oil	23	grapple connection broke, all hoses broke also	h				
Total October				**23**						
				0	no spills reported					
Total November				**0**						
Dec 4 2000	MG	grapple machine	hydraulic oil	80	blown hose on grapple rotation motor	h				
Dec 6 2000	Greg Lee	backspar	engine oil	15	overturned backspar machine, NW055WF		Lemare Lk Logging			
Dec 6 2000	Greg Lee	backspar	diesel fuel	50	overturned backspar machine, NW055WF		Lemare Lk Logging			
Dec 12 2000	MG	loader	hydraulic oil	30	blown hose	h				
Total December				**175**						

2.29 WATERSHED ASSESSMENTS

Indicator:	Objective:
29. Operational Plans are consistent with Watershed Assessments	Operational plans are 100% consistent with watershed assessments, unless the District Manager approves a variance.

STATUS AND COMMENTS

In 2000, a geoscientist retained by Canfor updated several watershed assessments (Chapman Geoscience Ltd. November 2000). The geoscientist who prepared those reports worked closely with Canfor operational staff during the updating of the watershed assessments and in the review of the draft Forest Development Plan (FDP). Ongoing discussions were held during preparation of the draft FDP, and numerous changes were made by Canfor staff to make it consistent with the results and recommendations of the watershed assessments. A brief summary of those watershed assessments is provided below:

Upper Oktwanch — The upper Oktwanch River watershed has an area of about 9,460 ha. Approximately 445 ha of harvesting is proposed in the current FDP for the watershed, representing 4.6% of the watershed area. The Equivalent Clearcut Area (ECA) is projected to fall slightly to 17% at the end of the FDP period. None of the ECA levels in the watershed are high and there is a low probability for stream flow impacts. Given that the Forest Practices Code provides good hillslope protection through Terrain Stability Field Assessments (Indicator 25), and good stream protection through the Riparian Management Area practices, there is a very low risk of Canfor's proposed development resulting in any negative effects on the Upper Oktwanch River. The operational plans are consistent with the watershed assessment.

Kinman Creek — Kinman Creek has a drainage area of 2,907 ha, and is located on the east side of Nimpkish Lake. Anadromous fish access approximately 3 km of the lower Kinam Creek. Approximately 93 ha of harvesting are proposed in the current FDP for the watershed, representing 3.2% of the watershed area. The ECA for the watershed is projected to rise slightly to 19% at the end of the FDP period, and most of the proposed harvesting in the high elevation snow zone of the watershed. The ECA levels are not high, and there is a low probability for stream flow impacts associated with the harvesting. Given that the Forest Practices Code provides good hillslope protection through Terrain Stability Field Assessments (Indicator 25), and good stream protection through the Riparian Management Area practices, there is a very low risk of Canfor's proposed development resulting in any negative effects on Kinman Creek. The operational plans are consistent with the watershed assessment.

Noomas Creek — Noomas Creek has a drainage of 1,875 ha, and is located on the east side of Nimpkish Lake. Noomas Creek has low fish values, with anadromous fish limited to the lower 500 m of channel. The current ECA for the watershed is 24%, but second growth is at the stage where significant hydrologic recovery is now being achieved, and ECA is projected to fall by 9% between 2001 and 2006 because of tree growth. About 80 ha of harvesting is proposed in the current FDP, representing 4.3% of the watershed area evenly distributed between mid and high elevation zones. The ECA for the watershed is projected to fall to 21% by the end of the FDP period. Given that the Forest Practices Code provides good hillslope protection through Terrain Stability Field Assessments (Indicator 25), and good stream protection through the Riparian Management Area practices, there is a very low risk of Canfor's proposed development resulting in any negative effects on Noomas Creek. The operational plans are consistent with the watershed assessment.

Kilpala River — The Kilpala River has a drainage area of approximately 11,000 ha, and is located on the west side of Nimpkish Lake. The watershed is divided in to four major sub-basins: Meadow Creek, Karmutzen Creek, Little Kilpala Creek, and Upper Kilpala. The ECA for the Kilpala River Watershed is 13%. On a sub-basin basis, the highest ECA is 16% for the Upper Kilpala River. Approximately 878 ha of harvesting is proposed in the current FDP for the watershed, representing 8.0% of the watershed area (approximately 1.3% of the watershed area per year). The ECA for the watershed is projected to rise to 17% at the end of the FDP period. A cut of 70 ha is proposed for the Meadow Creek sub-basin. Because of significant channel and fish habitat disturbance that has occurred in Meadow Creek in the past, the geoscientist advised that harvesting in the Meadow Creek basin be limited to those areas with a low risk of landsliding following logging. Disturbance in the Upper Kilpala, Little Kilpala and Karmutzen sub-basins is low, and there is low risk of the harvesting proposed in the current FDP of causing significant disturbance to the streams. Given that the Forest Practices Code provides good hillslope protection through Terrain Stability Field Assessments (Indicator 25), and good stream protection through the Riparian Management Area practices, there is a very low risk of Canfor's proposed development resulting in any negative effects on Kilpala River. The operational plans are consistent with the watershed assessment.

Upper Sebalhall River — The Sebalhall River above Vernon lake has a drainage of 6,370 ha, and is divided in to four major sub-basins: Emerald Creek, Bullett Creek, Upper East Sebalhall River, and Upper West Sebalhall River. Anadromous fish do not use the Upper Sebalhall River due to a natural barrier just above Vernon Lake. However, Bullett Lake was stocked with rainbow trout, and the lower reaches of Emerald Creek are reported as containing resident fish. The density of active road (0.5 km/km^2) for the watershed as a whole, and for the individual sub-basins, is low, and there is a low likelihood for hydrological problems associated with roads. The current ECA levels for the Upper Sebalhall River watershed is 14%, but on a sub-basin basis, the highest ECA levels are 30% for Bullett Creek, and 26% for the Upper East Sebalhall. In both of those cases, the majority of the ECA is in the mid-elevation rain-on-snow zone, and there is a risk of elevated peak flows in those streams. However, for Bullett creek there are two lakes that will reduce the hydrologic risk because they will attenuate peak flows. About 360 ha of harvesting is proposed in the current FDP for the watershed, representing 5.6% of the watershed area. The ECA for the watershed is expected to rise to 16% by the end of the FDP period. For the two sub-basins where peak flow concerns might exist, Bullett Creek has no logging proposed, and Upper East Sebalhall has two openings proposed for the high elevation zone. The ECA for the Bullett Creek basin will fall to 22% by the end of the FDP period, while that of Upper East Sebalhall will rise to 29%. Because the proposed harvest is in the high elevation snow zone, it is unlikely to increase the potential for peak flow changes in the sub-basin. Given that the Forest Practices Code provides good hillslope protection through Terrain Stability Field Assessments (Indicator 25), and good stream protection through the Riparian Management Area practices, there is a very low risk of Canfor's proposed development resulting in any negative effects on Upper Sebalhall River watershed. The extent of harvest proposed by Canfor in the current FDP is moderate, and there is a low risk of the development resulting in any negative effects on the Upper Sebalhall River. The operational plans are consistent with the watershed assessment.

2.30 PERCENT OF AREA REFORESTED

Indicator:	Objective:
30. Percent of area reforested.	Reforest 100% of the cutblocks with preferred and acceptable species as specified within SPs.

STATUS AND COMMENTS

The regeneration status of each cutblock surveyed in 2000 indicated that 100% of the cutblocks were satisfactorily restocked (**Table 14**). All blocks planted in 2000 will be assessed in 2001.

Table 14. Regeneration status of blocks surveyed in 2000 on TFL 37.

Block	Status	Comments	Block	Status	Comments
CE039	SR		NL001	SR	
GC011	SR		NW752	SR	
GC020	SR		R063	SR	
HG009	SR		S116	SR	
KA017	SR		SW052AWF	SR	
KT039	SR		SW054A	SR	
KT122	SR		SW058	SR	
KT129	SR		TH002	SR	
KT158	SR		TK013	SR	
M030	SR		TK020	SR	
MC045	SR		TS004	SR	
MCI007	SR		TS006WF	SR	
MCI011	SR		TS028	SR	
MK003	SR		TS052	SR	
MK011	SR		WB012	SR	
NE033	SR		WK018	SR	SR with amendment to accept Fdc in SU C

* SR = satisfactorily restocked

2.31 ALLOWABLE ANNUAL CUT

Indicator:	Objective:
31. Allowable Annual Cut (AAC) as predicted through long-term harvest level projection and determined by the Chief Forester.	Harvest the AAC allocation over the 5 year cut control period (±10% over 5-yr period).

STATUS AND COMMENTS

Official harvest volumes are not yet available. However, Canfor's production volumes indicate that approximately 116% of the AAC was harvested in 2000. Given that production harvest value, Canfor finished the 1996–2000 cut control period at 99.7% in TFL 37 (**Table 15**).

Table 15. TFL 37's actual recorded and Allowable Annual Cut summary for 1961 to 2000.

Year	Actual Recorded Cut (m^3)	Allowable Annual Cut (m^3)	% Recorded Cut of AAC (%)	5 Year Cut Control Compliance(%)
1961	654,940	618,169	105.9%	
1962	729,248	618,169	118.0%	
1963	653,878	618,169	105.8%	108.1%
1964	672,402	618,169	108.8%	
1965	643,776	630,290	102.1%	
1966	581,653	623,040	93.4%	
1967	585,168	615,960	95.0%	
1968	778,421	615,960	126.4%	91.4%
1969	745,431	912,612	81.7%	
1970	905,827	1,166,784	77.6%	
1971	1,111,042	1,161,120	95.7%	
1972	926,545	1,161,120	79.8%	
1973	1,241,781	1,161,120	106.9%	89.8%
1974	987,836	1,161,120	85.1%	
1975	932,954	1,144,128	81.5%	
1976	1,447,656	1,095,984	132.1%	
1977	1,139,433	1,095,984	104.0%	
1978	1,290,268	1,095,984	117.7%	115.4%
1979	1,201,378	1,095,984	109.6%	
1980	1,243,979	1,095,984	113.5%	
1981	989,848	1,095,980	90.3%	
1982	1,250,693	1,095,980	114.1%	
1983	1,269,708	1,107,000	114.7%	106.6%
1984	1,301,879	1,107,000	117.6%	
1985	1,064,722	1,107,000	96.2%	
1986	957,142	1,107,000	86.5%	
1987	1,277,493	1,085,000	117.7%	
1988	1,088,486	1,063,408	102.4%	99.9%
1989	1,117,732	1,041,816	107.3%	
1990	892,891	1,041,816	85.7%	
1991	921,666	1,041,816	88.5%	
1992	984,882	1,019,816	96.6%	
1993	931,341	1,019,816	91.3%	102.0%
1994	1,247,978	1,024,816	121.8%	
1995	1,145,316	1,024,816	111.8%	
1996	1,010,359	1,024,816	98.6%	
1997	982,675	1,024,816	95.9%	
1998	801,724	1,024,816	78.2%	99.7%
1999	1,118,764	1,024,816	109.2%	
2000[4]			116.0%	
Total	**38,828,915**	**38,388,194**	**101.7%**	

[4] As of 5 February 2001, official harvest volumes were not yet available. The 2000 data is based on production volume. Overall totals and averages need to be updated once the data becomes available.

2.32 NON-FOREST DEVELOPERS

Indicator:	Objective:
32. Documented communications with non-forest developers on the DFA.	In all referrals that have potential to remove significant land from the DFA, stress the minimisation of losses to the forest land base.

STATUS AND COMMENTS

During 2000 there were no referrals that proposed removal of land from the TFL for purposes other than forestry.

2.33 SHAREHOLDER VALUE

Indicator:	Objective:
33. Shareholder value ($/m^3/yr)	Harvest AAC with a profit as indicated by a positive contribution to shareholder value ($/m^3/yr).

STATUS AND COMMENTS

In 2000 the AAC was harvested with a positive contribution to shareholder value of $3.79/m^3 (**Table 16**).

Table 16. Englewood contribution to shareholder value from 1996 to 2000 ($/m^3/yr)

Year	Englewood contribution to shareholder value ($/m^3)
2000	$3.79
1999	$15.05
1998	($7.00)
1997	$2.29
1996	$12.74

2.34 VOLUME AVAILABLE FOR LOCAL PURCHASE

Indicator:	Objective:
34. Volume of harvest made available for local purchase at fair market price.	A minimum of 50,000 m^3/year will be available for local purchase at fair market price.

STATUS AND COMMENTS

During 2000, local purchases totalled 52,277 m^3 of wood harvested on TFL 37 (**Table 17**). There were no known shortages of local availability of wood harvested on TFL 37 at fair market prices during 2000.

Table 17. Year 2000 local timber sales from wood harvested on TFL 37.

Customer	Sort	m^3	Combined m^3
LeMare Lake Logging	Alder	367.4	
	Boomsticks	558.6	926.0
Mill Creek	HE standard	2972.08.0	
	HE shop	5955.2	
	HE lumber	3518.4	
	CY tie logs	2626.3	15,072.7
V.I. Woodworks (Mill Creek)	CY gang	93.1	
	CY utility	42.2	135.3
Edge Grain Forest Prod.	CE pole ends	421.1	
	Stringers / metal contam.	1169.4	1590.5
Timbre Tonewood	SP hi grade	87.0	
	CE shingle large	84.3	
	CE shingle small	42.7	
	CE slabs	70.1	
	CE lumber	6.1	290.2
Paul Creek Slicing	FI higrade	167.3	
	PI standard / gang	238.7	406.0
Mill & Timber	CE poles (short)	1,505.1	
	CE gang	6,733.7	8,238.8
4-Way Cedar	CE shingle large	166.4	166.4
C. Benavidez	CY standard	33.3	
	CY gang	16.5	49.8
K. Pearson	Boomsticks	105.7	105.7
Broughton Products	CE poles (short)	181.3	181.3
Port McNeill F. P.	CE shingle large	17,858.6	
	CE shingle small	7,255.3	25,113.9
Total m^3			52,276.6

2.35 TIMBER WASTE

Indicator:	Objective:
35. DFA-scale billable waste remaining in cutblocks.	Over the DFA, billable waste < 50 m^3/ha in old growth timber, and < 25 m^3/ha in second growth.

STATUS AND COMMENTS

The average billable waste for old growth blocks harvested in 2000 was 31.5 m^3/ha (± 11.6 m^3/ha) (**Table 18**), and thus fulfilling the old growth waste objective.

The average billable waste in second growth blocks harvested in 2000 was 43.5 m^3/ha (± 17.3 m^3/ha), thus exceeding the second growth waste objective (**Table 19**). The waste objective was exceeded in second growth because of snowpress damage and lack of experience with second growth harvest. There was a high amount of snowpress damage to several stands, most notably

CT042wf. The random orientation of fallen stems in snowpress damaged stands (as opposed to fairly uni-directional stems in windfall damaged stands) made efficient harvesting difficult. The compounded problems of attempting to harvest snowpress damaged stands, and implementing and gaining experience with new mechanical procedures used in second growth harvesting has resulted in high amounts of billable waste. The billable waste in second growth stands is expected to decrease as salvage of snowpress is completed, and more experience is gained harvesting second growth stands.

Table 18. Billable waste for blocks of old-growth timber harvested in 2000 on TFL 37.

Old-growth blocks	Area (ha)	Billable waste (m^3/ha)	Old-growth blocks	Area (ha)	Billable waste (m^3/ha)
AC191	19.3	37.2	MK033	10.4	11.3
AC192	28.7	28.1	MK033WF	7.7	30.5
CA021	18.1	40.4	MS001	33.1	28.7
CE032H	38	54.6	NE018	31.9	47.7
CU012	41.2	17.8	NE024	38.9	46.2
CU020	36.3	16.5	NE072	38.1	29.8
CU025	39.6	21.1	NI020	16.0	16
DL013	24.9	37.8	NW062	42.0	38.5
DL024A	6.9	28.2	NW066	41.1	45.1
DL025	26.7	18.9	NW393	18.7	16.3
DL055	15.3	28.2	NW455	15.3	22.6
HR053	19.5	37.6	NW763H	2.8	32.4
HR102	20.1	27.0	NW765H	16.6	32
HT017	11.1	62.8	Q027	30.9	25.6
J010A	16.2	30.4	SC005	29.8	30.3
KA101	40.0	32.5	SW052BWF	5.4	30.4
KA171H	34.0	35.4	SW060	39.3	41.6
KA172H	21.3	17.1	SW063	32.0	33.2
KH090A	12.2	49.2	TK022	27.0	51.4
KT054	33.9	47.3	TK030	31.9	35.2
KT215H	35.1	25.1	TS018	30.9	19.8
KU030	29.1	28.5	TS035	35.5	20.2
KU040	11.5	27.9	TS041	24.9	40.3
M060	27.5	49.9	VR061	40.8	29.3
MCI009	27.4	28.2	WT040	27.1	22
MK009	25.9	14.6	Y025	26.1	39.9
MK019	25.9	11.8	SBFEP[5]	23.2	6.3
			AVERAGE (± SD)		31.1 (12.0)

[5] SBFEP = Small Business Forest Enterprises Program

Table 19. Billable waste for blocks of second-growth timber harvested in 2000 on TFL 37.

Second-growth blocks	Area (ha)	Billable waste (m^3/ha)
CT042wf	20.8	76.3
CU050	29.4	28.6
KT039A	9.6	21.8
NR002	5.1	29.7
NR003	30.7	45.6
SP001	3.9	54.1
SP030	16.4	44.2
TH001	32.4	47.6
	AVERAGE	43.5
	(± SE)	17.3

2.36 RECREATION SITES

Indicator:	Objective:
36. Area managed for recreation sites	Maintain the eight campsites on the DFA between June 15 and September 15 each year.

STATUS AND COMMENTS

There were no significant changes to the status of the recreation sites during 2000. The recreation sites were maintained on a regular basis by Canfor.

2.37 INTERPRETIVE TRAILS

Indicator:	Objective:
37. Area managed for interpretive forest trails	Maintain the three interpretive trails on the DFA between June 15 and September 15 each year.

STATUS AND COMMENTS

All interpretive trails were inspected by Canfor in 2000. No maintenance was required.

2.38 RECREATION FEATURES

Indicator:	Objective:
38. Area managed for recreational features, as the District Manager identifies them.	Establish management areas for recreational features, as the District Manager identifies them.

STATUS AND COMMENTS

In 2000, Canfor began a major update to the current recreation inventory (1993) for TFL 37. The completion target date for the update is March 2001. Canfor 's objective is to be co-operative in establishing a management area around known recreational features as they are identified by

the District Manager. To date these efforts have focussed on cave and karst features and have been addressed on a site-by-site basis.

2.39 ARCHAEOLOGICAL SITES

Indicator:	Objective:
39. Damage to known archaeological sites.	Zero known archaeological sites damaged as a result of Canfor's harvesting activities, unless approved through a permit process.

STATUS AND COMMENTS

No Culturally Modified Tree Assessments were required on harvest blocks, and there was no known damage to archaeological features in 2000.

2.40 CULTURAL FEATURES

Indicator:	Objective:
40. Management of cultural features, as they are located (i.e., control on accidental harvest of known CMTs)	In consultation with First Nations, establish management zones around cultural features as they are located, and where worker safety is not compromised (i.e., zero known CMTs accidentally harvested.)

STATUS AND COMMENTS

During 2000, cultural features were reviewed with the 'Namgis First Nation on the west side of Nimpkish Lake (NW092). The result of that initial review was that harvesting of NW092 was deferred pending a more extensive inventory of cultural features.

2.41 KILOMETRES OF STREAMS CLASSIFIED

Indicator:	Objective:
41. Kilometres of streams classified	Determine the classification of 950 km of unclassified streams on Canfor's operational base by December 31, 2003

STATUS AND COMMENTS

Further analysis of Canfor's operational base showed that there were in fact 1032 km of unclassified stream instead of the stated 950 km. During the 2000 field season, 142 km of stream were either classified, or deleted from the database if they were not found in the field. Therefore, the remaining number of kilometres of streams to be classified by December 31 2003 is 890 km.

REVISIONS

As a result of further review of the existing database, Canfor recommends that the wording of the Objective be changed to read "Determine the classification of 1032 km of unclassified streams…"

2.42 ACCESS TO BOTANICAL FOREST PRODUCTS

Indicator:	Objective:
42. Access to harvest non-timber botanical forest products	Provide safe access to forest through routine maintenance of roads in the DFA required for forest harvesting.

STATUS AND COMMENTS

Canfor accommodates the harvest of botanical products within TFL 37 by providing safe access to these resources and managing the seral stage distribution of the forest. The access management plan is being updated in the 2001–2006 Forest Development Plan.

Additionally, a non-timber forest product (NTFP) demonstration project has been initiated in the Nimpkish Valley in partnership with the Inner Coast Natural Resource Centre in Alert Bay to develop a methodology for conducting NTFP inventories (Canfor FDP, 2001–2006).

2.43 VISUAL QUALITY

Indicator:	Objective:
43. Block layout conformance with Visual Quality Objectives identified in SPs.	Block layout is 100% in conformance with visual quality objectives as identified in SPs, unless the District Manager approves a variance.

STATUS AND COMMENTS

In 2000, Visual Quality Assessments were conducted for NW100H, NW101, NW102, MK037, MK039 and WL001. Additionally there were several site visits with the regional Recreation Officer. The results of those Visual Quality Assessments ensured that the blocks were capable of maintaining the Visual Quality Objectives of the areas.

2.44 PUBLIC ADVISORY GROUP (NWAC)

Indicator:	Objective:
44. Creation and maintenance of a public advisory group.	Create opportunities for public input by creating and maintaining the Nimpkish Woodlands Advisory Committee to provide effective community based input into sustainable forest management.

STATUS AND COMMENTS

NWAC meetings continued throughout 2000. Since the inception of NWAC in February 2000 there have been nine meetings (three meetings post-audit). The World Wildlife Fund is a new invitee, and meetings are now advertised in local papers. Regular meetings are planned through 2001.

2.45 FIRST NATIONS CONSULTATION

Indicator:	Objective:
45. Documented opportunities provided to local First Nations for review of Forest Development Plans and Management Plans.	100% of Forest Development Plans and Management Plans are accessible for review by local First Nations.

STATUS AND COMMENTS

The 2001–2006 Forest Development Plan was reviewed with the 'Namgis and Twolitsis Mumtagila bands, but Canfor was unable to arrange a meeting with the Mowachaht/Muchalaht band. A meeting with the Mowachaht/Muchalaht band was scheduled, but the individuals that Canfor were to meet were away from their office in Taxana when Canfor arrived. Canfor did however manage to meet briefly with the band manager.

The 'Namgis provided written comments to which Canfor has responded in writing. The correspondence can be found in the Forest Development Plan file.

2.46 PROMOTING FIRST NATION'S PARTICIPATION

Indicator:	Objective:
46. First Nations participation in the Nimpkish Woodlands Advisory Committee (NWAC).	100% opportunity for the three local First Nation's participation in the NWAC.

STATUS AND COMMENTS

The DFA is almost entirely within the 'Namgis First Nations' territory, and only small areas of TFL 37 are within the Mowachaht/Muchalaht and the Tlowitsis/Mumtagila First Nations' territory. Invitations to all NWAC meetings have been provided via fax and phone calls to all three of the First Nations. Additionally, Canfor attempted to meet with the Mowachaht/Muchalaht First Nation to discuss the FDP and CSA certification (noted in Indicator 45). To date only the 'Namgis have attended the NWAC meetings.

2.47 REPLY TO PUBLIC COMMENTS

Indicator:	Objective:
47. Percent of public inquiries to which Canfor responds.	Respond to 100% of public inquiries within 30 days of receipt of comment.

STATUS AND COMMENTS

Canfor received comments on the 2001–2006 Forest Development Plan from the 'Namgis First Nation (noted above in Section **2.45**). Destiny Rivers Adventures. Canfor responded to those comments in writing, and a field trip is planned with them in February. The correspondence can be found in the FDP file.

Canfor's EMS Incident Tracking System had four public comments on file from 2000. All of those comments were addressed within the specified deadlines.

2.48 RESEARCH AND INVENTORY PROJECTS

Indicator:	Objective:
48. Number of forest based research and inventory projects	Conduct at least three research and inventory projects per year designed to improve Canfor's knowledge base of forest ecosystems.

STATUS AND COMMENTS

The following projects were either conducted or supported by Canfor during 2000:

Marbled Murrelet — Field verification of a habitat model was conducted in a portion of the Lower Nimpkish Landscape Unit in 1999/2000. Preliminary results show that most constrained old growth examined was suitable nesting habitat for marbled murrelets. In 2000/2001, field verification in the Lower Nimpkish LU was completed and Canfor began the Upper Nimpkish LU. The Upper Nimpkish LU will be completed in 2001/2002. Canfor's portion of the Tsitika LU will be completed in 2002/2003. Monitoring of WHAs or potential WHAs will be initiated in 2002/2003. The results of the field verification will be used to propose marbled murrelet wildlife habitat areas under Section 70 of the Operational Planning Regulation. Canfor will be in a position to begin proposing WHAs in the Lower Nimpkish LU by April 2001.

Queen Charlotte Goshawk — In 1995, Canfor partnered with Western Forest Products, Weyerhaeuser, Interfor, TimberWest and MELP to conduct inventory and research on Queen Charlotte Goshawks. Twenty-three nest sites have been identified to date on the TFL. Currently, MELP is monitoring each known nest site and conducting inventories in new areas throughout the TFL. This project will continue in 2001, and options for WHAs are being considered.

Keen's Long-eared Myotis — In 2000, Canfor inventoried two cave systems that had the potential of being a Keen's long-eared myotis hibernaculaum. Long-eared bats were detected in one of the caves, but at this time it is not known if the bats were Keen's long-eared myotis or Western long-eared myotis as the morphological characteristics are very similar.

2.49 ECOSYSTEM KNOWLEDGE BASE

Indicator:	Objective:
49. Additions to ecosystem knowledge base	Continuous updating through collection of technical bulletins and research articles related to DFA issues.

STATUS AND COMMENTS

During 2000, Canfor has maintained subscriptions to the Journal of Wildlife Management, and continued a subscription to ABSEARCH.

3 LITERATURE CITED

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Chapman Geoscience Ltd. 2000. Watershed Assessment Updates for: Upper Oktwanch River, Sebalhall River, Kilpala River, Noomas River, Kinman Creek. Prepared for Canadian Forest Products Ltd., Woss BC by Chapman Geoscience Ltd., Kamloops BC. October 2000. revised November 7, 2000.

Appendix 1. Glossary of Acronyms and Terms

GLOSSARY OF TERMS

AAC (Allowable Annual Cut)

The annual rate of timber harvesting specified for an area of land by the chief forester of the BC Ministry of Forests. The chief forester sets AACs for timber supply areas (TSAs) and Tree Farm Licences (TFLs) in accordance with Section 8 of the *Forest Act*.

Abiotic

Not of biological origin (see biotic). E.g., windthrow, forest fires, flooding.

Adaptive Management

A learning approach to management that incorporates the experience gained from the results of previous actions into decisions. It is a continuous process requiring constant monitoring and analysis of the results of past actions that are used to update current plans and strategies.

Anadromous

Anadromous fish are those that begin life in freshwater, but leave to spend part of their life rearing in the ocean before returning to freshwater to spawn as sexually mature adults. Anadromous salmonids include coho salmon, chinook salmon, pink salmon, chum salmon, sockeye salmon, steelhead (rainbow) trout, cutthroat trout, Dolly Varden char and bull trout.[14]

Anthropogenic

Influenced by the impact of man on nature.

BEC (Biogeoclimatic Ecosystem Classification)

A hierarchical classification scheme having three levels of integration; regional, local and chronological; and combining climatic, vegetation and site factors. The hierarchical classification includes Biogeoclimatic Zone⇒ sub-zone ⇒ variant⇒ site series.

Biogeoclimatic Zone

A geographic area having similar patterns of energy flow, vegetation, and soils as a result of a broadly homogenous macroclimate. British Columbia has 14 biogeoclimatic zones, of which the CWH (Coastal Western Hemlock), and MH (Mountain Hemlock) are found in the Nimpkish Valley.

Biogeoclimatic Variant

A subdivision of a biogeoclimatic subzone. Variants reflect further differences in regional climate and are generally recognised for areas slightly drier, wetter, snowier, warmer or colder than other areas in the subzone.

Biodiversity (or biological diversity)

The variability among living organisms from all sources including *inter alia* terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.[4]

Biotic

Relating to living beings, or of biological origin (see abiotic). E.g., insect outbreak, disease

Blue-listed Species

In British Columbia, the designation of an indigenous species, sub-species, or population as being vulnerable or at risk because of low or declining numbers or presence in vulnerable habitats. Included in this classification are populations generally suspected of being vulnerable, but for which information is too limited to allow designation in another category.[6]

Botanical Forest Products

Non-timber based products gathered from forest and range land. There are seven recognised categories: wild edible mushrooms, floral greenery, medicinal products, fruits and berries, herbs and vegetables, landscaping products, and craft products.[1]

CDC (Conservation Data Centre)

The British Columbia Conservation Data Centre (CDC) (see Blue-listed and Red-listed Species). The staff specialists at the CDC, in co-operation with scientists and specialists throughout the province, have identified those vertebrate animals, vascular plants and plant associations in the province which have become most vulnerable. Each of these rare and endangered species and plant associations has been assigned a global and provincial rarity rank according to an objective set of criteria established by The Nature Conservancy of the United States, and a status on the provincial Red or Blue lists.

CITES (Convention on International Trade in Endangered Species)

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement which regulates trade in a number of species of animals and plants, their parts and derivatives, and any articles made form them. The Convention is applied in Canada in accordance with the Wild Animal and Plant Trade Regulations made under the Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (WAPPRIITA).[13]

Appendix I animals and plants are rare or endangered, and people are not allowed to trade them, or their parts or derivatives for commercial purposes. Animals and plants listed on Appendix II are there for one of two reasons: 1) Their trade is being controlled because, if left unregulated, there is a risk that they will become rare or endangered, or 2) the species are similar to a rare or endangered Appendix I species. Appendix III animals and plant are being carefully managed by the country which has asked to have them added to the CITES control list.

COSEWIC

The Committee on the Status of Endangered Wildlife In Canada (COSEWIC) determines the national status of wild Canadian species, sub-species and separate populations suspected of being in danger. It bases its decisions on the best up-to-date scientific information available.

DFA (Defined Forest Area)

A specific area of land, forest and water delineated for the purposes of registration of a Sustainable Forest Management system (i.e., TFL 37).[5]

CMT (Culturally Modified Tree)

A culturally modified tree (CMT) is a tree that has been altered by native people as part of their traditional use of the forest. Non-native people also have altered trees, and it is sometimes difficult to determine if an alteration (modification) is of native or non-native origin. There are no reasons why the term "CMT" could not be applied to a tree altered by non-native people. However, the term is commonly used to refer to trees modified by native people in the course of traditional tree utilization.[9]

ECA (Equivalent Clearcut Area)

Equivalent clearcut area (ECA) is the area that has been harvested, cleared or burned, with consideration given to the silvicultural system, regeneration growth, and location within the watershed. ECA and road density are the two primary factors considered in an evaluation of the potential effect of past and proposed forest harvesting on peak flows.[10]

Ecosystem

A dynamic complex of plants, animals, and micro-organisms and their non-living environment interacting as a functioning unit. The term “ecosystem” can describe small-scale units, such as a drop of water, as well as large-scale units, such as the biosphere.[4] Ecosystems are commonly described according to the major type of vegetation, for example, forest ecosystem, old growth ecosystem, or range ecosystem.[1]

EMS (Environmental Management System)

An Environmental Management System is a set of standards established by the International Organisation for Standardization (ISO 14001). This process includes commitment, public participation, preparation, planning, implementation, measuring and assessing performance, and review and improvement of a management system. The incorporation of feedback loops into the process allows for ongoing enhancement of the integrity and performance of the management system, and is designed to lead to continual improvement.

FDP (Forest Development Plan)

An operational plan guided by the principles of integrated resource management (the consideration of timber and non-timber values), which details the logistics of timber development over a period of usually five years. Methods, schedules, and responsibilities for accessing, harvesting, renewing, and protecting the resource are set out to enable site-specific operations to proceed.

Foliar Analysis

Analysis of the nutrient content of leaves or needles. Foliar analyses can be used as a bioassay of environmental conditions affecting tree growth[1]

FPC (Forest Practices Code)

The Code is a term commonly used to refer to the Forest Practices Code of BC Act, the regulations made by Cabinet under the act and the standards established by the chief forester. The term may sometimes be used to refer to field guides as well. It should be remembered that unlike the act, the regulations and standards, field guides are not legally enforceable.

Free growing

Young trees that are as high or higher than competing brush vegetation with one metre of free-growing space surrounding their leaders. As defined by legislation, a free growing crop means a crop of trees, the growth of which is not impeded by competition from plants, shrubs or other trees. Silviculture regulations further define the exact parameters that a crop of trees must meet, such as species, density and size, to be considered free growing.

GIS (Geographic Information System)

Computer systems designed to allow users to collect, manage, and analyse large volumes of spatially referenced information and associated attribute data.

Greened-up

A cutblock that supports a stand of trees that has attained the green-up height specified in a higher level plan for the area, or in the absence of a higher level plan for the area, has attained a height that is 3 m or greater. Also, if under a silviculture prescription, meets the stocking requirements of that prescription, or if not under a silviculture prescription, meets the stocking specifications for that biogeoclimatic ecosystem classification specified by the regional manager.

IWMS (Identified Wildlife Management Strategy)

Those species at risk that the deputy minister of Environment, Lands and Parks or a person authorised by that deputy minister, and the chief forester, agree will be managed through a higher level plan, wildlife habitat area or general wildlife measure.[8]

Klumps

Treed patches that are not connected to the surrounding forest and are less than 2.5 ha in size

Local or Interested Parties

Includes members and member responsibilities listed in the Nimpkish Woodlands Advisory Committee's Terms of Reference (13 March, 2000).

Long-term

At a minimum, twice the period in years of the average life expectancy of the predominant tree species up to a maximum of 300 years.[5]

LU (Landscape Units)

An area of land and water used for long-term planning of resource management activities. It is important for designing strategies and patterns for landscape level biodiversity and for managing other forest resources. A landscape unit may be used by the District Manager (DM) to establish objectives for any propose permitted under section 2 of the *Forest Practices Code of British Columbia Act.*[2]

Major Level Spills

Major and minor level spill as defined in Canfor's, Englewood Logging Division's Emergency Preparedness and Response Plan (1999). The following table is adapted from that document:

Product	Minor Level	Major Level
Explosives	Any	Any
Marine – any kind	Any	Any
Pesticides (e.g., Vision)	Any	1 kilogram
Antifreeze	1 kilogram (≅ 1 litre)	5 kilograms (≅ 5 litres)
Waste Powertrain oils	5 litres (1 gallon)	100 litres (22 gallons)
Operating oils	20 litres (4 gallons)	100 litres (22 gallons)
All fuels	20 litres (4 gallons)	100 litres (22 gallons)
Solvents	20 litres (4 gallons)	100 litres (22 gallons)

MELP (Ministry of Environment, Lands and Parks)

Provincial government ministry.

MoF (Ministry of Forests)

Provincial government ministry responsible for the management and protection of the province's forest and range resources for the best balance of economic, social, and environmental benefits to British Columbia.

Monitor

Repeated observation, through time, of selected objects and values in the ecosystem to determine the state of the system. In particular, it entails the comparison of objects (e.g., organisms) and processes (e.g., streamflow) before and after management actions to determine the effect of those actions upon the ecosystem.[1]

OGMA (Old Growth Management Area)

Defined in the *Forest Practices Code of British Columbia Act* Operational Planning Regulation as an area established under a higher level plan which contains or is managed to replace structural old growth attributes.

Old growth forests on BC's coast are characterised by the following:

1. Two or more tree species of variable sizes and spacing;
2. Large live trees;
3. Patchy understory;
4. A deep, multi-layered crown canopy with gaps;
5. Standing dead trees (snags) and coarse woody debris of variable sizes.

OPR (Operational Planning Regulations, Operational Plans)

Within the context of area-specific management guidelines, operational plans detail the logistics for development. Methods, schedules, and responsibilities for accessing, harvesting, renewing, and protecting the resource are set out to enable site-specific operations to proceed. Operational plans include a forest development plan, logging plan, access management plan, range use plan, silviculture prescription, stand management prescription and 5 year silviculture plan.

Preferred and Acceptable Species

Preferred and acceptable tree species are those commercial tree species that are suited to the growing conditions of the site, and are identified in the Silviculture Prescription.

Red-listed Species

In British Columbia, the designation of an indigenous species, sub-species, or population as endangered or threatened because of its low abundance and consequent danger of extirpation or extinction. Endangered species are any indigenous species threatened with imminent extinction or extirpation throughout all or a significant portion of their range in BC Threatened species are any indigenous species that are likely to become endangered in BC if factors affecting that vulnerability are not reversed.[6]

Regeneration Delay

The maximum time allowed in a prescription, between the start of harvesting in the area to which the prescription applies, and the earliest date by which the prescription requires a minimum number of acceptable well-spaced trees per hectare to be growing in that area.

Rotation

The planned number of years between the formation and regeneration of a tree crop or stand and its final cutting at a specified stage of maturity.

Selection silviculture system

A silviculture system that removes mature timber either as single scattered individuals or in small groups at relatively short intervals repeated indefinitely, where the continual establishment of regeneration is encouraged and an uneven-aged stand is maintained. As defined in the Code's Operation Planning Regulation, group selection removes trees to create openings in a stand less than twice the height of mature trees in the stand.

Seral Stage

Any stage of development of an ecosystem from a disturbed, unvegetated state to a climax plant community. (FP Code)

Shelterwood silviculture system

A silviculture system in which trees are removed in a series of cuts designed to achieve a new even-aged stand under the shelter of remaining trees.

SFMP

Sustainable Forest Management Plan

Site Degradation

Productive forest land significantly degraded or permanently lost to forest production.

Site Index

An expression of the forest site quality of a stand, at a specified age, based either on the site height, or on the top height (height of the largest diameter tree on a 0.01 ha plot, providing the tree is suitable), which is a more objective measure (FPCode). The measure of the relative productive capacity of a site for a particular tree species, based on height at a given reference or base age (50)

Site Series

Variation in site conditions encountered within a biogeoclimatic unit is accommodated within the site classification of BEC. The site series describes all land areas capable of supporting specific climax vegetation. This can usually be related to a specified range of soil moisture and nutrient regimes within a subzone or variant, but sometimes other factors, such as aspect or disturbance history, are important determinants as well. A classification of site series for most of the biogeoclimatic units of the province has been developed by the BC Ministry of Forests and is presented in regional field guides.[12]

SFM (Sustainable Forest Management)

Management to maintain and enhance the long-term health of forest ecosystems, while providing ecological, economic, social, and cultural opportunities for the benefit of present and future generations.[3]

SMZ (Special Management Zone)

The government's announcement of the VILUP characterised SMZs as priority use areas for sensitive management of wildlife, old growth, visual, recreation and other non-timber resources.

Snag

Standing dead tree or part of a dead tree.

SP (Silviculture Prescription)

A site-specific management plan that is a legal prerequisite to logging on Crown Land. SPs specify planned forest activities, the methods to be used, and the proposed constraints necessary to protect the site and its resource values.

Stand Level

The level of forest management at which a relatively homogeneous land unit can be managed under a single prescription, or set of treatments, to meet well-defined objectives.

Terrain Class IV, IVR, V

Terrain stability classes provide a relative ranking of the likelihood of a landslide occurring after timber harvesting or road construction.

Terrain Stability Class	Interpretation
I	No significant stability problems exist.
II	• There is a very low likelihood of landslides following timber harvesting or road construction. • Minor slumping is expected along road cuts, especially for 1 or 2 years following construction.
III	• Minor stability problems can develop. • Timber harvesting should not significantly reduce terrain stability. • There is a low likelihood of landslide initiation following timber harvesting. • Minor slumping is expected along road cuts, especially for 1 or 2 years following construction. There is a low likelihood of landslide initiation following road construction.
IVR	• Expected to contain areas with a moderate likelihood of landslide initiation following road construction and a low or very low likelihood of landslide initiation following timber harvesting.
IV	• Expected to contain areas with a moderate likelihood of landslide initiation following timber harvesting or road construction.
V	• Expected to contain areas with a high likelihood of landslide initiation following timber harvesting or road construction.

Source: Mapping and Assessing Terrain Stability Guidebook — 1999

Terrain Stability Map

Terrain mapping is a method to categorise, describe and delineate characteristics and attributes of surficial materials, landforms, and geological processes within the natural landscape. Terrain stability mapping is a method to delineate areas of slope stability with respect to stable, potentially unstable, and unstable terrain within a particular landscape. Terrain stability map polygons indicate areas or zones of initiation of slope failure.[11] *(See Terrain Survey Intensity)*.

Terrain Survey Intensity

There are five terrain survey intensity levels (TSIL) used for terrain and terrain stability mapping in British Columbia. The survey intensity levels represent the extent of field checking done during mapping, expressed as a scale ranging from A (most checks) to E (least checks). Each level is a measure of the reliability of the mapping. It does not refer to a type of mapping or a map scale.

Terrain survey intensity levels (TSIL) for terrain and terrain stability mapping[11]

TSIL	Preferred map scale	Estimated range of average polygon sizes	% of polygons ground-checked	Method of field checking
A	1:5000 to 1:10 000	2-5 5-10	75-100	Ground checks by foot traverses
B	1:10 000 to 1:20 000	5-10 10-15	50-75	Ground checks by foot traverses
C	1:20 000 to 1:50 000	15-20 50-200	20-50	Ground checks by foot traverses, supported by vehicle and/or flying
D	1:20 000 to 1:50 000	20-30 100-400	1-20	Vehicle and flying with observations
E	1:20 000 to 1:100 000	200-600	0	No field work, only photo interpretation

TFL (Tree Farm Licence)

A Tree Farm Licence (TFL) is a stewardship agreement based on a sustained yield, land-based management unit. This includes the right to harvest a specified volume of timber annually and the obligation to carry out all phases of forest management on behalf of the Ministry of Forests. The licence has a term of 25 years and is replaceable every 10 years.[1]

Timber

Timber means trees, whether standing, fallen, living, dead, limbed, bucked or peeled (Forest Act)

Timber harvesting land base

The portion of the total area of a management unit considered contributing to, and being available for, long-term timber supply. The harvesting land base is defined by reducing the total land base according to specified management assumptions.

Timber supply analysis

An assessment of future timber supplies over long planning horizons (more than 200 years) by using timber supply models for different scenarios identified in the planning process.

Timber supply review (TSR)

The timber supply review program regularly updates timber supply in each of the 37 TSAs and 34 TFLs areas throughout the province. By law, the chief forester must re-determine the AAC at least once every five years to ensure AACs are current and reflect new information, new practices and new government policies.

TIPSY (table interpolation projection program for stand yields)

A program that interpolates data from TASS (tree and stand simulator) – a computer model that simulates the growth of individual trees and stands. This program is based on growth trends observed in fully stocked research plots growing in a relatively pest free environment. The yields will be very close to the potential of a specific site, species and management regime.

Twenty year plan

A TFL licensee submits an operational timber supply projection that indicates the availability of timber by setting out a hypothetical sequence of harvesting over a period of at least 20 years, consistent with proposed management objectives. The main purpose of the plan is to demonstrate whether or not the harvests projected in the base case over the next 20 years are spatially feasible, taking into account constraining factors such as Code requirements, timber harvesting land base deductions and the volume assignments per hectare on each entry.

Visual Quality Objective (VQO)

An approved resource management objective that reflects a desired level of visual quality based on the physical and sociological characteristics of the area; refers to the degree of acceptable human alteration to the characteristic landscape.

Waste

The volume of timber left on the harvested area that should have been removed in accordance with the minimum utilisation standards in the cutting authority. It forms part of the allowable annual cut for cut-control purposes.

Waterbody

Any land covered by water.

Windthrow

A tree or trees uprooted by the wind.

Sources:

1 Scientific Panel for Sustainable Forest Practices in Clayoquot Sound, 1995. Report 5. Sustainable ecosystem management in Clayoquot Sound: Planning and Practices. Queens Printer, Victoria, BC. 296 pp.

2 British Columbia Ministry of Forests and Ministry of Environment, Lands and Parks. 1999. Landscape Unit Planning Guide. March 1999.101 pp.

3 Canadian Council of Forest Ministers. 1996. Criterion and indicators of sustainable forest management.

4 Canadian Biodiversity Strategy. 1995.

5 Canadian Standards Association CSA Z808-96

6 British Columbia Conservation Data Centre.

7 MoF website: http://www.for.gov.bc.ca/pab/publctns/glossary/T.htm

8 British Columbia Ministry of Environment, Lands and Parks, and Ministry of Forests. 1999. Managing Identified Wildlife: Procedures and Measures. Volume 1, February 1999. 180 pp.

9 Stryud, A. H. 1998. Culturally modified trees of British Columbia. Report prepared by Arcas Consulting Archaeologists Ltd. for BC Ministry of Forests, Vancouver Forest Region. October 1998.

10 Coastal Watershed Assessment Procedure Guidebook (CWAP) Interior Watershed Assessment Procedure Guidebook (IWAP) – 1999

11 Mapping and Assessing Terrain Stability Assessment Guidebook – 1999

12 Standard for Terrestrial Ecosystem Mapping in British Columbia, May 1998.

13 Environment Canada, Canadian Wildlife Service: http://www.cws-scf.ec.gc.ca/cites

14 Fish Stream Identification Guidebook, 1998

Appendix 2. Canfor personnel responsible for monitoring SFM Indicators and Objectives.

Indicator	Objective	Actions/Monitoring	Frequency	Responsibility
1. Percent cover old growth by Landscape Unit (LU) and Biogeoclimatic Ecosystem Classification (BEC) variant	Achieve old growth management area (OGMA) objectives detailed in the SFM plan, by LU and BEC variant. Complete by 1 June 2001.	GIS-based exercise. Ground truthing over extended time period.	5 Years (with MP)	Habitat Forester
2. Seral stage representation by LU and BEC variant	Achieve seral stage representation objectives (±10%) by LU and BEC variant as detailed in the SFM plan, within three rotations.	GIS-based exercise	5 Years (with MP)	Habitat Forester
3. OGMA forest interior representation by LU and BEC variant	Maintain 25% (±5%) of the OGMA objective as forest interior habitat by January 1, 2004.	GIS-based exercise. Ground truthing over extended time period	5 Years (with MP)	Habitat Forester
4. Patch size representation by LU and BEC zone.	Maintain variable percentages of the forest that is ≤ 20 yrs old in variable patch sizes by LU and BEC zone. Review every 5 yrs.	GIS-based exercise	5 Years (with MP)	Habitat Forester
5. Percent wildlife tree retention by LU and BEC subzone.	Maintain variable percentages of the Harvest Area (≥ -5%) as representative wildlife tree areas by LU and BEC subzone.	Monitor all approved SPs	Annual	Habitat Forester
6. Area in LU and BEC variant managed for black bear habitat.	Define, establish, and delineate habitat areas as part of black bear habitat model development and management strategy. Develop strategy by March 31, 2002	GIS-based exercise. Ground truthing over extended time period	5 Years (with MP)	Habitat Forester
7. Area in DFA managed for black-tailed deer and Roosevelt elk critical winter range	Maintain ≥ 6000 ha as winter range for ungulates. Develop a strategy by March 31, 2001.	GIS-based exercise. Boundary rationalization underway	5 Years (with MP)	Habitat Forester
8. Area in LU managed for identified wildlife habitat.	Develop habitat models to predict potential identified wildlife habitat by March 31, 2002.	GIS-based exercise.	5 Years (with MP)	Habitat Forester
9. Percent of area in LU managed for Marbled Murrelet	Maintain 10% (±2%) suitable Marbled Murrelet habitat by LU. Develop strategy by December 2004	GIS-based exercise. Ground truthing for Marbled Murrelet is underway	5 Years (with MP)	Habitat Forester
10. Percent of cutblocks regenerated with more than one tree species, as indicated on free growing surveys	100% of the cutblocks to be reforested with tree species that are suited for the site.	Standardised free-growing surveys.	Annual	Silviculture Forester

Indicator	Objective	Actions/Monitoring	Frequency	Responsibility
11. Percent of harvested areas adjacent to streams, lakes and/or wetlands that have riparian management areas that are suited to protection of the associated aquatic habitat.	100% of cutblocks adjacent to streams, lakes and/or wetlands must meet or exceed regulatory requirements for riparian management unless the District Manager approves a variance.	• Internal audits • Compliance records • External audits	Annual	Planning and Development Manager
12. Percent of Ministry of Forests (MoF) registered seed used	100% of the seed and seed sources used for reforestation must be MoF registered	All seed ordered through MoF SPAR system ensures seed is registered.	Annual	Silviculture Forester
13. Percent of cutblocks in compliance with disease control measures identified in Silviculture Prescriptions (SPs).	100% of cutblocks in compliance with disease control measures in SPs, unless the District Manager approves a variance.	Annual aerial surveys and summarising results in SFM annual report.	Annual	Silviculture Forester
14. Time to control an accidental industrial or recreational fire	All accidental industrial and recreational fires extinguished or under control by 10 am the day after the fire started (± 20% of the reported fires).	Summaries of fire reports in SFM annual report.	Annual	Planning and Development Manager
15. Volume of timber salvaged from accidental fires	100% of timber is salvaged from fire outbreak where economically and ecologically appropriate.	Create fire damaged timber file. Review all incidents for potential harvest.	Annual	Planning and Development Manager
16. No. hectares/yr of forest lost to insect outbreak	Forest area lost due to insect outbreak not to exceed historical levels.	Annual aerial review of DFA. File results and report area in the SFM annual report.	Annual	Silviculture Forester
17. Volume of timber salvaged from severe insect outbreaks.	100% of timber is salvaged from epidemic insect outbreak where economically and ecologically appropriate.	Create insect damaged timber file. Review all incidents for potential harvest.	Annual	Planning and Development Manager
18. Volume of timber salvaged from severe windthrow events.	100% of timber is salvaged from severe windthrow events where economically and ecologically appropriate.	Create windthrow damaged timber file. Review all incidents for potential harvest.	Annual	Planning and Development Coordinators
19. Volume of timber salvaged from severe flooding events.	100% of timber is salvaged from severe flooding events where economically and ecologically appropriate.	Create flood damaged timber file. Review all incidents for potential harvest.	Annual	Planning and Development Manager
20. Percent of successfully regenerated cutblocks	Regeneration success on ≥ 95% (±5%) of cutblocks. Ongoing evaluations.	Standardised regeneration surveys.	Annual	Silviculture Forester

Indicator	Objective	Actions/Monitoring	Frequency	Responsibility
21. Percent of cut blocks that achieve free growing status as specified in SPs.	100% (-5%) of appraisal cutblocks will achieve free growing status within the free growing assessment period specified in SPs.	Standardised free growing surveys.	Annual	Silviculture Forester
22. Percent of cutblocks at or below site degradation specifications identified in SPs	100% (-5%) of cutblocks in compliance with site degradation objectives specified in SPs.	Site degradation surveys.	Annual	Silviculture Forester
23. Area set aside for special management associated with known habitat features as they are discovered.	Establish management zones around special habitat features, as they are located, and where worker safety will not be compromised.	Reviewed on a site-specific and species-specific basis.	As required	Habitat Forester
24. Percent of future and existing roads by productive forest area in the DFA	Future and existing roads to occupy ≤ 3.5% (±2%) of the productive forest land base. Ongoing evaluation.	Five-year summary analysis.	5 years (with MP)	Silviculture Forester
25. Operational plans are consistent with terrain stability assessments.	Operational plans are 100% consistent with terrain stability assessments, unless the District Manager approves a variance.	Conduct terrain stability assessments as required.	As required	Planning and Development Coordinators
26. Number of activities related to restoration of significant erosion hazards resulting from road and railways built prior to 1995.	Fix significant erosion hazards on pre 1995 roads on a priority basis. Critical hazards to be fixed within one week of discovery.	Scheduled Forest Renewal BC (FRBC) Watershed in Instream restoration projects.	Annual	Manager Coast Logging
27. Area managed for cave and karst features, as they are located.	Establish management areas for cave and karst features, as they are located.	Use Canfor's SOP for Surface Activity Management while operating in the proximity of type "B" karst features.	As required.	Planning and Development Coordinators
28. Number of contaminant spills per year that enter a waterbody	Zero contaminant spills that enter a waterbody, within legal variances of contaminated sites legislation.	Summary of spill log	Annual	Regional Compliance Manager
29. Operational Plans are consistent with Watershed Assessments	Operational plans are 100% consistent with watershed assessments, unless the District Manager approves a variance.	Conduct new, or update old watershed assessments.	Update every three years, or as required.	Planning and Development Coordinators
30. Percent of area reforested	Reforest 100% of the cutblocks with preferred and acceptable species as specified within SPs.	Standardised free growing survey.	Annual	Silviculture Forester
31. Allowable Annual Cut (AAC) as predicted through long-term harvest level projection and determined by the Chief Forester.	Harvest the AAC allocation over the 5 year cut control period (±10% over 5-yr period).	Update cut control records annually. Supply future harvest levels to division.	Annual	Planning and Development Manager

Indicator	Objective	Actions/Monitoring	Frequency	Responsibility
32. Documented communications with non-forest developers on the DFA.	In all referrals that have potential to remove significant land from the DFA, stress the minimisation of losses to the forest land base.	All referrals to be reviewed by P&D Manager	As required.	Planning and Development Manager
33. Shareholder value ($/$m^3$/yr)	Maintain AAC with a profit as indicated by a positive contribution to shareholder value ($/$m^3$/yr)	Calculate AAC and contribution to shareholder value, and review.	Annual.	Divisional Controller
34. Volume of harvest made available for local purchase at fair market price.	A minimum of 50,000 m^3/year will be available for local purchase at fair market price.	Log sales tracking.	Annual	Manager, Coast Logging
35. DFA-scale annual billable waste remaining in cutblocks.	Over the DFA, annual billable waste < 50 m^3/ha in old growth timber, and < 25 m^3/ha in second growth.	Standardised waste surveys.	Annual	Appraisal Forester
36. Recreation site maintenance	Maintain the eight campsites on the DFA between June 15 and September 15 each year.	General maintenance. Posting of fire hazards.	Seasonal.	Human Resources Supervisor
37. Interpretive forest trails maintenance.	Inspect three interpretive trails annually and maintain as required	Walk trails annually and ensure upkeep.	Annual	Habitat Forester
38. Area managed for recreational features, as the District Manager identifies them.	Establish management areas for recreational features, as the District Manager identifies them.	Prepare Forest Development Plans with recreational feature considerations	Annual, or as required.	Planning and Development Coordinators
39. Damage to known archaeological sites.	Zero known archaeological sites damaged as a result of Canfor's harvesting activities, unless approved through a permit process.	Culturally Modified Tree or Archaeological Impact Assessments conducted as required.	As required.	Planning and Development Coordinators
40. Management of cultural features as they are located	In consultation with First Nations, establish management zones around cultural features as they are located, and where worker safety is not compromised.	Review identified cultural features with the appropriate First Nations group	As required.	Planning and Development Manager
41. Kilometres of streams classified	Determine the classification of 950 km of unclassified streams on Canfor's operational base by December 31, 2003	Field classification of unclassified streams.	Annual	Habitat Forester
42. Access to harvest non-timber botanical forest products	Provide safe access to forest through routine maintenance of roads in the DFA required for forest harvesting.	Access Management plan component of Forest Development Plan.	Annual	Manager Coast Logging
43. Block layout conformance with Visual Quality Objectives identified in SPs.	Block layout is 100% in conformance with visual quality objectives as identified in SPs, unless the District Manager approves a variance.	Visual Impact Assessments as requested by the DM.	As required.	Planning and Development Coordinators

Indicator	Objective	Actions/Monitoring	Frequency	Responsibility
44. Creation and maintenance of a public advisory group.	Create opportunities for public input by creating and maintaining the Nimpkish Woodlands Advisory Committee to provide effective community based input into sustainable forest management.	Completed.	Annual	NWAC coordinator
45. Documented opportunities provided to local First Nations for review of Forest Development Plans and Management Plans.	100% of Forest Development Plans and Management Plans are accessible for review by local First Nations.	Review Forest Development Plans with First Nations and document comments.	Every 5 years, or as plans developed	Planning and Development Manager
46. First Nations participation in the Nimpkish Woodlands Advisory Committee (NWAC).	100% opportunity for the three local First Nation's participation in the NWAC.	Notification of meetings as per NWAC Terms of Reference	Meeting-by-meeting	NWAC coordinator
47. Percent of public inquiries to which Canfor responds.	Respond to 100% of public inquiries within 30 days of receipt of comment.	Incident Tracking System (ITS) Database.	Annual	Regional Compliance Manager
		Responses to written comments on Management Plans and Forest Development Plans.	Every five years for Management Plan.	Planning and Development Manager
48. Number of forest based research and inventory projects	Conduct at least three projects per year designed to improve our knowledge base of forest ecosystems.	Coordination of inventory and research projects as required.	Annual	Habitat Forester
49. Addition to ecosystem knowledge base.	Continuous updating through collection of technical bulletins and research articles related to DFA issues.	Collection, review and entry of summary information in database.	Bi-monthly updates	Habitat Forester