

# Fort Saint James Sustainable Forest Management Plan

Annual Report 2007/08

Prepared by:



Public Advisory Group



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## INTRODUCTION

This is the third annual report of the Fort St. James Sustainable Forest Management Plan (SFMP) and covers the reporting period of April 1, 2007 to March 31, 2008. The Fort St. James SFMP is the combined effort of several major licensees and the Fort St. James portion of the Stuart-Nechako BC Timber Sales towards achieving Canadian Standards Association (CSA) certification to the CSA Z809-02 standard. The signatories to the plan are:

- Apollo Forest Products
- BC Timber Sales - Stuart Nechako
- Canadian Forest Products Ltd. - Prince George and Houston operations
- Carrier Lumber Ltd.
- Stuart Lake Lumber Ltd.
- Takla Track and Timber Ltd. (managed in this plan by Canfor - Prince George)

The primary purpose of the Fort St. James SFMP is to provide an intensive planning document that will meet CSA SFM certification standards and provide a framework for the participating Licensees and BC Timber Sales to implement sustainable forest management (SFM). The Standard describes the requirements for SFM on a Defined Forest Area (DFA), which must be met to achieve certification. This Standard was prepared by the Technical Committee on Sustainable Forest Management and has been approved as a National Standard by the Standards Council of Canada.

The primary public participation method proposed in the CSA SFM standard is the Public Advisory Group (PAG), which allows continual local input from a broad range of interested parties. The Licensees/BC Timber Sales established a PAG in the fall of 2004 to assist with the SFMP development. The PAG began work on the SFMP Criteria and Elements Performance Matrix and also created a continuous improvement matrix to assist itself and the PAG in tracking issues that could not be addressed at the current time. Between November 2004 and October 2005, the PAG met on 10 occasions, with an average of 10 public members at each meeting, to undertake the work necessary to develop the SFMP. By the end of 2004 they had developed the Terms of Reference. It is important to note that the SFMP was not intended to be a static document but rather in a state of continual improvement, adapting to changes in the environment, forest management practices, research findings and public values. The door was, and still is, open to any member of the public and First Nation peoples to participate at the PAG meetings.

The CSA SFM Z809-02 Standard uses the criteria and elements outlined in the Canadian Council of Forest Ministers as a framework for identifying values and to provide consistency in determining local forest values across Canada. The Fort St. James PAG identified one or more specific local *values* for each element as well as objectives and targets to maintain these values.

The following table summarizes the results for the Area Under the Plan (AUTP) as a whole of the current reporting period. The reader should refer to the Fort St. James SFMP for a detailed explanation of the indicators and monitoring methods.

**Table 1: Summary of Indicator/ Objective Status, April 1, 2007 to March 31,2008 overall for all Licensees / BC Timber Sales combined.**

No	Indicator Description	Objective		
		Met	Pending	Not Met
1	Relative Abundance of Ecosystems	X		
2	Old Forest by Natural Disturbance Unit	X		
3	Old Interior Forest	X		
4	Young Patch Size Distribution	X		
5	Large Opening Design	X		
7	Plant Species Diversity Index	X		
8	Ungulate Winter Range Objectives	X		
9	Species at Risk Notices & Orders	X		
10	Management Strategies sites and species of importance	X		
13	Site Plans with Douglas Fir Management Strategies	X		
14	Stand Level Retention	X		
15	Thinning/Spacing Prescriptions & Conifer Density	X		
17	Wildlife Habitat Guidelines	X		
21	Conversion of Non-Forest Types (cutblock level)	X		
22	Conversion of Non-Forest Types ( landscape level)	X		
23	Course Woody Debris	X		
24	Soil Disturbance Levels	X		
25	Permanent Access Structures	X		
26	Road Related Erosion Events	X		
27	Fish Stream Crossings & Sediment Control	X		
28	Stream Crossing Inspections	X		
30	Conformity to the Risk Ranking System	X		
31	Permanent Crossing Structures & Fish Passage	X		
32	Riparian Management Area Commitments	X		
34	Reforestation Timing	X		
35	Watershed Peak Flow Index		X	
36	Watershed Reviews		X	
37	Free Growing Obligations	X		
38	Cut Level Volumes	X		
39	Visual Quality Requirements	X		
40	Archaeological Assessments	X		
41	Communication with Interested Individuals			X
43	Expression on Interest	X		
44	Personal Notification			X
46	Known Subsistence Uses, Recreational/Cultural Trails/Sites & Spiritual Sites	X		
48	Contracts Serviced by North Central British Columbia	X		
49	Employment Opportunities Advertised Locally	X		
50	Bidding Opportunities for Local Forestry-Based Businesses	X		
55	Local Aboriginal Participation in Forest Management	X		
56	Archaeological Assessment Referrals to Aboriginal Peoples	X		
59	First Nations Values and Indicators			
62	Satisfaction with the PAG Process	X		
63	PAG SFM Information Gap Inquires	X		
65	Hardwood Stands	X		
66	Douglas Fir Stands	X		
68	Landscape Level Strategy for Protection of Known Subsistence Uses, Recreational/Commercial & Cultural Trails/ Sites and Spiritual Sites	X		
70	Road Deactivation	X		

**Overall, of the 47 indicators, 43 met the target and 2 did not meet the target for this reporting period. Two indicators require additional data prior to reporting.**

## SFM INDICATORS AND OBJECTIVES

### Indicator 1 - Relative Abundance of Ecosystems

Indicator Statement	Target and Variance
Relative abundance of ecosystems (Number / types of habitats).	<p><u>Target:</u> Implement Interim Targets:</p> <ul style="list-style-type: none"> <li>•Common Ecosystem Groups <math>\geq 15\%</math> in NHLB</li> <li>•Ecosystems with High Stewardship Resp. <math>\geq 30\%</math> in NHLB</li> <li>•Uncommon Ecosystem Groups <math>\geq 50\%</math> in the NHLB</li> <li>•Rare Ecosystem Groups 100% retention</li> </ul> <p><u>Variance:</u> 0%</p>

This indicator addresses the following CSA-SFM parameters:

<p><b>CCFM Criterion 1: Conservation of Biological Diversity</b> - Sustainable populations of all flora and fauna native to the DFA (natural abundance and distribution of species within their natural range).  <b>CSA SFM Element 1.1: Ecosystem Diversity</b>  <b>Value:</b> Diversity of natural ecosystems that will support function of natural processes for future generations.  <b>Objective:</b> Maintain natural diversity/distribution.</p>
<p><b>CCFM Criterion 1: Conservation of Biological Diversity</b> - Sustainable populations of all flora and fauna native to the DFA (natural abundance and distribution of species within their natural range).  <b>CSA SFM Element 1.2: Species Diversity</b>  <b>Value:</b> Sustainable populations of all flora and fauna native to the DFA (natural abundance and distribution of species within their natural range).  <b>Objective:</b> Ensure habitat for species where ecologically appropriate and maintain a range of temporal and spatial distribution of natural habitats necessary to support native self-sustaining populations.</p>
<p><b>CCFM Criterion 2: Maintenance and Enhancement of Forest Ecosystem Condition and Productivity.</b>  <b>CSA SFM Element 2.1: Forest Ecosystem Resilience</b>  <b>Value:</b> Conserve ecosystem resilience by maintaining both ecosystem processes and ecosystem conditions.  <b>Objective:</b> Maintain ecosystems to support natural processes.</p>

#### Description of Indicator

The relative abundance of ecosystems in the DFA is a measure of its biological richness as each type of ecosystem supports its own community of flora and fauna. Maintaining a representation of a full range of ecosystem types is a widely accepted strategy to conserve biodiversity. This indicator is intended to measure the success of the Licensees/BC Timber Sales to develop ecosystem representation targets from the predictive ecosystem mapping (PEM). PEM is the stratification of a landscape into map units, according to a combination of ecological features, primarily climate, physiography, surficial material, bedrock geology, soil, and vegetation (Government of BC, 2001a). The PEM in the Fort St. James DFA will stratify the landscape according to biogeoclimatic ecosystem classification (BEC), sub-divided by eosections, biogeoclimatic subzone/variant, site Series, and certain site modifiers using geographic information systems (GIS) and computer modeling.

Using the PEM, the Licensees/BC Timber Sales will be able to determine representation targets based on the relative abundance of each BEC subzone/variant unit in the DFA. The development of these targets is important to sustainable forest management because it enables forest managers to plan forestry operations in a manner that does not diminish the natural diversity and resilience of ecosystems in the DFA. If the natural diversity of ecosystems is maintained it is more likely native populations of flora and fauna will be self-sustaining.

**Current Practices and Status of Indicator**

Preliminary predictive ecosystem mapping for the Fort St. James DFA was used in the Ecosystem Representation Analysis completed March 31, 2006. The preliminary results of this analysis were presented to the PAG March 21, 2007. The results were further reviewed and interpreted by a Registered Professional Biologist in the Fall of 2007. A Risk Class Matrix was used in assessing the nature and extent to which the ecosystem groupings should be managed for in the timber harvesting land base. The Ecosystem Groupings were then placed into four different categories based on the current area on the crown forest land base as well as the area represented in the FSJ District relative to the rest of the province. Interim targets and management strategies are recommended until the final PEM data is available and the next Timber Supply Review (TSR) IV is completed.

Indicator 1: Relative abundance of ecosystems (Number / types of habitats).			TARGET: See Management Strategies Variance: 0%		
Ecosystem Group	Total Area (ha)	NHLB%	THLB %	Target %	Management Strategy
Xeric SBS dk	97	81%	19%	100%	No Harvest
Xeric-subxeric ESSF/SBSmc2	490	93%	7%	>50%	Monitor
Xeric-subxeric SBS dw3/mh	7144	64%	36%	>15%	Monitor
Subxeric-submesic SBS dk	61	34%	66%	100%	No Harvest
Subxeric-submesic SBPSdc/SBS	782	60%	40%	>50%	Monitor
Circum-mesic SBSdw/mw	38858	34%	66%	>15%	Monitor
Circum-mesic SBSdc/SBS	25153	27%	73%	>15%	Monitor
Circum-mesic ESSF	17136	69%	31%	>15%	Monitor
Circum-mesic SBS dk/mc2	15994	55%	45%	>15%	Monitor
Mesic SBS dw3	87875	26%	74%	>15%	Monitor
Mesic-hygric SBS dw3/mw	6	0%	100%	100%	No Harvest
Mesic-hygric SBPSmc/SBSdk	1701	64%	36%	>50%	Monitor
Subhygric SBS dw3/mc3	20748	35%	65%	>15%	Monitor
Subhygric-hygric SBS	4442	31%	69%	>15%	Monitor
Subhygric-hygric SBPSdc/SBS	1893	52%	48%	>50%	Monitor
Hygric ESSF	192	89%	11%	>50%	Monitor
Xeric ESSF mc	47544	91%	9%	>15%	Monitor
Xeric SBS mk1	2506	49%	51%	>15%	Monitor
Xeric-subxeric BWBS/SBS mk	9473	26%	74%	>15%	Monitor
Xeric-submesic SBS wk/mc2	13729	54%	46%	>15%	Monitor
Xeric-hygric BWBS	2596	36%	64%	>15%	Monitor
Subxeric-submesic ESSF mv3	31936	82%	18%	>15%	Monitor
Subxeric-submesic SBS mk1	1653	24%	76%	>50%	>15% WTP
Submesic SBS wk3	75	53%	47%	100%	No Harvest
Cirum-mesic BWBS	11119	28%	72%	>15%	Monitor
Submesic-mesic SBS mk1	91589	16%	84%	>15%	Monitor
Submesic-mesic BWBS	7268	33%	67%	>15%	Monitor
Circum-mesic SBS	52942	18%	82%	>15%	Monitor
Circum-mesic ESSF mc	191595	75%	25%	>15%	Monitor
Circum-mesic SBS mk1/wk	251156	15%	85%	>15%	Monitor
Circum-mesic ESSFmv3/SBSmc2	480903	44%	66%	>15%	Monitor
Mesic ESSF mv3	5205	40%	60%	>15%	Monitor
Mesic ESSF mc	17082	53%	47%	>15%	Monitor
Mesic-subhygric SBS mc2/wk3	122059	17%	83%	>30%	>15% WTP
Mesic-subhygric SBS mc2	9998	28%	72%	>15%	Monitor
Mesic-subhygric SBS mk/wk2	76084	16%	84%	>15%	Monitor
Mesic-subhygric ESSF mv3	112180	33%	67%	>15%	Monitor
Subhygric BWBS	1361	12%	88%	>50%	>15% WTP
Subhygric-hygric SBS mc2	74	72%	28%	100%	No Harvest
Subhygric-hygric ESSF mc	14484	90%	10%	>15%	Monitor
Subhygric-hygric rich ESSF mc	1733	62%	38%	>50%	Monitor

Subhygric-hygric SBS mk1	17985	16%	84%	>15%	Monitor
Subhygric ESSF mv3/SBS wk3	24711	54%	46%	>30%	Monitor
Subhygric-hygric SBS wk/mc2	117865	21%	79%	>15%	Monitor
Subhygric-hygric ESSF mc	36728	61%	39%	>15%	Monitor
Sughygric-hygric SBS mc2	28369	50%	50%	>15%	Monitor
Hygric BWBS/SBS wk3	28353	36%	64%	>15%	Monitor
Hygric-subhygric SBS mk/wk2	18112	38%	62%	>15%	Monitor
Hygric-subhygric ESSF mc	1643	65%	35%	>50%	Monitor
Subhygric BWBS	1109	81%	19%	>50%	Monitor
Subhygric (unclassified)	25369	64%	76%	>15%	Monitor
<b>Forest District Total</b>	<b>2079160</b>	<b>38%</b>	<b>62%</b>		

Currently there are 50 Ecosystem Groupings in the Fort St. James Forest District.

- Common Ecosystem Groups (33 groups)
- Ecosystems with High Stewardship Responsibility (2 groups)
- Uncommon Ecosystem Groups (10 groups)
- Rare Ecosystem Groups (5 groups)

Of these 50 groupings, seven groupings do not currently meet targets. The following is the 'Interim Management Strategy' that will be implemented by Licensees and BCTS:

- No harvest in the following Rare ecosystem groups 1-05, 1-18, 2-09, 2-27
- 15% WTP in new blocks located in:
  - 2-07 (Uncommon group)
  - 2-26 (Uncommon group)
  - SBSwk3 portion of 2-21 (Stewardship group)

Licensee	Total Number of Openings Harvested between April 1 and March 31	Number of Openings harvested that met identified Ecosystem grouping management strategy between April 1 and March 31	% in DFA
Apollo & Group Companies	10	10	100%
BCTS	5	5	100%
Canfor	15	15	100%
Carrier Lumber	4	4	100%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	4	4	100%
<b>TOTAL</b>	<b>38</b>	<b>38</b>	<b>100%</b>

### **Establishment of Targets and Future Practices**

Ecosystem representation interim targets are applicable to the entire DFA, including parks/protected areas, Timber Harvesting Land Base (THLB) and Non-Harvestable Land Base (NHLB). The Licensees and BC Timber Sales are proposing to implement interim targets for annual reporting as the THLB and NHLB are currently being reviewed under the TSR IV process. As well, the final PEM data (including latest accuracy refinements) is yet to be released. At such time when these two key components are available, the Licensees and BCTS will implement a Forest Investment Account project to rerun the Ecosystem Representation Analysis, upon which the targets and management strategies will again be reviewed.

### **Forecasting and Predicted Trends**

The exact level of success is difficult to forecast, as it is dependent on unpredictable factors such as human oversight and technological restraints. However, it is important to identify what the accepted target means to sustainable forest management. Implementing the Ecosystem Representation interim targets and associated management strategies in a timely fashion is important for SFM because it will ultimately influence ecosystem diversity. Therefore, the use of a "what if scenario" is beneficial in identifying anticipated future trends for an indicator such as this.

a) What if Licensees and BCTS were not able to manage for a rare or uncommon ecosystem grouping as per the required management strategies?

If Licensees were to miss a rare or uncommon ecosystem grouping during operational activities, ecological values could be at risk, and these in turn could affect economic and social values. Establishing and implementing representation targets will ultimately contribute to the maintenance of the natural range of variability across the land base. Failure to implement such targets and management strategies may result in the inadvertent loss of some rare ecosystems, or significantly reduce their area. Loss of this habitat may then reduce the population of plants and wildlife dependant on these sites. This reduction in species richness could then impact non-timber users of the DFA who may value these resources for economic and recreational uses.

**Monitoring and Reporting Procedures**

The indicator will be tracked and monitored by the Licensees/BC Timber Sales. This is a DFA target, however the Licensees and BCTS will report out on how they have implemented the management strategies on each of the seven Ecosystem Groupings that did not currently meet targets. As for the DFA Ecosystem Representation Analysis, this is a very complex and costly process. This will be reran in 2009 or 2010 as per the recommendations above, however no timelines for frequency of updating the analysis results will be set at this point. The success in meeting the management strategies for the applicable 7 Ecosystem Groupings will be reported in the annual SFMP for the operating year of April 1<sup>st</sup> to March 31<sup>st</sup>.

**Responsibility and Continuous Improvement Opportunities**

The Licensees/BC Timber Sales are responsible for implementing ecosystem representation 'interim targets' and associated management strategies beginning January 1, 2008. When the latest revisions are completed for the PEM Data and the TSR IV process is completed, the Ecosystem Representation Analysis will be updated and reviewed. Opportunities for improvement may be found in ways to advance PEM technology, or in additional testing the validity of PEM by ground testing PEM predictions.

**Indicator 2 - Old Forest by Natural Disturbance Unit**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Maintain "old forest" within each NDU (merged BEC).	<p><u>Target:</u> Maintain average percent of total old forest and not go below minimal natural variation (<i>As per the "Landscape Biodiversity Objectives for the PG TSA"</i>).</p> <p><u>Variance:</u> Within the range of natural variation as per the "<i>Landscape Biodiversity Objectives for the PG TSA</i>".</p>

This indicator is intended to quantify the amount of the landscape occupied by "old forests" at a point in time. Maintenance of old forest stands is crucial to forest management for the conservation of landscape ecosystem biodiversity. Old forests often contain unique plant and animal communities that contribute to ecological productivity and forest resilience. Old forests represent large volumes of stored carbon. Their maintenance helps manage levels of atmospheric carbon that is contributing to climate change.

As harvesting usually targets older stands, forest management must consider how harvesting affects the distribution and percentage of old forest stands across the landscape. Currently the Mountain Pine Beetle epidemic presents its own challenges as older pine leading stands are the most susceptible to infestation. By ensuring the target percentage of old forest by Natural Disturbance Unit (NDU) merged BEC within the DFA is met, the long-term viability of those plant and animal species that depend on these forest types will be maintained. Forest ecosystem diversity can equate to a resilient forest more capable of adapting to the changing environment

The current status of old forest within the DFA exceeds the specified targets as per the Prince George TSA Landscape Biodiversity Objectives. It is apparent that harvesting activities can continue throughout



the DFA as long as levels of old seral are closely monitored to ensure the targets are continually achieved or exceeded.

**Table 3. Old Forest in the DFA and Associated Targets**

Unit Label	Natural Disturbance Unit **	Merged Biogeoclimatic Units	Current Status as of March 31, 2008 (%)*	Target (%)	Non-pine Leading (%)	Variance (%)
E1	Moist Interior	ESSF mv1, ESSF mv3, ESSF mvp1	49%	>41%	38%	>41%
E2	Moist Interior	SBS dk	51%	>17%	38%	>17%
E3	Moist Interior	SBS mc2	52%	>17%	28%	>17%
E4	Moist Interior	SBS mk1, SBS wk3	40%	>17%	15%	>12%
E5	Moist Interior	SBS dw3	52%	>17%	27%	>12%
E6	Northern Boreal Mountains	ESSF wvp, ESSF mcp, ESSF mc, ESSF wv	88%	>37%	-	>37%
E7	Northern Boreal Mountains	SWB mks SWB mk	89%	>37%	-	>37%
E8	Northern Boreal Mountains	SBS mc2	82%	>37%	-	>26%
E9	Omenica Mtn.	ESSF mv	92%	>58%	-	>58%
E10	Omenica Mtn.	ESSF mc	88%	>58%	-	>41%
E11	Omenica Mtn.	ESSF mv3	70%	>58%	-	>41%
E12	Omenica Valley	SBS dk, SBS dw3	62%	>23%	-	>16%
E13	Omenica Valley	ICH mc1	93%	>23%	-	>23%
E14	Omenica Valley	BWBS dk1	69%	>23%	-	>16%
E15	Omenica Valley	SBS mc2	74%	>23%	-	>16%
E16	Omenica Valley	SBS mk1	55%	>23%	-	>16%
E17	Omenica Valley	SBS wk3	48%	>23%	-	>16%

\*The current status is from the PG TSA Licensees' Memorandum of Understanding on the Order Establishing Landscape Objectives for the Prince George Timber Supply Area. Forest Cover and VRI (2007) data.

\*\* Old Forest means  $\geq 140$  years for all NDU except for all moist Interior Plateau NDU and NDU E12, E14, E15, E16 where old forest is defined as  $\geq 120$  years.

### Indicator 3 - Old Interior Forest

Indicator Statement	Target and Variance
Maintain "old interior" forest conditions within each NDU (merged BEC).	<p><b>Target:</b> Greater than or equal to the targets set as per the "Landscape Biodiversity Objectives for the PG TSA", as per above target.</p> <p><b>Variance:</b> As per the Landscape Biodiversity Objectives for the PG TSA.</p>

Old interior forest conditions are achieved when the impact of adjacent younger stands no longer influences environmental conditions within the stand. Many plant and animal species are dependent upon old interior forest conditions to meet their habitat requirements.

The Landscape Objective Working Group (LOWG) has developed old interior forest retention objectives have been established for each Natural Disturbance Unit (NDU) that occurs within the Prince George DFA, which includes the Fort St. James AUTP.

**Table 4: Fort St. James DFA Old Interior Forest Requirements**

Unit Label	Natural Disturbance Unit	Merged Biogeoclimatic Units	Minimum % Old Forest required in Table 1 that must be Old Interior Forest (%)	Current Status* as of March 31, 2008 (%)*	Variance (%)
E1	Moist Interior	ESSF mv1 ESSF mv3 ESSF mvp1	40%	112%	0%
E2	Moist Interior	SBS dk	10%	175%	0%
E3	Moist Interior	SBS mc2	10%	239%	0%
E4	Moist Interior	SBS mk1 SBS wk3	25%	190%	0%
E5	Moist Interior	SBS dw3	25%	276%	0%
E6	N. Boreal Mountains	ESSF wvp ESSF mcp ESSF mc ESSF wv	40%	222%	0%
E7	N. Boreal Mountains	SWB mks SWB mk	40%	223%	0%
E8	N. Boreal Mountains	SBS mc2	25%	285%	0%
E9	Omenica Mtn.	ESSF mv	40%	145%	0%
E10	Omenica Mtn.	ESSF mc	40%	200%	0%
E11	Omenica Mtn.	ESSF mv3	40%	154%	0%
E12	Omenica Valley	SBS dk SBS dw3	25%	262%	0%
E13	Omenica Valley	ICH mc1	40%	378%	0%
E14	Omenica Valley	BWBS dk1	25%	362%	0%
E15	Omenica Valley	SBS mc2	25%	393%	0%
E16	Omenica Valley	SBS mk1	25%	261%	0%
E17	Omenica Valley	SBS wk3	25%	218%	0%

\*The current status is from the PG TSA Licensees' Memorandum of Understanding on the Order Establishing Landscape Objectives for the Prince George Timber Supply Area. Forest Cover and VRI (2007) data

#### **Indicator 4 - Young Patch Size Distribution**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Maintain a variety of young patch sizes in an attempt to approximate natural disturbance.	<u>Target:</u> As per the "Landscape Biodiversity Objectives for the PG TSA". <u>Variance:</u> As per the "Landscape Biodiversity Objectives for the PG TSA".

A patch is a forest unit with identifiable boundaries and vegetation different from its surroundings. Natural disturbances maintain plant and animal diversity over time and space. Young forests are defined as stands 0 to 20 years of age. In order to remain within the landscape's natural range of variability and move toward sustainable management of the forest resource, it is important to develop and maintain young patch size targets based on historical natural disturbance patterns. This indicator will monitor the consistency of harvesting patterns compared to the natural patterns of the landscape.

The Landscape Objective Working Group (LOWG) aided ILMB in the development of landscape biodiversity objectives for patch size distribution for the Prince George TSA, which includes the Fort St. James DFA. Young forest patch size distribution objectives have been established for each natural disturbance unit (NDU) that occurs within the Fort St. James DFA.

**Table 5: Young Forest Patch Size Classes by NDU in the Fort St. James DFA**

Natural Disturbance Unit	Patch Size Category	Current Status March 31, 2008 *	Target (%)	Trend	Future Condition (2013)
Moist Interior Plateau	≤ 50 ha	13.8%	5%	Toward	10.8%
	50-100	16.5%	5%	Toward	10.4%
	100-1000	27.8%	20%	Toward	25.6%
	>1000	41.8%	70%	Toward	53.2%
Moist Interior Mountain	≤ 50 ha	9.3%	40%	Away	22.4%
	50-100	53.9%	30%	Away	13.8%
	100-1000	18.0%	10%	Toward	38.7%
	>1000	18.8%	20%	Toward	25.1%
Omenica Valley	≤ 50 ha	14.9%	5%	Toward	14.2%
	50-100	19.0%	5%	Toward	14.4%
	100-1000	35.7%	30%	Toward	33.1%
	>1000	30.4%	60%	Toward	38.4%
Omenica Mountain	≤ 50 ha	28.8%	10%	Away	25.8%
	50-100	26.6%	10%	Toward	20.9%
	100-1000	26.9%	30%	Toward	24.0%
	>1000	17.7%	40%	Toward	29.3%
Northern Boreal Mountains	≤ 50 ha	80.8%	5%	Away	80.8%
	50-100	19.2%	5%	Away	19.2%
	100-1000	0.0%	30%	Away	0.0%
	>1000	0.0%	60%	No change	0.0%

\*It can be difficult or impossible to trend towards the Young Patch targets in any given year. For this reason, Young Patch is reported out every five years. As harvesting continues, it is anticipated that the distribution of patches in the appropriate size ranges will be achieved. As the table demonstrates, while current trends will take most patch size distributions toward targets, others will actually be further from achieving objectives due to previous harvesting practices.

### **Indicator 5 - Large Opening Design**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percent of openings (> 100 ha) harvested annually that meet the large opening design criteria.	<u>Target:</u> >80% of openings. <u>Variance:</u> -10%

Forests in the Fort St. James DFA have historically been shaped by large-scale disturbance events such as wildfires. These fires often created large clearings that varied in shape and size, creating a mosaic of stands across the landscape. Forest managers when planning large harvesting openings try to emulate the characteristics of wildfire created stands. To help this planning process, large opening design criteria has been developed that allows planners to assess their harvest designs.

This indicator has a Licensee/BC Timber Sales specific target. Therefore, individual Licensees and BC Timber Sales track and monitor the number of large openings harvested annually which are consistent with the design criteria.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 6: Adherence to Large Opening Design Criteria****April 1/07 to March 31/08**

Licensee	Total Number of Openings Harvested (>100ha)	Number Large Opening Design Criteria	% in DFA*
Apollo & Group Companies	6	6	100%
BC Timber Sales	13	10	76.9%
Canfor	6	6	100%
Carrier Lumber	1	0	0%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	2	2	100%
<b>AUTP TOTAL</b>	<b>28</b>	<b>24</b>	<b>86%</b>

*Percent of openings = (openings that meet large design criteria / total number of large openings (>100ha) harvested) X 100*

#### Carrier Lumber Ltd. Indicator 5 Rationale

The large opening design criteria was not met on the block due to the layout for this block was completed in October 1999 and the Silviculture Prescription was approved in February 2002, prior to the implementation of the FSJ SFMP and this indicator criteria.

#### Canfor Indicator 5 Discussion:

Canfor audited six openings to determine whether they had met the large opening design criteria. The four components of large opening design were weighted equally in determining whether the criteria had been met. Four openings met the criteria for all four components of large opening design. Two openings did not meet the connectivity test but met all other tests of large opening design. On the two openings that did not meet for connectivity, the target was >50% connected internal reserves and these two openings were calculated to have 49% connected internal reserves.

It should also be noted that the majority of these openings are comprised of a number of older cutblocks that will start to drop out of the analysis as they reach the designated 20-year threshold. Block design standards have changed significantly in the past 20 years and the effect of these older blocks on connectivity is noticeable, especially around riparian features.

### **Indicator 7 - Plant Species Diversity Index**

<b>Indicator Statement</b>	<b>Target and Variance</b>
The number of site association groups identified in Table 7, achieving plant diversity index baseline targets within managed stands.	Target: Annually, maintain the plant diversity index, for each site association group where the baseline target is known, above the baseline target for the site association group.  Variance: 0%

Forestry operations can influence dramatically the composition of plants and trees within managed stands. In order for ecosystems to function effectively and maintain their ability to recover from disturbances (such as forest harvesting) they must retain the natural diversity of communities, particularly plants. Plant diversity indices provide a method to measure this diversity.

The Plant Diversity Index utilized in the Fort St. James AUTP is the Shannon-Wiener Index: Future work includes localizing the plant diversity index to grouped site series found within the area under this plan (AUTP) to be completed by June 2006, with monitoring to begin the summer 2006 and reporting during the 2006/07 reporting period.

The table below details the current status of this indicator for this reporting period.

**Table 7: Plant Species Diversity Index**

Indicator 7: Plant Species Diversity index.		TARGET: 100% Annually VARIANCE: 0
Grouped Site Association – Forested sites only – Top 9 groups	Current Status as of March 31 <sup>st</sup> , 2008 Mean Shannon-Wiener Index	Shannon-Wiener Target
Bl - Oak fern	2.569	> 2.198
Bl - Rhododendron	2.372	> 1.952
Sb - Feathermoss	2.716	> 1.469
Sxw - Devil's club	2.766	> 2.282
Sxw - Horsetail	2.737	> 2.239
Sxw - Huckleberry	2.490	> 1.720
Sxw - Oak fern	2.811	> 2.203
Sxw - Twinberry	2.728	> 2.191
SxwFd – Prince's Pine	2.581	> 1.963

Of the 41 Grouped Site Associations identified in, “*An Effectiveness Monitoring Program for Biodiversity Management in the Prince George TSA, Timberline 2006*”, there are 31 forested grouped site associations (see the report “*Native Plant Diversity – Benchmark Establishment and Monitoring – Timberline 2006*”). The March 2007 report, “*Monitoring Native Plant Diversity in the Prince George Timber Supply Area – 2006 – by Timberline*”, details further analysis of the 31-forested grouped associations. Established plant diversity plots as well as 2006 plant diversity plots were amalgamated to refine the sample size and generate new plant diversity index targets and current status numbers. Also in this report, Timberline recommends that only the top 9 forested group site associations be monitored because they make up 81% of the TSA. The remaining 22-group site associations make up a very small part of the TSA and have limited opportunities to monitor managed stands within these site types. For these reasons, the Licensees and BC Timber Sales will be monitoring the top 9 grouped association types as detailed in the table above.

### **Indicator 8 - Ungulate Winter Range Objectives**

Indicator Statement	Target and Variance
Percentage of cutblocks harvested that are consistent with legally established ungulate winter range objectives.	Target: 100% Variance: 0%

Ungulates such as mule deer and caribou are found in many parts of the Fort St. James AOTP. An "Ungulate Winter Range (UWR)" is an area that contains habitat that is necessary to meet the winter habitat requirements of an ungulate species. As many UWR can be directly and indirectly affected by forest harvesting activities, it is important that Licensees and BC Timber Sales in the Fort St. James AOTP track their location and implement management objectives

A memorandum of understanding on the "Establishment of Ungulate Winter Ranges and Related Objectives" was developed in August of 2003, to meet UWR objectives across the province, to support the Forest Practices Code and the new Forest and Range Practices Act (FRPA). These orders prescribe specific objectives to maintain mule deer and caribou winter range, to provide high suitability snow interception, cover, and foraging opportunities.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 8: Ungulate Winter Range Requirements Identified in Operational Plans**

**April 1, 2007 to March 31, 2008**

Licensee	Total Number of blocks harvested within Ungulate Winter Ranges	Number of cutblocks with Site Plans completed in accordance with Ungulate Winter Range Requirements	% in DFA*
Apollo & Group Companies	0	0	100%
BC Timber Sales	0	0	100%
Canfor	1	1	100%
Carrier Lumber	0	0	100%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	0	0	100%
<b>AUTP TOTAL</b>	<b>1</b>	<b>1</b>	<b>100%</b>

\* % = (Total # of blocks harvested with site plans completed in accordance with UWR requirements / Total number of blocks harvested in UWR) X 100

### **Indicator 9 - Species at Risk Notices & Orders**

<b>Indicator Statement</b>	<b>Target and Variance</b>
The percentage of cutblocks and roads harvested consistent with approved provincial Species at Risk Notice/ Orders requirements as identified in operational plans.	<u>Target:</u> 100% <u>Variance:</u> 0%

This indicator is intended to monitor the consistency between forest operations and approved provincial Species at Risk Notice/ Order requirements as identified in operational plans. Being consistent with these requirements will ensure that the habitats that are required to support these Species at Risk will be maintained. Overall ecosystem productivity will be maintained by ensuring these species continue to play their roles in the healthy functioning of the DFA's forests. This Provincial Order provides a list of species at risk that may be affected by forest or range management on Crown land and require protection in addition to that provided by other mechanisms (Government of BC, 2004b).

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 9: Species at Risk Notices & Orders**

**April 1, 2007 to March 31, 2008**

Licensee	Total Number of cutblocks harvested that coincide with FRPA Sect. 7 Notices	Site Plans completed in accordance with FRPA Sect. 7.0 Notices	% in DFA*
Apollo & Group Companies	8	8	100%
BC Timber Sales	6	6	100%
Canfor	15	15	100%
Carrier Lumber	0	0	100%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	4	4	100%
<b>AUTP TOTAL</b>	<b>33</b>	<b>33</b>	<b>100%</b>

\* % = (blocks harvested with site plans in accordance with FRPA section 7 notices / blocks harvested that coincide with Section 7 notices) X 100

**Indicator 10 - Management Strategies for Sites and species of importance**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Indicator 10: Percentage of cutblocks and roads harvested that adhere to licensee specific strategies for: <ul style="list-style-type: none"> <li>• Sites of biological importance;</li> <li>• Important wildlife, fish, and bird species; and,</li> <li>• Valuable plants and plant communities.</li> </ul> Within the DFA that are likely to be affected by industrial forestry activities.	<u>Target:</u> 100%  <u>Variance:</u> -20%

This indicator involves the implementation of licensee specific management strategies for wildlife and plant species identified in the AOTP that may be impacted by industrial forest activities. Legally identified wildlife includes those species identified through FRPA Section 7 Notices as described in the previous indicator (indicator #9). In the Fort St. James AOTP, there are currently two legally identified wildlife species: caribou and mountain goat. The Conservation Data Centre ranked blue and red listed species not already managed under UWR, regionally important species, species at Risk, and Integrated Wildlife Management Strategies for all wildlife and plant species or plant communities that have been identified, but there are currently no legal obligations regarding management for these species within the AOTP.

This indicator has been refined over the reporting period. At the January 29<sup>th</sup>, 2007 PAG meeting, consensus was reached to combine the previous Indicators #10, 12, 18, 19, 20, and 45 into the new indicator #10 detailed above. A detailed list of the important sites and species is contained in the current SFMP as an appendix. This list will be reviewed and updated as required.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 10: Sites and Species of Importance****April 1, 2007 to March 31, 2008**

<b>Indicator 10: Percentage of cutblocks and roads harvested that adhere to licensee specific strategies for:</b> <ul style="list-style-type: none"> <li>• Sites of biological importance;</li> <li>• Important wildlife, fish, and bird species; and,</li> <li>• Valuable plants and plant communities.</li> </ul> <b>Within the DFA that are likely to be affected by industrial forestry activities.</b>			<b>TARGET: 100%</b>  <b>VARIANCE: -20%</b>
<b>Licensee</b>	<b>Total Number of cutblocks and roads harvested Between April 1<sup>st</sup> and March 31<sup>st</sup> that coincide with sites or species relevant to Indicator #10 – see Appendix 8 of the SFMP</b>	<b>Number of cutblocks and roads harvested in accordance with the licensee specific strategies</b>	<b>% in DFA</b>
Apollo & Group Companies	8	8	100%
BCTS	16	16	100%
Canfor	14	14	100%
Carrier Lumber	4	4	100%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	4	4	100%
<b>AOTP TOTAL</b>	<b>46</b>	<b>46</b>	<b>100%</b>

% = (# of blocks and roads that adhere to strategies for sites or species / total # of blocks or roads that are applicable to the indicator) X 100

**Indicator 13 - Site Plans with Douglas Fir Management Strategies**

<b>Indicator Statement</b>	<b>Target and Variance</b>
For blocks where Douglas fir (Fdi) exists in the stand, the percentage of Site Plans that incorporate the Douglas fir management strategy.	<u>Target:</u> 100% <u>Variance:</u> 20%

Douglas fir plays an important role in biodiversity because it is at the northern extent of its range in Fort St. James. It contributes to genetic diversity, species diversity, acts as a unique contributor to vertical stand structure, wildlife habitat and coarse woody debris requirements.

Since 1999 the Licensees and BC Timber Sales have managed stands containing a Douglas fir component according to the BC Ministry of Forests "Douglas fir Management Guidelines for the Prince George Forest Region". This document provides guidelines for the maintenance and regeneration of Douglas fir across the PG Forest Region, which includes the Fort St. James AOTP. These guidelines are generally included in operational plans such as Site Plans, which prescribe what forest activities are required to meet Douglas fir management objectives.

By tracking the number of site plans that incorporate the Douglas fir management strategy, Licensees and BC Timber Sales will be able to evaluate the success of those activities over time. They will also be able to evaluate the consistency of procedures and compare them to other accepted approaches to managing Douglas fir.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 11: Site Plans that Incorporate the Douglas Fir Management Strategies**

**April 1, 2007 to March 31, 2008**

<b>Licensee</b>	<b>Total number of cutblocks harvested containing Douglas fir</b>	<b>Cutblocks harvested incorporating the Douglas fir strategy</b>	<b>% in DFA*</b>
Apollo & Group Companies	1	1	100%
BC Timber Sales	7	7	100%
Canfor	12	11	92%
Carrier Lumber	4	4	100%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	4	4	100%
<b>AOTP TOTAL</b>	<b>28</b>	<b>27</b>	<b>96.4%</b>

\* % = (# of blocks the FDI strategy was incorporated / total # of blocks that the FDI strategy was applicable to) X 100

**Indicator 14 - Stand Level Retention**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percent wildlife trees and/or wildlife tree patches associated with areas harvested annually by licensee as measured across the DFA	<u>Target:</u> >7% by Licensee <u>Variance:</u> 0%

Stand level retention consists primarily of wildlife tree patches (WTP) and riparian management areas. WTP are forested patches of timber within or immediately adjacent to a harvested cutblock while riparian management areas are associated with water features. Stand retention provides a source of habitat for wildlife, sustains local genetic diversity, and protects important landscape or habitat features, such as mineral licks and raptor nesting sites. Maintenance of habitat through stand retention contributes to conservation of ecosystem diversity by conserving a variety of forest age classes, stand structure and unique features at the stand level.



Stand level retention, including wildlife trees and wildlife tree patches, is managed by each Licensee and BC Timber Sales in the AOTP on a site-specific basis. During the development of a cut block, retention areas are delineated based on a variety of factors. Stand level retention generally occurs along riparian features and will include unharvestable and sensitive sites if they are present in the planning area. Stand level retention also aims to capture a representative portion of the existing stand type to contribute to ecological cycles of the land base. Retention level in each block is documented in the associated site plan; recorded in the Licensee/ BC Timber Sales database systems and reported out in RESULTS, the provincial government database, on an annual basis.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 12: Wildlife Trees/WTP Associated with Areas Harvested**

**April 1, 2007 to March 31, 2008**

Licensee	Total Area Harvested (ha)	Total Area Wildlife Trees/Wildlife Tree Patches	% in DFA*
Apollo & Group Companies	1060.14	312.35	29.5%
BC Timber Sales	2419.34	317.76	13.13%
Canfor	1490.3	229.8	15.4%
Carrier Lumber	409.7	40.4	9.9%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	0	0	N/A
<b>TOTAL</b>	<b>5379.48</b>	<b>900.31</b>	<b>16.7%</b>

\* % = (Total area left as wildlife trees or wildlife tree patches / Total area harvested) X 100

### **Indicator 15 - Thinning/ Spacing Prescriptions & Conifer Density**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percentage of thinning and spacing prescriptions implemented annually that specify a post-treatment conifer density greater than the original planting density.	<u>Target:</u> 100% <u>Variance:</u> 20%

Thinning and spacing are silviculture treatments performed on young plantations to reduce the density of tree stems. This reduction is usually necessary when the natural germination of conifers is too high for the stand to reach its' growth potential. In the Fort St. James DFA, this usually occurs in plantations where Lodgepole pine has regenerated, as this species has evolved to produce high numbers of stems per hectare following a disturbance event, especially fire.

When a block is identified for thinning/spacing, a prescription is prepared describing the post-treatment conifer density. This density should be higher than the density that the block was planted at for several reasons. If too few trees are present in the early stages of the plantation, the subsequent losses due to pests/ disease may result in mature stands that have too few trees, representing a genetic and economic loss. Higher post-treatment conifer densities may also result in higher wood quality as inter-tree competition will promote natural pruning of branches and less juvenile wood. This improved wood quality is expected to provide higher economic returns in the future when these plantations are harvested.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 13: Post Treatment Conifer Density Compared to the Original Planting Density**

**April 1, 2007 to March 31, 2008**

Licensee	Number of Thinning and Spacing Prescriptions Implemented	Prescriptions With Post Treatment Conifer Density Greater Than the Original Planting Density	% in DFA*
Apollo & Group Companies	0	0	100%
BC Timber Sales	0	0	100%
Canfor	0	0	100%
Carrier Lumber	0	0	100%
Stuart Lake Lumber	0	0	100%
Takla Track & Timber	0	0	100%
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>100%</b>

\* % = (prescriptions with post treatment conifer density greater than original planting density number of thinning and spacing prescriptions) X 100. **Maximum conifer density increased in 2007 to 20,000 SPH for Pine leading stands.**

### Indicator 17 - Wildlife Habitat Guidelines

Indicator Statement	Target and Variance
Percentage of cutblocks harvested that are consistent with established guidelines for wildlife habitat features.	Target: 100% Variance: 0%

Legally established Wildlife Habitat Features are identified under the Government Actions Regulation of the Forest and Range Practices Act (FRPA) of British Columbia. Site plans are the site-specific plans that prescribe harvesting and silviculture activities for a cutblock. They are developed prior to harvesting and address management concerns for the area to be harvested. If there are wildlife habitat features in or adjacent to an area to be harvested, the site plan must be consistent with the guidelines established for that area to be compliant with legislation as well as to protect sites of biological significance within the AOTP.

Currently, there are no identified wildlife habitat features within the Fort St. James AOTP. However, when and where wildlife habitat features are encountered within cutblocks prior to harvesting, site level management strategies will be developed and implemented.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 14: Adherence to Wildlife Habitat Features Guidelines,**

**April 1, 2007 to March 31, 2008**

Licensee	Blocks with Identified Wildlife Habitat Features	Site Plans Consistent With Guidelines	% in DFA*
Apollo & Group Companies	0	0	100%
BC Timber Sales	0	0	100%
Canfor	0	0	100%
Carrier Lumber	0	0	100%
Stuart Lake Lumber	0	0	100%
Takla Track & Timber	0	0	100%
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>100%</b>

\* % = (site plans consistent with guidelines for wildlife habitat features / number of site plans in wildlife habitat feature areas) X 100

**Indicator 21 - Conversion of Non-forested Types (Cutblock Level)**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percentage of cutblocks harvested having mappable non-forested types (> 0.5 ha) that are artificially converted to forested types through afforestation treatments.	<u>Target:</u> 0%  <u>Variance:</u> +20%

Many cutblocks contain mappable non-forested types. The SFMP defines "mappable" as areas greater than 0.5 ha. Non-forested types include wetlands, rock outcrops, grasslands, brush, or other areas that are not dominated by trees. These types may be valuable sites for wildlife or may represent unique and unusual features that should be preserved in their non-forested state. If these types are not identified as being excluded from a planting area, they may be planted, either intentionally or non-intentionally, and converted to forest.

This indicator has a Licensee/BC Timber Sales specific target and will be managed on an individual block basis. The location of mappable non-forested types within cutblocks is included in the site plans for those cutblocks. While most Licensees and BC Timber Sales do not have formal policies preventing the planting of naturally occurring non-forested types, it is not common practice to do so. Planting these sites is not legally required (unless the site plan included them in the Net Area to Reforest), and it would be uneconomical to pay for the afforestation of sites unsuitable for trees.

Site Plan and planting information is tracked and retained by Licensees and BC Timber Sales in databases.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 15: Non-Forested Types Artificially Aforested**

**April 1, 2007 to March 31, 2008**

<b>Licensee</b>	<b>Total Number of Cutblocks planted that contain Non-Forested Areas*</b>	<b>Number of Those Cutblocks where the Non-Forested Areas are Aforested</b>	<b>% in DFA**</b>
Apollo & Group Companies	2	0	0%
BC Timber Sales	0	0	0%
Canfor	8	0	0%
Carrier Lumber	0	0	0%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	1	0	0%
<b>TOTAL</b>	<b>11</b>	<b>0</b>	<b>0%</b>

\* non-forested areas >0.5 ha

\*\* % = ( number of cutblocks with non-forest areas that are planted/ total number blocks with non-forest areas) X 100

**Indicator 22 – Conversion of Non-Forest Types (Landscape Level)**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Existing areas of non-forested types artificially converted to forested types	<u>Target:</u> 0 ha.  <u>Variance:</u> 0 ha.

The Fort St. James AUTP contains a variety of non-forested types that exist at the landscape level. These types may be wetlands, rock outcrops, grasslands, brush, or other areas that are not dominated by trees. These types may be valuable sites for wildlife, or may represent unique and unusual features that should be preserved in their non-forested state.

Sustainable forest management seeks to maintain the landscape diversity of the AUTP and this indicator is intended to achieve this by preventing the conversion of naturally occurring non-forested land to forested land. The locations of existing areas of non-forested types are identified in Forest Development Plans/Forest Stewardship Plans and other operational plans. Licensees and BC Timber Sales have established policies to ensure these areas are not included in the Net Area to Reforest of harvested blocks and adjacent cutblocks, and they will ensure planting contracts clearly identify these areas to be excluded from the planting area. Planting information is tracked and retained in Licensees and BC Timber Sales databases.

For this reporting period there were **0 ha** of non-forested land converted to forested land, which meets the target set for this indicator.

<b>Indicator 22: Existing areas of non-forested types artificially converted to forested types</b>	<b>TARGET: 0 ha by licensee annually VARIANCE: 0 ha.</b>
<b>Licensee</b>	<b>Total hectares of non-forested types, outside cutblocks (exhibit A areas), converted to forested types between April 1<sup>st</sup> and March 31<sup>st</sup></b>
Apollo & Group Companies	0
BCTS	0
Canfor	0
Carrier Lumber	0
Stuart Lake Lumber	0
Takla Track & Timber	0
<b>TOTAL</b>	<b>0</b>

### **Indicator 23 - Coarse Woody Debris**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percent of audited cutblocks harvested where post harvest CWD levels are within the acceptable natural range of variability (as stated in m <sup>3</sup> /ha).	<u>Target:</u> 100% <u>Variance:</u> -10%

Coarse woody debris (CWD) in the Interior, consists of a minimum of 4 logs per hectare each being a minimum of 2 m in length and 7.5 cm in diameter at one end (FRPA 2004). The logs include all stages of decay and consist of above-ground logs, exposed roots and large fallen branches (B.C. Ministry of Forests, 2000). CWD content in the Fort St. James AUTP is managed in conjunction with the *Forest and Range Practices Act* (FRPA). CWD is a vital component of a healthy functioning forest ecosystem in that it provides habitat for plants, animals and insects. It is also an important source of soil nutrients and contributes to soil moisture retention. Targets for CWD requirements are identified in operational plans, typically the site plan for each specific cutblock.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 16: CWD Levels within Natural Range of Variability**

**April 1, 2007 to March 31, 2008**

Licensee	Total number of cutblocks audited for post harvest CWD	Audited cutblocks within the Natural Range of Variability for CWD	% in DFA*
Apollo & Group Companies	4	4	100%
BC Timber Sales	19	18	94.7%
Canfor	5	5	100%
Carrier Lumber	1	1	100%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	2	2	100%
<b>TOTAL</b>	<b>31</b>	<b>30</b>	<b>96.7%</b>

% = (number of audited cutblocks within CWD limits/ total number of audited cutblocks) X 100

### Indicator 24 - Soil Disturbance Levels

Indicator Statement	Target and Variance
Percent of cutblocks harvested where the soil disturbance limits identified in the Site Plan are exceeded (typically 5% on sensitive soils and 10% on other soils).	Target: 0% Variance: 0%

Soil conservation is crucial to sustainable forest management. To achieve this, forest operations have limits on the amount of soil disturbance they can create. Soil disturbance is defined in the Fort St. James SFM plan as disturbance caused by a forest practice on an area, including areas occupied by excavated or bladed trails of a temporary nature, areas occupied by corduroy trails, compacted areas, and areas of dispersed disturbance. Soil disturbance is expected to some extent from timber harvesting or silviculture activities, but these activities are held to the soil disturbance limits identified in site plans. The site plan prescribes strategies for each site to achieve forest management activities to remain within acceptable soil disturbance limits.

Soil information is collected as a component of site plan preparation, and soil disturbance limits are established based on the soil hazards for that block. A pre-work tracking system requires equipment operators to be aware of soil conservation measures outlined in the site plans, with post harvest inspections to assess compliance with the site plan guidelines. If required, temporary access structures are rehabilitated to the prescribed standards. Road construction within blocks is minimized, and low ground pressure equipment is used where very high soil disturbance hazards exist.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 17: Compliance with Soil Disturbance Limits Set in Site Plans**

**April 1, 2007 to March 31, 2008**

Licensee	Total Number of cutblocks harvested	Cutblocks exceeding Site Plan soil disturbance limits	% in DFA*
Apollo & Group Companies	8	0	0%
BC Timber Sales	20	0	0%
Canfor	15	0	0%
Carrier Lumber	4	0	0%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	4	0	0%
<b>TOTAL</b>	<b>51</b>	<b>0</b>	<b>0%</b>

\* % = (# of Cutblocks harvested where soil disturbance limits are exceeded/ # cutblocks harvested) X 100

Apollo Forest Products has two blocks currently being audited by Compliance and Enforcement for Site Disturbance levels. The target for completion of these surveys is fall 2008.

**Indicator 25 - Permanent Access Structures**

<b>Indicator Statement</b>	<b>Target and Variance</b>
The total percent of forested land within the Timber Harvesting Landbase that is converted to non-forested land.	<u>Target:</u> <5% <u>Variance:</u> 0%

Indicator 25 compares the amount of area developed as permanent access structures within the DFA, in relation to the Timber Harvesting Landbase. Permanent access structures are areas permanently converted to non-forested land and include roads, bridges, landings, gravel pits, or other similar structures that provide access for timber harvesting. Area that is converted to non-forest land is removed from the productive forest land base and no longer contributes to the forest ecosystem. Roads and associated stream crossings have the potential to increase impacts to water resources through erosion and sedimentation. As such, minimizing the amount of land converted to roads and other structures protects the forest ecosystem as a whole.

Current practices by Licensees and BC Timber Sales contractors within the Fort St. James AOTP are to minimize the amount of permanent access structures within cutblocks. The primary harvest method utilized in the DFA is roadside harvesting, which eliminates the need for landings to be established. However, operators require sufficient road area in order for wood to be processed efficiently and cost effectively.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 18: Permanent Access Structures****April 1, 2007 to March 31, 2008**

<b>Licensee</b>	<b>Total area Timber Harvesting Landbase by Licensee DFA *</b>	<b>Total Area converted to non-forested land</b>	<b>% in DFA**</b>
Apollo & Group Companies	266826	1295.5	0.57%
BC Timber Sales	289650.90	1534.67	0.53%
Canfor	463339	300.96	0.06%
Carrier Lumber	31924	110.9	0.3%
Stuart Lake Lumber	66610	0	0%
Takla Track & Timber	71028	0	0%
<b>TOTAL</b>	<b>1189377.9</b>	<b>3242.03</b>	<b>0.27%</b>

\* Gross Cutblock Area (ha)

\*\* % = (Area of permanent access structures/ total gross cutblock area) X 100

**Indicator 26 - Road Related Erosion Events**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percent of road related soil erosion events that introduce sediment into a stream identified in annual road inspections that are addressed	<u>Target:</u> 100% <u>Variance:</u> 0%

Sedimentation can damage streams by degrading fish spawning beds, increasing turbidity, and reducing water levels. Forest management activities can potentially create unnatural inputs of sedimentation into water bodies. This may occur as a result of roads adjacent to streams, ditches delivering sediment to stream channels, or from ruts on road surfaces. Licensees and BC Timber Sales conduct annual road inspections to monitor the condition of the roads and to ensure sedimentation of streams is not occurring. Once sedimentation occurrences are detected, mitigating actions are taken to stop further damage and to rehabilitate the site. Tracking these mitigation actions contributes to sustainable forest management by evaluating where, when and how sedimentation occurs and their success in correcting it.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 19: Soils Erosion Events Addressed**

**April 1, 2007 to March 31, 2008**

Licensee	Number of Road Related Soil Erosion Events Introducing Sediment Into a Stream Identified	Number of these Erosion Events That Are Addressed	% in DFA*
Apollo & Group Companies	12	12	100%
BC Timber Sales	0	0	100%
Canfor	1	1	100%
Carrier Lumber	0	0	100%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	0	0	N/A
<b>TOTAL</b>	<b>13</b>	<b>13</b>	<b>100%</b>

% = (Number of erosion events that are addressed / Total road related soil erosion events identified) X 100

### **Indicator 27 - Fish Stream Crossings & Sediment Control**

Indicator Statement	Target and Variance
Percentage of fish stream crossings planned and installed to a reasonable design and sediment control standards.	<u>Target:</u> 100% annually  <u>Variance:</u> 0%

The conservation of water resources is an important SFM objective. Forestry roads can have a large impact on water quality and quantity when they intersect with streams, particularly through sedimentation events. Sedimentation can affect fish, fish habitat, and spawning beds. Sedimentation is also a natural part of streams and lakes as water must pass over soil in order to enter a water body. When stream crossings (bridges, culverts) are installed to a reasonable design and to sediment control standards the level of sedimentation may be minimized to help sustain the natural range of variation within the stream. By tracking this indicator, the success of installing stream crossings can be assessed, and, if required, steps can be taken to improve designs and standards.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 20: Fish Stream Crossings within Sediment Control Standards**

**April 1, 2007 to March 31, 2008**

Licensee	Total Number of Fish Stream Crossings Installed	Crossings Installed to a Reasonable Design and Sediment Control Standard	% in DFA*
Apollo & Group Companies	1	1	100%
BC Timber Sales	8	8	100%
Canfor	4	4	100%
Carrier Lumber	0	0	100%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	0	0	100%
<b>TOTAL</b>	<b>13</b>	<b>13</b>	<b>100%</b>

• % = (Number of crossings installed to a reasonable design and sediment control standard / Total number of fish stream crossings installed) X 100

**Indicator 28 - Stream Crossing Inspections**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percentage of stream crossing inspections and resulting mitigation measures completed according to schedule.	<u>Target:</u> 100% annually <u>Variance:</u> -10%

Regular stream crossing inspections are necessary to ensure crossings are in good condition and are not posing a threat to water quality or to traveler safety. These inspections may find some stream crossings are causing sediment to enter the stream channel, which may damage fish, habitat and other aquatic life. If a stream crossing is found to be in need of mitigation measures to prevent sedimentation or to repair the structure, those measures are scheduled for action and completed at a later date. This indicator is intended to monitor the success of completing these mitigation measures according to schedule.

This indicator allows Licensees and BC Timber Sales to evaluate how well they are detecting and correcting forest management and operational related issues.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 21: Stream Crossing Inspections and Resulting Mitigation Measures****April 1, 2007 to March 31, 2008**

<b>Licensee</b>	<b>Total Number of Stream Crossing Inspections and Mitigation Measures Completed</b>	<b>Number of These Inspections and Mitigation Measures Completed According to Schedule</b>	<b>% in DFA*</b>
Apollo & Group Companies	12	12	100%
BC Timber Sales	8	8	100%
Canfor	2	2	100%
Carrier Lumber	1	1	100%
Stuart Lake Lumber	2	2	100%
Takla Track & Timber	0	0	100%
<b>TOTAL</b>	<b>25</b>	<b>25</b>	<b>100%</b>

\* % = (# of inspection/mitigation measures completed on time/# of inspections/ mitigation measures completed) X 100

**Indicator 30 - Conformity to the Risk Ranking System**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Conformity to the DFA risk ranking system developed for assessing stream crossing.	<u>Target:</u> April 1, 2007 <u>Variance:</u> 6 months

Assessing risks and planning according to the risk ranking system developed for assessing stream crossings in a consistent manner by the Licensees/BC Timber Sales helps maintain water quality in a proactive manner conducive to SFM. However, the risk ranking system is of little use on its own unless Licensees/BC Timber Sales in the AUTF conform to this system and ensures all actions in the field reflect the recommendations generated by the risk ranking system.

All Licensees and BC Timber Sales recognize the importance of assessing stream crossings in a consistent manner and are committed to conforming to the DFA risk ranking system by April 1<sup>st</sup> 2007, with a 6-month variance. The Licensees and BC Timber Sales developed the risk ranking system in March 2006. Each Licensee/BC Timber Sales operation is working toward assessing all stream crossings in the Fort St. James AUTF in accordance with the risk-ranking standard, and will achieve conformity with this system by April 1<sup>st</sup>, 2007, variance of 6 months.



The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 22: DFA Risk Ranking System for Assessing Stream Crossings**

**April 1, 2007 to March 31, 2008**

Indicator 30: Conformity to the DFA risk ranking system developed for assessing stream crossings.			TARGET: April 1, 2007 VARIANCE: 6 months
Licensee	Total Number of Stream Crossings Assessed Between April 1 <sup>st</sup> and March 31 <sup>st</sup>	Number of These Crossings Assessed According to the Risk Ranking System	% in DFA
Apollo & Group Companies	105	105	100%
BCTS	198	198	100%
Canfor	91	90	98.9%
Carrier Lumber	0	0	100%
Stuart Lake Lumber	117	117	100%
Takla Track & Timber	0	0	N/A
<b>TOTAL</b>	<b>511</b>	<b>510</b>	<b>99.8%</b>

*% = (Number of stream crossings assessed according to the risk ranking system / Total number of stream crossings assessed) X 100*

### **Indicator 31 - Permanent Crossing Structures & Fish Passage**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percentage of permanent crossing structures installed on fish streams that will allow for adequate fish passage ( <i>dependant on the presence/absence of fish</i> ).	<u>Target:</u> 100% annually  <u>Variance:</u> 0%

When forest roads are constructed it is often necessary to build permanent crossing structures (i.e. culverts, bridges) over streams that may be fish habitat. In order to maintain the number and diversity of fish species, stream crossings cannot be a barrier to their migration. Barriers to fish passage include, but are not limited to, obstructions in culverts, placement of culverts above a stream creating an impassible step, and collapsed culverts. As fish are also an important food source for other species, the success of these structures (to provide for fish migration) contributes to the maintenance of these other species in the DFA. It is the intention of this indicator to ensure all new fish-stream crossings allow for adequate fish passage.

Streams and crossing structures are identified during operational plan preparation. The streams are surveyed for their potential for bearing fish and qualified personnel determine their probable peak flow volumes. The appropriate culvert size and installation procedure is then prescribed for the stream crossing. EMS or other tracking system pre-work forms are completed prior to crossing installation and the Licensee supervisor completes an inspection form at the time of completion. In addition, many stream crossing structures are inspected over time as part of Licensee's/BC Timber Sales EMS or other tracking system procedures.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 23: Permanent Crossing Structures and Fish Passage**

**April 1, 2007 to March 31, 2008**

Licensee	Number of Permanent Crossing Structures Installed on Fish Streams	Number of These Structures That Will Allow for Adequate Fish Passage	% in DFA*
Apollo & Group Companies	1	1	100%
BC Timber Sales	8	8	100%
Canfor	0	0	100%
Carrier Lumber	0	0	100%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	0	0	100%
<b>TOTAL</b>	<b>9</b>	<b>9</b>	<b>100%</b>

\*% = (# of structures that will allow fish passage/ total number of permanent crossings structures on fish streams) X 100

### **Indicator 32 - Riparian Management Area Commitments**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percent of cutblocks harvested consistent with riparian management commitments.	<u>Target:</u> 100% <u>Variance:</u> 0%

Riparian areas occur next to the banks of streams, lakes, and wetlands and include both the area dominated by continuous high moisture content and the adjacent upland vegetation that exerts an influence on it (BC Ministry of Forests 1995a). The conservation of riparian and aquatic environments are key to the survival of flora and fauna species dependent on riparian conditions by providing critical habitat, home ranges and travel corridors for wildlife. They also function to conserve water quantity and quality features by reducing the risk of forest harvesting activities on adjacent watercourses.

Riparian values are generally identified through the planning process, with specific management strategies incorporated into site plans. Implementation of these strategies is verified on the ground during harvesting operations and through final harvest inspections. The level of compliance with commitments in operational plans is monitored through EMS or other tracking system inspections and recorded in databases such as GENUS or Inform.

The identification and conservation of riparian values is both a socially and ecologically important component of forest management.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 24: Cutblocks Harvested Consistent with Riparian Management Commitments****April 1, 2007 to March 31, 2008**

Licensee	Cutblocks Harvested with Riparian Management Area Commitments	Blocks Harvested in Compliance with Identified Commitments	% in DFA*
Apollo & Group Companies	8	8	100%
BC Timber Sales	24	24	100%
Canfor	15	15	100%
Carrier Lumber	2	2	100%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	4	4	100%
<b>TOTAL</b>	<b>53</b>	<b>53</b>	<b>100%</b>

\* % = (# of blocks harvested in compliance with identified commitments/number of harvested blocks with riparian management commitments) X 100

With any harvesting or road building operation, there is the definite possibility of error. For this reason, the variance for this indicator should be re-visited at a future PAG meeting.

### **Indicator 34 - Reforestation Timing**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percentage of blocks >1.0ha harvested 3 years prior to the reporting period that have been reforested.	<u>Target:</u> 90% <u>Variance:</u> -20%

Prompt reforestation of harvested areas is a major component of sustainable forest management. In addition to creating wildlife habitat, new plantations help maintain hydrologic processes and contribute to the broader health of watersheds.

Regenerating cutblocks can also absorb significant amounts of carbon through photosynthesis. 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 harvesting the sooner this process can begin.

Three years for regeneration is an aggressive target, which is to be achieved through the quick and efficient completion of forestry operations with the consideration for piling and burning of debris and road deactivation schedules.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 25: Cutblocks Reforested within 3 years****April 1, 2007 to March 31, 2008**

Licensee	Total number of cutblocks (>1.0ha) harvested 3 years prior to the reporting period	Total number of these cutblocks that are planted within 3 years of the completion of harvesting	% in DFA*
Apollo & Group Companies	30	30	100%
BC Timber Sales	26	24	92.3%
Canfor	48	47	100%
Carrier Lumber	0	0	100%
Stuart Lake Lumber	42	42	100%
Takla Track & Timber	20	20	100%
<b>TOTAL</b>	<b>166</b>	<b>163</b>	<b>98.2%</b>

\* % = (#cutblocks planted within 3 yr. of harvest /# of cutblocks with harvest completion date of 3 yr.) X 100

**BCTS Action Plan:** The remaining 2 cutblocks are scheduled for spring 2008 plant and will meet the regeneration delay milestones. At the time of reporting, spring plant had not yet begun

### Indicator 35 – Watershed Peak Flow Index

Indicator Statement	Target and Variance
The percent of watersheds achieving baseline targets for the peak flow index	<p><u>Target:</u> Annually, 85% of the watersheds will be below the baseline target</p> <p><u>Variance:</u> +/- 15%</p>

Peak flow is the maximum water flow rate that occurs within a specified period of time, usually on an annual or event basis. The peak flow index is a measure of the potential effect of forest harvesting on water flow within a particular watershed. After an area has been harvested, both winter snow accumulation and spring melt rates increase. This effect is less important at low elevations, since the snow disappears before peak flow occurs. Harvesting at high elevations will have the greatest impact and is, therefore, of most concern. As a result, areas harvested at different elevations are weighted differently in the calculation of peak flow index (PFI). Most hydrologic impacts occur during periods of the peak stream flow in a watershed. In the interior of British Columbia, peak flows occur as the snow pack melts in the spring.

With regards to the conservation of water quality within the AOTP, it is important to be able to maintain the watershed level conditions within natural ranges of variation to ensure that other users of water are not adversely affected. The peak flow index provides a method of forecasting and evaluating the potential effects of future harvesting plans, to ensure that these harvested areas do not contribute to the degradation of the water resource.

There are currently 77 of an estimated 300 watersheds delineated for monitoring PFI. The signatory licensees have scheduled that delineating and determining targets for watersheds within their DFA's by August 2006. Canfor has already completed this task. Reporting of peak flow index would then occur during the 2006/07 reporting year.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 26: Watershed Peak Flow Index**

**April 1, 2007 to March 31, 2008**

Indicator 35: The percent of watersheds achieving baseline targets for the peak flow index.		TARGET: Annually, 85% of the watersheds will be below the baseline target VARIANCE: +/- 15%	
Licensee	Total number of watersheds that coincide with licensee DFA	Total number of watersheds with PFI below target	% in DFA
Apollo & Group Companies	36	36	100%
BCTS	71	In progress	N/A
Canfor	63	62	98.4%
Carrier Lumber	4	4	100%
Stuart Lake Lumber			N/A
Takla Track & Timber	1	1	100%
<b>TOTAL</b>			

**BCTS Action Plan:** Work is ongoing on setting the targets for this indicator. BCTS has identified the 71 watersheds assigned to BCTS operating areas. Of these, 9 were reported on last year by Canfor (now migrated to BCTS). In progress work is based on a variety of sources and is expected for completion by mid 2008.

One watershed was identified as having a PFI above the threshold. The "Hudson West" watershed exceeded the target PFI. This is an area that Canfor is currently not operating in. Canfor planning staff will investigate why this area is exceeding the threshold.

**Indicator 36 - Watershed Reviews**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percent of watershed reviews completed where the baseline target is exceeded, and new harvesting is planned.	<u>Target:</u> 100% <u>Variance:</u> 0%

The concepts of peak flow indices and baseline targets are discussed in detail in the previous indicator. If Peak Flow Index targets are exceeded, potentially detrimental impacts to water quality and quantity could occur with continued harvesting in these watersheds. This indicator is intended to ensure that where Peak Flow Index targets are exceeded within watersheds, a review is completed for all planned forest operations. Following the review, harvesting in the affected watershed will be planned in a manner that will help meet the baseline targets in the future.

Required watershed reviews will be completed by qualified hydrologists who will evaluate the potential risk of continuing to harvest in a given watershed. Depending on the results of the review, Licensees/BC Timber Sales may adjust harvest design, scheduling, and silviculture systems to mitigate any hydrologic impacts created by the harvest operations.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 27: Watershed Reviews****April 1, 2007 to March 31, 2008**

<b>Indicator 36: Percent of watershed reviews completed where the baseline target is exceeded, and new harvesting is planned.</b>			<b>TARGET: 100% VARIANCE: 0%</b>
<b>Licensee</b>	<b>Number of new block watershed reviews required</b>	<b>Number of new block watershed reviews completed</b>	<b>% in the DFA</b>
Apollo & Group Companies	0	0	100%
BCTS	In progress	In progress	N/A
Canfor	0	0	100% (plan to review 1)
Carrier Lumber	0	0	100%
Stuart Lake Lumber			N/A
Takla Track & Timber	0	0	100%
<b>TOTAL</b>			

**BCTS Action Plan:** This Indicator cannot be reported until such time as Indicator #35 is completed. It requires that a PFI target is set and then where the Target is exceeded, a complete watershed review is done. The analysis piece for this will occur in 2008.

**Indicator 37 - Free Growing Obligations**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percent of standards units declared annually that meet free growing requirements on or before the late free growing date.	<u>Target:</u> 100% <u>Variance:</u> 0%

A Standards Unit is a harvested area that will be managed as a uniform unit with respect to regeneration, stocking and soil conservation standards. Free growing dates and standards for each standards unit are recorded and maintained in each Licensee and BC Timber Sales databases, such as GENUS. Each cutblock is surveyed prior to the late free growing date to ensure the free growing standards have been met and that the stand of trees is at target heights, fully stocked, and healthy. The results of all surveys are summarized and maintained in Licensee/BC Timber Sales databases. If all free growing standards are met, the Licensee/BC Timber Sales makes an application to the Ministry of Forests and Range for the standards unit to revert to the Crown's responsibility.

While this percentage is important in a legal sense, as Licensees/ BC Timber Sales have an obligation to meet free growing standards, it is also important for sustainable forest management. Stands that meet free growing standards are deemed to be have reached a stage where their continued presence and development is more assured. They are in numbers, 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. As more blocks reach free growing status, they could make a significant local contribution to reducing global climate change within the AUTF.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 28: Standards Units Meeting Free Growing Requirements on Late Free Growing Date**

**April 1, 2007 to March 31, 2008**

Licensee	Total Number of Standards units Due to Meet Free Growing	Standards Units achieved Free Growing By Obligation Due Date.	% in DFA*
Apollo & Group Companies	11	11	100%
BC Timber Sales	33	33	100%
Canfor	52	52	100%
Carrier Lumber	0	0	100%
Stuart Lake Lumber	14	14	100%
Takla Track & Timber	10	10	100%
<b>TOTAL</b>	<b>120</b>	<b>120</b>	<b>100%</b>

- % = (# of standards units achieving free to grow in allotted time/ # of standards units due in reporting year) X 10

### **Indicator 38 - Cut Level Volumes**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percent of licensee AAC harvested over a 5 year cut control period. Percent of BCTS Volume Offered over fiscal year.	<u>Target:</u> 100% Variance: +/- 10%

To be considered sustainable, harvesting a renewable resource such as timber can not deteriorate the resource on an ecological, economic or social basis. An Allowable Annual Cut (AAC) is defined as the allowable rate of timber harvest by volume from a specified area of land. During AAC determination, various considerations are examined including the long-term sustainable harvest of the timber resource, community stability, wildlife use, recreation use, and the productivity of the DFA. The Fort St. James AUTF is part of the larger Prince George Timber Supply Area, comprising approximately 42% of the Timber Supply area.

By following the AAC determination, the rate of harvest is consistent with what is considered by the province to be sustainable within the DFA. The licensee must harvest the amount of volume specified in their license document within the legally specified thresholds. In the case of BC Timber Sales, they are not bound by cut control legislation but do have a volume apportionment as set out in the Timber Supply Review by the Chief Forester. Each fiscal year BCTS is committed to offer a volume of timber (based on the volume apportioned (AAC)) for sale through a competitive bidding process. Each truckload of wood is assessed and accounted for at an approved Ministry of Forests and Range scale site.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 29: Licensee AAC Harvested Over a 5 year Cut Control Period/ BCTS Volume Offered for Fiscal Year April 1, 200 to March 31, 200**

Licensee	5 year Total Harvest Volume Apportioned m <sup>3</sup>	Actual Volume Harvested to date in Cut Control Period m <sup>3</sup>	Number of years into Cut Control	Percent of 5 year cut control*
Apollo & Group Companies	1,588,960	264,830	1	16.6%
Canfor	2,500,000	671,205	1	26.8%
Carrier Lumber (A70174)	1,250,000	438,038	1 of 3	35.0%
Carrier Lumber (A18158)	1,265,135	7262	1	0.6%
Stuart Lake Lumber	1,010,507	45000	1	4.4%
Takla Track & Timber	1,000,000	38,203	1	3.8%
<b>TOTAL</b>	<b>8,614,602</b>	<b>1,464,538</b>		
Licensee	Total Volume Offered m <sup>3</sup>	Apportionment Volume m <sup>3</sup>	Fiscal Reported	Percent of Fiscal Year Target Achieved**
BC Timber Sales	1,070,975	922,412	2007 - 2008	116%

\* % = (actual cut volume harvested to date/ 5 year apportionment) X 100

\*\* % = (total volume offered for the fiscal year / volume apportionment for the fiscal year total) X 100%

TBD = To be determined

Carrier Lumber FL A70174: This license is for the PG TSA, but was previously not reported out for this indicator as no volume was previously harvested in the FSJ District from this license until 2007. Note that the cut control period is from June 1, 2007 to May 31, 2010 (3 years)

The target for this indicator is based on the individual licensee five year cut control period and it will be measured at the end of that 5-year period. The volume harvested is reported on an annual basis to monitor each licensee's status in achieving the target goal for the five year cut control period. The target for BC Timber Sales is based on the fiscal year.

### Indicator 39 - Visual Quality Requirements

Indicator Statement	Target and Variance
Percent of cutblocks harvested, in known scenic areas, which have visual assessments completed and implemented according to the recommendations.	Target: 100% Variance: None

Forests can provide intangible benefits in addition to their economic and ecological values. The perceived beauty of certain areas is one of these benefits and must be considered in forest management. Protection and maintenance of visual quality helps ensure that these values will be available for current and future generations. A Visual Quality Objective is a resource management objective established by the MoFR District Manager, or contained in a higher level plan that reflects the desired level of visual quality. It is based on the physical characteristics and social concern for the area. Cutblocks that are planned within established scenic areas require some form of visual assessment such as a site line analysis, a visual simulation package or a visual impact assessment.

This indicator is designed to ensure that visual assessments are completed in all planned harvest areas that fall within identified scenic areas and ensure that recommendations from visual assessments are

implemented on the ground. The maintenance of visual quality in known scenic areas is an important aspect of sustainable forest management because it contributes to the overall landscape condition and social acceptance of industrial forestry.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 30: Visual Requirements Met**

**April 1, 2007 to March 31, 2008**

Licensee	Number of cutblocks harvested within Known Scenic Areas	Number Visual Assessments Implemented	% in DFA*
Apollo & Group Companies	1	1	100%
BC Timber Sales	4	4	100%
Canfor	4	4	100%
Carrier Lumber	0	0	100%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	1	1	100%
<b>TOTAL</b>	<b>10</b>	<b>10</b>	<b>100%</b>

- % = (# visual assessments completed and implemented/ number of cutblocks harvested in known scenic areas) X 100

### **Indicator 40 - Archaeological Assessments**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percent of blocks and roads harvested that are consistent with recommendations contained in site level archaeological assessments.	<u>Target:</u> 100% <u>Variance:</u> 0%

The Fort St. James DFA is rich in archaeological resources as a result of its long history of First Nations and European habitation. In order to determine the presence of archaeological features, Licensees/BC Timber Sales conduct archaeological assessments, including reconnaissance surveys, interim archaeological assessments or field based archaeological assessments

Forest Stewardship Plans/ Forest Development Plans use an Archaeological Predictive Model to assess the potential presence of archaeological resources within proposed harvest areas or road access corridors. Where activities are proposed within zones of high archaeological potential, Licensees and BC Timber Sales conduct site level archaeological assessments to identify, assess and record any archaeological resources that may be present. Management measures are prescribed in site plans based on the results of the archaeological assessment and these management measures are implemented at the site level during harvesting operations.

Once a strategy to conserve archaeological resources is included within a site plan, there is a legal obligation for the Licensee/ BC Timber Sales to implement and adhere to the strategy. Final harvest inspections ensure that these strategies are implemented in harvested cutblocks and roads as stated in the site plan.



The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 31: Adherence to Archaeological Assessments**

**April 1, 2007 to March 31, 2008**

Licensee	Number of Cutblocks and Roads with Archaeological Assessments Completed	Number of Cutblocks and Roads adhering to Archaeological Assessment Recommendations	% in DFA*
Apollo & Group Companies	8	8	100%
BC Timber Sales	13	13	100%
Canfor	9	9	100%
Carrier Lumber	2	2	100%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	1	1	100%
<b>TOTAL</b>	<b>33</b>	<b>33</b>	<b>100%</b>

- % = (# of blocks that follow AIA recommendations/ number of blocks with AIA completed) X 100

### **Indicator 41 - Communication with Interested Individuals**

Indicator Statement	Target and Variance
Percent of individuals who have expressed an identified interest in forest planning are communicated with.	<u>Target:</u> Annually, 100% <u>Variance:</u> -10%

The Licensee/ BC Timber Sales maintains a list of individuals who have expressed an interest in forest management planning. These interested parties include private landowners, lodge operators, trappers, hunting guides, recreationalists, mining tenure holders, and water licensees. Licensees and BC Timber Sales contact various stakeholders and members of the public when forestry operations are planned or ready to commence in a given area. Typically, communication is done by letter, but contact is also made by telephone or through face to face meetings. Communication of planned forestry activities with these individuals is to be done in a timely and efficient manner.

This indicator is intended to measure the success in communicating with individuals who have expressed an interest in forest planning and if necessary, improve that communication. Licensees and BC Timber Sales use a variety of tracking systems to record this communication. Licensees/BC Timber Sales will continue to strive in the maintenance of an accurate, inclusive contact list in order to communicate with all identified interested individuals when required.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 32: Communication with Interested Individuals**

**April 1, 2007 to March 31, 2008**

Licensee	Number of Individuals Expressing and Interest in Forest Planning	Number of these Individuals who are Communicated with	% in DFA*
Apollo & Group Companies	15	15	100%
BC Timber Sales	9	9	100%
Canfor	66	66	100%
Carrier Lumber	2	2	100%
Stuart Lake Lumber	11	0	0%
Takla Track & Timber	See Canfor	See Canfor	100%
<b>TOTAL</b>	<b>103</b>	<b>92</b>	<b>89.3%</b>

- % = (# of individuals communicated with/ total number of individuals expressing and interest in forest planning) X 100
- **Stuart Lake Lumber – Communication with interested individuals ceased upon closing the facility.**

**Indicator 43 - Expression of Interest**

<b>Indicator Statement</b>	<b>Target and Variance</b>
General notification to request expression of interest (newspaper ad).	<u>Target:</u> Annual notification.  <u>Variance:</u> None

As sustainable forest management includes non-timber values, it is important that the forest industry works with interested individuals to plan operations that consider their concerns. This indicator is intended to measure the success in publishing the annual general notification to request expression of interest.

Licensees and BC Timber Sales maintain a list of individuals who have expressed an interest in forest planning which they notify when forestry operations/ developments are planned or are to occur. In order to provide an opportunity for individuals to be included in this communication list, The Licensees and BC Timber Sales currently publish notifications to request expression of interest in forest planning in local newspapers that serve the Fort St James DFA when a FDP/FSP is created or amended. All stakeholders and members of the public identified as interested in the forest planning process are communicated in a timely manner, through this advertisement process.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 33: Notification for Expression of Public Interest**

**April 1, 2007 to March 31, 2008**

<b>Licensee</b>	<b>Number of newspaper ads for an expression of interest in forest planning</b>	<b>% in DFA*</b>
Apollo & Group Companies	3	100%
BC Timber Sales	1	100%
Canfor	1	100%
Carrier Lumber	1	100%
Stuart Lake Lumber	0	N/A
Takla Track & Timber	1	100%
<b>TOTAL</b>	<b>7</b>	<b>100%</b>

- % = (Number of individuals communicated with / Total number of individuals expressing an interest in forest planning) X 100

**Indicator 44 - Personal Notification**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Annual personal notification to every "known" non-timber licensed tenure holder.	<u>Target:</u> 100%  <u>Variance:</u> 0%

Communication with the public in regards to forest planning is a crucial component of sustainable forest management. Non-timber license tenure holders are among the individuals that may be affected by forestry activities and are of particular interest, as their commercial livelihoods depend on the cooperation of the forest industry. Known non-timber license tenure holders include hunting guides, trappers, water users, mining interests, and range licensees that have been identified through their tenure identification.

This measure is intended to ensure the Licensees/ BC Timber Sales send an annual personal notification to every known non-timber licensed tenure holder that may be influenced by their operations. This notification is in the form of a letter that informs the licensee of the communication opportunities they may use to express concerns in regards to planned forest activities. The decision to act upon the opportunity to provide comments rests with the licensed non-timber tenure holder.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 34: Personal Notification to Non-Timber Licensed Tenure Holders**

**April 1, 2007 to March 31, 2008**

Licensee	Total Number of known non-timber licensed tenure holder	Number of These Individuals Who receive annual personal notifications	% in DFA
Apollo & Group Companies	51	51	100%
BC Timber Sales	106	106	100%
Canfor	68	62	91.2%
Carrier Lumber	14	0	0%
Stuart Lake Lumber	40	40	100%
Takla Track & Timber	See Canfor	See Canfor	
<b>TOTAL</b>	<b>279</b>	<b>259</b>	<b>92.8%</b>

Carrier Lumber Ltd. Indicator 44 Rationale

This indicator was simply missed for the 07/08 reporting period. A letter of notification was sent out to all the stakeholders in Carriers operating area in which the company does not have a communication strategy developed with in June 2008.

**Indicator 46 - Known Subsistence Uses, Recreational/ Cultural Trails/ Sites & Spiritual Sites.**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percent of cutblocks and roads harvested that have incorporated information of known subsistence uses, recreational/cultural trails/sites, or spiritual sites that have been brought forward.	<u>Target:</u> 100% <u>Variance:</u> 20%

Many areas of the Fort St. James DFA are used for subsistence uses such as berry picking, mushroom picking, hunting, fishing, and medicinal plant collection. Both First Nations' communities and non-First Nations' residents of the DFA may rely on these areas to supply a portion of their dietary and medicinal requirements. Many areas in the DFA are also valued for their recreational, cultural, or spiritual values. While some of these sites may be protected due to their archaeological significance, there may be others that are too recent to benefit from legislative protection, or do not possess any tangible evidence of their importance. These sites may include ski trails or ATV trails used to access favorite fishing and camping sites. Or, they may be areas of spiritual significance for First Nations, such as a mountain or lake. In the case of the latter, there may be no archaeological proof of this significance, but the lack of such physical evidence should not exclude these areas from proper management for their defined value.

This indicator is intended to measure the success of road and cutblock harvesting activities to incorporate information of known subsistence uses and information of known recreation/cultural/spiritual sites that have been brought forward. Site level plans that direct harvesting activities are dependent upon users of subsistence sites and recreation/cultural/spiritual sites to supply the Licensees/BC Timber Sales with the information needed to manage them appropriately. The Licensees/BC Timber Sales currently facilitates opportunities for members of the public to provide input at the Forest Development Plan/Forest Steward Plan stage. When information on these non-timber resources is brought forward, site level plans will incorporate the information and prescribe management activities during road and cutblock harvesting where possible.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 35: Incorporation of Information of Known Subsistence Uses, Recreational/Cultural Trails, or Spiritual Sites**

**April 1, 2007 to March 31, 2008**

Licensee	Number of Cutblocks with Non-Timber Forest Uses*	Cutblocks Incorporating Information on Non-Timber Uses	% in DFA**
Apollo & Group Companies	0	0	100%
BC Timber Sales	7	7	100%
Canfor	0	0	100%
Carrier Lumber	0	0	100%
Stuart Lake Lumber	0	0	100%
Takla Track & Timber	0	0	100%
<b>TOTAL</b>	<b>7</b>	<b>7</b>	<b>100%</b>

\* Non-Timber uses means areas known for subsistence uses, recreational, cultural trails & sites or spiritual sites

\*\* % = (# of site plans that have incorporated subsistence use information/ site plans with known subsistence uses) X 100

### **Indicator 48 - Contracts Serviced by North Central British Columbia**

Indicator Statement	Target and Variance
Percent of operational forestry contract value in dollars within the DFA serviced by north central British Columbia	<u>Target:</u> 90%- achieved annually (Excluding BC Timber Sales)  <u>Variance:</u> -10% months

Forests provide many ecological benefits but they also provide substantial socio-economic benefits. In order to have sustainable socio-economic conditions for local communities associated with the DFA, local forest related businesses should be able to benefit from the work that is required in the management of the DFA. Furthermore, for small companies to contribute to and invest in the local economy there must be assurances that there will be a consistent flow of work. This indicator is intended to measure the percentage of forestry contract value within the DFA serviced by north central BC businesses and demonstrates the commitment the Licensees are making towards maintaining the economic sustainability of the region.

The north central interior is defined in this SFMP as the land base that includes communities from 100 Mile House to Fort St. John (south to north) and Terrace to Valemount (west to east).

A query of the financial data stored within the Licensee's individual accounting systems tracks monies spent within the DFA to benefit the North Central Interior. In order to be meaningful, this financial data will be weighted based on the Allowable Annual Cut of each licensee.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 36: Contracts Serviced by North Central British Columbia**  
**April 1, 2007 to March 31, 2008**

Licensee	Total Volume Harvested *m <sup>3</sup>	Percentage Spent in NCI**
Apollo & Group Companies	264,830.6	98.7%
BC Timber Sales	623,147.05	96.9%
Canfor	774,311	96.6%
Carrier Lumber	140,439	99.4%
Stuart Lake Lumber	0	N/A
Takla Track & Timber	See Canfor	See Canfor
<b>TOTAL for AUTP</b>	<b>1,802,727.65</b>	

\*Weighted average volume = (Individual cut volume X individual percent money spent in NCI) / 100

\*\*Weighted average % = (Total weighted average volume / total cut volume) X 100

**Indicator 49 - Employment Opportunities Advertised Locally**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percentage of advertised employment opportunities published in the local paper.	<u>Target:</u> 100% (Excluding BC Timber Sales)  <u>Variance:</u> 0%

Forest Licensees and the contractors they employ constitute a major source of employment within the Fort St. James DFA. Many local people rely on the employment opportunities created by forest Licensees for their careers and livelihoods. To take advantage of local employment opportunities, residents of the DFA and other members of the local public must be aware of them. The Licensees have established a target of 100% of advertised employment opportunities to be published locally to reflect their commitment to contributing to the local economy. This indicator is intended to measure the success of Licensees to publish advertised employment opportunities in the local paper. For the purposes of this indicator, the local paper is the Caledonia Courier or the PG Citizen. Licensees currently publish all advertised employment opportunities in the local paper.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 37: Advertised Employment Opportunities Published in the Local Paper****April 1, 2007 to March 31, 2008**

<b>Licensee</b>	<b>Total Number of Advertised Employment Opportunities</b>	<b>Employment Opportunities Published in Local Paper</b>	<b>% in DFA*</b>
Apollo & Group Companies	1	1	100%
BC Timber Sales	5	5	100%
Canfor	7	7	100%
Carrier Lumber	0	0	100%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	0	0	100%
<b>TOTAL</b>	<b>13</b>	<b>13</b>	<b>100%</b>

- % = (# of employment opportunities advertised locally/ total # of employment opportunities advertised) X 100

**Indicator 50 - Bidding Opportunities for Local Forestry-Based Businesses**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percentage of bidding opportunities that are provided to qualified local forestry-based resource businesses.	<u>Target:</u> 100%  <u>Variance:</u> 0%

Forests provide substantial socio-economic benefits in addition to their many ecological benefits. In order to have sustainable socio-economic conditions for communities associated with the DFA, local forestry-based resource businesses should be able to benefit from the work that is required by forest Licensees

This indicator is intended to measure the bidding opportunities that are provided to qualified local forestry-based resource businesses. Bidding opportunities include woodlands related tendered projects, other than logging, hauling, and road building. These could include cruising, block layout, road layout, and silviculture activities such as tree planting, surveys, and stand tending. Local forestry-based businesses should have the opportunity to bid on these contracts and bring the economic benefits of the forest industry to the local community. These opportunities are usually expressed as advertisements in local papers. For the purposes of this indicator, local forestry based resource business are defined as those that are located within the Fort St. James DFA.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 38: Bidding Opportunities Provided to Qualified Local Businesses**

**April 1, 2007 to March 31, 2008**

Licensee	Total Number of Bidding Opportunities	Opportunities Provided to Local Qualified Businesses*	% in DFA**
Apollo & Group Companies	4	4	100%
BC Timber Sales	37	37	100%
Canfor	1	1	100%
Carrier Lumber	0	0	100%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	0	0	100%
<b>TOTAL</b>	<b>42</b>	<b>42</b>	<b>100%</b>

\* Opportunities provided to qualified local forestry based resource businesses

\*\* % = (# of bidding opportunities provided to local businesses/ total # bidding opportunities) X 100

### **Indicator 55 - Local Aboriginal Participation in Forest Management**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Solicit participation in forest management from local aboriginal communities for areas of overlapping interest.	<u>Target:</u> Twice a year, 100% of local aboriginal communities <u>Variance:</u> 0%

The forests of the Fort St. James DFA are valued from many resource use perspectives. These values may be economic, social, cultural, or spiritual, and should be considered in sustainable forest management planning. While the forest industry naturally focuses on the economic worth of the DFA's forests, First Nations may have a different set of forest values that the forest industry should be aware of. Being aware of these values will enable the Licensees and BC Timber Sales to plan forest operations that consider them and contribute to the overall goals of SFM.

The intent of the indicator is to provide SFM communication opportunities for First Nations whose traditional territories overlap with the area of the SFM plan. Currently, First Nations have the opportunity to communicate with the Licensees/BC Timber Sales during the FDP/FSP review phase and during the review of any amendments to these plans. All comments received during FDP/FSP reviews are documented and responded to in a timely manner. First Nations' comments are considered in the development of the FDP/FSP or amendment.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 39: Local Aboriginal Peoples Participation in Forest Management Process**

**April 1, 2007 to March 31, 2008**

Indicator 55: Solicit participation in forest management from local aboriginal communities for areas of overlapping interest.													TARGET: Bi-annually 100% of local aboriginal communities Variance: 0	
Licensee	Number of forest management participation solicitations to relevant First Nations Between April 1 <sup>st</sup> and March 31 <sup>st</sup>													
	Total	Gitksan	Kaska Dene	Lheidli T'enneh	McLeod Lake	Nak'azoli	Natooten	Takla	Tahltan	Tl'azt'en	Tsay Keh Dene	Yekooche	Halfway River	West Moberly First Nation
Apollo & Group Companies	23	N/A	N/A	N/A	2	4	N/A	3	N/A	5	2	4	2	1
BCTS	18	N/A	N/A	N/A	3	4	N/A	2	N/A	4	N/A	3	1	1
Canfor Houston	6	N/A	N/A	N/A	N/A	N/A	3	3	N/A	N/A	N/A	N/A	N/A	N/A
Carrier Lumber	17	N/A	N/A	4	3	4	N/A	N/A	N/A	N/A	N/A	N/A	3	3
Stuart Lake Lumber	2	N/A	N/A	N/A	N/A		N/A	N/A	N/A		N/A	2	N/A	N/A
Canfor PG	49	2	N/A	7	4	15	N/A	0	N/A	N/A	N/A	N/A	7	14
Takla Track & Timber			N/A		N/A		N/A		N/A	N/A	N/A	N/A	N/A	N/A
<b>Totals</b>	<b>115</b>	<b>2</b>	<b>N/A</b>	<b>11</b>	<b>12</b>	<b>27</b>	<b>3</b>	<b>8</b>	<b>N/A</b>	<b>9</b>	<b>2</b>	<b>7</b>	<b>13</b>	<b>19</b>

**Indicator 56 - Archaeological Assessment Referrals to Aboriginal Peoples**

Indicator Statement	Target and Variance
Percentage of archaeological assessments completed, on cutblocks and roads harvested during the reporting period, that have been referred to relevant Aboriginal communities for review and comment prior to harvesting.	Target: 100% Variance: 0%

The Fort St. James DFA is rich in archaeological resources because of the long history of First Nations and European habitation. Archaeological Predictive Models are utilized to assess the potential presence of archaeological resources within proposed harvest areas or road access corridors. Where activities are proposed within zones of high archaeological potential, Licensees and BC Timber Sales conduct site level archaeological assessments to identify, assess and record any archaeological resources that may be present. Aboriginal communities have expressed a desire to be made aware of the evidence of historic use by their ancestors. These communities have cultural interests in managing archeological resources and Licensees/BC Timber Sales should solicit their input when these resources are detected.

This indicator is designed to ensure that archaeological assessments completed for all harvested cutblocks and roads have been referred to the relevant Aboriginal community for review and comment. Tracking such information will allow Licensees/BC Timber Sales to evaluate how successful communication strategies are with First Nations' communities and improve procedures as required prior to harvesting.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 40: Archaeological Assessments Referred to Aboriginal Communities**

**April 1, 2007 to March 31, 2008**

Licensee	Number of cutblocks harvested with Archaeological Assessments completed	Archaeological assessments Referred to Aboriginal Communities for Comment	% in DFA*
Apollo & Group Companies	10	10	100%
BC Timber Sales	15	15	100%
Canfor	9	9	100%
Carrier Lumber	1	1	100%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	1	1	100%
<b>TOTAL</b>	<b>36</b>	<b>36</b>	<b>100%</b>

- \* % = (Number of archaeological field evaluations referred to aboriginal communities / number of archaeological field evaluations completed) X 100

### Indicator 59 - First Nations Forest Values and Indicators

Indicator Statement	Target and Variance
Percent of blocks and roads harvested by Licensees and BC Timber Sales that have been previously referred to applicable First Nations.	Target: 100% of blocks and roads harvested Variance: 0

The forests of the Fort St. James DFA are valued from many resource use perspectives. These values may be economic, social, cultural or spiritual, and must be considered in the sustainable forest management planning process. Being aware of these values early in the block and road development stage enables Licensees and BC Timber Sales to plan forest operations that manage them and contribute to the overall values and associated objectives of SFM. It is anticipated that over time the commitment to the sharing and exchange of First Nations interests and values as well as associated management strategies will result in increased awareness of First Nations values, improved consistency of management strategies employed between licensees and increased incorporation of aboriginal knowledge in forest management.

The intent of the indicator is to ensure that all development works put forward by licensees or BC Timber Sales identify and manage for important First Nations values and uses. Activities conducted by licensees and BC Timber Sales that are intended to identify and manage for important First Nations values and uses could include the following:

- First Nation information sharing activities and associated management of values and uses identified through following results and strategies in Forest Stewardship Plans for licensees and BC Timber Sales to address objectives set by Government for cultural resource values.
- Licensees and BC Timber Sales in conjunction with the Ministry of Forest and Range will provide First Nations with the information necessary for identifying and understanding the impact of forestry development works on important first nations values and usage. Subsequent dialogue will take place between First Nations, Licensees or BC Timber Sales, and/or the Ministry of Forests and Range to identify First Nations values and uses as well as management strategies.



- Licensees and BC Timber Sales will share with each other important First Nations values and interests identified through their respective information sharing activities.

**Table 41: Archaeological Assessments Referred to Aboriginal Communities**

April 1, 2007 to March 31, 2008

Licensee	Total Number of cutblocks and roads harvested Between April 1 <sup>st</sup> and March 31 <sup>st</sup>	Number of These cutblocks and roads harvested previously referred to the applicable First Nation	% in DFA	Licensee Target
Apollo & Group Companies	10	10	100%	100%
BCTS	21	21	100%	100%
Canfor	15	15	100%	100%
Carrier Lumber	4	4	100%	100%
Stuart Lake Lumber	0	0	N/A	N/A
Takla Track & Timber	4	4	100%	100%
<b>TOTAL</b>	<b>54</b>	<b>54</b>	<b>100%</b>	<b>100%</b>

% = (Number of blocks and roads harvested that have been previously referred to First Nations / Total number of blocks and road harvested) X 100

**Indicator 62 - Satisfaction with the PAG Process**

Indicator Statement	Target and Variance
Percent of PAG meeting evaluations completed during the reporting period that obtain a minimum average acceptability score of 3.	Target: 80% Variance: -10%

The PAG is a key facilitator for public involvement in the SFM process. The Fort St. James PAG provided guidance, input and evaluation during development of the SFMP. It is also instrumental in maintaining links to current local values and forest resource uses within the DFA. Therefore, it is important that the PAG participants remain satisfied with the group and continue their involvement. This indicator will use meeting evaluations to determine the satisfaction level of the PAG with the public participation process.

At the end of each PAG meeting, each PAG member will complete a satisfaction survey. The results of the satisfaction surveys will be posted at meetings as well as reviewed by the Licensee team.

During the reporting period, a total of 4 PAG meetings were held. All of the meeting evaluations obtain the minimum acceptable score of 3 so therefore the indicator was met at **100%**.

Indicator 62: Sufficient and satisfied PAG membership.		TARGET: Membership minimum size of 8 as an indicator of level of satisfaction VARIANCE: -2 people
Licensee	Average PAG member attendance between April 1 <sup>st</sup> and March 31 <sup>st</sup>	Method Used to Query/Collect Data
ALL	7.75	As of March 31, 2008 – based off of meeting minutes and attendance records.

**Indicator 63 - PAG SFM Information Gap Inquiries**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percent of PAG SFM information gap inquiries responded to within 3 months	<u>Target:</u> 100% <u>Variance:</u> 0%

PAG is one of the key elements of public involvement in the SFM process. In order for the PAG to make decisions with regards to the content of the SFMP, such as indicators, targets, and levels of responsibility, they must have the necessary information to support those decisions. This information must be of sufficient quantity and quality and provided in a timely manner in order for the PAG to make sound decisions. SFM information gaps are identified during scheduled PAG meetings. At that time, Licensees/BC Timber Sales will be assigned tasks to locate and provide outstanding information to the group within 3 months.

If the SFMP is to succeed, the people who are involved in its creation and implementation must have a level of certainty that the information they need is delivered in a timely manner.

<b>Indicator 63: Percent of PAG SFM information gap inquiries responded to within 3 months.</b>			<b>TARGET: 100% annually VARIANCE: 0%</b>
<b>Licensee</b>	<b>Total Number of PAG SFM Information Gap Inquiries Made Between April 1<sup>st</sup> and March 31<sup>st</sup></b>	<b>Number of Those Inquiries Responded to Within 3 Months</b>	
<b>TOTAL</b>	<b>3</b>	<b>3</b>	<b>100%</b>

**Indicator 65 - Hardwood Stands**

<b>Indicator Statement</b>	<b>Target and Variance</b>
The percent of hardwoods (mixed wood and deciduous leading stand) within the DFA.	<u>Target:</u> >4.0 overall. Licensee targets will vary due individual operating areas.  <u>Variance:</u> -0.4

Hardwood stands are forest stands that are dominated by deciduous species, but may include a conifer component. The major hardwood species in the Fort St. James DFA are trembling aspen (*Populus tremuloides*), balsam poplar (*Populus balsamifera*), black cottonwood (*Populus trichocarpa*), and paper birch (*Betula papyifera*). These stands provide habitat for a variety of wildlife species and often represent unique plant communities. This indicator is intended to ensure that a certain percentage of the DFA land base is occupied by hardwood stands to maintain species diversity and to support sustainable populations of hardwood associated flora and fauna habitat.

Licensees / BC Timber Sales acknowledge the importance of maintaining hardwoods in the DFA from both an ecological and economic aspect and have established this indicator to ensure a percentage of the DFA remains in deciduous cover over the long-term. Licensees and BC Timber Sales have completed a GIS analysis of the hardwood component for the DFA based on a Vegetative Resource Inventory and targets were identified based on this analysis.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 42: Percentage of Hardwoods\* within DFA**

**April 1, 2007 to March 31, 2008**

Licensee	Total THLB by Licensee (ha.)	Total Area of Hardwoods *by Licensee (ha.)	% by Licensee	Licensee Target %
Apollo & Group Companies	266826	22,081	8.3%	>4.0%
BC Timber Sales	289650.9	22,101	7.63%	>5.0%
Canfor	463339	20,148	4.35%	>2.5%
Carrier Lumber	31924	566	1.8%	>1.0%
Stuart Lake Lumber	66610	3694	5.5%	>3.0%
Takla Track & Timber	71028	3,575	5.03%	>3.0%
<b>TOTAL</b>	<b>1189377.9</b>	<b>72,165</b>	<b>6.1%</b>	<b>&gt;4.0%</b>

\* Hardwoods includes mixed wood and deciduous leading stands

### Indicator 66 - Douglas Fir Stands

Indicator Statement	Target and Variance
Percent of Douglas fir (mixed stands and Douglas fir leading stands) within the DFA.	Target: >1.0 overall. Licensee targets will vary due individual operating areas.  Variance : -0.1

Douglas fir (*Pseudotsuga menziesii*) grows throughout much of southern British Columbia. There are two distinct forms of the species: coastal and interior. The Fort St. James DFA is at the northern extent of the interior Douglas fir's range, where it is found in small stands, or in mixed forests with spruce, pine, or birch. Douglas fir has played an important economic role in BC's forest industry, but due to its low numbers in the Fort St. James AOTP has limited economic importance. In recent years Douglas fir has gained more recognition for its value as a component of the forest ecosystem. Its' large size, longevity, fire resistance, and unique form provide habitat for a variety of species. Winter ungulate range, especially for mule deer, is particularly dependent on Douglas fir component.

The Licensees and BC Timber Sales acknowledges the importance of maintaining Douglas fir within the DFA and have established this indicator to ensure a percentage of the land base contains a Douglas fir component. Past management activities have focused on Douglas fir at the stand level, and have not considered the broader presence of Douglas fir at the landscape/ DFA level. Licensees and BC Timber Sales have completed a GIS analysis of the Douglas fir component of the DFA based on a Vegetative Resource Inventory.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 43: Percentage of Douglas Fir \*within the DFA**

**April 1, 2007 to March 31, 2008**

Licensee	Total THLB by Licensee (ha.)	Total Area of Douglas fir *by Licensee	% by Licensee	Licensee Target %
Apollo & Group Companies	266826	6342	2.4%	>1.0%
BC Timber Sales	289650.9	9264.31	3.2%	>2.0%
Canfor	463339	2.3	0.9%	>0.1%
Carrier Lumber	31924	9	0.03%	0.0%
Stuart Lake Lumber	66610	397	0.6%	>0.2%
Takla Track & Timber	71028	0	0	0.0%
<b>TOTAL</b>	<b>1189377.9</b>	<b>15607.61</b>	<b>1.3%%</b>	<b>&gt;1.0%</b>

\* Douglas fir includes mixed stands and Douglas fir leading stands

### **Indicator 68 - Landscape Level Strategy for Protection of Recreational, Commercial & Cultural Trails**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Total percent of forest operations that are consistent with a landscape level strategy for the management of recreational, commercial, and cultural trails as identified in the DFA.	<u>Target:</u> 100%  <u>Variance:</u> -20%

Recreational, Commercial, and Cultural trails are prevalent throughout the AOTP. Sustainable forest management must consider non-forestry uses within the DFA land base, as well as in forest management planning. This indicator first was designed around the creation of a management strategy. At the March 28<sup>th</sup>, 2007 PAG meeting, consensus was reached amongst the members to adopt this landscape level strategy and indicator statement. See the current SFMP for the landscape level strategy.

In terms of recreational, commercial & cultural trails, a landscape level strategy to respect these non-timber resources will help coordinate planning by all Licensees/BC Timber Sales to ensure there is consistency in management. It will also enable Licensees/BC Timber Sales to develop landscape level plans that consider the overall affect forestry activities may have on recreational, commercial, and cultural trails.

This indicator is intended to measure the success of the Licensees and BC Timber Sales to adhere to the landscape level strategy that is detailed in the SFMP. By following this strategy, it is anticipated that the long-term sustainability of these trails can be maintained.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 44: Landscape Level Strategy for the Management of Trails.**

**April 1, 2007 to March 31, 2008**

<b>Indicator 68: Total percent of forest operations that are consistent with a landscape level strategy for the management of recreational, commercial, and cultural trails as identified in the DFA.</b>			<b>TARGET: 100%</b>
			<b>VARIANCE: -20%</b>
<b>Licensee</b>	<b>Total number of forest operations by Licensee Between April 1<sup>st</sup> and March 31<sup>st</sup> that impact a recreational, commercial, or cultural trail</b>	<b>Total number of these forest operations that meet the landscape level strategy for management of these features</b>	<b>% in DFA</b>
Apollo & Group Companies	3	3	100%
BCTS	2	2	100%
Canfor	0	0	100%
Carrier Lumber	0	0	100%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	0	0	N/A
<b>TOTAL</b>	<b>5</b>	<b>5</b>	<b>100%</b>

- % = (Number forest operations that meet the landscape level strategy / number of forest operations that impact these trails) X 100

**Indicator 70 – Road Deactivation**

<b>Indicator Statement</b>	<b>Target and Variance</b>
Percent of roads deactivated that meet the deactivation criteria.	<u>Target:</u> 100% <u>Variance:</u> -20%

Road deactivation, in terms of amount and extent of deactivation, has been a discussion item with the PAG since 2005. The topic has been discussed over several meetings. This indicator was finalized at the March 5<sup>th</sup>, 2007 PAG meeting. The deactivation criteria referred to is within the current SFMP.

This indicator is intended to measure the success of the Licensees and BC Timber Sales to deactivate roads as per the accepted deactivation criteria. By following these criteria, it is anticipated that some consistency between licensees will be realized.

The table below details the current status of this indicator for this reporting period by individual Licensee and BC Timber Sales.

**Table 45: Road Deactivation****April 1, 2007 to March 31, 2008**

<b>Indicator 70: Percent of roads deactivated that meet the deactivation criteria.</b>			<b>TARGET: 100% VARIANCE: -20%</b>
<b>Licensee</b>	<b>Total number of roads deactivated by Licensee Between April 1<sup>st</sup> and March 31<sup>st</sup></b>	<b>Total number of roads deactivated that meet the deactivation criteria</b>	<b>% in DFA</b>
Apollo & Group Companies	15	13	86.7%
BCTS	68	68	100%
Canfor	13	13	100%
Carrier Lumber	1	1	100%
Stuart Lake Lumber	0	0	N/A
Takla Track & Timber	4	4	100%
<b>TOTAL</b>	<b>101</b>	<b>101</b>	<b>100%</b>

% = (Number of roads deactivated meeting the criteria / Total number roads deactivated) X 100