

# SUSTAINABLE FOREST MANAGEMENT PLAN

## 2006/07 Annual Report

### TREE FARM LICENCE 30

**Canadian Forest Products Ltd.**  
Prince George Operations



**BC Timber Sales**  
Prince George Business Area



**TABLE OF CONTENTS**

**1.0 INTRODUCTION .....1**

**1.1 EXECUTIVE SUMMARY .....1**

**2.0 SFM INDICATORS AND OBJECTIVES.....3**

**2.1 OLD FOREST.....3**

**2.2 INTERIOR OLD FOREST.....3**

**2.3 YOUNG FOREST PATCHES .....4**

**2.4 WET TRENCH & WET MOUNTAIN YOUNG PATCH SIZE DISTRIBUTION .....5**

**2.5 BIODIVERSITY RESERVES .....5**

**2.6 STAND LEVEL RETENTION .....6**

**2.7 COARSE WOODY DEBRIS .....6**

**2.8 CARIBOU HABITAT .....6**

**2.9 SPECIES AT RISK NOTICE /ORDERS & HABITAT .....7**

**2.10 RIPARIAN MANAGEMENT AREAS.....7**

**2.11 PERSONNEL TRAINED TO IDENTIFY SPECIES AT RISK & SITES OF BIOLOGICAL SIGNIFICANCE.....7**

**2.12 SPECIES AT RISK & SITES OF BIOLOGICAL SIGNIFICANCE MANAGEMENT STRATEGIES .....8**

**2.13 NATIVE PLANT SPECIES DIVERSITY .....8**

2.14	DECIDUOUS TREE SPECIES .....	9
2.15	EFFECTIVENESS MONITORING PLANS FOR SELECTED WILDLIFE SPECIES AND ECOSYSTEM RESILIENCE .....	9
2.16	DISTINCT HABITAT TYPES.....	9
2.17	CHIEF FORESTER’S STANDARDS FOR SEED USE .....	10
2.18	WILDLIFE BIODIVERSITY CORRIDORS.....	10
2.19	SITE INDEX.....	10
2.20	SOIL CONSERVATION.....	11
2.21	PERMANENT ACCESS STRUCTURES/LAND CONVERSION.....	11
2.22	TERRAIN STABILITY .....	11
2.23	REPORTABLE SPILLS.....	12
2.24	STREAM CROSSING QUALITY INDEX.....	12
2.25	STREAM CROSSINGS INSTALLATION.....	13
2.26	PEAK FLOW INDEX .....	13
2.27	SEDIMENT OCCURRENCE MITIGATION.....	14
2.28	NET AREA REFORESTED.....	14
2.29	MEETING FREE GROWING DATES.....	14
2.30	CARBON STORAGE .....	15
2.31	VOLUME OF TIMBER HARVESTED.....	15

2.32	DAMAGING AGENT ASSESSMENT .....	16
2.33	ACCIDENTAL INDUSTRIAL FIRES .....	16
2.34	NON-TIMBER BENEFITS REQUIREMENTS .....	17
2.35	PUBLIC INPUT OPPORTUNITY AND RESPONSE TO PUBLIC CONCERNS.....	17
2.36	VIEWING OF ACCESS PLANS .....	18
2.37	SURVEY OF NON-TIMBER USES AND LIST OF QUALITY & VALUE OF NON-TIMBER FOREST PRODUCTS .....	18
2.38	LOCAL CONTRACT VALUE .....	18
2.39	SUPPLY OF TIMBER TO LOCAL PROCESSING FACILITIES .....	19
2.40	MAIN ACCESS ROADS MAINTAINED .....	19
2.41	STUMPAGE PAID TO GOVERNMENT .....	19
2.42	AVERAGE INCOME OF DFA WORKERS.....	19
2.43	DONATION TO THE LOCAL COMMUNITY .....	20
2.44	LOSS TIME ACCIDENTS.....	20
2.45	ABORIGINAL AND TREATY RIGHTS .....	20
2.46	FSP REFERRAL AND PMP REFERRAL TO FIRST NATIONS .....	21
2.47	HERITAGE CONSERVATION ACT .....	21
2.48	ABORIGINAL PARTICIPATION IN PLANNING PROCESS.....	22
2.49	ABORIGINAL ISSUES EVALUATED .....	22

<b>2.50</b>	<b>ABORIGINAL STRATEGY INCORPORATION .....</b>	<b>22</b>
<b>2.51</b>	<b>PAG FOLLOW UP SURVEY .....</b>	<b>23</b>
<b>2.52</b>	<b>NUMBER OF PUBLIC ADVISORY GROUP MEETINGS .....</b>	<b>23</b>
<b>2.53</b>	<b>PUBLIC SECTOR PARTICIPATION IN THE PAG .....</b>	<b>23</b>
<b>2.54</b>	<b>PAG AND INTERESTED PARTIES SATISFACTION.....</b>	<b>24</b>
<b>2.55</b>	<b>CONTINUOUS IMPROVEMENT MATRIX .....</b>	<b>24</b>
<b>2.56</b>	<b>ALDER CONVERSION .....</b>	<b>24</b>

**LIST OF TABLES**

<b>TABLE 1.</b>	<b>CURRENT STATE OF OLD FOREST.....</b>	<b>2</b>
<b>TABLE 2.</b>	<b>CURRENT INTERIOR OLD FOREST CONDITION AND FORECASTING.....</b>	<b>3</b>
<b>TABLE 3.</b>	<b>CURRENT YOUNG PATCH SIZE DISTRIBUTION (JUNE 2006).....</b>	<b>3</b>
<b>TABLE 4.</b>	<b>WET TRENCH &amp; WET MOUNTAIN CURRENT YOUNG PATCH SIZE DISTRIBUTION (JUNE 2006).....</b>	<b>4</b>
<b>TABLE 5.</b>	<b>CURRENT STATUS OF BIODIVERSITY RESERVES.....</b>	<b>5</b>
<b>TABLE 6.</b>	<b>CURRENT STATUS OF CARIBOU HABITAT AND CONNECTIVITY CORRIDORS.....</b>	<b>6</b>
<b>TABLE 7.</b>	<b>STATUS OF PLANT DIVERSITY INDEX ON THE DFA, AS OF MARCH 31<sup>ST</sup> 2007.....</b>	<b>8</b>
<b>TABLE 8.</b>	<b>CURRENT DECIDUOUS TREE SPECIES COMPONENT AND TARGETS.....</b>	<b>8</b>
<b>TABLE 9:</b>	<b>COMPLIANCE WITH CHIEF FORESTER'S STANDARDS FOR SEED USE APRIL 1/06 TO MARCH 31/07 .....</b>	<b>9</b>
<b>TABLE 10.</b>	<b>CURRENT STATUS OF SITE INDEX.....</b>	<b>10</b>
<b>TABLE 11.</b>	<b>STREAM CROSSING QUALITY INDEX WITHIN TFL30 FOR 2006/2007.....</b>	<b>12</b>
<b>TABLE 12.</b>	<b>CURRENT PEAK FLOW INDEX ON THE DFA.....</b>	<b>13</b>
<b>TABLE 13.</b>	<b>NET AREA REFORESTED WITHIN 3 YEARS OF START OF HARVESTING.....</b>	<b>14</b>
<b>TABLE 14:</b>	<b>PERCENT OF CUT BLOCK AREA THAT MEETS FREE GROWING REQUIREMENTS AS IDENTIFIED IN SITE PLANS (APRIL 1, 2006 TO MARCH 31, 2007).....</b>	<b>14</b>
<b>TABLE 15.</b>	<b>CANFOR - CURRENT ALLOWABLE ANNUAL CUT ON THE DFA.....</b>	<b>15</b>
<b>TABLE 16.</b>	<b>BCTS – CURRENT ALLOWABLE ANNUAL CUT ON THE DFA.....</b>	<b>15</b>
<b>TABLE 17.</b>	<b>PUBLIC INPUT OPPORTUNITY FROM APRIL 1<sup>ST</sup> 2006 TO MARCH 31<sup>ST</sup> 2007 .....</b>	<b>17</b>
<b>TABLE 18.</b>	<b>LOCAL CONTRACT VALUE WITHIN TFL30.....</b>	<b>17</b>

## 1.0 INTRODUCTION

Canadian Forest Products Ltd. (Canfor) achieved registration under the Canadian Standards Association CAN/CSA Z809-96 Sustainable Forest Management Standards for Tree Farm Licence 30 in July 2001.

The TFL30 Public Advisory Group (PAG) was formed in September 2000 to help Canfor identify quantifiable local-level indicators and objectives of Sustainable Forest Management. Originally, 40 indicators and objectives were identified by the TFL 30 PAG and associated with forest management practices to achieve those objectives in a Sustainable Forest Management Plan for Tree Farm Licence 30 (Canfor SFMP, June 2001).

British Columbia Timber Sales (BCTS) accepted the invitation to cooperate in a joint SFM plan in the fall of 2005. Canfor and BCTS (Prince George Business Area) achieved registration under an updated certification standard (CSA-Z809-02) in June 2006. As a result of the new standard and the continuous improvement process, the number of indicators has expanded to 56.

It is important to note that the TFL30 SFMP is a working document and is subject to continual improvement. Over time, new knowledge, experience and research will be incorporated in order to recognize society's environmental, economic and social values.

This Annual Report measures the signatories' performance in meeting the indicator targets outlined in the SFMP for the TFL30 Defined Forest Area (DFA), over the reporting period of April 1<sup>st</sup> 2006 to March 31<sup>st</sup> 2007. The intent of the Report is for sustainable forest management to be viewed by the public as an open and evolving process to meet the challenge of forest management on the TFL30 DFA for the benefit of present and future generations.

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 Tree Farm Licence 30 (Canfor SFMP, June 2006).

## 1.1 EXECUTIVE SUMMARY

Of the 56 indicators listed in the following table, 48 indicators were met within the prescribed variances, 5 indicators are pending due to 2007 targets or outstanding licensee information and 1 indicator was not met within the prescribed variances. A corrective and preventative action plan is contained in the indicator discussions for each non-conformance indicator.

Indicator	Criteria & Elements Matrix	Objective Met	Objective Pending	Objective Not Met
2.1	Old Forest	1.1a, 2.1a	X	
2.2	Interior Old Forest	1.1b, 2.1b	X	
2.3	Young Forest Patches	1.1c	X	
2.4	Wet Trench & Wet Mountain Young Patch Size Distribution	1.1d	X	
2.5	Biodiversity Reserves	1.1e, 1.3a, 1.4e	X	
2.6	Stand Level Retention	1.1f, 1.3c	X	
2.7	Coarse Woody Debris	1.1g,h	X	
2.8	Caribou Habitat	1.2a	X	
2.9	Species at Risk Notice / Orders & Habitat	1.2b,c	X	
2.10	Riparian Management Areas	1.2d	X	
2.11	Personnel Trained to Identify Species at Risk & Sites of Biological Significance	1.2e, 1.4a,b		X
2.12	Species at Risk & Sites of Biological Significance Management Strategies	1.2f	X	
2.13	Native Plant Species Diversity	1.2g	X	
2.14	Deciduous Tree Species	1.2h	X	
2.15	Effectiveness Monitoring Plans for Selected Wildlife Species and Ecosystem Resilience	1.2i		X
2.16	Distinct Habitat Types	1.3b		X
2.17	Chief Forester's Standards for Seed Use	1.3d	X	
2.18	Wild life Biodiversity Corridors		X	
2.19	Site Index		X	
2.20	Soil Conservation		X	
2.21	Permanent Access Structures / Land Conversion		X	
2.22	Terrain Stability		X	
2.23	Reportable Spills		X	
2.24	Stream Crossing Quality Index			X
2.25	Stream Crossings Installation		X	
2.26	Peak Flow Index		X	
2.27	Sediment Occurrence Mitigation		X	
2.28	Net Area Reforested		X	
2.29	Meeting Free Growing Dates		X	
2.30	Carbon Storage		X	
2.31	Volume of Timber Harvested		X	

2.32	Damaging Agent Assessment			X	
2.33	Accidental Industrial Fires		X		
2.34	Non-Timber Benefits Requirements		X		
2.35	Public Input Opportunity and Response to Public Concerns		X		
2.36	Viewing of Access Plans		X		
2.37	Survey of Non-Timber Uses and List of Quality & Value of Non-timber Forest Products		X		
2.38	Local Contract Value		X		
2.39	Supply of Timber to Local Processing Facilities		X		
2.40	Main Access Road Maintained		X		
2.41	Stumpage Paid to Government		X		
2.42	Average Income of DFA Workers		X		
2.43	Donation to the Local Community		X		
2.44	Loss Time Accidents		X		
2.45	Aboriginal and Treaty Rights		X		
2.46	FSP Referral and PMP Referral to First Nations		X		
2.47	Heritage Conservation Act		X		
2.48	Aboriginal Participation in Planning Process		X		
2.49	Aboriginal Issues Evaluated		X		
2.50	Aboriginal Strategy Incorporation		X		
2.51	PAG Follow Up Survey		X		
2.52	Number of Public Advisory Group Meetings		X		
2.53	Public Sector Participation in the PAG		X		
2.54	PAG and Interested Parties Satisfaction		X		
2.55	Continuous Improvement Matrix		X		
2.56	Alder Conversion	1.4d	X		



## 2.0 SFM INDICATORS AND OBJECTIVES

### 2.1 OLD FOREST

**Indicator:** The amount of old forests by landscape unit/Natural Disturbance Type within the DFA.

**Management Objective:** Maintain old forests consistent with the targets (0% variance) in Table 1.

As was recommended in the 2005/06 Annual Report, the late seral distribution indicator methodology and targets have been replaced with the newer old forest indicator as identified in the Prince George Timber Supply Area – Landscape Biodiversity Order. This replacement includes the use of Natural Disturbance Unit (NDU) methodology. This change occurred following PAG discussion in the Fall of 2006, as part of the development of a new indicator matrix for the Z809-02 standard.

This indicator reflects the “state of the forest” and portrays the percentage of the landscape that is represented by the older age classes. Table 1 identifies the current status of old forest representation and targets associated with each landscape and ecosystem on TFL 30.

The old forest objective has been met in 2006/07 as 100% of the mature and old seral stage targets that were to be achieved annually were accomplished.

In a number of cases due to natural disturbances (such as fire) and past harvesting, the status of the old forest category is below the target required. As the forest grows older, the status will trend toward the targets. In these circumstances, it will take several decades before the targets are achieved. In old forest stages areas below the target, harvesting will not normally occur until the status is above the targets. Exceptions to this may be made for forest protection activities (beetles, windthrow).

**Table 1. Current State of Old Forest**

Land- scape Unit	N D T	BEC Subzones	Old Forest Stage (years)	Current Status as of March 31, 2007	Target %	Achieved By
Averil	3	SBSwk1, mk1	Old>140	26.5%	> 11%	Annually
	1	ICHvk2	Old>250	14.6%	> 13%	Annually
	1	ESSFwk2	Old>250	0%	> 19%	2026
Seebach	2	SBSvk	Old > 250	8%	> 9%	2011
	3	SBSwk1	Old > 140	53.9%	> 11%	Annually
	1	ICHvk2	Old > 250	15.2%	> 13%	Annually
	1	ESSFwk2, wc3	Old > 250	6%	> 19%	2031
Woodall	2	SBSvk	Old > 250	6%	> 9%	2011
	1	ICHvk2	Old > 250	7%	> 13%	2016
	1	ESSFwk2, wc3	Old > 250	2%	> 19%	2071

### 2.2 INTERIOR OLD FOREST

**Indicator:** The amount of old interior forest by Natural Disturbance Unit (NDU)/merged Biogeoclimatic Ecosystem Classification (BEC) within the DFA.

**Management Objective:** Achieve the targets of total interior old forest area by NDU/Merged BEC as per Table 2 (0% variance).

Old interior forest conditions are achieved when the climatic and biotic impact of adjacent younger stands no longer influences environmental conditions. This indicator is important because many species are dependent upon old interior forest conditions for their habitat requirements.

Formerly, this indicator was reported as “forest interior condition by variant by landscape unit”, but as per the 2005/06 annual report recommendation, the methodology and targets were replaced with those used in the Prince George Timber Supply Area Landscape Biodiversity Order. The updated targets and current status (as of June 2007) of interior old forest area are identified in Table 2.

**Table 2. Current Interior Old Forest Condition and Forecasting Results**

NDU/Merged BEC	Target Total Old Forest Area (ha)	Target Old Interior (%)	Target Old Interior (ha)	Old Interior (%) as of June '07	Current Old Interior (ha) as of June '07	Old Interior in 50 years (%)	Old Interior in 50 years (ha)
A2 NDU_McGregor Plateau_ESSF	137	≥40%	≥55	190%	257	5%	7
A3 + A13 NDU_McGregor Plateau_SBSmk1	816	≥25%	≥204	145%	1184	1%	12
A4 NDU_McGregor Plateau_SBSvk, wk1	13,397	≥10%	≥1,340	52%	7068	4%	507
A14 NDU_Wet Mountain_ESSFwk2	3,907	≥40%	≥1,563	72%	2815	77%	3,006
A15 NDU_Wet Mountain_ESSFwk3	2,479	≥40%	≥992	48%	1192	83%	2,049
A16 NDU_Wet Mountain_SBSwk1	1,273	≥25%	≥318	139%	1772	24%	310
A17 NDU_Wet Mountain_SBSvk	28,952	≥25%	≥7,238	42%	12,135	7%	2,025
A19 NDU_Wet Trench Mountain_ESSFwk2	935	≥40%	≥374	270%	2,528	105%	983
A20 NDU_Wet Trench Mountain_ESSFwk3	29	≥40%	≥11	5393%	1564	105%	30
A23 NDU_Wet Trench-Valley_SBSwk1	1	≥10%	≥0	0%	0	0%	0
A25 NDU_Wet Trench-Valley_SBSvk	10,342	≥25%	2,585	42%	4380	5%	509

All 11 NDU's are exceeding the Old Interior targets. In these areas, current and future practices will be to continue to harvest while monitoring the interior old forest status to ensure the minimum threshold limits are maintained. In one NDU (A23), the current interior old forest status is zero, due to the fact that there is little or no forest in the NDU that is classified as old. The current and future practice in this case will be to avoid harvesting of any old forest while planning for recruitment of the interior forest condition from mature stands.

### 2.3 YOUNG FOREST PATCHES

**Indicator:** The young forest patch size distribution by NDU/merged BEC within the DFA.

**Management Objective:** To trend towards the achievement of the young forest patch size targets by NDU as per Table 3 (0% variance).

This indicator addresses the pattern of young forest patches distributed across ecosystems and landscapes, with young forests defined as stands of 0 to 20 years of age.

Formerly, this indicator was reported as “patch size category by landscape unit”, but as per the 2005/06 annual report recommendation, the methodology and targets were replaced with those used in the Prince George Timber Supply Area Landscape Biodiversity Order.

Table 3 identifies the baseline current status (June 2006) of patch size classes and targets associated with the Natural Disturbance Units on TFL 30. As per the PG TSA Landscape Biodiversity Order, reporting protocol (July 2005), the reporting will take place over a 5-year period. The next current status reporting will be in 2011. Eight blocks were harvested in these NDU's over this reporting period, therefore no significant changes would be observed.

**Table 3. Current Young Patch Size Distribution (June 2006)**

Natural Disturbance Unit	Young Patch Size Class				Needed Future Young Patch Size Trending
	<50 ha	50-100 ha	100-1000 ha	>1000 ha	
<b>McGregor Plateau – Target %</b>	<b>10%</b>	<b>5%</b>	<b>45%</b>	<b>40%</b>	
Current Young Patch Size Distribution %	3%	3%	3%	90%	Trending towards increasing <50ha and 100-1000 ha blocks
Year 50 – Young Patch Size Distribution %	19%	6%	17%	58%	
<b>Wet Mountain – Target %</b>	<b>20%</b>	<b>10%</b>	<b>60%</b>	<b>10%</b>	
Current Young Patch Size Distribution %	7%	7%	22%	64%	Trending towards increasing <50ha and 100-1000 ha blocks
Year 50 – Young Patch Size Distribution %	25%	11%	20%	45%	
<b>Wet Trench – Target %</b>	<b>20%</b>	<b>10%</b>	<b>60%</b>	<b>10%</b>	
Current Young Patch Size Distribution %	6%	4%	1%	89%	Trending towards increasing

Year 50 – Young Patch Size Distribution %	13%	5%	10%	71%	<50ha, 50-100 ha & 100-1000 ha blocks
---	-----	----	-----	-----	---------------------------------------

In most cases, the current status of the patch size category is not near the specified target due to past harvesting trends. As the forest grows older and new harvesting is conducted, the targets may be maintained or achieved; however, this process may take several decades. Current and future practice will be to prescribe further harvesting that will accelerate the trend toward the desired target for each category.

## 2.4 WET TRENCH & WET MOUNTAIN YOUNG PATCH SIZE DISTRIBUTION

**Indicator:** Trend towards the percentage of area of patches in 101-500 ha range within the Wet Trench and Wet Mountain of the young patch size distribution class 101-1000 ha.

**Management Objective:** To trend towards the achievement of the young forest patch size targets by higher-elevation NDU as per Table 4 ( $\pm 10\%$  variance).

This indicator addresses the pattern of young forest patches distributed within the Wet Trench and Wet Mountain NDU's. The Prince George Forest District patch size category of 101-1000 hectares is too large a range to account for the natural disturbance ecology in these higher-elevation NDU's, so the range is sub-divided for the purpose of this indicator (as per Table 4).

As per the PG TSA Landscape Biodiversity Order, reporting protocol (July 2005) for patch size distribution, the reporting will take place over a 5-year period. The next current status reporting will be in 2011. No blocks were harvested within these NDU's during the reporting period.

**Table 4. Wet Trench & Wet Mountain Current Young Patch Size Distribution (June 2006)**

Natural Disturbance Unit	Young Patch Size Class		
	Area in 100-1000 ha	Area & % in 100-500 ha	Area & % in 500-1000 ha
Wet Trench – Target %		70% $\pm 10\%$	

Current Young Patch Size Distribution	110 ha	110 100%	0 ha 0%
Year 50 – Young Patch Size Distribution	828 ha	828 100%	0 ha 0%
<b>Wet Mountain – Target %</b>		<b>70% <math>\pm 10\%</math></b>	
Current Young Patch Size Distribution	3,912 ha	3,001 ha 77%	911 ha 23%
Year 50 – Young Patch Size Distribution	2,143 ha	2,143 ha 100%	0 ha 0%

With regard to the 100-500 ha patch size class, the Wet Trench NDU is currently above the target range and the Wet Mountain NDU is within the target range. As new blocks are designed in the short term within the Wet Trench NDU, there will be efforts made to increase young patch area within the 500-1000 ha patch size category so that the 100-500 ha young patch area falls within the target range.

## 2.5 BIODIVERSITY RESERVES

**Indicator:** The amount in hectares of landscape-level biodiversity reserves within the DFA; and the hectares of unauthorized forestry-related harvesting or road construction within Protected Areas.

**Management Objective:** To achieve the targets for landscape-level biodiversity reserves within the DFA as per Table 5 (0% variance); and to ensure no unauthorized forestry-related harvesting occurs within Protected Areas, as per Table 5 (0% tolerance).

Landscape-level biodiversity reserves include provincial parks and all other large reserve areas that are removed from the timber harvesting landbase. This indicator evaluates the amount of productive forest devoted to landscape level biodiversity reserves, and tracks the amount of area harvested within Protected Areas to enable forest managers to determine if there are flaws in the planning and implementation of forestry activities.

As illustrated in Table 5, the objective has been met for this reporting period as there was no harvesting in protected areas within the DFA.

**Table 5. Current Status of Biodiversity Reserves**

Biodiversity Reserve Type	Current Status (ha)* as of March 31, 2007	Target (ha)*	Area of Unauthorized Harvest	Achievement
Giscome Portage Trail	93	93	0 ha	Annually

Horseshoe Recreation Area	649	649	0 ha	Annually
High Value Caribou Habitat	8313	8313	0 ha	Annually
McGregor River Management Zone	3182	3182	0 ha	Annually
Seebach Riparian Management Zone	1196	1196	0 ha	Annually
Tri Lakes Recreation Area	675	675	0 ha	Annually
Woodall Recreation Area	1734	1734	0 ha	Annually
<b>Total</b>	<b>15,842 ha</b>	<b>15,842 ha</b>	<b>0 ha</b>	

\* All areas refer to the productive forested portion of the TFL

## 2.6 STAND LEVEL RETENTION

<b>Indicator:</b> The average percentage of stand level retention in harvested areas within the DFA.
<b>Management Objective:</b> On an annual basis, to achieve average stand level retention of >7% (>3.5% by cut block, with 0% variance).

Stand level retention consists primarily of wildlife tree patches and riparian management areas. The targets of 3.5% and 7% were established by the Provincial Government (Forest Planning and Practices Regulation) to ensure an adequate amount of original stand structure is maintained in and/or around a cut block as a result of landscape planning.

From April 1st 2006 to March 31st 2007, BCTS did not conduct forest operations on the DFA. Canfor harvested 708.4 ha and designated 98.8 ha as reserve areas. The average stand level retention is 12.9% within the DFA for this reporting period, with >3.5% retained on each harvested block.

## 2.7 COARSE WOODY DEBRIS

<b>Indicator:</b> The percentage of site plans that have Coarse Woody Debris (CWD) retention within the natural range appropriate for the site; and the percentage of cut blocks consistent with CWD requirements in operational plans.
<b>Management Objective:</b> To ensure that CWD retention requirements are part of the planning process and that those requirements are achieved in cut blocks

(target of 100% with variance of 0%).
---------------------------------------

Work was completed April 1st 2006 to March 31st 2007 to gather information for establishing a natural range of CWD in ecosystems that cover TFL30. This included a literature review and analysis of current data on CWD in natural forests and gathering new CWD data within natural stands. A monitoring strategy will be developed for collecting data in managed stands by December 31, 2007.

However, as of March 31st 2007, there is no established natural range for CWD in ecosystems on TFL30. Therefore, the target will be assumed to be the default amount noted in the Forest Planning and Practices Regulation, which is 4 pieces/ha of a certain size. Although Canfor and BCTS recognize that 4 pieces/ha is an unrealistically small amount that is likely insufficient for biodiversity purposes, this target will be applied until a target for the natural range of CWD is established.

From April 1st 2006 to March 31st 2007, Canfor harvested eight blocks on TFL 30 and BCTS did not conduct any harvesting. The site plans for all eight blocks specified CWD targets within the natural range, and 100% of the blocks were consistent with those CWD requirements.

## 2.8 CARIBOU HABITAT

<b>Indicator:</b> The amount in hectares of Caribou Ungulate Winter Range Habitat within TFL30.
---

<b>Management Objective:</b> To maintain the availability of high value caribou habitat (0% variance) and corridor habitat (0% variance) consistent with the targets in Table 6.
--

An "Ungulate Winter Range (UWR)" is defined as an area that contains habitat necessary to meet the winter habitat requirements of an ungulate species. The BC Conservation Data Centre has placed Mountain Caribou on the provincial red list, which species and sub-species that are endangered, extirpated or threatened in BC.

Canfor and BCTS are committed to 100% of forest operations being consistent with the approved Ungulate Winter Range Order #U7-003. Canfor and BCTS are also committed to maintaining the designated travel corridors as outlined in Table 6.

**Table 6. Current Status of Caribou Habitat and Connectivity Corridors**

Caribou Management Areas	Current Status	Target	Allowable Variance	Achieved By

High Value Caribou Habitat	Current status is 100% reserved from harvest. (7171 ha)	Reserve 100% of the high value Caribou habitat (7171ha) from harvesting.	None	Annually
Caribou Connectivity Corridors	There are 5459 ha with a total of 20 BEC/NDT combinations for tracking. On average across all units, currently 76% of the forested area is mature.	Maintain 5459 ha of functional* caribou connectivity corridors.	None	Annually

\* Functional is defined as being at least 200m wide and containing 70% mature forest

## 2.9 SPECIES AT RISK NOTICE /ORDERS & HABITAT

**Indicator:** The percentage of forest operations consistent with approved provincial Species at Risk Notice/Orders requirements as identified in operational plans; and the amount of Species at Risk (wildlife) habitat (ha) within TFL 30.

**Management Objective:** Ensure forest operations are consistent with approved provincial Species at Risk Notice/Orders requirements as identified in operational plans (target 100%, with 0% variance); and identify the amount of Species at Risk (wildlife) habitat (ha) within TFL 30 by June 2007 (+6 months variance).

In the DFA, mountain caribou, grizzly bear, fisher, and wolverine are red- or blue-listed species that play a key role in the ecosystems and/or are of great socio-economic value.

One provincial Species at Risk order applies to the DFA (Ungulate Winter Range Order #U7-003, pertaining to Mountain Caribou). 100% of the blocks harvested within the DFA during the reporting period were consistent with the requirements of UWR Order #U7-003.

(It is worth noting that one of Canfor's blocks is located within a Caribou Corridor identified in #U7-003, but that the requirements of the Order were met. Whereas the Order specifies to maintain a minimum of 20% of the forest in each corridor as 100+ years of age where no more than 20% of the areas is in less than 3m green-up condition, 74.4% of the corridor is 100+years of age with 5.6% in less than 3m green-up condition.)

Identification of the amount of Species at Risk habitat within the TFL is an ongoing project, targeted for completion by 30th June 2007 (+6 months variance).

## 2.10 RIPARIAN MANAGEMENT AREAS

**Indicator:** Percentage of forest operations consistent with riparian reserve requirements as identified in Site Plans; and percentage of forest operations consistent with riparian management requirements as identified in Site Plans.

**Management Objective:** Ensure that forest operations are consistent with riparian reserve and riparian management requirements as identified in Site Plans (target of 100%, with 0% variance).

Riparian areas occur next to the banks of streams, lakes and wetlands and include both the area covered by continuous high moisture content and the adjacent upland vegetation. Riparian management areas contribute to the sustainable forest management of TFL 30 through the conservation of riparian and aquatic environments, which are key to the survival of flora and fauna species. Riparian management areas also provide critical habitats, home ranges, and travel corridors for wildlife.

Over the past harvesting year (April 1<sup>st</sup> 2006 to March 31<sup>st</sup> 2007), 100% of all riparian reserve and riparian management requirements were consistent with the site plans (as determined through a review of the Canfor Incident Tracking System and EMS final harvest inspection forms). BCTS did not conduct forest operations on the DFA during this reporting period.

## 2.11 PERSONNEL TRAINED TO IDENTIFY SPECIES AT RISK & SITES OF BIOLOGICAL SIGNIFICANCE

**Indicator:** Percentage of appropriate personnel trained to identify Species at Risk and their habitat; and the percentage of appropriate personnel trained to identify Sites of Biological Significance.

**Management Objective:** To achieve the target of training 100% of appropriate personnel to identify Species at Risk and their habitat and Sites of Biological Significance (0% variance).

This indicator defines Species at Risk as endangered or threatened species; red-listed animal species, forested plant communities and plants; blue-listed animal species and forested plant communities; and provincially identified wildlife. Sites of Biological Significance include sites that support red- and blue-listed plant

communities and rare ecosystems; protected areas (such as parks and wildlife reserves); and features such as bald eagle or osprey nests and mineral licks.

100% of the appropriate Canfor staff was trained on the identification of Species at Risk and Sites of Biological Significance in the spring of 2006. The training, which is mandatory for new staff and a bi-annual requirement for all appropriate staff, is tracked on a database.

86.7% (52/60) of BCTS key staff and/or consultants were trained during the reporting period. This number reflects staff trained for BCTS's Prince George Business Area (17/17 contractor staff and 34/42 BCTS staff).

Canfor is developing a process to identify contractors who require training, and to communicate and track training completion. BCTS is refining a training matrix and a tracking system to identify key personnel who require the training. Furthermore, BCTS is developing an on-line training course to provide training for new staff or those staff who miss the bi-annual training opportunities.

## 2.12 SPECIES AT RISK & SITES OF BIOLOGICAL SIGNIFICANCE MANAGEMENT STRATEGIES

**Indicator:** Percentage of forest operations consistent with Species at Risk management strategies applicable to TFL 30; and the percentage of forest operations consistent with Sites of Biological Significance management strategies applicable to TFL 30.

**Management Objective:** To ensure that forest operations are 100% consistent with the Species at Risk and Sites of Biological Significance management strategies applicable to TFL 30 (0% variance).

Over the past three years, Canfor has developed and implemented management strategies for Species at Risk and some Sites of Biological Significance on the DFA. In 2006, BCTS completed a set of management strategies for their operations in the Prince George Forest District including TFL30.

Within this reporting period, no Species at Risk or Sites of Biological Significance were identified on Canfor blocks harvested in the TFL. BCTS did not conduct any forest operations in TFL30. The Species at Risk management guidelines developed in May 2005 were applicable during this period; new guidelines were released in April 2007.

## 2.13 NATIVE PLANT SPECIES DIVERSITY

**Indicator:** Native plant species diversity index by plant associations within the

DFA.

**Management Objective:** Maintain plant species diversity consistent with the targets identified in Table 7 (variance 0%).

A diversity index is a mathematical measure of species diversity in a community. Diversity indices provide more information about community composition than simply species richness (i.e., the number of species present); they also take the relative abundance of different species into account.

In order for entire ecosystems to function effectively and be able to recover from disturbances (e.g. forest harvesting activities), it is necessary to retain a natural diversity of elements that are fundamental to ecosystem recovery. Largely, plant species provide the basic requirements and fundamental habitat for faunal species and contribute to the recycling of nutrients and other life sustaining elements necessary to sustain the productive capacity of the ecosystem. As a result, ecosystem resilience is strengthened if a natural diversity of plant life can be maintained throughout TFL30.

The approach to monitoring Plant Diversity has been updated for the 2006/07 reporting period. The indicator landbase has been expanded to encompass the entire PG Timber Supply Area (PGTSA), including TFL30. As eight of the top ten PGTSA grouped site associations occur in the TFL, these eight associations were recommended for monitoring (see Table 7).

In 2005/06, the Shannon-Wiener index was applied, whereas Simpson's and Species Richness indices are also applicable for 2006/07.

As shown in Table 7, all grouped site associations have met the targets for Plant Diversity Index within managed stands.

**Table 7. Status of Plant Diversity Index on the DFA, as of March 31<sup>st</sup> 2007**

Grouped Site Association	Mean Shannon-Wiener Index (2006)	New Shannon-Wiener Target	Mean Simpson's Index (2006)	New Simpson's Target	Mean Species Richness (2006)	New Richness Target
Bl – Oak fern	2.588	>2.198	0.135	<0.187	38	>31
Bl – Rhododendron	2.430	>1.952	0.146	<0.251	36	>30
Sb – Feathermoss	2.469	>1.469	0.143	<0.378	28	>21
Sxw – Devil's club	2.615	>2.282	0.142	<0.165	43	>34
Sxw – Horsetail	2.727	>2.239	0.118	<0.186	49	>39

Sxw – Huckleberry	2.468	>1.720	0.153	<0.276	41	>33
Sxw – Oak fern	2.600	>2.203	0.130	<0.185	40	>32
SxwFd – Princes Pine	2.364	>1.963	0.167	<0.229	30	>23

## 2.14 DECIDUOUS TREE SPECIES

**Indicator:** Proportion of mature and old deciduous tree species by BEC subzone within the DFA.

**Management Objective:** Achieve the proportion of mature and old deciduous tree species by BEC subzone consistent with the targets (-1% variance) in Table 8.

The current status of this indicator (Table 8) remains unchanged from the information presented in the Sustainable Forest Management Plan for TFL30 (June 27, 2001), and indicates that the objective has been met. This indicator will be updated following the next re-inventory.

**Table 8. Current Deciduous Tree Species Component and Targets.**

BEC subzone	Natural Stands Current Status *	Managed Stands Current Status *	Target Managed Stands*	Achieved by
SBS mk1	11%	14%	>6%	Every 5 year re-inventory period
SBS wk1	7%	15%	>5%	
ICH vk2	2%	4%	>1%	
ESSF (all subzones)	0%	0%	0%	
SBS vk	2%	8%	>2%	

\* % deciduous based on basal area; the current status % were obtained by multiplying the percent composition of deciduous in each stand by BEC subzone reported in the VRI attribute file by the forested area within the stand then dividing by the total forest area in each BEC subzone variant (see table 51 and 52 in the MP 9 data information package for more details).

The current status of deciduous basal area in the ESSF is 0% in natural and managed stands due to the lack of deciduous species in high elevation ecosystems.

## 2.15 EFFECTIVENESS MONITORING PLANS FOR SELECTED WILDLIFE SPECIES AND ECOSYSTEM RESILIENCE

**Indicator:** Effectiveness monitoring plans (wildlife) are developed and implemented for selected indicator species to keep common species common; and a monitoring plan is developed and implemented for evaluating ecosystem resilience.

**Management Objective:** To develop and implement an effectiveness monitoring plan (wildlife) and ecosystem resilience by the target date of December 31<sup>st</sup> 2007 (+3 months variance).

To determine if productive populations of a selected species are present and well distributed throughout their habitat within the DFA, Canfor and BCTS committed to developing an Effectiveness Monitoring Plan for one or more indicator species. This plan will help determine if current management practices and policies are successful in producing desired populations.

A report on an Effectiveness Monitoring Plan for the DFA was received in late March 2007. Further planning is scheduled for 2007, with field inventories proposed to begin in late 2007/early 2008.

## 2.16 DISTINCT HABITAT TYPES

**Indicator:** The percentage of area (ha) occupied by distinct habitat types in the non-harvesting landbase.

**Management Objective:** To determine the percentage of area (ha) occupied by distinct habitat types in the non-harvesting landbase by the target date of June 30, 2007 (+3 months variance).

Maintenance of distinct habitat types on the Non-timber Harvesting Land Base (NHLB) is important for many reasons, including the use of natural landscapes in comparison to managed landscapes and the differences in values that each land base type shows with regards to the maintenance of distinct habitat types. Unmanaged stands play an important role as a precautionary buffer against errors in efforts intended to sustain species and a variety of genes within the managed forest.

TFL30 contains two levels of unmanaged forest: 1) at the stand level, which includes wildlife tree patches and riparian reserve areas, and 2) at the landscape level, which includes provincial parks and other large reserve areas that have become part of the NHLB through strategic-level processes. The NHLB occupies 15% of the forested land base of TFL30.

There are three general phases to the development of this indicator:

- 1) Identify the rare versus common ecosystem groupings;
- 2) Gather the necessary inventory layers to conduct in-house analysis of this indicator; and
- 3) Develop a process for monitoring the rare and common ecosystem groupings.

The first phase was completed during this reporting period. Analysis conducted in 2006 aggregated the Biogeoclimatic Ecosystem Classification (BEC) site series values into many coarse filter ecosystem groups (habitat types) based on relative similarities of indicator plant communities. The DFA includes 31 distinct habitat types that were overlaid onto the NHLB and THLB. A query of hectares associated with each habitat type within the NHLB and THLB was completed. The results were integrated into a preliminary rating of relative ecological risk associated with ecosystem representation.

This information was presented to the TFL PAG in November 2006, and the following targets were accepted:  $\geq 15\%$  of common ecosystem groupings will be maintained in the NHLB; and  $\geq 50\%$  of rare ecosystem groupings will be maintained in the NHLB.

Canfor and BCTS are now required to gather the inventory layers required to conduct in-house analysis of the indicator, and to develop a process that monitors and tracks the ecosystem groupings on the TFL DFA over time.

## 2.17 CHIEF FORESTER'S STANDARDS FOR SEED USE

**Indicator:** Percent compliance with Chief Forester's Standards for Seed Use.

**Management Objective:** To maintain 100% compliance with the Chief Forester's Standards for Seed Use (variance of 0%).

The Chief Forester's Standards for Seed Use is a component of the Forest and Range Practices Act (FRPA). Adherence to the Standards is crucial for sustainable forest management as the standards are designed to establish healthy stands composed of ecologically and genetically appropriate trees. Planting unsuitable genetic stock could result in stands that will not meet future economic and ecological objectives.

Table 9 shows the area planted with seedlings and seeds within the DFA in accordance with the Chief Forester's Standards for Seed Use for this reporting period.

**Table 9. Compliance with Chief Forester's Standards for Seed Use April 1/06 to March 31/07**

Licensee	Total Area Planted (ha)	Area Planted in Accordance with Chief Forester's Standards* (ha)	Total % DFA**
Canfor	23.3	23.3	100%
BCTS	39.6	39.6	100%
<b>TOTAL</b>	<b>62.9</b>	<b>62.9</b>	<b>100%</b>

\* Measured in terms of number of trees purchased

\*\* % = (Area planted in accordance with Chief Forester's Standards for Seed Use / total area planted) X 100

## 2.18 WILDLIFE BIODIVERSITY CORRIDORS

**Indicator:** The area in hectares in wildlife biodiversity corridors within the DFA.

**Management Objective:** To maintain  $\geq 82$  ha of wildlife biodiversity corridors within the DFA (variance of 0%).

Canfor has been actively planning for wildlife movement corridors since 1999. These movement corridors provide a mosaic of early-, mid- and late-successional vegetation stages which accommodates the needs of furbearers by giving them access to canopy cover and promoting the use of openings and ecotones for foraging.

A Certified Wildlife Biologist designed the corridors within the DFA, which attempt to mimic natural patterns of connectivity and to provide basic ecological linkages throughout the forest landscape.

As of March 31st 2007, more than 82 ha of wildlife biodiversity corridors have been established within the DFA.

## 2.19 SITE INDEX

**Indicator:** Site index by BEC subzone within the DFA.

**Management Objective:** To maintain the site index consistent with the targets (-5% variance) in Table 10.

Site index is a relative measure of forest site quality. It is a measure of the height growth that can be expected in 50 years (after trees reach 1.3 m in height) by a particular tree species on a given site. Since site index is a physical measure of the growth of trees in a stand at a specified point in time, it provides a good method to evaluate if the productivity capacity of the forest is being maintained.



Data from 1999 to 2004 was collated by BEC subzone for the site index calculation. The data mainly included pre-1987 silviculture surveys and recent free growing surveys, which allowed for growth intercept assessment of site index.

As illustrated in Table 10, the objective has been met for the reporting period as the current status of the site indices exceeds the targets.

**Table 10. Current Status of Site Index**

BEC Subzone	Elevation	Current Status (Average Spruce Site Index (m))	Target (Average Spruce Site Index in meters)	Achieved By
SBSmk1, SBSvk, SBSwk1	Less than 1000m	<b>22.8</b>	>19.4	A 5-year rolling average
SBSvk, SBSwk1	More than 1000m	<b>22.7</b>	>19.6	
ESSFwc3	More than 1000m	12.1	>11.5	
ESSFwk2	More than 1000m	<b>23.1</b>	>16.8	
ESSFwcp3	More than 1000m	6.0	>5.7	
ICHvk2	More than 1000m	<b>22.6</b>	>20.2	

*Bold numbers indicate updated average based on data collected during the reporting year.*

## 2.20 SOIL CONSERVATION

**Indicator:** The percentage of forest operations consistent with soil conservation standards as identified in Site Plans.

**Management Objective:** To achieve 100% of forest operations consistent with soil conservation standards as identified in Site Plans (0% variance).

During the reporting period of April 1st 2006 to March 31<sup>st</sup> 2007, BCTS did not conduct forest operations on the DFA. Canfor harvested eight blocks and conducted mechanical site preparation on four blocks. A review of completed EMS forms and the incident tracking system indicates that 100% of these Canfor blocks were consistent with the soil conservation targets identified in the Site Plans.

## 2.21 PERMANENT ACCESS STRUCTURES/LAND CONVERSION

**Indicator:** The total percentage of forested land area occupied by permanent access structures; and the percentage of productive forested land area converted to other non-forested areas.

**Management Objective:** To maintain the total percentage of forested land area occupied by permanent access structures to  $\leq 3\%$  (+1% variance); and to maintain the percentage of productive forested land area converted to other non-forested areas to  $\leq 0.5\%$  (+0.2% variance).

A permanent access structure is a structure, including a road, bridge, landing, gravel pit or other similar structure, that provides access for timber harvesting and remains after timber harvesting activities on the area are complete. Conversion to other uses would include any development project not covered under the above definition. This indicator is simply a measure of the amount of area permanently removed on an annual basis from the productive forest as a result of development, in relation to the defined forest area.

As per the June 2006 SFM Plan for the TFL (page 8), the productive forestland base is 159,385 ha. As of March 31<sup>st</sup> 2007, a total of 3,127.6 ha (1.96%) of the productive forestland base is classified as permanent access structures (including the 14.7 ha of road constructed by Canfor during the reporting period). No land conversion occurred during the reporting period, so as of March 31<sup>st</sup> 2007, a total of 0.002% (2.6 ha) of productive forested land had been converted to non-forested areas.

## 2.22 TERRAIN STABILITY

**Indicator:** The percentage of forest operations consistent with terrain management requirements as identified in Site Plans.

**Management Objective:** To ensure that 100% of forest operations are consistent with terrain management requirements as identified in Site Plans (variance of 0%).

A terrain stability field assessment (TSFA) is an assessment that is conducted by a certified terrain stability specialist (usually a professional geo-scientist/engineer) on areas determined to be at risk from mass wasting. TSFA's are completed on any proposed harvest area or road location that lies within an area identified as either unstable or potentially unstable. The assessment is usually completed prior to preparation of the site plan or road layout and design, to facilitate integration of the recommendations into the relevant operational plan. To ensure the recommendations are followed, Canfor conducts internal checks prior to the development project (pre-

work meeting), and following project completion (final inspection). Inconsistencies are reported through Canfor's Environmental Management System.

No terrain stability field assessments were required for the blocks harvested and roads constructed during the reporting period of April 1st 2006 to March 31st 2007.

## 2.23 REPORTABLE SPILLS

**Indicator:** The number of "legally" reportable spills.

**Management Objective:** To meet the target of 0 reportable spills (variance of 0).

The use of heavy equipment for forest operations may result in accidental petroleum/antifreeze release into the environment. As these materials can be toxic to plants and animals, avoidance of such spills or ensuring their proper containment will contribute to sustainable forest management.

The Spill Reporting Regulation of the *BC Environmental Management Act* requires any spill in excess of the reportable level for that substance to be immediately reported by the person involved, or an observer, to the Provincial Emergency Program.

This indicator is intended to monitor the number of spills that may occur as a result of forest operations and evaluate the success of measures to reduce such spills. By tracking spill occurrence, guidelines and procedures can be adjusted to improve handling and transportation procedures to avoid a reoccurrence of the spill.

Over the reporting period of April 1<sup>st</sup> 2006 to March 31<sup>st</sup> 2007, no reportable spills were caused within the DFA by Canfor or BCTS operations.

## 2.24 STREAM CROSSING QUALITY INDEX

**Indicator:** Stream Crossing Quality Index (SCQI) for each watershed within the DFA.

**Management Objective:** To achieve the target of 100% of Sub-basins having <10% SCQI high concerns (variance of -25%).

The stream crossing quality index is a measure of the potential of a stream crossing (on a permanent road) to deliver sedimentation into the stream. A high index indicates a high potential for the crossing to add sediment to the adjacent stream, whereas a low index indicates that the crossing is being well managed to reduce the possibility of sedimentation.

The following progress has been made on this indicator since June 2001:

- P. Beaudry & Associates developed a stream crossing quality index scoring methodology for Canfor, and produced a stream crossing inventory map.
- An associated database of stream crossing information was developed.
- Stream crossings were sampled in 8 sub-basins in TFL30 in 2002.
- Sampling continued in the summer of 2004 with the completion of the Upper Seebach and 7 additional watersheds.
- In 2005, work completed on crossings in two watersheds resulted in moving them below the target. Also in 2005, an update to the plan for maintaining this indicator below threshold levels was completed.
- 13 crossings with High SCQI scores were rehabilitated in the summer of 2006 (Lower Olsson and Basin 4); these sites will be assessed by P. Beaudry & Associates in the early summer of 2007.

In the spring of 2007, P. Beaudry & Associates completed another update to the plan for maintaining the SCQI indicator below threshold levels. Table 11 identifies the current SCQI ratings by watershed, which shows that the 2006 rehabilitations could reduce the number of watersheds above the threshold from seven to five.

**Table 11. Stream Crossing Quality Index within TFL30 for 2006/2007**

Sub-Basin	Number of crossings surveyed	% Crossings Classified as High (Nov. 2005)	Number of Highs Treated in 2006	Potential Rank as of Spring 2007
Watershed 20	62	21.0		21.0
Watershed 25	22	13.6		13.6
Averil Creek	157	11.5		11.5
Lower Seebach	52	11.5		11.5
Herring Creek	83	10.8		10.8
Lower Olsson	48	14.6	2	9.6
Mokus Creek	24	8.3		8.3
Woodall Creek	96	7.3		7.3
Horn Creek	173	6.4		6.4
East Seebach	269	6.3		6.3
Upper Seebach	300	6.0		6.0
Barney Creek	70	5.7		5.7
Basin A	100	5.0		5.0
Basin 4	48	14.6	5	4.2
Upper Olsson	187	3.2		3.2
East Olsson	39	2.6		2.6
Watershed D	44	2.3		2.3

Limestone	59	0.0		0.0
Basin C	54	0.0		0.0
Basin 7	13	0.0		0.0
West Torpy	114	0.0		0.0
Hubble Creek	60	0.0		0.0
Basin F	17	0.0		0.0
Tay Creek	35	0.0		
Basin B	8	0.0		
Watershed E	0	Low accessibility		
Basin 27	0	Not accessible		

## 2.25 STREAM CROSSINGS INSTALLATION

**Indicator:** The percentage of new or deactivated stream crossings that maintain natural stream flow.

**Management Objective:** To maintain natural stream flow on 100% of new or deactivated stream crossings (variance of 0%).

As roads are constructed to access areas for forest operations, it is necessary to build structures (i.e. culverts, bridges) where roads intersect with streams. This indicator will measure the success of maintaining fish movement and managing peak flow at all new and deactivated stream crossings in the DFA.

Streams and crossing structures are identified during site plan preparation. All streams are surveyed for fish bearing potential and qualified personnel determine probable peak flow volumes. The appropriate culvert size and installation procedures are then prescribed for the stream crossing. EMS pre-work forms are completed prior to their installation and the supervisor is then required to perform a complete inspection of the structure. In addition, many stream crossing structures undergo scheduled inspections over time, as part of EMS procedures.

During the reporting period, Canfor installed and subsequently deactivated 13 stream crossings in the Giscome operating area, and deactivated six older crossings in other areas on the TFL. As natural stream flow was maintained on 100% of these sites, the objective has been met.

BCTS did not install or deactivate any crossings during the reporting period.

## 2.26 PEAK FLOW INDEX

**Indicator:** Peak flow index (PFI) for each watershed within the DFA.

**Management Objective:** Each year, 100% (- 10% variance) of the watersheds will be below the baseline target in Table 12. Each year, all watersheds that exceed the baseline target will have a watershed review completed wherever new harvesting is planned (0% variance).

The peak flow index is an indicator of the potential effect of harvested areas on water flow in a particular watershed. Most hydrologic impacts occur during periods of the peak stream flow in a watershed. Peak flow is the maximum flow rate that occurs within a specified period of time, usually on an annual or event basis. In the interior of British Columbia, peak flow occurs as the snowpack melts in the spring.

Table 12 presents the current peak flow index status in the 27 watersheds on the TFL. Currently, 100% of the watersheds are below the targets.

**Table 12. Current Peak Flow Index on the DFA**

Watershed name	PFI as of March 31, 2007	Target	Achieved
Averil	44	< 65	Annually
Barney Creek	30	< 37	
Basin 20	34	< 65	
Basin 25	48	< 80	
Basin 27	45	< 80	
Basin 7	41	< 80	
East Olsson	37	< 37	
Herring	41	< 65	
Horn	27	< 37	
Hubble	29	< 80	
Limestone	44	< 80	
Lower Olsson	39	< 65	
Mokus	72	< 90	
Residual A	22	< 65	
Residual B	33	< 37	
Residual C	37	< 65	
Residual D	20	< 37	
Residual E	27	< 65	
Residual F	39	< 65	
East Seebach	28	< 80	
Lower Seebach	58	< 65	

Upper Seebach	39	< 80
Tay Creek	42	< 80
Upper Olsson	29	< 80
Basin 4	32	< 65
Woodall	25	< 37
West Torpy	16	< 37

## 2.27 SEDIMENT OCCURRENCE MITIGATION

**Indicator:** The percentage of unnatural sediment occurrences where mitigative actions were taken.

**Management Objective:** On an annual basis, to take mitigative action, if required, on 100% of known unnatural sediment occurrences (-5% variance).

Sedimentation can damage water bodies by degrading spawning beds, increasing turbidity, and reducing water depths. Forest management activities may create unnatural inputs of sedimentation into water bodies. In addition to the effects of roads, sedimentation may also occur from slope failures as a result of forestry activities. Once sedimentation occurrences are detected, mitigative actions must be taken to stop further damage and rehabilitate the site. Tracking these mitigative actions contributes to sustainable forest management by evaluating where, when and how sedimentation occurs, and monitoring the results of the mitigative actions.

Forestry personnel detect sedimentation occurrences during stream crossing inspections, road inspections, silviculture activities, and other general activities. While in some situations the sites may have stabilized so that further sedimentation does not occur, in other cases mitigative actions may be required. This may involve re-contouring slopes, installing siltation fences, re-directing ditch lines, grass seeding, or deactivating roads.

No unnatural known sedimentation occurrences required mitigative actions between April 1st 2006 and March 31st 2007 in the DFA.

## 2.28 NET AREA REFORESTED

**Indicator:** Percentage of net area regenerated within 3 years after the completion of harvesting.

**Management Objective:** To regenerate 100% of net area within 3 years of harvest completion (-5% variance).

Prompt reforestation of harvested areas is a major component of sustainable forest management. In addition to creating wildlife habitat, maintaining hydrologic processes, and providing future timber for harvesting, regenerating cutblocks absorb significant amounts of carbon through photosynthesis. Because young plantations are typically healthy and rapidly growing, they sequester more CO<sub>2</sub> through photosynthesis than they release through decay. By reducing atmospheric greenhouse gases such as CO<sub>2</sub>, regenerating cutblocks can contribute to reducing climate change. The sooner cutblocks are regenerated after the completion of harvest the sooner this process can begin.

Tracking plantation establishment will allow forest managers to assess how quickly and successfully regeneration is occurring, and if possible, adjust operations to reduce the time it takes to achieve reforestation.

As shown in Table 13, 100% (1879.1 of 1879.1 ha) of net areas to be reforested have been regenerated within 3 years after start of harvesting by Canfor. BCTS did not have any harvested and regenerated areas to report for this period.

**Table 13. Net Area Reforested within 3 Years of Start of Harvesting**

Licensee	Net Area Harvested (ha)	Net Area Regenerated (ha)	% in DFA
Canfor	1879.1	1879.1	
BCTS	0	0	
<b>TOTAL</b>	<b>1879.1</b>	<b>1879.1</b>	<b>100%</b>

## 2.29 MEETING FREE GROWING DATES

**Indicator:** Percentage of cut block area that meets Free Growing requirements as identified in Site Plans.

**Management Objective:** To meet Free Growing requirements as identified in Site Plans for 100% of cut blocks (0% variance).

A free growing stand is a stand of healthy trees of a commercially valuable species, the growth of which is not impeded by competition from plants, shrubs or other trees (BC MOF 1995b). A free growing assessment is conducted on stands based on the time frame indicated by the site plan, and assesses the fulfilment of a Licensee's obligation to the Crown for reforestation.

If a survey indicates that the stand has not achieved free growing status by the required date, corrective actions will be prescribed immediately in order to remedy the situation while still meeting the late free growing deadline.

While achievement of this indicator is important in a legal sense, it is also important for sustainable forest management. Stands that meet free growing standards are deemed to have reached a stage where their continued presence and development is more assured. They are of a stand density, health, and height that make them less vulnerable to competition and more likely to reach maturity. Producing a free to grow stand means that the forest ecosystem will continue to develop. It means that carbon sequestration will also continue, locking up additional green house gases as cellulose in the growing plantation.

For the reporting period of April 1<sup>st</sup> 2006 to March 31<sup>st</sup> 2007, the target for this measure was met as demonstrated in Table 14.

**Table 14: Percent of Cut Block Area that Meets Free Growing Requirements as Identified in Site Plans (April 1, 2006 to March 31, 2007)**

Licensee	Cut block area required to meet late Free Growing (FG) during reporting period	Cut block area required to meet FG succeeding in meeting FG during or before reporting period	% of Target
Canfor	430.1	1280.7	297.8%
BCTS	0	0	
<b>TOTAL</b>	<b>430.1</b>	<b>1280.7</b>	

\* % = (Cut block area achieving free to grow status/ cutblock area required to meet free to grow status) X 100

### 2.30 CARBON STORAGE

**Indicator:** The amount of carbon stored in forest ecosystems within the DFA, reported separately for the timbered and non-timbered landbases.

**Management Objective:** To maintain carbon storage in forest ecosystems within the DFA at >150 tonnes/ha (0 tonnes/ha variance).

Although carbon uptake and storage is not currently monitored on the DFA, several forest-level decision support tools are available for assessing carbon sequestration rates. One such tool is the Canadian Forest Services Carbon Budget Model (CBM-CFS2) (an overview of this model is presented on the CFS website at [http://www.carbon.cfs.nrcan.gc.ca/cbm/index\\_e.html](http://www.carbon.cfs.nrcan.gc.ca/cbm/index_e.html)). CBM-CFS2 is a potentially suitable model for the TFL30 because it contains many of the fundamental requirements for the achievement of SFM objectives identified through this measure.

This indicator was refined at the January 10<sup>th</sup> 2007 TFL PAG meeting. Following a presentation on the indicator, the PAG agreed upon a target of 150 tons/ha and a variance of 0 tons/ha, to be reported by timber and non-timber landbase. The

indicator is to be reported when the timber supply analysis is conducted (generally, every five years or when other analysis opportunities allow for efficient reporting).

### 2.31 VOLUME OF TIMBER HARVESTED

**Indicator:** Cut control volume of timber harvested (m<sup>3</sup>/year) within the DFA.

**Management Objective:** To meet the target of ≤100% of cut control volume of timber harvested (m<sup>3</sup>/year) within the DFA (variance of +10% over each five-year cut control period).

To be considered sustainable, the harvesting of a renewable resource such as timber cannot deplete the resource on an ecological, economic or social basis. The determination of the Allowable Annual Cut (AAC) involves the consideration of various factors such as the long-term sustainable harvest of the timber resource, community stability, wildlife use, recreation use, and the productivity of the DFA. The AAC is generally determined every five years by the Chief Forester of the Province of British Columbia, using extensive data and forecasts to assess the resource values to be managed. On behalf of the Crown, the Chief Forester makes an independent determination of the rate of harvest that is considered sustainable.

The harvest level for a defined area must be met within thresholds that are established by the Crown. Maintaining the rate of harvest consistent with what is considered by the province to be sustainable ecologically, economically and socially within the DFA is considered sound forest management. Due to the current mountain pine beetle epidemic in the Prince George TSA, harvest priority has shifted to the Prince George and Fort St. James DFA's and the cut has been temporarily reduced in TFL30.

This indicator is a simple annual summary of the volume of timber harvested from the DFA. These values are determined from timber scale billings from each calendar year, based on the data used by the Crown to determine stumpage revenue. Note that this target was changed from 100% to ≤100% by PAG consensus (Indicator 5.1a on the Criteria & Elements Matrix).

The current status of volume cut in 2006 is shown in Table 15. BCTS cut 214,510 m<sup>3</sup> during the period from 2000-2004, and 0 m<sup>3</sup> from 2005-2006 (as shown in Table 16).

**Table 15. Canfor - Current Allowable Annual Cut on the DFA**

Year	Actual Recorded Cut (m <sup>3</sup> )	Allowable Annual Cut (m <sup>3</sup> )	% Recorded Cut of AAC	5-Year Cut Control %
2000	285,016	328,688	86.7%	
2001	165,183	328,688	50.3%	

2002	375,231	328,688	114.2%	98.3%
2003	301,940	180,000	190.3%	
2004	135,220	180,000	86.6%	
2005	41,506	180,000	23.1%	(Note that the final review of this measure will be undertaken at the end of the cut control period)
2006	43,371	180,000	24.1%	

**Table 16. BCTS – Current Allowable Annual Cut on the DFA**

Year	Actual Recorded Cut (m <sup>3</sup> )	Allowable Annual Cut (m <sup>3</sup> )	% Recorded Cut of AAC	5-Year Cut Control %
2000	41,182	65,253	63.1%	70.1%
2001	62,794	21,312	294.6%	
2002	0	21,312	0%	
2003	0	21,312	0%	
2004	0	21,312	0%	
2005	0	21,213	0%	(Note that the final review of this measure will be undertaken at the end of the cut control period)
2006	0	21,213	0%	

### 2.32 DAMAGING AGENT ASSESSMENT

<b>Indicator:</b> Percentage of the DFA (pre-harvest and after free growing) assessed for damaging agents.	<b>Mgt. Objective:</b> To complete an annual overview assessment of the DFA for damaging agents (pre-harvest and after free growing), targeting 100% over a 10-year period (-20% variance).
<b>Indicator:</b> Percentage of the DFA (pre-free growing) assessed for damaging agents.	<b>Mgt. Objective:</b> To assess 100% of the DFA for damaging agents (pre-free growing) over a 7-year period (-10% variance).
<b>Indicator:</b> Non-recoverable volume loss due to stand damaging agents.	<b>Mgt. Objective:</b> To manage non-recoverable volume loss due to stand damaging agents between >1500 m <sup>3</sup> /yr and ≤4000 m <sup>3</sup> /yr, applied as unplanned losses to the Timber Harvesting Land Base and calculated as a 10-year rolling average.

Monitoring the health of the forest within the DFA plays an important role in maintaining the continuous flow of economic benefits. The timing of the damaging

agent assessments will allow for adjustments to be made in the planning process, and for a greater understanding of the damaging agents that affect forest productivity.

At its November 2006 meeting, the PAG refined the target definition for pre-harvest and post-free growing assessment, and agreed to the targets for non-recoverable volume loss.

The objective has been met for the first part of this indicator, as overview assessments of the DFA were conducted twice during the reporting period, via helicopter flights in August 2006 and late November 2006.

Between April 1<sup>st</sup> 2006 and March 31<sup>st</sup> 2007, 6036 hectares were assessed for damaging agents on pre-free growing blocks in the DFA.

As part of the timber supply analysis in 2000 for TFL30 Management Plan 9, unsalvaged losses were calculated as 3640 m<sup>3</sup> per year, representing approximately 5% of the total amount of timber damaged. Annual overview flights and ground surveys indicate that since 2000, the mountain pine beetle is the most significant damaging agent on the TFL (primarily in the Barney operating area). During the reporting period, efforts have been made to salvage mountain pine beetle-attacked stands in the Barney. Spatial analysis indicates that approximately 12,500 m<sup>3</sup> of stands with a pine component (>20%) have been retained within inoperable areas or riparian reserves in the Barney. Therefore, the non-recoverable volume loss due to stand damaging agents is calculated to be 16,140 m<sup>3</sup> for this reporting period (the first year for the 10-year rolling average).

### 2.33 ACCIDENTAL INDUSTRIAL FIRES

**Indicator:** Number of area (hectares) damaged by accidental forestry-related industrial fires.

**Management Objective:** To manage the area damaged by accidental forestry-related industrial fires within the target of <10 ha per year (variance +5 ha).

This indicator applies to accidental industrial fires originating in the DFA. As fire can result in catastrophic losses to the timber supply, wildlife, and private property, a high value has been placed on reducing the impact of these fires in the DFA.

From April 1<sup>st</sup> 2006 to March 31<sup>st</sup> 2007, 0 hectares were damaged due to accidental forestry related industrial fires originating within Canfor and BCTS operations on the DFA.

### 2.34 NON-TIMBER BENEFITS REQUIREMENTS

**Indicator:** The percentage of forest operations consistent with the following non-timber benefits: visual quality, cultural heritage, and lakeshore management requirements in site plans.

**Management Objective:** To manage 100% of forest operations consistent with the following non-timber benefits: visual quality, cultural heritage, and lakeshore management requirements in site plans (0% variance).

Forests provide intangible benefits in addition to their economic and ecological values. Protection and maintenance of these values helps assure that these benefits will be available for current and future generations.

Visual Quality Objective requirements address the perceived beauty of certain areas as designated by the MoFR District Manager or as contained in higher level plans. A cultural heritage value is a unique or significant place or feature of social, cultural or spiritual importance. Lakeshore requirements address the valuable role waterfront plays in ecosystem diversity, recreation and aesthetics. Maintenance of non-timber requirements is an important aspect to sustainable forest management because it contributes to respecting the social and cultural needs of people.

During the reporting period, 100% of Canfor forest operations were consistent with visual quality, cultural heritage, and lakeshore management requirements in site plans. One block was located within a known scenic area and was harvested in compliance with the visual impact assessment recommendations; and two blocks were had a high potential for cultural heritage resource features and were harvested in compliance with the recommendations of the relevant archaeological impact assessments. None of the blocks harvested within the reporting period had lakeshore management requirements.

BCTS did not conduct forest operations on the DFA during the reporting period.

### 2.35 PUBLIC INPUT OPPORTUNITY AND RESPONSE TO PUBLIC CONCERNS

**Indicator:** The number of opportunities given to the public and stakeholders to express forestry related concerns and be involved in our public planning processes; and the percentage of Creating Opportunities (Canfor) and Keeping in Touch (BCTS) communication strategy requirements met.

**Management Objective:** To present opportunities to the public and stakeholders to express forestry related concerns and be involved in our public planning processes, via ≥3 types of media annually (variance of -1); to meet 100% of the communication strategy requirements for Creating Opportunities (Canfor) and

Keeping in Touch (BCTS) (variance of -5%).

As public involvement is a key element of CSA-SFM, it is important to provide meaningful and effective opportunities to incorporate public input and respond to public concerns. As public values change over time, it is important to be able to efficiently solicit public feedback and, where possible, incorporate this input into forest management and practices. Public plans include the forest stewardship plan, pest management plan, forest management plan, and the sustainable forest management plan.

The following key performance indicators will be applied to communication strategies:

- 100% of communications from resource users will be responded to within 30 days
- 100% of commitments made to resource users are delivered within the time frame specified
- 100% of the applicable public is sent notification of planning and development activities associated with TFL30 forest management activities.

Historically, Canfor and BCTS have used a total of four media types to provide public and stakeholders opportunities to express forestry related concerns and be involved in our planning processes. These include newspaper ads, notification letters, public meetings, and face-to-face meetings.

During the reporting period, 100% of public commitments were met on the DFA. Canfor sent a total of 1239 communications, received 32 communications, and delivered 32 separate actions within the time frames specified. In addition, Canfor sent the following notification letters to the relevant stakeholders:

- FSP Notifications (404 in total)
- Harvest Notifications (227 in total)
- Block Declaration Notifications (409 in total)

The number of opportunities provided to the public and to stakeholders within the reporting period is identified in Table 17.

**Table 17. Public Input Opportunity from April 1<sup>st</sup> 2006 to March 31<sup>st</sup> 2007**

Format of Opportunity	Number of Opportunities for Public and Stakeholders Input			
	Canfor	BCTS	Joint SFMP	TOTAL
FSP Original Ads	0	0		0
FSP Amendment Ads	1	0		1
FSP Stakeholder Letters	2	0		2
PMP Original Ads	0	0		0

PMP Stakeholder Letters	1	0		1
PMP Signage	0	0		0
Field Tours	0	0		0
Harvest Notification Letters	2	0		2
PAG Meetings	N/A	N/A	1	1
Documented Phone Calls	0	0		0
Newspaper Ad (Open House)	N/A	N/A	1	1
Open House (Pine Centre Mall)	N/A	N/A	1	1
Documented Personal Meetings	1	0		1
<b>TOTAL FOR DFA*</b>	<b>7</b>	<b>0</b>	<b>3</b>	<b>10</b>

\* This indicator tracks the number of different types of opportunities that the public has to provide input into the planning process, not the total number of opportunities.

### 2.36 VIEWING OF ACCESS PLANS

**Indicator:** Annual public review of Canfor and BCTS TFL30 road access plans.

**Management Objective:** To provide the public with an annual opportunity to review TFL30 road access plans, on or before October 1<sup>st</sup> of each year (variance of +1 month).

Forestry roads provide industrial and public access to large portions of the DFA. Creating, maintaining, deactivating and closing these roads is an ongoing process that requires careful planning. Because many non-forestry users of these roads have an interest in their management, it is important to provide opportunities to view the Canfor and BCTS current access plans. The input received from such viewings can be used to plan future access management activities.

On October 20<sup>th</sup> 2006, Canfor and BCTS participated in a licensee display of forestry harvesting and road access plans at the Pine Center Mall in Prince George. Licensee representatives staffed the display from 9:00 a.m. to 9:00 p.m.

### 2.37 SURVEY OF NON-TIMBER USES AND LIST OF QUALITY & VALUE OF NON-TIMBER FOREST PRODUCTS

**Indicator:** Public survey of non-timber uses within the DFA; and a list of quality and value of non-timber forest products from the DFA.

**Management Objective:** To conduct a public survey of non-timber uses within the DFA at least every four years (+1 year variance); and to establish a list of quality and value of non-timber forest products from the DFA by March 31<sup>st</sup> 2007 (+3 months variance).

As sustainable forest management pertains to the interaction of social, ecological and economic factors, forest managers must not only be cognizant of the range of different uses on the DFA, but also how these uses and values change over time. This indicator measure the number of different local uses and values on the DFA as well as the intensity for each value/use. As data is collected through the public surveys, possible changes can be evaluated.

A report on a public survey of non-timber forest products within the Prince George Forest Region (including the DFA) was completed by March 31<sup>st</sup> 2007. A list of the non-timber forest products from the report is contained in Appendix 3.

### 2.38 LOCAL CONTRACT VALUE

**Indicator:** Percentage of money spent on forest operations and management in the DFA provided from the North Central Interior Suppliers/Contractors (applies to Canfor only).

**Management Objective:** To target ≥90% of money spent on forest operations and management in the DFA on goods and services provided by the North Central Interior Suppliers/Contractors (0% variance).

Forests not only provide a multitude of ecological benefits to the areas surrounding them, but they also provide many critical socio-economic benefits. In order to have sustainable socio-economic conditions for local communities associated with TFL 30, local forestry-related businesses should be able to benefit from the work that is required in the management of the DFA. Local suppliers and contractors are considered to be those based in the geographic area bounded by 100 Mile House (south), Ft. St. John (north), Valemount (east) and Terrace (west).

Querying Canfor's accounting data allows for the current status and tracking of the local contract value within TFL 30. As shown in Table 18, 100.0% of the dollars spent within the DFA during the 2006 calendar year was spent on local suppliers and contractors.

Table 18. Local Contract Value within TFL30

Current Status of Indicator	Calendar Year	Target	Achieve By:
92.4%	2000	> 90 %	Annually
93.0%	2001		
95.2%	2002		
99.1%	2003		
98.6%	2004		
99.4%	2005		



100.0%	2006		
--------	------	--	--

### 2.39 SUPPLY OF TIMBER TO LOCAL PROCESSING FACILITIES

**Indicator:** Proportion of timber extracted from the DFA supplied to local processing facilities (applies to Canfor only).

**Management Objective:** To supply  $\geq 95\%$  of timber extracted from the DFA to local processing facilities (-5% variance).

Sustainable forest management involves the balancing of ecological, social and economic values. Canfor can play a key role in the stability and sustainability of socio-economic factors by ensuring that a large proportion of timber volume is processed by local facilities (i.e. those located within the boundaries of the Prince George Timber Supply Area).

Each truckload of wood is scaled (weighed) at an approved MoFR scale site. The timber mark and scale-based information is recorded in Canfor's "Logs Production Module". A query of this Module for the period of April 1<sup>st</sup> 2006 to March 31<sup>st</sup> 2007 indicates that 100.0% of the timber harvested from TFL30 was delivered to local processing facilities.

### 2.40 MAIN ACCESS ROADS MAINTAINED

**Indicator:** Kilometers of main access roads maintained to a minimum standard in the spring.

**Management Objective:** To maintain  $\geq 200$  km of main access roads to a minimum standard in the spring.

Roads are a necessary component of forest management as they allow access to the forest resource and its recreation potential. This indicator provides a measure of the amount of main access roads maintained within the DFA, to allow for public access to the benefits of the forest resource. A balance must be met between the value of access, the social costs or benefits, and the ecological costs or benefits in terms of impacts to other resource values such as wildlife.

The target of this measure is 200 km, 8.6 km of which is maintained by BCTS and the remainder by Canfor. The main roads within the DFA include: North Fraser, Church, Pass Lake, Seebach, Herrick, Olsson, Otter, Hayden, and Bend.

Road maintenance programs are currently tracked through each Licensee's internal data records. Canfor's process includes flying the roads in the spring to identify potential concerns; issuing hazard alerts for roads that are impassable until the problem is rectified; and implementing an annual road and bridge maintenance program.

For this reporting period, the objective has been met as a minimum of 200 km of main access roads were maintained to a minimum standard in the spring.

### 2.41 STUMPAGE PAID TO GOVERNMENT

**Indicator:** The percent of stumpage paid on time to Government (applies to Canfor only).

**Management Objective:** To pay 100% of stumpage on time to Government (0% variance).

The payment of stumpage owing on the timber harvested within the DFA by Canfor is a quantifiable indicator of how the public is receiving a portion of the economic benefits derived from forests. In order to ensure continual sustainable socio-economic conditions for local DFA communities, all stumpage billings will be paid on time.

Each month, the provincial government invoices Canfor for stumpage. This invoice is directed to the accounting and payroll departments for immediate processing.

During the reporting period of April 1<sup>st</sup> 2006 to March 31<sup>st</sup> 2007, Canfor paid 100% of its stumpage to Government on time.

### 2.42 AVERAGE INCOME OF DFA WORKERS

**Indicator:** Average income of DFA forest sector workers compared to provincial average for forest sector workers.

**Management Objective:** To monitor the average income of DFA forestry sector workers compared to provincial average for forest sector workers, targeting  $\geq 100\%$  every five years (0% variance).

Forests provide a mix of benefits to society, including direct and indirect employment, wood products, goods and services, non-market values, tourism, guiding, trapping, and recreation. This indicator focuses on the economic and social benefits that are offered by the forest sector in the form of income.

The forest sector generally provides a fair and reasonable wage for work done in the area. The Prince George Timber Supply Review conducted in 2001 reported the average income of a forest sector worker in Prince George as \$46,690 (based on 1996-1998 data). The provincial average income of a forestry and logging sector worker from the Statistics Canada 2001 census is estimated at \$42,925. The difference in average Prince George area income compared to Provincial average income is 108.7%.

This indicator is currently reported using dated information, but it is anticipated that updated income data will be available for the 2007/08 annual report. The October 2004 AAC determination for the PG TSA did not include data on average incomes, but the Data Package for the next PG TSA Timber Supply Review is scheduled for release in October 2007. According to the Statistics Canada website, May 2008 is the scheduled release date for the report on Income and Earnings, based on the 2006 census data (<http://www12.statcan.ca/english/census06/release/index.cfm>).

## 2.43 DONATION TO THE LOCAL COMMUNITY

**Indicator:** Number of donations to the local community (applies to Canfor only).

**Management Objective:** To provide  $\geq 6$  donations to the local community (0% variance).

This indicator documents how Canfor provides economic and social benefits to the public over and above wages, taxes and stumpage fees through donations and involvement in local community organizations. Types of support opportunities within the local community vary from providing personnel, equipment and/or facilities, to providing cash and product donations. This is an important component of a community's economic and social stability, but it is also difficult to quantify as support opportunities often go unrecorded.

During the 2006 calendar year, Canfor's donations to the local community included:

- United Way campaign
- BC Rivers Day event
- Scholarships (District 57, CNC)
- Doug Little Symposium Sponsor
- Spirit of the North Healthcare Foundation
- Canadian Cancer Society Relay for Life
- Prince George Community Foundation
- COFI – forestry education modules for schools

- Various sports events (PG Minor Hockey Association, The Prince George Iceman, Labour Day Classic run)
- Prince George Forestry & Railway Museum
- Prince George Public Library – youth reading club
- Chamber of Commerce – business awards sponsor
- Spruce City Wildlife Association
- City of Prince George "ForesTree Fest"

## 2.44 LOSS TIME ACCIDENTS

**Indicator:** Number of loss time accidents (days) in Woodlands Operations (applies to Canfor only).

**Management Objective:** Target 0 loss time accidents (days) for Canfor's Woodlands Operations (variance of 0).

The health and safety of forest workers and members of the public is an important objective that is essential to SFM. Canfor considers employee and public safety as a primary focus for all forestry-related operations. Evidence of this high priority can be seen in various company mission or policy statements. This indicator was developed to track and report out on the number of loss time workplace accidents that occur within Canfor's Prince George Woodlands division.

Monitoring and reporting the number of workplace loss time accidents will help Canfor to identify problems with procedures and increase overall awareness in order to prevent future injuries and loss time accidents.

The current status for this measure is derived through an analysis of safety reports and a tally of all loss time accidents. No loss time accidents occurred in the DFA during April 1<sup>st</sup> 2006 to March 31<sup>st</sup> 2007.

## 2.45 ABORIGINAL AND TREATY RIGHTS

**Indicator:** No unauthorized forestry activities within legally recognized (Provincial and Federal) treaty areas and Agreement-in-Principle areas.

**Management Objective:** 100% (0% variance) recognition and respect of Aboriginal and treaty rights.

A treaty is a negotiated agreement that spells out the rights, responsibilities and relationships of First Nations and the Federal and Provincial governments (Government of BC, 2005). Depending on the nature of the treaty, specific First Nations will exercise a variety of rights over the area described in the treaty. Any forestry activities that occur in these areas without the permission of the appropriate First Nation peoples could have serious legal, economic, and social repercussions. Respecting Aboriginal treaty rights is a part of sustainable forest management as it protects social and economic values.

Two First Nation Bands have asserted Aboriginal interests in the TFL30: the McLeod Lake Indian Band (Tsekani) and the Lheidli T'enneh First Nation. The McLeod Lake Band signed a Treaty 8 settlement agreement with the Federal and Provincial governments in 2000. None of the Treaty 8 settlement lands are located within TFL30. The Lheidli T'enneh signed an Agreement-in-Principle in July 2003 and voted to reject a final agreement in March 2007. In the meantime, the Agreement-in-Principle (signed in July 2003) proposed land packages are being used to run this query.

As no treaty or Agreement-in-Principles areas have been identified within the DFA, Canfor and BCTS are able to report 100% compliance with no unauthorized forestry activities during the reporting period within legally recognized (Provincial and Federal) treaty areas and Agreement-in-Principle areas.

## 2.46 FSP REFERRAL AND PMP REFERRAL TO FIRST NATIONS

**Indicator:** All Forest Stewardship Plan (FSP) and associated major amendments are referred to affected Aboriginal peoples; and Pest Management Plans (PMP) and associated major amendments are referred to affected Aboriginal bands.

**Management Objective:** To refer 100% of Forest Stewardship Plan (FSP) and associated major amendments to affected Aboriginal peoples (0% variance); and to refer 100% of Pest Management Plans (PMP) and associated major amendments to affected Aboriginal bands (0% variance).

This indicator is designed to evaluate the success in providing opportunities to Aboriginal peoples to be involved in forest management planning processes. Specifically, all Forest Stewardship Plans and associated major amendments are to be referred to affected Aboriginal groups for their input. As pesticides may have to be used within the DFA to meet certain forestry objectives, Pest Management Plans will be prepared to outline their use. This use may be applied to areas of interest to various First Nations peoples within the DFA, necessitating referral. Operational plans (location and type of pesticide) may be changed as a result of referral.

Canfor's FSP was approved in February 2006, following a series of referral-related interactions with First Nations communities. In late March 2007, Canfor's first "FSP amendment requiring approval" was prepared and referred to the First Nations in the form of letters, tables and FSP content maps. The official referral period ends on June 1<sup>st</sup> 2007; to date, no written comments have been received from any of the First Nations.

Although BC Timber Sales has an approved Forest Stewardship Plan for the Prince George Forest District, it does not currently cover the DFA. BCTS is preparing an amendment to the approved Forest Stewardship Plan to include the DFA, and will refer to First Nations later in 2007.

In January 2005, Canfor referred the 2005 PMP to First Nations bands. In addition, Canfor placed an ad in the local paper providing the public (including First Nations) an opportunity to review and provide comment. Canfor's 2005 PMP was approved for a term from 2006-2011. No major amendments were prepared during the reporting period of April 1<sup>st</sup> 2006 to March 31<sup>st</sup> 2007.

In February 2006, BCTS referred its 2006 PMP to First Nations bands, and placed an ad in the local paper to provide the public and First Nations the opportunity to review and provide comment. No amendments were prepared during the reporting period.

## 2.47 HERITAGE CONSERVATION ACT

**Indicator:** Percent of forest operations consistent with the Heritage Conservation Act.

**Management Objective:** To conduct 100% of forest operations consistent with the Heritage Conservation Act (0% variance).

The *Heritage Conservation Act's* stated purpose is "to encourage and facilitate the protection and conservation of heritage property in British Columbia". The act prohibits activities that will damage specific heritage resources. There are many heritage resources in the DFA that are protected by the Act. Some of the more common features of concern to forest operations are culturally modified trees, cache pits, and pit house sites. Measures must be taken to ensure forest operations are consistent with the Heritage Conservation Act to preserve and manage these features to meet social and cultural needs of First Nation people and the broader community within the DFA.

Forest operations are relatively easily adapted to protect known features under the Act. Archaeological Predictive Models are used to assess the potential for archaeological resources within proposed harvest areas or road access corridors. Where activities are proposed within zones of high archaeological potential, trained

archaeologists conduct site-level Archaeological Impact Assessments (AIA) to identify, assess and record any archaeological resources that may be present.

Specific requirements to conserve cultural resources are prescribed in site plans. These strategies may include alteration if an alteration permit is obtained from the Archaeology Branch (BC Ministry of Tourism, Sport and the Arts). Harvest and subsequent silviculture inspections ensure that strategies are implemented as stated in the site plan.

AIA's were not required for any of the blocks harvested on the DFA by Canfor between April 1<sup>st</sup> 2006 and March 31<sup>st</sup> 2007. As BCTS did not harvest any blocks during this reporting period, 100% of Canfor and BCTS forest operations were consistent with the Heritage Conservation Act.

## 2.48 ABORIGINAL PARTICIPATION IN PLANNING PROCESS

**Indicator:** Documented opportunities for Aboriginal peoples' participation in developing public plans.

**Management Objective:** To conduct  $\geq 1$  meaningful face-to-face meeting per year (variance of 0).

The incorporation of Aboriginal peoples' needs into forest planning is a key aspect to sustainable forest management. As such, this indicator contributes to respecting the social, cultural heritage and spiritual needs of people who traditionally and currently use the DFA for the maintenance of traditional aspects of their lifestyle. Working with Aboriginal people to identify, define and develop management strategies for these special and unique needs is an important component of managing landscape elements for the traditional lifestyle values of Aboriginal peoples.

This indicator will report all documented opportunities provided to local Aboriginal peoples to participate in the development of forest management operational plans. Public plans refer to the Management Plan (5 year), Forest Stewardship Plan (5 year) and SFM plan (3-5 years). The target of one meeting per year with each Aboriginal group may increase if major issues arise within the DFA.

Two First Nations groups have historically been contacted regarding public plans for the TFL: the McLeod Lake Indian Band and the Lheidli T'enneh First Nation.

There have not been any major issues in the DFA within this reporting period as the Forest Stewardship Plan was approved in February 2006 and the Government has approved an extension to the current Management Plan (9). In mid-March 2007, a FSP amendment requiring approval was mailed to the four First Nations with interests in the TFL (Lheidli T'enneh, McLeod Lake, Nazko, West Moberly); further efforts to solicit their input into the amendment will be made in the spring of 2007.

The McLeod Lake Indian Band and Lheidli T'enneh First Nation have been invited to send representatives to the Public Advisory Group (PAG) meetings. A representative from McLeod Lake attended one PAG meeting within the reporting period; subsequent discussions with those bands indicate a lack of capacity to send a representative on a regular basis.

The target of  $\geq 1$  meaningful face-to-face meeting has been met, as Canfor's Woodlands Manager and the Chief of the Lheidli T'enneh met numerous times throughout the reporting period.

## 2.49 ABORIGINAL ISSUES EVALUATED

**Indicator:** Percentage of issues raised by Aboriginal peoples evaluated by Canfor and BCTS; and the percentage of issues raised by Aboriginal Chief & Council or their representative developed into mutually agreed-upon strategies.

**Management Objective:** To evaluate 100% of issues raised by Aboriginal peoples evaluated by Canfor and BCTS (-10% variance); and to develop mutually agreed-upon strategies for 100% of the issues raised by Aboriginal Chief & Council or their representative (-50% variance).

The evaluation of forest management issues raised by Aboriginal peoples demonstrates respect for their unique perspective and historical connection with the forest.

Incorporating management strategies into the planning process in order to resolve issues raised by Aboriginal leaders is a key aspect of sustainable forest management. This indicator contributes to respecting the social, cultural heritage and spiritual needs of people who traditionally and currently use the DFA for the maintenance of traditional lifestyle aspects.

During the reporting period, no issues were raised by Aboriginal individuals or by any Aboriginal Chief and Council (Lheidli T'enneh First Nation, McLeod Lake Indian Band, Nazko First Nation or the West Moberly First Nations) regarding forest management on the DFA. Therefore, no issues needed to be evaluated by Canfor or BCTS. As Canfor, BCTS and the Bands work together on the public advisory process, relationships will strengthen and issues will become more readily apparent.

## 2.50 ABORIGINAL STRATEGY INCORPORATION

**Indicator:** Incorporation of mutually agreed-upon strategies to address Aboriginal peoples' values, knowledge, and uses in public plans for the DFA; and the

percentage of forest operations consistent with mutually agreed-upon strategies.

**Management Objective:** To incorporate 100% (annually) of mutually agreed-upon strategies to address Aboriginal peoples' values, knowledge, and uses in public plans for the DFA (0% variance); and to conduct 100% of forest operations consistently with mutually agreed-upon strategies (0% variance).

The development of mutually agreed-upon management strategies is only the first step in SFM. Incorporation of those strategies into public plans demonstrates recognition of Aboriginal forest values, knowledge, and uses ("public plans" refers to the Management Plan, Forest Stewardship Plan and SFM plan). Monitoring adherence to these strategies is a measure of the success of these strategies to address the issues for which they were developed.

These indicators report on the incorporation and implementation of the strategies that were developed to address Aboriginal peoples issues. As these strategies are implemented, the tracking of forest activity compliance with the strategies will help to determine whether concerns are being addressed appropriately.

As no mutually agreed-upon strategies have been developed for application on the DFA, the percentage of forest operations consistent with such strategies cannot be reported.

As reported in 2005/06, one of the Bands has demonstrated interest in working on the location, geo-referencing and development of management strategies for culturally important trails in its traditional territory. It is anticipated that progress will be made over the coming year with regard to trail inventories and the development of management strategies.

## 2.51 PAG FOLLOW UP SURVEY

**Indicator:** Percentage of people leaving the PAG process receiving a follow-up interview survey.

**Management Objective:** To ensure 100% of people leaving the PAG process receive a follow-up interview survey.

Public participation in the SFM planning process is essential to understanding and respecting local values and concerns. A follow-up interview in the form of a survey provides the public participants with an opportunity to express their satisfaction with the entire process. The information collected from these surveys can be used as part of the SFM continuous improvement process.

The PAG Facilitator oversees the follow up survey for those members leaving the PAG. Survey questions are designed to assess satisfaction with the entire PAG experience, suggestions for improvement and concerns with the SFMP process. The results of this survey are reported to the PAG and a course of action to address concerns is determined.

As no PAG members left the public advisory group process during the reporting period (April 1<sup>st</sup> 2006 to March 31<sup>st</sup> 2007), no follow up interviews were required.

## 2.52 NUMBER OF PUBLIC ADVISORY GROUP MEETINGS

**Indicator:** Number of times Public Advisory Group (PAG) Terms of Reference reviewed; and the number of Public Advisory Group meetings per year.

**Management Objective:** To review the PAG Terms of Reference  $\geq 1$  time per year (variance of 0); and to conduct  $\geq 1$  PAG meeting annually.

The TFL30 PAG is made up of a diverse set of representatives with various defined interests, values or specific uses of the forest resource within the DFA. The PAG provided valuable input into the initial development of values, indicators, and objectives for the CSA SFM process, and will continue to provide guidance, input and evaluation of this process. This indicator provides information regarding how often the PAG will meet on an annual basis.

The PAG reviewed the terms of reference in October 2006. Between April 22, 2006 and March 21, 2007, the PAG met 8 times to develop the Values, Goals, Indicators and Objectives for CSA-SFM TFL30 plan.

## 2.53 PUBLIC SECTOR PARTICIPATION IN THE PAG

**Indicator:** Percentage of the public sectors (as defined in the Terms of Reference) invited to participate in the Public Advisory Group (PAG) process.

**Management Objective:** To invite 100% of the public sectors (as defined in the Terms of Reference) to participate in the Public Advisory Group (PAG) process (variance of 0%).

An important component of the PAG is the representation from the various public sectors as defined in the Terms of Reference (ToR). Their involvement in the PAG process is crucial for the success of the SFMP as they represent a broad range of commercial and non-commercial interests within the DFA. Their participation will

enhance the co-operation between the forest industry and other parties interested in the management of public lands in the DFA to meet the social, economic and ecological goals of sustainable forest management.

The process for inviting public sector representatives to participate in the PAG is defined in the PAG ToR. Within the reporting period, representatives from 100% of the 12 public sectors described in the ToR were invited to participate in the PAG.

## 2.54 PAG AND INTERESTED PARTIES SATISFACTION

Indicator:	Management Objective:
PAG overall satisfaction score with the meetings.	To achieve a score of 5 annually (variance of -1).
PAG overall satisfaction score with the public participation process.	To achieve a score of 5 annually (variance of -0.75).
Percentage of PAG satisfaction with the amount and timing of information presented for decision-making.	To achieve 100% PAG satisfaction with the amount and timing of information presented for decision-making (variance of -20%).
Percentage of interested parties satisfied with the amount and timing of information presented for decision-making.	To achieve 100% interested parties' satisfaction with the amount and timing of information presented for decision-making, every 3 years (variance of -40%).

This indicator is intended to measure and report the level of satisfaction the PAG has with meetings and the overall participation process, and the level of satisfaction the PAG and interested parties have with the amount and timing of information presented for informed decision-making input into the SFM plan and other public plans. While it is hoped that there will be high satisfaction, it is also acknowledged that as with any group of diverse backgrounds and opinions, it is difficult to achieve unanimous satisfaction in every regard. However, if the SFM Plan is to succeed, the people who are involved in its evolution must have a certain level of satisfaction with the information provided to direct that development.

A meeting evaluation survey was provided to the PAG at each of the 8 meetings in 2006/07 in order to determine the levels of satisfaction with the meetings, public participation process, and the amount and timing of information presented for decision-making. The average PAG satisfaction score was 4.8 for the meetings, 4.7 for the overall public participation process was 4.7, and 92% for the amount and timing of information presented for decision-making (see graph in Appendix 4).

No information is available regarding the satisfaction of interested parties with the amount and timing of information presented for decision-making. Canfor and BCTS will develop and implement a relevant process, in order to facilitate reporting for the 2007/08 annual report.

## 2.55 CONTINUOUS IMPROVEMENT MATRIX

Indicator:	Management Objective:
Review ranking and update status of items on the Continuous Improvement Matrix.	To annually review the ranking and update the status of 100% of items on the Continuous Improvement Matrix (0% variance).
PAG satisfaction score for progress on the Continuous Improvement Matrix.	To achieve a score of 5 (variance of -1).
Number of items incorporated into the SFM Plan from the Continuous Improvement Matrix.	On an annual basis, to incorporate into the SFM Plan $\geq 2$ items from the Continuous Improvement Matrix (variance of -1).

The TFL30 PAG and interested parties provide guidance, input and evaluation during development of the SFMP. The Terms of Reference provide for the discussion of relevant issues PAG meetings. Issues that cannot easily be developed into indicators or that require more information are added to the Continuous Improvement Matrix (see Appendix 5 for copies of the Continuous Improvement Matrix and the performance indicator matrix).

The Continuous Improvement Matrix is used to capture issues outside the scope of the PAG process but can contribute to continuous improvement of sustainable forest management. Canfor and BCTS have developed a work plan for ranking, updating, and incorporating items into indicators. In March 2007, the PAG assigned priorities to the items listed in the Matrix. For the 2006/07 year, the PAG satisfaction score for progress on the Matrix was 4.5.

During this reporting period, two items from the Matrix were incorporated into the SFM Plan (indicators for Distinct Habitat Types and Alder Conversion).

## 2.56 ALDER CONVERSION

<b>Indicator:</b> The percentage of existing alder swale areas converted to something else.
---

**Management Objective:** On an annual basis, to convert of 0% of existing alder swales to something else (variance of +1%).

At its January 10<sup>th</sup> 2007 meeting, the TFL PAG added this indicator to the SFMP for reporting to begin in 2006/07.

During the reporting period of April 1<sup>st</sup> 2006 to March 31<sup>st</sup> 2007, harvesting, road construction, Special Use Permits, or planting activities ha were conducted on 734.4 hectares within the DFA. 0.0 hectares of existing alder swales were impacted by these activities.

## Appendix 1. Initial Draft of NTFP Species in the Prince George Area.

### Initial NTFP potential list for the Prince George area

Species	known personal use	commercial	use / plant part used	notes
<b>Trees</b>				
<i>Note: all tree species are used for salvage wood for art, crafts, firewood, etc. Species not included unless they have other NTFP uses.</i>				
Pseudotsuga menziesii (Douglas-fir)	yes	** boughs	bark, resin, boughs	young trees for bark and boughs (1)
Picea engelmannii (Engelmann spruce)	yes		resin, needles, roots	requires sandy sites for good roots (1)
Picea engelmannii x glauca (hybrid white spruce)	yes		resin, needles, roots	requires sandy sites for good roots (1)
Pinus contorta (lodgepole pine)	yes		resin, boughs	
Betula papyrifera (paper birch)	yes	***	bark, sap	
Abies lasiocarpa (subalpine fir)	yes		resin, boughs	
Populus balsamifera (poplar)	yes	**	medicinal	
western hemlock (Tsuga heterophyllia)				
western redcedar (Thuja plicata)	yes	***	bark, roots, boughs	young trees for bark and boughs (1)
black spruce (Picea mariana)	yes		bark, roots, resin	requires sandy sites for good roots (1)
<b>Shrub Layer</b>				
Acer glabrum (Douglas maple)		* - potential	sap	
Alnus crispa spp. sinuata (Sitka alder)		* potential	salvage wood	
Alnus tenuifolia (mountain alder)	yes	* potential	medicinal, dye	
Amelanchier alnifolia (saskatoon)	yes	**	food	habitat: poplar/birch areas (2)
Betula glandulosa (scrub birch)				
Cornus stolonifera (red-osier dogwood)	yes	** - florals	floral greenery, food	
Corylus cornuta (beaked hazelnut)	yes	*	food (nuts)	
Juniperus communis (common juniper)	yes	*	medicinal	
Ledum groenlandicum (Labrador tea)	yes	***	medicinal	



Lonicera involucrata (black twinberry)	yes		medicinal	
Mahonia aquifolium (tall Oregon-grape)	yes	**	medicinal, floral, dye, food	
Oplopanax horridus (devil's club)	yes	***	medicinal	
Paxistima myrsinites (falsebox)	yes	***	floral	
Prunus virginiana (choke cherry)	yes	**	food	
Rhododendron albiflorum (white-flowered rhododendron)	yes	*	landscaping & restoration	
Ribes glandulosum (skunk currant)	yes	*	landscaping & restoration	
Ribes lacustre (black gooseberry)	yes	*	food, medicinal	
Ribes oxycanthoides (northern gooseberry)	yes	*	food, medicinal	
Ribes triste (red swamp currant)	yes	*	food, medicinal	
Ribes triste (red swamp currant)	yes		food	
Rosa acicularis (prickly rose)	yes	***	food, medicinal, landscaping	
Rubus chamaemorus (cloudberry)	yes	***	food	
Rubus idaeus (red raspberry)	yes	***	food	good in clearcuts (2)
Rubus parviflorus (thimbleberry)	yes	*	food	
Rubus pedatus (five-leaved bramble)	yes	*	food	
Rubus pubescens (trailing raspberry)	yes	*	food	
Salix scouleriana (Scouler's willow)	yes	*	florals	
Salix spp. (willows)	yes	*	florals	
Sambucus racemosa (red elderberry)	yes	**	food, medicinal, landscaping	
Shepherdia canadensis (soopolallie)	yes	***	food	
Sorbus scopulina (western mountain-ash)	yes	*	food, medicinal	
Spiraea betulifolia (birch-leaved spirea)	yes		medicinal	
Spiraea douglasii ssp. menziesii (pink spirea)	yes	*	landscaping	
Symphoricarpos albus (common snowberry)	yes		medicinal	
Vaccinium caespitosum (dwarf blueberry)	yes	***	food	
Vaccinium membranaceum (black huckleberry)	yes	***	food	
Vaccinium myrtilloides (velvet-leaved blueberry)	yes	***	food	
Vaccinium ovalifolium (oval-leaved blueberry)	yes	***	food	

Vaccinium vitis-idaea (lingonberry)	yes	***	food	
Veratrum viride (Indian hellebore)	yes	***	medicinal	
Viburnum edule (highbush-cranberry)	yes	***	food	riparian areas
"blueberry", "huckleberry"	yes	***	food	Sunny/partial shade hillsides with standing forests. Young stands (2)
<b>Herb Layer</b>				
Achillea millefolium (yarrow)	yes	**	medicinal	
Actaea rubra (baneberry)	yes		medicinal	
Alium cernuum (nodding onion)	yes	*	food, landscaping	riparian areas
Aralia nudicaulis (wild sarsaparilla)	yes	*	medicinal	
Arctostaphylos uva-ursi (kinnikinnick)	yes	***	medicinal, landscaping	
Arnica cordifolia (heart-leaved arnica)	yes	***	medicinal	
Arnica latifolia (mountain arnica)	yes	***	medicinal	
Aster ciliolatus (fringed aster)	yes		medicinal	
Aster conspicuus (showy aster)	yes		medicinal	
Aster modestus (great northern aster)	yes		medicinal	
Athyrium filix-femina (lady fern)	yes		fiddleheads	
Calamagrostis canadensis (bluejoint)				
Calamagrostis rubescens (pinegrass)	yes		technology; art	
Carex disperma (soft-leaved sedge)				
Carex disperma (soft-leaved sedge)				
Carex spp. (sedges)				
Chimaphila umbellata (prince's pine)	yes	***	medicinal	
Circaea alpina (enchanter's nightshade)				
Clintonia uniflora (queen's cup)				
Cornus canadensis (bunchberry)	yes	*	food	
Disporum hookeri (Hooker's fairybells)				
Disporum trachycarpum (rough-fruited)				
Dryopteris expansa (spiny wood fern)	yes	*	landscaping & restoration	
Elymus glaucus (blue wildrye)				
Empetrum nigrum (crowberry)	yes	*	food	
Epilobium angustifolium (fireweed)	yes	**	food (wild greenery), honey	
Equisetum arvense (common horsetail)	yes		technology; medicinal	
Equisetum pratense (meadow horsetail)				

Equisetum scirpoides (dwarf scouring-rush)				
Equisetum spp. (horsetails)	yes	*	technology; medicinal	
Equisetum sylvaticum (wood horsetail)				
Eriophorum spp. (cottongrasses)				
Festuca occidentalis (western fescue)				
Fragaria virginiana (wild strawberry)	yes	***	food	
Galium triflorum (sweet-scented bedstraw)	yes	**	medicinals	
Gaultheria hispidula (creeping-snowberry)	yes		medicinals	
Geocaulon lividum (bastard toad-flax)	yes		emergency food	
Geum macrophyllum (large-leaved avens)				
Geum rivale (water avens)				
Glyceria elata (tall mannagrass)				
Goodyera oblongifolia (rattlesnake-plantain)	yes		medicinal, landscaping	
Gymnocarpium dryopteris (oak fern)		*	landscaping & restoration	
Heracleum lanatum (cow-parsnip)	yes		medicinal, food	
Hieracium albiflorum (white-flowered)				
Kalmia microphylla ssp. microphylla (alpine bog-laurel)				
Lathyrus nevadensis (purple peavine)				
Lathyrus ochroleucus (creamy peavine)				
Leptarrhena pyrolifolia (leatherleaf saxifrage)				
Lilium columbianum (tiger lily)	yes		food	
Linnaea borealis (twinflower)	yes		medicinal	
Listera cordata (heart-leaved twayblade)				
Lycopodium annotinum (stiff clubmoss)	yes		crafts, medicinal	
Lycopodium complanatum (ground-cedar)	yes		crafts, medicinal	
Lysichiton americanum (skunk cabbage)				
Maianthemum canadense (wild lily-of-the-valley)	yes	*	landscaping	
Matteuccia struthiopteris (ostrich fern)	yes	***	fiddleheads	Quality product found in 'heavy black dirt, low wet areas'. Riparian areas.(2)

Melampyrum lineare (cow-wheat)			
Menyanthes trifoliata (buckbean)			
Mertensia paniculata (tall bluebells)			
Mitella breweri (Brewer's mitrewort)			
Mitella nuda (common mitrewort)			
Moneses uniflora (single delight)	yes		medicinal
Orthilia secunda (one-sided wintergreen)	yes		medicinal
Oryzopsis asperifolia (rough-leaved ricegrass)			
Osmorhiza berteroi2 (mountain sweet-cicely)	yes		food, medicinal
Oxycoccus oxycoccus (bog cranberry)	yes	***	food
Petasites frigidus var. palmatus (palmate coltsfoot)			
Potentilla palustris (marsh cinquefoil)			
Pyrola asarifolia (pink wintergreen)	yes		medicinal
Senecio triangularis (arrow-leaved groundsel)			
Smilacina racemosa (false Solomon's-seal)	yes		food (shoot, berries), medicinal
Smilacina stellata (star-flowered false Solomon's seal)			food (berries), medicinal
Streptopus amplexifolius (clasping twistedstalk)			
Streptopus roseus (rosy twistedstalk)			
Thalictrum occidentale (western meadowrue)			
Tiarella trifoliata (three-leaved foamflower)			
Trollius laxus (globeflower)			
Urtica dioica (stinging nettle)	yes	***	food, medicinal
Vaccinium vitis-idaea (lingonberry)	yes	***	food
Valeriana sitchensis (Sitka valerian)	yes	*	medicinal
Veratrum viride (Indian hellebore)	yes		medicinal
Viola adunca (early blue violet)			
Antennaria neglecta (field pussytoes)			

### Moss Layer

Aulacomnium palustre (glow moss)			
Barbilophozia floerkei (mountain leafy liverwort)			

Barbilophozia lycopodioides (common leafy liverwort)			
Brachythecium hylotapetum (woody ragged moss)			
Calliergon spp. (water mosses)			
Ceratodon purpureus (fire moss)			
Cladina arbuscula (cladina lichen)	yes		medicinal
Cladina rangiferina (grey reindeer lichen)	yes		medicinal
Cladina spp. (cladina lichens)	yes		medicinal
Cladonia spp. (cladonia lichens)	yes		medicinal
Dicranum fuscescens (curly heron's-bill moss)			
Dicranum pallidisetum (pale-stalked broom-moss)			
Dicranum polysetum (wavy-leaved moss)			
Dicranum scoparium (broom moss)			
Dicranum spp. (crane's-bill mosses)			
Drepanocladus uncinatus (sickle-moss)			
Hylocomium splendens (step moss)			
Marchantia polymorpha (green-tongue liverwort)]			
Mnium spp. (leafy mosses)			
Pellia neesiana (shiny liverwort)			
Peltigera aphthosa (freckle lichen)			
Peltigera malacea (apple pelt)			
Peltigera malacea (toad lichen)			
Peltigera spp. (peltigera lichens)			
Plagiomnium medium (common leafy moss)			
Pleurozium schreberi (red-stemmed feathermoss)	yes	*	florals
Polytrichum juniperinum(juniper haircap moss)			
Ptilium crista-castrensis (knight's plume)			
Rhytidiadelphus triquetrus (electrified cat's-tail moss)	yes	*	florals
Rhytidiopsis robusta (pipecleaner moss)		*	
Sphagnum capillaceum (common red sphagnum)	yes	**	florals
Sphagnum spp. (sphagnums)	yes	**	florals
Timmia austriaca (false polytrichum)			

Drepanocladus spp. (drepanocladus  
mosses)  
Tomenthypnum nitens (golden fuzzy fen  
moss)  
Calliergon spp. (water mosses)

**commercial demand:** \*\*\* =high; \*\*=medium; \*= low

#### **General references**

- Antos, Joe, et al. Plants of Southern Interior British Columbia and the Inland Northwest. Ed. Roberta Parish, Ray Coupe and Dennis Lloyd. Vancouver: Lone Pine Publishing, 1996.
- Cocksedge, Wendy and Michelle Schroeder. 2006. A Harvester's Handbook; a guide to commercial non-timber forest products in British Columbia. Royal Roads University. Victoria, BC. ISBN: 0-9738276-2-9.
- Garibaldi, Ann. 1999. Medicinal Flora of the Alaska Natives. Environment and Natural Resources Institute and University of Alaska Anchorage. Anchorage AK.
- Marles, Robin, J., et al. Aboriginal Plant Use in Canada's Northwest Boreal Forest. Vancouver. UBC Press: 2000.
- Secwepemc Ethno botanical Garden. Secwepemc Cultural Education Society. 3 October 2006  
<<http://www.secwepemc.org/SECethnogardens2/index.htm>>
- Tilford, Gregory L. Edible and Medicinal Plants of the West. Missoula: Mountain Press Publishing Company: 1997.
- Turner, Nancy. 1997. Food plants of Interior First Peoples. UBC Press. Vancouver, BC.
- Vance, Nan, Melissa Borsting, David Pilz and Jim Freed. 2001 Special Forest Products Species Information Guide for the Pacific Northwest. USDA Forest Service GTR PNW-GTR-513. Olympia WA

#### **Specific note references**

- (1) Cocksedge, W. 2007 (unpublished). Understanding the spatial and quality attributes of culturally important non-timber forest product species in mountain pine beetle affected areas of the Cariboo-Chicotin. BC Forest Science Program.
- (2) 2007 survey of NTFP harvesting in the Prince George area