

VANDERHOOF DEFINED FOREST AREA
SUSTAINABLE FOREST MANAGEMENT PLAN



Sep 2014

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TABLE OF CONTENTS

SIGNATORIES	IV
ACKNOWLEDGEMENTS	VI
EXECUTIVE SUMMARY	VII
COMMITMENTS TO SUSTAINABLE FOREST MANAGEMENT	IX
1.0 INTRODUCTION & OVERVIEW	1
2.0 THE DEFINED FOREST AREA	2
2.1 AREA DESCRIPTION	2
2.2 MOUNTAIN PINE BEETLE.....	11
2.3 OTHER MAJOR FACTORS AT PLAY IN THE DFA	14
2.4 LICENSEE OPERATING AREAS	15
3.0 THE PLANNING PROCESS.....	16
3.1 THE CSA CERTIFICATION PROCESS	16
3.2 THE VANDERHOOF SFM PLANNING PROCESS	19
4.0 STRATEGY GUIDING THE SFMP.....	21
4.1 SFMP STRATEGY FOR THE DFA	21
4.2 ADDITIONAL GUIDANCE.....	21
5.0 INDICATORS & INDICATOR MATRICES	22
5.1 OBJECTIVES, INDICATORS & TARGETS.....	22
5.2 BASE LINE FOR INDICATORS	22
5.3 CURRENT STATUS OF INDICATORS	22
5.4 FORECASTING	23
5.5 REGIONAL FORECASTING RELATED TO THE SFMP.....	23
5.6 LEGAL REQUIREMENTS	23
5.7 INDICATORS IN THE SFMP.....	24
1 - Retention of rare ecosystem groups across the DFA (CI - 1.1.1).....	24
2 - Percent distribution of forest type (treed conifer, treed broadleaf, treed mixed) >20 years old across DFA (CI - 1.1.2).....	27
3 - Percent old non-pine forest across the DFA (CI - 1.1.3 and CI - 4.1.1(a))	29
4 - Percent of stand structure retained across the DFA in harvested areas (CI - 1.1.4(a))..	32
5 - Percent of cut blocks harvested consistent with riparian management area strategies identified in Site Plans (CI - 1.1.4(b))	32
6 - Percent of forest management activities consistent with management strategies for species of management concern (CI - 1.2.1 and CI - 1.2.2)	34
7 - Regeneration will be consistent with provincial regulations and standards for seed and vegetative material use (CI - 1.2.3 and CI - 1.3.1).....	36
8 - Percent of forest management activities consistent with management strategies for sites of biological significance (CI - 1.4.1).....	38
9 - % of identified Aboriginal and non-Aboriginal heritage forest values, knowledge and uses considered in the forestry planning processes (CI - 1.4.2 and CI - 6.2.1).....	40
10 - Average regeneration delay for stands established annually (CI - 2.1.1 and CI - 4.1.1(b)).....	42

11 - Percentage of gross forested land base in the DFA converted to non-forest land use through forest management activities (CI – 2.2.1 and CI – 4.1.1(c) and CI – 4.2.1).....	44
12 - Percent of volume harvested compared to allocated harvest level (CI - 2.2.2 and CI 5.1.1(a)).....	47
13 - Percent of harvested blocks meeting legal soil disturbance objectives (CI - 3.1.1(a))..	50
14 - Percent of harvested blocks audited where post harvest CWD BMP's are followed (CI - 3.1.2).....	52
15 - Sensitive watersheds will have further evaluation and appropriate management strategies implemented (CI - 3.2.1(a)).....	54
16 - In Sensitive Watersheds - the % of drainage structures (with identified water quality concerns) where mitigation strategies are implemented as scheduled (CI - 3.2.1(b)).....	54
17 - Percent of annual LT harvest directed at mitigating the impact of mountain pine beetle to forests within the DFA (CI - 4.1.1(d)).....	58
18 - Range Values: The percent of forest management operations consistent with the conservation of range resources identified in Site Plans (CI - 5.1.1(b)).....	61
19 - Visual Quality Values: The percent of forest management operations consistent with the conservation of Visual Quality Objectives (CI - 5.1.1(c)).....	63
20 - Access Management: The percent of LT conformance with the Vanderhoof Access Management Plan for Forest Recreation (CI - 5.1.1(d))	65
21 - Smoke Management: The percent of prescribed burns that follow the smoke management guidelines (CI - 5.1.1(e)).....	67
22 - Investment in local communities (CI - 5.2.1).....	69
23 - Training in environmental & safety procedures in compliance with company training plans (CI - 5.2.2)	71
24 - Level of direct & indirect employment (CI - 5.2.3).....	72
25 - Number of opportunities for Aboriginals to participate in the forest economy (CI - 5.2.4).....	74
26 - Employees will receive appropriate First Nations Awareness Training (CI - 6.1.1).....	76
27 - Evidence of best efforts to share interests and plans with Aboriginal communities (CI - 6.1.2 and CI – 6.4.3).....	78
28 - % of forest operations in conformance with operational/site plans developed to address Aboriginal forest values, knowledge and uses (CI - 6.1.3).....	81
29 - Primary and by-products, support opportunities and business relationships that are bought, sold, traded, or donated with other forest dependent businesses, forest users and the local community (CI - 6.3.1(a)).....	84
30 - % of identified tenure holders, stakeholders and residents' forest values, knowledge and uses considered in the forestry planning processes (CI - 6.3.1(b)).....	86
31 - Implementation and maintenance of a certified safety program (CI - 6.3.2 and CI – 6.3.3).....	88
32 - PAG established and maintained and satisfaction survey implemented (CI - 6.4.1).....	90
33 - Number of educational opportunities for information/training that are delivered to the PAG (CI - 6.4.2)	92
34 - The number of educational opportunities provided (CI - 6.5.1).....	95
35 - SFM Annual Report made available to the public (CI - 6.5.2).....	97

6.0 LINKS TO OTHER PLANNING PROCESSES 99

6.1 STRATEGIC PLANS	99
6.2 PLANS, POLICIES AND STRATEGIES THAT RELATE TO THE SFM PLAN	99

LIST OF ACRONYMS.....	102
GLOSSARY	105
APPENDIX 1 – LIST OF REFERENCES	119
APPENDIX 2 – SUMMARY OF PUBLICLY DEVELOPED VALUES, OBJECTIVES AND INDICATORS.....	121
APPENDIX 3 – SPECIES OF MANAGEMENT CONCERN.....	133
APPENDIX 4 – NON-REPLACABLE FOREST LICENSE (NRFL) RISK ASSESSMENT	136

LIST OF TABLES

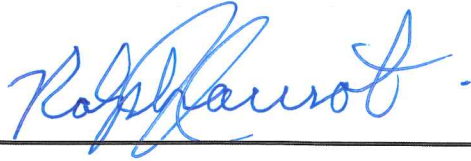
Table 1: Local First Nations with Asserted Traditional Territory in the DFA.....	3
Table 2: Area Summary for Canfor DFA.....	10

LIST OF FIGURES

<i>Figure 1: Map of the Vanderhoof SFM Plan Defined Forest Area.....</i>	<i>4</i>
<i>Figure 2: Map of Natural Disturbance Units and Merged Biogeoclimatic Ecosystem Classifications in the Defined Forest Area.....</i>	<i>7</i>
<i>Figure 3: Graph of Species Distribution by Age Class for the Defined Forest Area.....</i>	<i>8</i>
<i>Figure 4: Graph of Age Class Distribution by Area for the Defined Forest Area.....</i>	<i>8</i>
<i>Figure 5: Estimated Observed and Projected Annual Red-Attack in the Vanderhoof Forest District (Old and Current -2011).....</i>	<i>13</i>
<i>Figure 6: Current Estimate of Observed and Projected Cumulative Attack in the Vanderhoof Forest District (2011).</i>	<i>13</i>

SIGNATORIES

The following have committed to implement and maintain, on a continual improvement basis, the Vanderhoof Sustainable Forest Management Plan



Sept 5/14.

Ralph Hausot, R.P.F., Planning Coordinator

Date

Canadian Forest Products Ltd., Forest Management Group



Aug 29/14

Peter Baird, R.P.F., General Manager, Forest Planning

Date

Canadian Forest Products Ltd., Forest Management Group

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ACKNOWLEDGEMENTS

The development of this Sustainable Forest Management Plan could not happen without the dedicated efforts and hard work of the people and organizations listed below

Members of the Vanderhoof Public Advisory Group

Ray Brandner

Dan Brooks

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EXECUTIVE SUMMARY

Between 2003 and 2005 three forest tenure holders and BC Timber Sales ("licensees") along with public and Aboriginal representatives (the Sustainable Forest Management (SFM) Public Advisory Group), developed the initial Sustainable Forest Management Plan (SFMP) for the Vanderhoof Defined Forest Area (DFA).

Members of the SFM Public Advisory Group (PAG) represented a cross-section of local interests including recreation, tourism, ranching, forestry, conservation, water, community and Aboriginals.

The SFMP (initially created under the CSA Z809-02 standard) has undergone several revisions since its inception to accommodate changes in signatory members, DFA boundaries and continual improvement of initial indicators relative to effectiveness monitoring. This latest version of the SFMP¹ reflects substantive revision in 2011, in order to meet the current CSA Z809-08 standard and standardize SFMP content across various operations. Current signatory members include:

- Canadian Forest Products Ltd. (Vanderhoof Division)

An SFMP developed according to the CSA standard sets performance objectives and targets over a defined forest area (DFA) to reflect local and regional interests. Consistent with most certifications, and as a minimum starting point, the CSA standard requires compliance with existing forest policies, laws and regulations. The SFMP includes a set of values, objectives, indicators and targets that address environmental, economic and social aspects of forest management in the Vanderhoof DFA. The SFMP is an evolving document that is reviewed and revised annually with the PAG to address changes in forest conditions and local community values. Each year the PAG reviews an annual report prepared by Canfor to assess achievement of indicators and targets. This monitoring process provides Canfor, the public and Aboriginals an opportunity to bring forward new information and to provide input concerning new or changing public values that can be incorporated into future updates of the SFMP.

The Canfor SFM certification websites contain the latest information on the Vanderhoof DFA process, including the SFM Plan, and can be viewed at:

<http://www.canfor.com/responsibility/environmental/certification> or

<http://www.sfmptsa.com/>

Sustainable Forest Management commitments applicable to the signatory members are detailed below and serve to provide the supportive environmental framework.

¹ This SFMP was developed using the Kamloops – Thompson SFMP (January 2010) as a template for structure and generic content.

COMMITMENTS TO SUSTAINABLE FOREST MANAGEMENT

Canadian Forest Products Ltd. (Canfor) believes in conducting its business in a manner that protects the environment and ensures sustainable forest development. The following Environmental Policy and SFM Commitments will detail the commitments to Sustainable Forest Management (SFM) for the Vanderhoof Defined Forest Area (DFA). These commitments are available and communicated publicly.



ENVIRONMENT POLICY

We are committed to responsible stewardship of the environment throughout our operations.

We will:

- Comply with or exceed legal requirements.
- Comply with other environmental requirements to which the company is committed.
- Achieve and maintain sustainable forest management.
- Set and review objectives and targets to prevent pollution and to continually improve our sustainable forest management and environmental performance.
- Provide opportunities for interested parties to have input into our sustainable forest management planning activities.
- Promote environmental awareness throughout our operations.
- Conduct regular audits of our forest and environmental management systems.
- Communicate our sustainable forest management and environmental performance to
- our Board of Directors, shareholders, employees, customers and other interested parties.


Don Kayne
President and Chief Executive Officer


Ronald L. Cliff
Chairman

May 2011



Canadian Forest Products

Sustainable Forest Management Commitments - May 2012



Sustainable Forest Management

We will manage forests to maintain and enhance the long-term health of forest ecosystems, while providing ecological, economic, social and cultural opportunities for the benefit of current and future generations. In the management of forests we will honour relevant international agreements and conventions to which Canada is a signatory.

Accountability

We will be accountable to the public for managing forests to achieve current and future values. One way we will demonstrate this is by certifying our forestry operations to internationally recognized, third-party verified sustainable forest management certification standards.

Adaptive Management

We will use adaptive management to continually improve sustainable forest management by identifying values, setting objectives and targets for the objectives, and monitoring results. We will modify management practices as necessary to achieve the desired results.

Science

We will utilize science to improve our knowledge of forests and sustainable forest management and will monitor and incorporate advances in sustainable forest management science and technology where applicable.

Multiple Value Management

We will manage forests for a multitude of values, including biodiversity, timber, water, soil, wildlife, fish/riparian, visual quality, recreation, resource features and cultural heritage resources.

Health and Safety

We will conduct our operations in a manner which will provide a safe environment for employees, contractors, and others who use roads and forest areas we manage.

Aboriginal Peoples

We recognize and will respect Aboriginal rights, title and treaty rights when planning and undertaking forest management activities.

100 – 1700 West 75th Avenue, Vancouver, British Columbia, Canada V6P 6G2
Telephone 604-661-5241 Fax 604-661-5235 info@canfor.ca www.canfor.com



Opportunities for Participation

We will provide opportunities for the public, communities, other stakeholders and Aboriginal Peoples with rights and interests in sustainable forest management to participate in the development and monitoring of our Sustainable Forest Management Plans.

Scale

We will define objectives over a variety of time intervals (temporal scales) and at spatial scales of stand, landscape and forest. This produces ecological diversity and allows for the management of a range of conditions, from early successional to old growth.

Timber Resource

We will advocate for a continuous supply of affordable timber from legal sources in order to carry out our business of harvesting, manufacturing and marketing forest products for the sustained economic benefit of our employees, the public, communities and shareholders, today and for future generations.

Forest Land Base

We will advocate for the maintenance of the forest land base as an asset for current and future generations.

Don Kayne

A handwritten signature in black ink, appearing to read "DKayne", is positioned below the name "Don Kayne".

President and Chief Executive Officer

May 2012

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1.0 INTRODUCTION & OVERVIEW

In recent years there has been an increasing demand worldwide for certified wood products. This has led to the development of a number of certification systems to provide assurance to consumers that timber has been produced using environmentally and socially responsible forest practices.

The Canadian Standards Association (CSA) Sustainable Forest Management Standard is one of a number of certification systems currently being used in British Columbia. A Sustainable Forest Management Plan (SFMP) developed according to the CSA standard, defines values, objectives, indicators and targets over a defined forest area (DFA) to reflect local and regional interests. This standard requires that SFMP development, maintenance and improvement include significant public involvement. Public Advisory Groups (PAGs) such as the PAG, composed of a cross-section of local interests, including commercial and non-commercial recreation, tourism, ranching, forest contactors, conservation, mining, communities, small business, and Aboriginals, fulfill this role.

Canfor² in the Vanderhoof DFA, working with the PAG, has developed, maintained and improved, the Vanderhoof DFA SFMP based on the CSA Z809 standard.³

This most recent SFMP revision reflects the latest CSA Z809-08 standard. The plan was written with the opportunity to provide input into management for the Vanderhoof DFA.

The SFMP serves as a “roadmap” to current and long-term management in the DFA, setting performance targets and management strategies that are reflective of the ecological, social, and economic values of the DFA. The plan is consistent with other strategic plans such as the Vanderhoof Land and Resource Management Plan (LRMP) and the Forest Stewardship Plan (FSP) framework.

It is the intent that the values, objectives, indicators, targets and guiding principles described in this plan will continue to be adhered to by those signatory to the SFMP, supporting sustainable forest management in the DFA. The SFMP is continuously evolving. It is reviewed and revised on an annual basis, with the PAG, to reflect changes in forest condition and local community values.

More information about the DFA certification process, Sustainable Forest Management Planning, meeting summaries, annual reporting and maps can be obtained at the Canfor websites: <http://www.canfor.com/responsibility/environmental/certification>, or <http://www.sfmptsa.com/>.

² Referred to as ‘active licensee’ or ‘licensee’ throughout this document. Refer to Sec 3.2.1 for a more complete description.

³ <http://www.shopcsa.ca/onlinestore/GetCatalogItemDetails.asp?mat=2419617>

2.0 THE DEFINED FOREST AREA

2.1 Area Description⁴

2.1.1 Overview

The Vanderhoof DFA is approx. 893,189 hectares in total land area and of this total approx. 690,324 hectares (508,976 ha Canfor) are within the Timber Harvesting Land Base (THLB) (Figure 1).

The Vanderhoof DFA is located on the North Central Interior Plateau at the geographical center of British Columbia. The overall landscape is relatively flat with several low and rolling areas of topography due to a number of river valleys. Several lower mountain ranges are also present throughout the DFA, such as the Fawnie and Nechako ranges, Jerryboy and Tatuk Hills, and Greer and Sinkut Mountains. In the north-west portion of the DFA, the topography is more structured, including the mountain ranges Ormand, Shass and Peta that continue into the Lakes and Fort St. James Forest Districts.

2.1.2 Communities

The plan area supported an estimated population of 11,846 residents in 2011⁵. The focal point for much of the economic activity is the largest community of Vanderhoof (population 4,480 in 2011). Other communities include the village of Fraser Lake (population 1,167 in 2011), the community of Fort Fraser (population 284 in 2011), and the First Nations communities of Nadleh Whut'en⁶ (population 219 in 2011), Saik'uz⁷ (population 427 in 2011), and Stellat'en⁸ (population 203 in 2011). Farms and ranches are dispersed across the plan area, especially along Highway 16.

A long history of habitation by Aboriginals exists within the DFA and the current land base contains an abundance of archaeological and cultural sites relating to past and present use by Aboriginal people. The First Nations villages of Stellat'en, Nadleh Whut'en and Saik'uz are tributary to the DFA. The asserted traditional territories of 13 First Nations overlap the DFA boundary (see Table 1). Fishing, hunting and berry gathering are undertaken on traditional territories. It is important for Aboriginals to have the opportunity to provide input into forest management planning processes, such as this SFMP, to ensure cultural heritage resources are identified and appropriate practices implemented to mitigate potential impacts resulting from

⁴ Description is primarily excerpts from “Vanderhoof Land and Resource Management Plan, January, 1997”

⁵ Reference: Statistics Canada. 2012. Census profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released February 8 2012.

<http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E>

⁶ Reference: Aboriginal Affairs and Northern Development Canada. 2012. Registered Population as of April 2012. http://pse5-esd5.ainc-inac.gc.ca/fnp/Main/Search/FNRegPopulation.aspx?BAND_NUMBER=612&lang=eng

⁷ Reference: Aboriginal Affairs and Northern Development Canada. 2012. Registered Population as of April 2012. http://pse5-esd5.ainc-inac.gc.ca/fnp/Main/Search/FNRegPopulation.aspx?BAND_NUMBER=615&lang=eng

⁸ Reference: Aboriginal Affairs and Northern Development Canada. 2012. Registered Population as of April 2012. http://pse5-esd5.ainc-inac.gc.ca/fnp/Main/Search/FNRegPopulation.aspx?BAND_NUMBER=613&lang=eng

planned forestry activities. Conservation of historical and cultural features within the DFA is important, as is the involvement of Aboriginals in management decisions, in order to promote sustainable forest management. There are no final First Nation Treaty Agreements within the DFA. See the Ministry of Aboriginal Relations and Reconciliation website (<http://www.gov.bc.ca/arr/treaty/agreements.html>) for the current status of BC Treaty Negotiations within the DFA.

Table 1: Local First Nations with Asserted Traditional Territory in the DFA

First Nation	General Location of Asserted Traditional Territory
Cheslatta Carrier	Fraser Lake south area
Lheidli T'enneh	East Vanderhoof area
Nazko	Bobtail/Southeast Vanderhoof area
Nadleh Whut'en	Northwest Vanderhoof area
Nak'azdli	North Vanderhoof area
Saik'uz	Stoney Creek, central/eastern Vanderhoof area
Stellat'en	Stellako, Fraser Lake/Northwest Vanderhoof area
Tl'azt'en	North Vanderhoof area
Ulkatcho	South Vanderhoof area
Lhooks'uz Dene	South Vanderhoof area
Yekooche	North Vanderhoof area
Skin Tyee	Central/Southwest Vanderhoof area
Tsilhqot'in	South Vanderhoof area

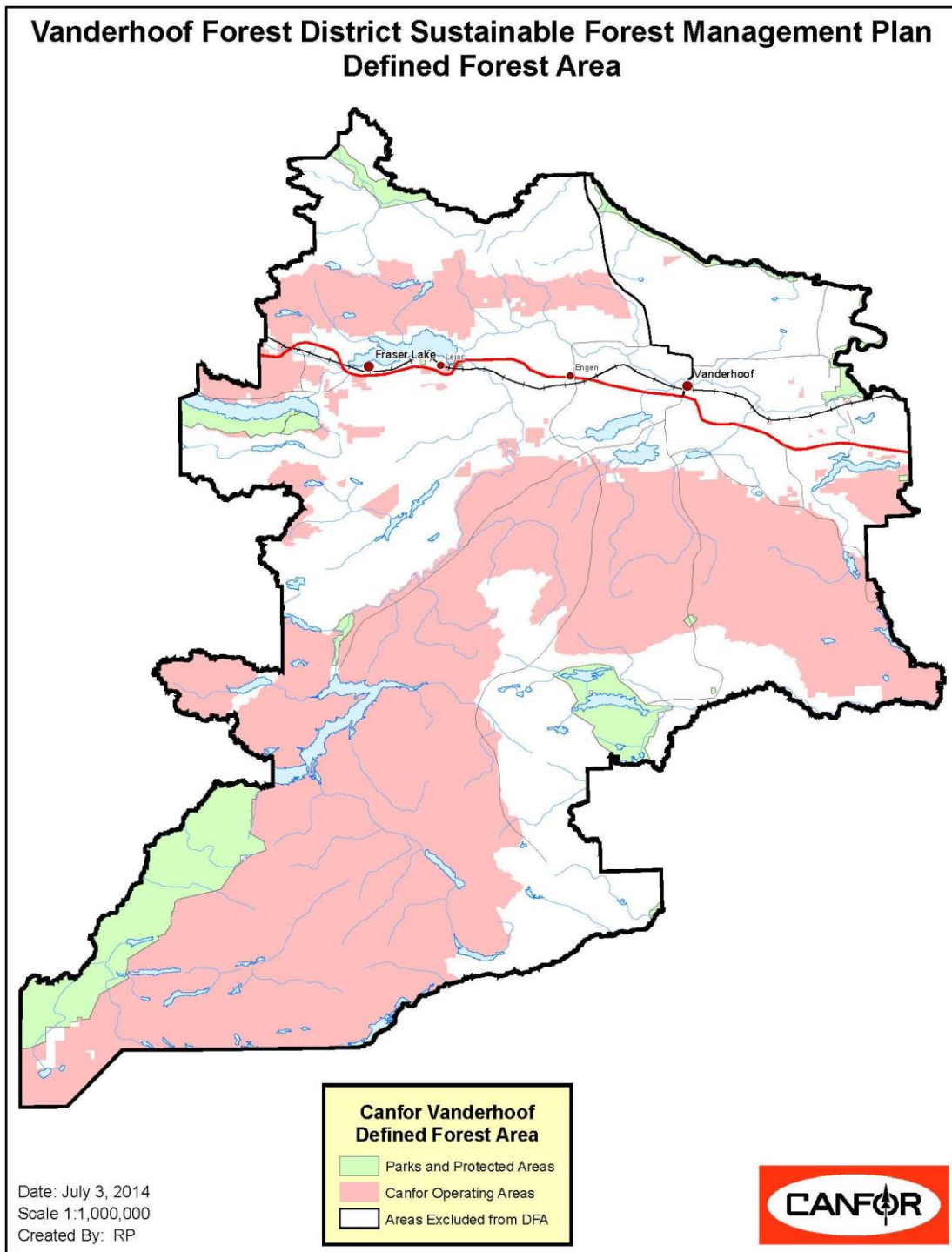


Figure 1: Map of the Vanderhoof SFM Plan Defined Forest Area.

2.1.3 Area Economy

The economy of the Vanderhoof area is mainly forestry dependant. Forestry employment exists in the form of silviculture activities, harvesting operations, road construction and maintenance, hauling, planning and management activities, and mill-related employment, including a major portion of primary and value-added manufacturing. The DFA contains three active sawmills and several value-added operations, such as Vanderhoof Specialty Woods, Rocky Mountain Log Homes and Premium Pellet. Considerable indirect forest industry employment is also generated through logging contractors, trucking firms, equipment supply, machinery repair, fuel distributors and a variety of other support services. Wood chips and sawdust, produced as a by-product of the lumber manufacturing process and from timber unsuitable for lumber, are used for pulp, paper, and pellet production in several facilities within and outside the area. The majority of those employed by the forest sector reside within the plan area.

Other major sectors in the area are agriculture, mining, recreation, and tourism.

Tourism is the second largest resource industry associated with the DFA accounting for 8% of the local jobs. Agriculture and farming is the third largest industry⁹ with about 400 farms and ranches spanning across the Vanderhoof Forest District (2006 census)¹⁰. Agriculture and farming account for 7% of the local jobs, as the Nechako Valley is the third largest agriculture region and the second largest forage-producing region in the province of British Columbia. The agriculture industry is inter-connected with the forest industry within the DFA as grazing values for livestock exist throughout the forested regions. The DFA contains nearly 225,000 hectares of Crown range and as such, the land base must be co-managed by both industries.

Mineral exploration is also present within the DFA, including industrial mining of coal, gold, silver, molybdenum, and several other minerals. Exploration, site development and active mining practices are ongoing activities within the DFA depending on markets and economic viability in extraction of the particular resource.

Recreation opportunities are provided by various interest groups within the DFA. Local residents and commercial tourism operators (guide outfitters, commercial lodges and resorts) make use of the extensive backcountry and wilderness values present within the DFA. Forest Service recreation sites, campgrounds and access to rugged hiking opportunities along rivers, lakes and streams are some of the recreation opportunities available to the public due to the extensive forest road system in the DFA.

Commercial tourism through lodges, resorts and guided wilderness adventure experiences such as hunting, fishing and hiking is another forest dependent sector growing within the DFA. These commercial tourism operators, along with other members of the public, forest licensees, and other

⁹ Reference: 2006 Economic Dependency Tables for Forest Districts in BC. Web link: <http://www.google.ca/url?sa=t&rct=j&q=economic%20dependency%20tables%20for%20forest%20districts%20in%20bc&source=web&cd=1&ved=0CE00FjAA&url=http%3A%2F%2Fwww.bcstats.gov.bc.ca%2FFiles%2F2289ebba-80ac-48cc-9bc2-cd2fff31a431%2FEconomicDependenciesforForestDistricts2006.pdf&ei=Y3XGT5C8LKrW2gW8wKjrAQ&usg=AFOjCNFtP3L4vrXc0O5jddm8qVM-uMhOUO&cad=rja>

¹⁰ Reference: 2006 Census of Agriculture profile for BC Bulkley Nechako Regional District Area D and F. Web link <http://www.bcstats.gov.bc.ca/StatisticsBySubject/Census/2006Census/AgricultureProfiles.aspx>

interest groups must achieve sustainable and integrated management of the forest resource in order to satisfy all their values. Proper management and forest planning with consideration of all parties will assist in the conservation and enhancement of recreational values for current and future forest use.

2.1.4 Environment

The topography of the area is marked by the landscapes of the North Central Interior Plateau and the Nechako Valley, which emerged from a glacial lake basin. The lacustrine soils in the valley bottom are fertile agricultural lands, while the low-rolling to upland terrain of the plateau is mostly forested with sub-boreal spruce and pine. The most distinctive landmark in the area is Sinkut Mountain while the plateau is broken from south to north by the Fawnie Range, Jerryboy Hills, Nechako Range, Tatuk Hills and Holy Cross, Greer, and Fraser Mountains. In the northwest, Ormond, Shass and Peta Mountains interrupt the plateau landscape.

The DFA contains one Natural Disturbance Unit (NDU), the Moist Interior. However, this NDU is subdivided into the Moist Interior Plateau and the Moist Interior Mountain sub-units based on significant differences in elevation (DeLong 2002). Seven Merged Biogeoclimatic Units have been identified within the DFA (Figure 2). These biogeoclimatic grouping were based on similar ecological characteristics, unit size and geographic location. A diverse range of vegetation, wildlife and habitat exists throughout the DFA and these classifications will help to streamline management activities based on the natural landscape and environmental condition.

Various wildlife species are present within the DFA, which also helps to enhance the recreation and tourism potential for the area. Moose are abundant in the low-lying wetlands and open forests, deer thrive throughout the entire DFA, elk often winter next to areas of the Nechako River, and Woodland caribou have been identified in the southwest portion of the DFA near Tweedsmuir Provincial Park. Wolves, grizzly bears, black bears, cougars, bobcats and lynx are also present throughout the DFA. Coyotes and various fox species are abundant, along with smaller mammals such as rabbits, squirrels, beavers, otters, marten and fisher. Many varieties of songbirds, upland game birds, waterfowl and larger birds such as owls, eagles and falcons are also present and plentiful throughout the DFA.

Forest cover within the DFA consists mainly of lodgepole pine stands (Figure 3), with a lesser component of spruce stands and scattered patches of aspen, fir, tamarack and birch. Lodgepole pine is the predominant tree species (82%) and represents the majority of the commercial harvest. Douglas-fir leading stands are sparsely scattered across the DFA, and primarily occur in the eastern portion. These stands are unique due to the fact that the Vanderhoof and Fort St. James Forest Districts are the northern most extent of Douglas-fir's natural range. Higher elevations within the DFA also have occasional small groves of Engelmann spruce and sub-alpine fir. Seventy-five percent of the DFA are in stands greater than 60 years of age (Figure 4).

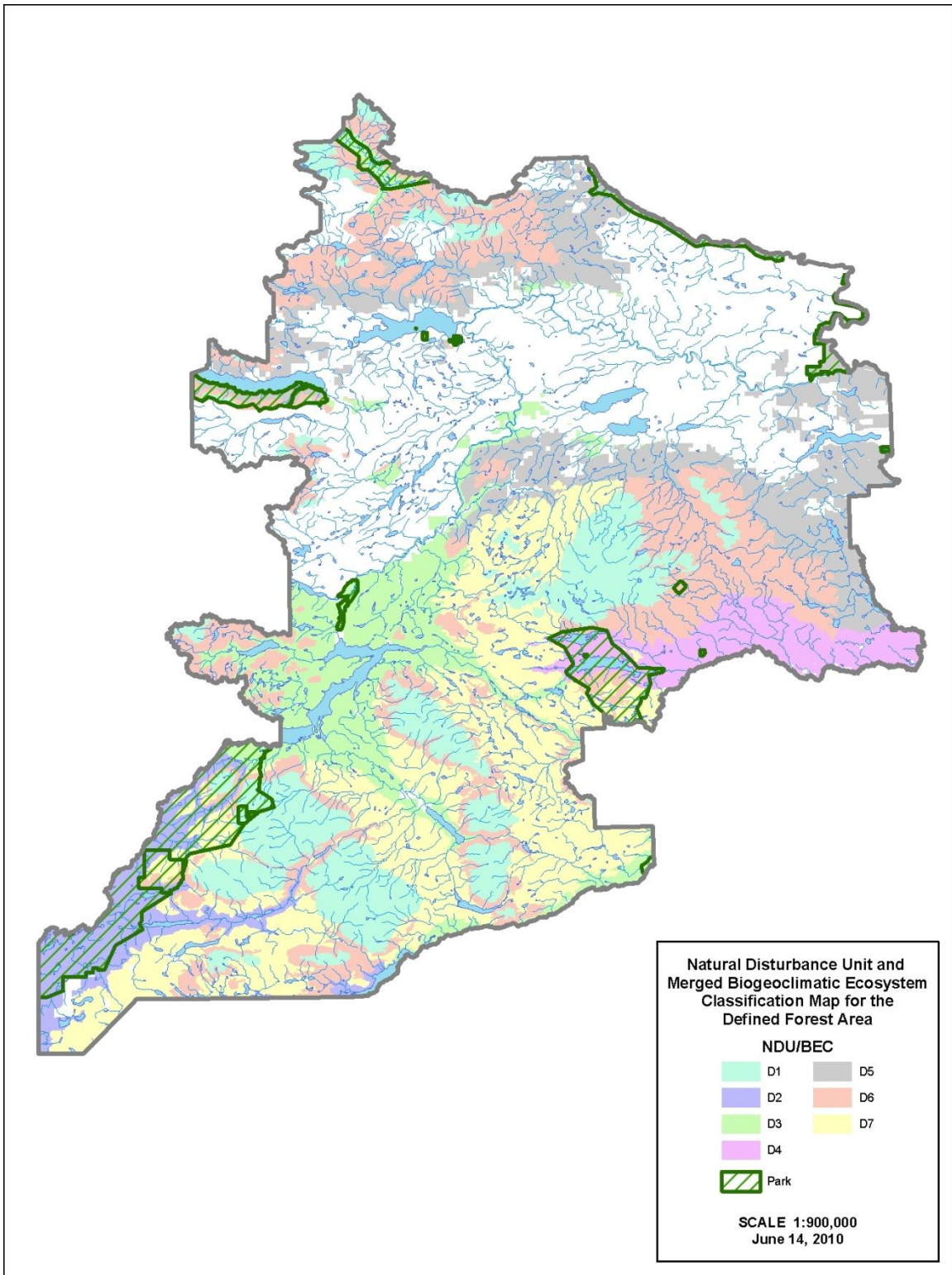


Figure 2: Map of Natural Disturbance Units and Merged Biogeoclimatic Ecosystem Classifications in the Defined Forest Area.

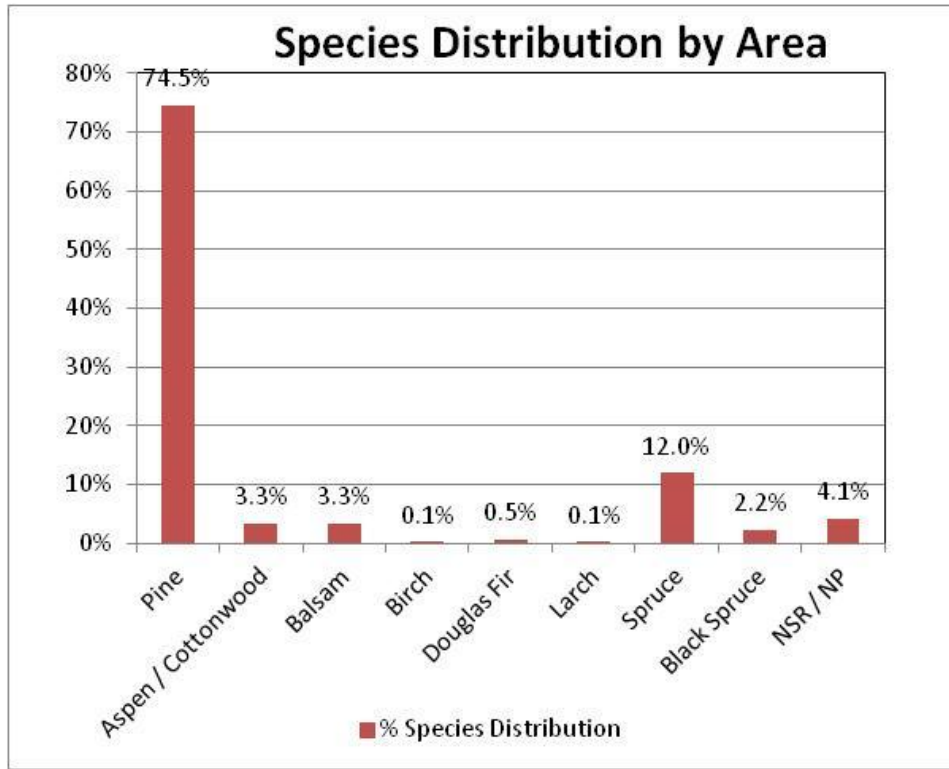


Figure 3: Graph of Species Distribution by Age Class for the Defined Forest Area.

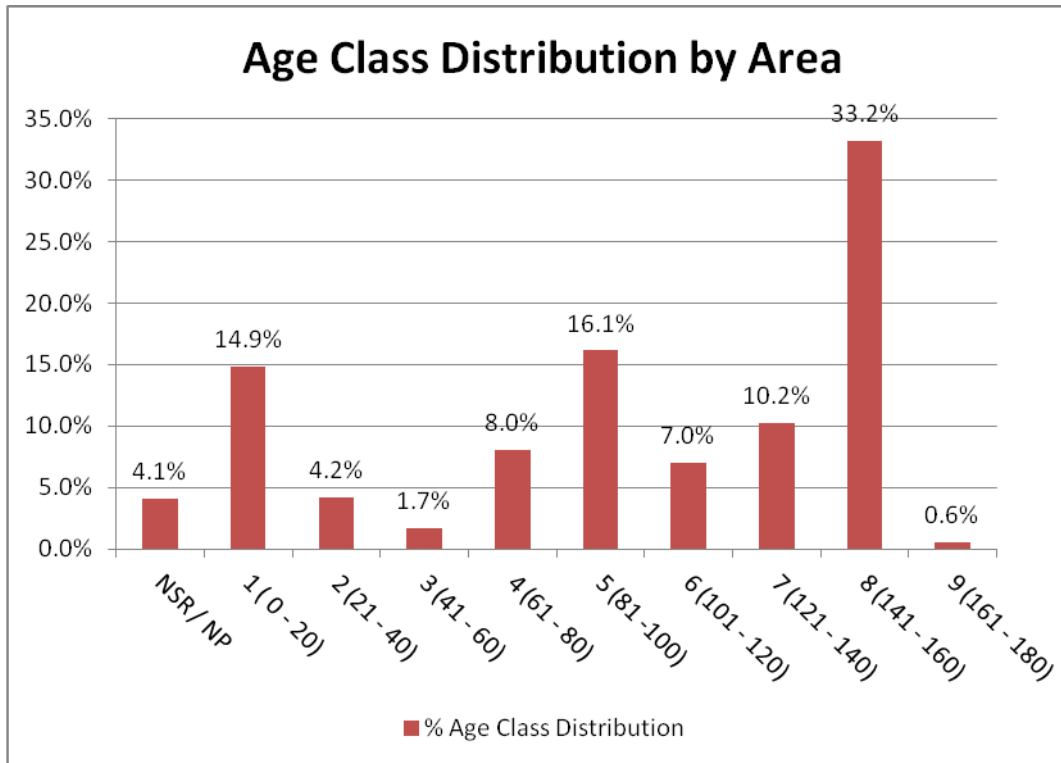


Figure 4: Graph of Age Class Distribution by Area for the Defined Forest Area.

2.1.5 Species at Risk

A list of current species of management concern has been developed for the DFA and can be found in Appendix 3. This list is a current snapshot for the DFA, and includes areas that are not forested and are not generally impacted by forest management activities. The species that are considered impacted by forest management activities are called “Species of Management Concern”. This list is a combination of legally and non-legally declared at-risk species. It includes species from Schedule 1 of the Federal Species at Risk Act (SARA), COSEWIC, from Schedule 1 of the provincial Identified Wildlife Management Strategy under the Forest and Range Practices Act (FRPA), and Blue and Red listed species listed with the BC Conservation Data Center.

2.1.6 Forest Use

The forests of the Vanderhoof DFA provide a wide range of forest land resources, including forest products (timber and non-timber, such as botanical forest products), recreation and tourism amenities, within significant wildlife habitat.

Early seral and open mature forests, especially in the drier subzones, are used for seasonal grazing of livestock. Ranching continues to play an important role in the DFA.

Parks, recreation areas and other Crown lands provide the setting for a host of activities. The Vanderhoof District land base provides ample opportunity for hunting and fishing pursuits. Some of the watersheds that characterize the Vanderhoof District are world renowned for the variety of species, large size of fish, fly-fishing opportunities, and pristine wilderness experience. There are seven parks within the DFA. These include: the Stuart River, Francois Lake, Finger-Tatuk, Kluskoil Lake and Entiako Class “A” Parks and the Sutherland River and Nechako Canyon Protected Areas. Parks, Protected Areas and Ecological Reserves form approx. 9.3 % of the DFA forested land base and are excluded from the THLB, and subsequently from timber harvest activities. They do however contribute to landscape level indicators related to ecosystem representation and old forest retention.

2.1.7 Forest Land Base

The Vanderhoof District covers about 1.388 million hectares in total. About 528,725 hectares of the Vanderhoof District are in reserves, wildlife tree patches or riparian areas, in areas of environmental sensitivity or low productivity, support non-merchantable forest types, or for other reasons are unavailable for timber harvesting. About 62 percent of the total area is included in the current timber harvesting land base of 859,248 hectares. A detailed area net down for Canfor’s DFA in the Vanderhoof District is found in Table 2.

Table 2: Area Summary for Canfor DFA¹¹

Licensee Operating Area							
	Excluded ³	Non-Forest	Park	Other non-THLB ⁴	THLB ¹	Forested ²	Total Area
Not Assigned	149,079.9	41,102.4	79,877.1	5,334.4	9,802.9	56,239.8	285,196.7
Pct of area	52.3%	14.4%	28.0%	1.9%	3.4%	19.7%	100.0%
BCTS DFA	3,963.4	17,633.8	1,310.4	20,123.0	181,348.6	219,105.4	224,379.2
Pct of area	1.8%	7.9%	0.6%	9.0%	80.8%	97.6%	100.0%
Canfor DFA	18,524.8	46,859.7	2,047.5	92,402.3	508,976.3	648,238.3	668,810.6
Pct of area	2.8%	7.0%	0.3%	13.8%	76.1%	96.9%	100.0%
L & M	9,842.7	2,555.1	4.8	3,204.0	37,414.2	43,173.3	53,020.9
Pct of area	18.6%	4.8%	0.0%	6.0%	70.6%	81.4%	100.0%
Lakeland Mills	1,674.7	984.7	98.5	1,277.4	15,579.1	17,841.2	19,614.4
Pct of area	8.5%	5.0%	0.5%	6.5%	79.4%	91.0%	100.0%
West Fraser	7,174.0	10,769.8	332.9	12,547.6	106,127.2	129,444.6	136,951.5
Pct of area	5.2%	7.9%	0.2%	9.2%	77.5%	94.5%	100.0%
Total	190,259	119,906	83,671	134,889	859,248	1,114,043	1,387,973
	13.7%	8.6%	6.0%	9.7%	61.9%	80.3%	100.0%

1 - Timber Harvesting Land Base. 2 - Excludes parks and excluded areas. 3 - Areas classified as non-crown ownership, agriculture and settlement, and unclassified lands. 4 - Includes wildlife, riparian, VQO, ESA, physically inoperable and economically inoperable.

¹¹ Reference: Data for table provided from Ecosystem Representation Analysis Report Jan 2012 Forest Ecosystems Solutions Ltd.

2.2 Mountain Pine Beetle

2.2.1 Overview

Both fire and insects have historically played an important role in the natural disturbance and replacement of lodgepole pine forests in much of the province's interior. The mountain pine beetle (MPB), *Dendroctonus ponderosae* Hopkins (Coleoptera: Scolytidae), is the most damaging insect attacking lodgepole pine forests in BC. Mountain pine beetles exist naturally in mature lodgepole pine forests, at various population levels, depending on pine availability and weather conditions. The DFA was historically maintained by large-scale fire events that produced widespread, homogeneous forest stands of lodgepole pine. The beetle population levels in BC's interior have been increasing steadily since 1994 with an exponential increase seen in 2004 as a result of the 2003 beetle flight.

Two key factors contributing to the recent expansion of the mountain pine beetle infestation are the large amounts of older lodgepole pine on the land base and the relatively warm weather conditions experienced in recent years in the interior of the province. Forest management policies (e.g., cut block size/adjacency and fire control) have contributed to an accumulation of old pine forest above historical levels. Once lodgepole pine trees are mature (generally older than 80 years), they are highly susceptible to attack by the pine beetle, particularly during times of prolonged favourable weather conditions. Experts concur that moderated climate conditions coupled with the increasing amount of susceptible, mature lodgepole forests has led to the current unprecedented mountain pine beetle outbreak.

A summary of the current situation is described based on excerpts from the following publications:

- Prince George TSA – MFR Rationale for Allowable Annual Cut Determination. 2011¹².
- Prince George TSA – MFR Timber Supply Review Public Discussion Paper. 2010¹³.
- Beetle Facts, MFLNRO website¹⁴.
- Forest Health Strategy – Prince George TSA, March 2011¹⁵

2.2.2 Area Affected¹⁶

Mountain pine beetle is considered the top forest health priority in the Vanderhoof District within which the DFA is located. In the forests of the Vanderhoof DFA, mature pine still represents 9.2 million cubic metres or 61% percent of the total volume within the THLB.

For 2011 (Figure 4), the Provincial-Level Projection of the Current MPB Outbreak (BCMPB.v8¹⁷) shows that the MPB epidemic is over in the Vanderhoof Forest District with no new red-attack observed or projected.

¹² Reference: <http://www.for.gov.bc.ca/hts/tsa/tsa24/>

¹³ Reference: <http://www.for.gov.bc.ca/hts/tsa/tsa24/>

¹⁴ Reference: http://www.for.gov.bc.ca/hfp/mountain_pine_beetle/facts.htm.

¹⁵ Reference: Prince George TSA Forest Health Strategy 2011, March 2011

¹⁶ Description is primarily excerpts from “Prince George TSA Forest Health Strategy 2011, March 2011”

The most recent projection (2011) of the cumulative amount of pine volume killed in the Vanderhoof District in which the DFA is located, also indicates that the MPB epidemic is over (Figure 5). Currently it is estimated that over 70 million m³ have been killed as of 2011.

In general, pine types across the DFA in excess of 60 years of age have suffered severe levels of mortality. Some overstocked pine types with small diameter distribution remain the only exception and this is generally sporadic and site dependent.

2.2.3 Strategy & Response

Mountain pine beetle management in the Vanderhoof District has transitioned from aggressive (in the early years of infestation) to that of salvage (generally since 2004). Aggressive salvage harvesting (aimed at minimizing non-recoverable losses) followed by prompt reforestation remains the primary management tool to reduce beetle impacts within the DFA. The challenge faced by licensees is to undertake this unprecedented salvage effort, while attempting to minimize negative impacts to biodiversity and other forest values. The rapid transition of forests in the DFA from late seral dominance to that of predominantly an early seral condition (harvesting & natural ingress) will undoubtedly impact wildlife habitat to some degree. Strategies proposed for mountain pine beetle have been directed at mature pine timber types, with the exception of rehabilitation of second growth pine plantations by the Forests for Tomorrow program. This Ministry of Forests, Lands and Natural Resources Operations initiative has been active in the DFA for several years.

2.2.4 Summary of the Chief Forester's AAC Determination for the Prince George TSA

Effective January 11, 2011, the new AAC for the Prince George TSA (within which the DFA is located) was set at 12,500,000 cubic metres per year including the following partitions:

- a maximum of 3.5 million cubic metres attributable to non-pine species, and non-cedar and non-deciduous leading stands;
- a maximum of 23 000 cubic metres attributable to cedar-leading stands; and
- a maximum of 160 000 cubic metres attributable to deciduous-leading stands in the Prince George and Fort St. James Forest Districts.

In addition to these partitions, it is the Chief Forester's expectation that a maximum of 875 000 cubic metres per year come from spruce-leading stands.

¹⁷ Reference: <http://www.for.gov.bc.ca/ftp/hre/external!/publish/web/bcmap/year8/BCMPB.v8.BeetleProjection.Update.pdf>
<http://www.for.gov.bc.ca/ftp/hre/external!/publish/web/bcmap/year8/BCMPB.v8.NoMgmt.SummaryOfKill.LumpedTFLs.forDistribution.xlsx>

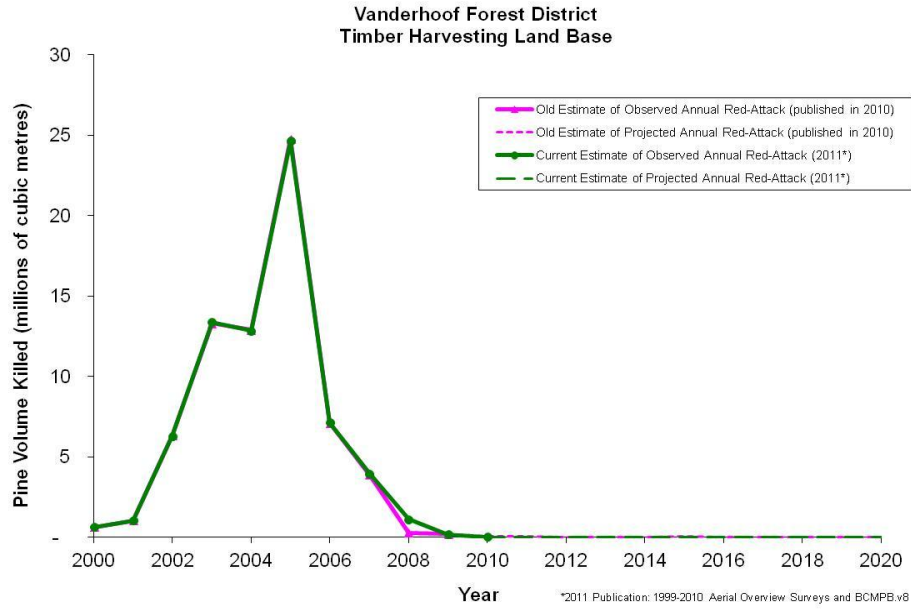


Figure 5: Estimated Observed and Projected Annual Red-Attack in the Vanderhoof Forest District (Old and Current - 2011).

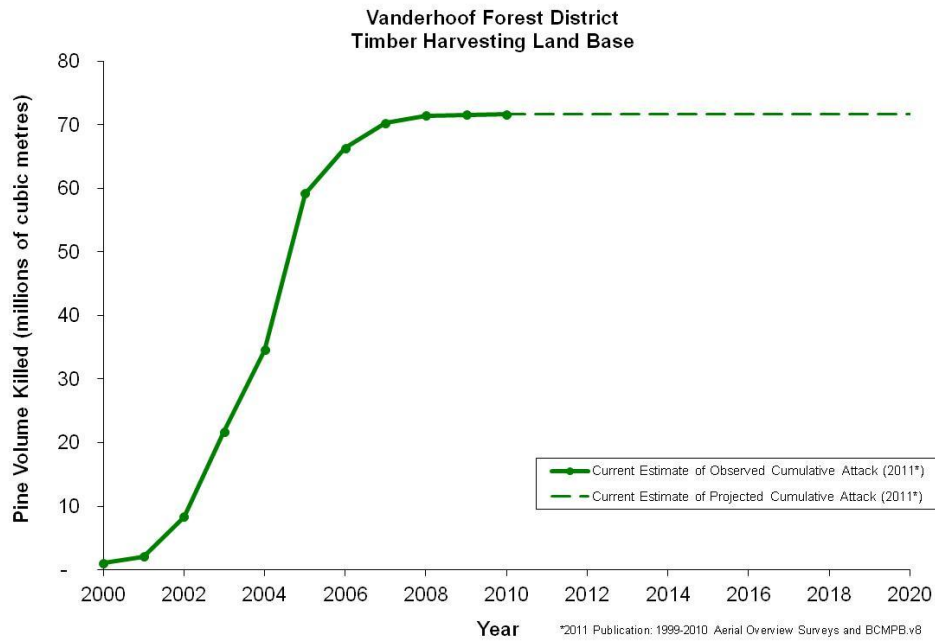


Figure 6: Current Estimate of Observed and Projected Cumulative Attack in the Vanderhoof Forest District (2011).

2.3 Other Major Factors at Play in the DFA

Vanderhoof Land and Resource Management Plan (LRMP)¹⁸

The Government of British Columbia announced the Vanderhoof Land and Resource Management Plan (LRMP) in January 1997. The LRMP addresses the long-term balance of environment and economy in the District. It provides access to timber for the local forest industry, certainty for the mining, ranching and tourism industries while also establishing conservation and recreation objectives for many natural values in the District. The stability and security provided by the plan provides economic and social stability and increased opportunities for growth and investment throughout the region.

Order Establishing Landscape Biodiversity Objectives for the Prince George Timber Supply Area¹⁹

In 2004, through a joint partnership between the Prince George Timber Supply Area Forest Licensees and the Northern Interior Region of the Ministry of Sustainable Resource Management (MSRM), landscape level objectives for biodiversity management were developed using local-level research of Natural Range of Variability (NRV) for the following elements:

1. Old forest retention;
2. Interior forest condition for old forest;
3. Young forest patch size distribution.

The Values, Objectives, Indicators and Targets (VOITs) in this SFMP, have been developed to be consistent with the order to the extent practicable.

Scenic Areas (2008)²⁰

Establishment of Scenic Areas and Visual Quality Objectives within the Vanderhoof Forest District – Section 7(1) & (2) of the Government Actions Regulation (GAR), September 18, 2008.

Mountain Caribou and Mule Deer Ungulate Winter Ranges (UWR)

Northern Caribou UWR²¹ - The *Order – Ungulate Winter Range #U-7-012* provides the general wildlife measures for Northern Caribou ungulate winter range in the DFA.

Mule Deer UWR²² - The *Order – Ungulate Winter Range #U-7-011* provides the objectives for Mule Deer within ungulate winter range in the DFA.

¹⁸ Reference: <http://www.ilmb.gov.bc.ca/slrp/lrmp/princegeorge/vanderhf/index.html> .

¹⁹ Reference: ILMB, 2004. Order Establishing Landscape Biodiversity Objectives for the Prince George Timber Supply Area. October 20, 2004

²⁰ Reference: http://www.for.gov.bc.ca/ftp/DVA/external!/publish/Scenic%20Areas-VQOs_DVA/sept1808order.pdf

²¹ Reference: MoE, 2005. Northern Caribou *Ungulate Winter Range* in the Vanderhoof Forest District (U-7-012) Report, November, 2005. Web link: http://www.env.gov.bc.ca/wld/documents/uwr/uwr_u7_012.pdf

²² Reference: MoE, 2003. Mule Deer *Ungulate Winter Range* for the Vanderhoof Forest District (U-7-011) Report, July 9, 2003. Web link: <http://www.env.gov.bc.ca/omineca/documents/U-7-011.pdf>

2.4 Licensee Operating Areas

Forest management planning and related harvesting activities are currently focused on beetle-killed pine salvage. The focus on pine salvage has resulted in additional Non - Replaceable Forest Licences (NRFL's) being awarded to other licensees. Appendix 4 provides a detailed list of the license volumes that could be harvested in the DFA and an assessment of the risk this might pose to the SFMP. This risk assessment will be undertaken annually as the landscape condition and related harvesting dynamics within the DFA continue transition.

Of all the volume that could be harvested in the DFA, 61.2% is directly controlled by the plan signatory, 38.8% of the volume is considered low risk or nil risk to the SFMP. Because of this the overall risk of other operators impacting the VOIT's for this plan is considered to be low.

3.0 THE PLANNING PROCESS

3.1 The CSA Certification Process

The CSA Sustainable Forest Management (SFM) Standard, initially developed in 1996 and subsequently revised and improved in 2002 and again in 2009 is Canada's national certification standard. The standard is a voluntary tool that provides independent third party assurance that an organization is practicing sustainable forest management. Consistent with most certifications, the CSA standard expects compliance with existing forest policies, laws and regulations.²³

Participants under the CSA certification system must address the following two components:

- Participants must develop and achieve indicators and targets for on-the-ground forest management, monitored through an annual public review with the input of the public and Aboriginals (Sec 3.1.1 following).
- Participants who choose to be registered to the CSA standard must incorporate CSA-defined systems components into an internal environmental management system (EMS) (Sec 3.1.2 following).

For a licensee seeking certification to the CSA SFM standard, the DFA SFMP or a licensee-specific plan, complimentary to the DFA SFMP, is developed. The licensee-specific plans may contain additional information such as their defined forest area and internal means to monitor and measure the DFA SFMP components.

Applicants seeking registration to the CSA standard require an accredited and independent third-party auditor to verify that these components have been adequately addressed. Following registration, annual surveillance audits are conducted to confirm that the standard is being maintained. A detailed description of these two components and a summary of the CSA registration process are as follows.

3.1.1 Public/Aboriginal Involvement: Performance Requirements & Indicators

The CSA standard includes performance requirements for assessing sustainable forest management practices that influence on-the-ground forestry operations. The performance requirements are founded upon six sustainable forest management criteria:

- conservation of biological diversity;
- conservation of forest ecosystem condition and productivity;
- conservation of soil and water resources;
- forest ecosystem contributions to global ecological cycles;
- provision of economic and social benefits; and
- accepting society's responsibility for sustainable forest management.

Each of these criteria has a number of "elements" that further define the criteria. The criteria and associated elements are all defined under the CSA standard and must be addressed during development of the SFMP. The criteria are endorsed by the Canadian Council of Forest Ministers and are aligned with international criteria. New to the CSA Standard (Z809-08 version) is the need to have specific discussion on selected forest management topics during the public

²³ In the case of the SFMP for the Vanderhoof DFA, this includes compliance with the strategic direction provided in the Vanderhoof Land and Resource Management Plan (LRMP).

participation process. Also new are the requirements for the SFMP to contain core indicators for nearly all of the elements.

For each set of criteria and elements, forest managers, Aboriginals and the public identify local values and objectives. Core and local indicators and targets associated with each are assigned to the values and objectives to measure performance.

Values identify the key aspects of the elements. For example, one of the values associated with “species diversity” might be “sustainable populations of native flora and fauna.”

Objectives describe the desired future condition, given an identified value. For example, the objective to meet the value of sustainable populations of native flora and fauna might be “to maintain a variety of habitats for naturally occurring species.”

Indicators are measures to assess progress toward an objective. Indicators are intended to provide a practical, cost-effective, scientifically sound basis for monitoring and assessing implementation of the SFMP. There must be at least one indicator for each element and associated value. Core indicators have been included in the CSA standard for nearly all elements. Additionally, local indicators can be added to the SFMP.

Targets are a specific statement describing a desired future state or condition of an indicator. Targets provide a clear specific statement of expected results, usually stated as some level of achievement of the associated indicator. For example, if the indicator is “minimize loss to the timber harvesting land base,” one target might be “to have less than ‘x’ percent of harvested areas in roads and landings.”

Values, objectives, indicators, and targets apply to social, economic and ecological criteria and may address process as well as on-the-ground forest management activities. In the SFMP for the Vanderhoof DFA, these indicators and targets were developed to be applied to the entire plan area.

As part of the process of developing values, objectives, indicators and targets, the PAG also assisted in the development of forecasts of predicted results for indicators and targets.

Forecasts are the long-term projection of expected future indicator levels. These have been incorporated into the SFMP targets as predicted results or outcomes for each target. Additional forecasting of indicators has occurred where there is some reliance on the TSR process. In these circumstances, forecasting is projected out over the next 250 years. More on the TSR process is available at: <http://www.for.gov.bc.ca/hts/pubs.htm>.

3.1.2 Public Review of Annual Reports & Third Party Audits

Each year, Canfor compiles a report that summarizes results for each of the indicators in the SFMP. This annual report is provided to the PAG for review and comment. Annual monitoring of achievements against indicators and targets, and comparing the actual results to forecasts, enables the SFMP to be continually improved. Continuous improvement is mandated by the CSA standard.

For a licensee registered to the CSA standard, conformance with the standard is assessed annually through surveillance audits carried out by a registered third party auditor. The audit confirms that the registrant has successfully implemented the SFMP and continues to meet the CSA Standard. Audit summaries are available to the public.

3.1.3 Internal Infrastructure: Systems Components

The CSA SFM standard mandates a number of process or systems-related requirements called “systems components.” These systems components must be incorporated in a registrant’s internal environmental management system (EMS). Systems components include:

- **Commitment:** A demonstrated commitment to developing and implementing the SFMP.
- **Public and Aboriginal participation:** The CSA standard requires informed, inclusive and fair consultation with Aboriginals and members of the public during the development and implementation of the SFMP.
- **CSA-aligned management system:** The management system is an integral part of implementation of the SFMP and is designed to meet CSA standards. The management system has four basic elements: Planning, Implementing, Checking and Monitoring, and Review and Improvement. The management system, includes the following base components:
 - 1) Identify environmental risks.
 - 2) Identify standard operating procedures or develop performance measures to address significant risks.
 - 3) Develop emergency procedures in the event of an incident causing environmental impacts.
 - 4) Review all laws and regulations.
 - 5) Establish procedures for training. Provide updated information and training to ensure that forestry staff and contractors stay current with evolving forest management information and are trained to address environmental issues during forestry activities.
 - 6) If an incident does occur, conduct an investigation or incident review and develop an action plan to take corrective action, based on the preparation undertaken in steps 1 to 5.
- **Continual improvement:** As part of a licensee’s management system, the effectiveness of the SFMP is continually improved by monitoring and reviewing the system and its components. This includes a review of ongoing planning, public process and Aboriginal liaison to ensure that the management system is being implemented as effectively as possible.

3.1.4 CSA Registration

Following completion of a sustainable forest management plan, and the development of an environmental management system in accordance with the CSA standard, a licensee may apply for registration of its DFA. The determination of whether all the components of an SFM system applied to a DFA are in place and functional involves an on-the-ground audit of the DFA including field inspections of forest sites. The intent of the registration audit is to provide assurance that the objectives of sustainable forest management on the DFA are being achieved. The registration of a licensee’s DFA follows a successful registration audit by an eligible independent third party auditor who has assessed and determined:

- an SFMP, that meets the CSA Standard, has been developed and implemented, including confirmation that quantified targets for meeting sustainable forest management criteria have been established through a public participation process;
- an SFM Environmental Management System has been developed and is being used to manage and direct achievement of the SFMP indicators and targets; and

- progress toward achieving the targets is being monitored, and monitoring results are being used for continual improvement of the SFMP and Environmental Management System.

A typical registration audit may include:

- meeting with the advisory group facilitator to review the public advisory process;
- interviews with public advisory group members;
- a review of monitoring and reporting responsibilities related to CSA indicators and targets;
- meetings with government officials to discuss licensee performance and government involvement in development of the SFMP;
- field reviews visiting harvest and road construction operations;
- interviews with staff and/or contractors to review their understanding of the environmental management system requirements; and
- meetings with management to assess the level of commitment to environmental performance and sustainability.

In addition to the registration audit, regular surveillance audits are conducted to examine performance against all aspects of the SFM System, including the requirement that regulatory standards and policy requirements are met or exceeded.

3.2 The Vanderhoof SFM Planning Process

The SFMP was developed by Canfor based on advice and recommendations provided by the PAG. The plan was developed to be in compliance with all existing legislation and policy and consistent with the strategic direction of higher level plans such as the Vanderhoof Land and Resource Management Plan (LRMP). The plan is continually updated and improved to incorporate new information, changing values, recommendations from monitoring activities and new circumstances.

3.2.1 Licensee Participation

A group of licensees who hold replaceable Forest tenure within the Vanderhoof Forest district worked with the PAG to develop initial performance measures (values, objectives, indicators and targets) for the SFMP that would meet the CSA Z809-02 standard. Originally, Canfor, BCTS, Lakeland Mills and L&M Lumber were certified to the CSA standard for the Vanderhoof SFMP. Lakeland Mills, L&M Lumber and BCTS have since dropped their CSA certification and therefore are not signatories to this plan. On publicly owned land, the responsibility and accountability is ultimately with the Ministry of Forests, Lands and Natural Resource Operations (MFLNRO); however, the signatories to this plan are held responsible for forest management under legislative and contractual agreement through the tenure agreements.

The MFLNRO has participated in the SFM planning process in a number of roles including:

- Participation in the development of the original suite of SFM values, objectives, indicators and targets;
- Participation as an observer at Public Advisory Group meetings; and
- Provision of technical support to the planning process.

Canfor makes efforts to collaborate or communicate periodically with Non-Replaceable Forest Licence (NRFL) holders to assess their impact on indicators in the SFM Plan.

To address the impact that other licensees may potentially have on achieving the targets, Canfor has developed a risk ranking matrix (Appendix 4) to display the estimated impact on these

operations, and provide confidence that the reporting is consistent with the reality of operations on the DFA.

3.2.2 Public Participation

The PAG was formed to assist the licensee in developing the SFMP by identifying local values, objectives, indicators and targets and evaluating the effectiveness of the plan.

Members of the PAG represented a cross-section of local interests including environmental organizations, Aboriginals, resource-based interests and research specialists. An open and inclusive process was used to formulate the public advisory group. Local Aboriginals were formally invited to participate. Various government ministries provided technical support to the SFM planning process, including information on resources and policy issues. The group developed, and was guided by, the Terms of Reference (TOR). The TOR was consistent with the CSA standard, and also specified that the process for developing the SFMP would be open and transparent. As part of updating the SFMP to meet the requirements of the revised 2008 CSA standard (Z809-08), considerable discussion occurred on specific topics related to the six Criteria.

The PAG reviews the annual report prepared by Canfor to assess achievement of indicators and targets. This monitoring process provides Canfor, the public and Aboriginals with an opportunity to bring forward new information and to provide input concerning new or changing public values that can be incorporated into future updates of the SFMP.

4.0 STRATEGY GUIDING THE SFMP

4.1 SFMP Strategy for the DFA

A set of strategies has been developed to progress toward achievement of targets for the indicators in the SFMP. These strategies document the relevance of the indicator to the SFMP and sustainability, and summarize actions required to meet the targets.

The SFMP utilizes indicators and targets that:

- reflect local values and objectives that relate to the LRMP, Forest Health, Mid-Term Timber Supply, etc.;
- are guided by the Canadian Council of Forest Ministers' Criteria and Elements; and
- are within the ability of the forest industry to influence and manage.

Applicable strategies are documented in the detail sheets for each indicator in Section 5.7 of the SFMP.

4.2 Additional Guidance

Canfor is also guided by the regulations, laws and policies established by the federal, provincial and municipal governments.

The direction set forth in legislation as well as additional policies provided by the District Managers guides strategies to manage forest operations and to provide high quality fibre for licensee operations over the long-term. At the same time, Canfor will make efforts to manage and balance the landscape for biological diversity, global cycles, soil, water and social responsibility.

5.0 INDICATORS & INDICATOR MATRICES

The PAG has identified local values and objectives for each of the CSA defined elements. These values and objectives are summarized in this section.

Core Indicators (included in the CSA standard) as well as local indicators and their respective targets have been developed to meet these local values and objectives. SFMP indicators (core and local) and their targets are described in Section 5.7. A summary table showing all criteria and elements and associated local values, objectives, indicators and targets is provided in Appendix 2.

In an SFMP, it is the indicators and targets that provide the performance measures that are to be met through on-the-ground forest management activities. This section provides a detailed description of each of the indicators and targets in the SFMP for the Vanderhoof DFA. Core indicators prescribed within the latest CSA standard (Z809-08) have been integrated into the plan using the numbering system found within the standard. Indicator statements have been developed for each core indicator, and some core indicators incorporate more than one statement. These serve to put the target into context against the core indicator and make the target easily measurable. Many of the previous plan indicators were very close to the set of core indicators, thus the targets used to measure these core indicators are familiar to the SFMP. Full conformance is required for many targets (i.e. there is no variance). Where full conformance may not be achievable, an acceptable level of variance is indicated for the target.

Canfor monitors the achievement of targets annually. Monitoring procedures for each target in the SFMP are described below. Management strategies provide further direction to the performance measures (indicators and targets) and serve as a guide for Canfor in their annual monitoring activities.

5.1 Objectives, Indicators & Targets

The Vanderhoof SFMP process has served to further refine the information and concerns of the local public. Incorporating these concerns and ideas into individual licensee operations through the established indicators and targets and ongoing monitoring ensures long-term sustainability of the forest resource. Any indicators established in this SFMP that are conducive to long-term projections are as noted below.

Section 6.2 describes the plans, policies and management strategies that support the achievement of the targets in the SFMP.

5.2 Base Line for Indicators

The primary source of base line information for indicators is the initial monitoring report subsequent to adoption of the indicator. Where existing indicators and targets were used to satisfy a core indicator, the baseline will be identified as that from the previous SFMP. In some instances, particularly in the case of newly developed indicators, a baseline might be difficult to establish and thus be absent in the plan. In those situations, baseline information will become available through subsequent monitoring reports.

5.3 Current Status of Indicators

Current status of each indicator is as reported and updated in annual SFMP performance reporting. To obtain current information, please refer to the most recent monitoring report on the Vanderhoof

SFMP website: <http://www.sfmngtsa.com/> or <http://www.canfor.com/responsibility/environmental/certification>.

5.4 Forecasting

Forecasts are the long-term projection of expected future indicator levels. These have been incorporated into the SFMP targets as predicted results or outcomes for each target.

Often, the target for the indicator is in itself the predicted result or outcome. The target is the predicted outcome or forecast for most of the SFMP indicators. Generally, the target is being achieved for SFMP indicators, and it is expected these targets will continue to be met. Indicator forecasts also provide predictions of future state relative to Elements, Values or Objectives.

5.5 Regional Forecasting Related to the SFMP

Prince George TSA Timber Supply Review

The Prince George Timber Supply Area Rationale for AAC Determination, January 11, 2011²⁴, included sensitivity analysis around the shelf life of beetle killed pine and the harvesting of non-pine stands in the short-term. The analysis was conducted using information related to the timber harvesting land base, timber volumes, and management strategies to indicate future state projected out for a period of 400 years. Prior to the Chief Forester making his determination, the public was invited to review and comment on the Timber Supply Review (TSR). Additional information on the opportunities that were provided for public input can be found in the TSR discussion paper (January 2010)²⁵. Further information pertaining to assumptions and analysis can be found within the Chief Forester's Rationale for AAC Determination for the Prince George TSA (January 2011).

Ecosystem Representation Analysis

Canfor recently completed an Ecosystem Representation Analysis across their operations in BC. This analysis was used to determine the relative abundance of ecosystem groups and highlight rare or uncommon groupings that may need special management. This analysis supports the indicator and target for 1.1.1 Percent representation of ecosystem groups across the DFA. For more details on the analysis, please refer to the indicator detail sheet for Indicator 1 (Core Indicator 1.1.1.) in Section 5.7.

5.6 Legal Requirements

Awareness of legal requirements is essential when considering suitable Objectives for an Element and determining appropriate Indicators and Targets. Canfor ensures that specific legislation related to Objectives, Indicators and Targets is known and complied with by staying current with legal requirements. Subscribing to commercial services, reliance on in-house staff or industry associations, and participating in joint legislative review committees are just some of the methods used by Canfor to remain current with legislation.

²⁴ Reference: <http://www.for.gov.bc.ca/hts/tsa/tsa24/>

²⁵ Reference: <http://www.for.gov.bc.ca/hts/tsa/tsa24/>

5.7 Indicators in the SFMP

5.7.1 1.1.1 Ecosystem area by type

Indicator	1.1.1 Ecosystem area by type
Indicator Statement(s)	1 - Retention of rare ecosystem groups across the DFA (CI - 1.1.1)
Element(s)	1.1 Ecosystem Diversity
Value(s) and Objective(s)	<p><u>Value 1.1:</u> Biological and cultural richness and its associated values are sustained within the DFA.</p> <p><u>Objective 1.1.1:</u> Ecologically distinct habitat types are represented in an unmanaged state in the DFA to sustain lesser known species and ecological function.</p> <p><u>Objective 1.1.2:</u> The amount, distribution, and diversity of terrestrial and aquatic habitat types, elements and structure important to sustain biological richness are sustained.</p>
Background and Description	<p>Maintaining representation of a full range of ecosystem types is a widely accepted strategy to conserve biodiversity. Ecosystem conservation represents a coarse-filter approach to biodiversity conservation. It assumes that by maintaining the structure and diversity of ecosystems, the habitat needs of various species will be provided. For many species, if the habitat is suitable, populations will be maintained.</p> <p>Ecosystem area by type can be influenced by managers, and many foresters/ecologists prefer to characterize the forest in terms of ecosystem types (according to forest ecosystem classifications such as Biogeoclimatic Ecosystem Classification – BEC or Predictive Ecosystem Mapping – PEM) rather than by age and type of structures as derived from classic forest inventories. Most ecosystem classification systems use an integrated hierarchical classification scheme that combines climate, vegetation and site classifications. This mapping is used in such applications as:</p> <ol style="list-style-type: none"> Seed zones; Protected area planning; Land management planning; Forest pest risk; Natural disturbance types; and Wildlife habitat management. <p>Rare ecosystems are frequently identified as focal points for conservation concern. Provincially, ecosystems are listed based largely on frequency of occurrence or rarity. There are at least three broad reasons for creating local lists, including:</p> <ul style="list-style-type: none"> to help assess the status of an ecosystem throughout a planning area; to focus attention and tracking on ecosystems that merit conservation concern; and to help rank allocation of resources to conservation efforts, such as parks, Wildlife Habitat Areas, Old Growth Management Areas (OGMA’s) or Wildlife

	<p>Tree Patches (WTPs).</p> <p>An analysis of ecosystem representation across all Canfor operations was conducted in 2011²⁶. This analysis determined the abundance and representation of ecosystem groups within four distinct regions and 13 management units. The following steps were carried out for this analysis:</p> <ul style="list-style-type: none"> • Identifying the non-harvesting land base; • Classifying the forested land base into ecosystem groups; and • Evaluating the amount and how the ecosystem groups are distributed in the harvesting and non-harvesting land base. <p>The key to accuracy in this analysis is that the broader area is used to determine rarity rather than just the DFA area.</p> <p>The Vanderhoof DFA is within the West- Central region and comprises 45 unique forested ecosystem groups.</p> <p>Rare or uncommon ecosystem groups were identified through analysis, using Predictive Ecosystem Mapping (PEM) at the site series level.</p> <p>The following criteria was used to select the site series that would be considered rare or uncommon</p> <ul style="list-style-type: none"> • The ecosystem group is present on the DFA. (area >0%), • The forested area is <= 10,000 ha. in the West-central region, • The representation class is: <ul style="list-style-type: none"> ○ Low <20% of the area is in the NHLB. ○ Rare/uncommon abundance is <0.1% of the forest area, and • < 100% of the area of the ecosystem group is in the NHLB. <p>Site series in these ecosystem groups are considered rare and should not be harvested. If these site series are encountered during field layout, they will be reserved from harvest by excluding them from the harvest area or reserving them in WTP's (see indicator 4, Core Indicator 1.1.4a) or other designated reserve areas.</p>																									
<p>Strategy</p>	<p>7 rare ecosystem groups occur within the DFA. All sites within the group will be protected from harvesting.</p>																									
<p>Current Status</p>	<p>There were six ecosystem groups within the DFA identified as rare/uncommon. All sites within this group are to be protected from harvesting. The following table lists the site series groups/associations considered rare and uncommon (2012 Baseline data):</p> <table border="1" data-bbox="488 1375 1430 1755"> <thead> <tr> <th>Final Ecogroup Number</th> <th>Final Group Name</th> <th>Site Series</th> <th>Moisture-Nutrient regime</th> <th>Site Association</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>xeric SBSdk</td> <td>SBS dk-02</td> <td>Xeric; very poor-poor</td> <td>Pl - Juniper - Ricegrass</td> </tr> <tr> <td>16</td> <td>subxeric-submesic SBS dk</td> <td>SBS dk-04</td> <td>Subxeric-submesic; medium-rich</td> <td>Fd - Soopolallie - Feathermoss</td> </tr> <tr> <td>32</td> <td>mesic-subhygric SBSdw1</td> <td>ESSF xv1-06</td> <td>submesic-mesic; poor-medium</td> <td>Bl - Rhodo - Crowberry</td> </tr> <tr> <td>32</td> <td>mesic-subhygric SBSdw1</td> <td>SBS dw1-06</td> <td>Mesic-subhygric; medium-rich</td> <td>Sxw - Fd - Thimbleberry</td> </tr> </tbody> </table>	Final Ecogroup Number	Final Group Name	Site Series	Moisture-Nutrient regime	Site Association	4	xeric SBSdk	SBS dk-02	Xeric; very poor-poor	Pl - Juniper - Ricegrass	16	subxeric-submesic SBS dk	SBS dk-04	Subxeric-submesic; medium-rich	Fd - Soopolallie - Feathermoss	32	mesic-subhygric SBSdw1	ESSF xv1-06	submesic-mesic; poor-medium	Bl - Rhodo - Crowberry	32	mesic-subhygric SBSdw1	SBS dw1-06	Mesic-subhygric; medium-rich	Sxw - Fd - Thimbleberry
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²⁶ Ecosystem Representation Analysis Final Report January 18th, 2012 Forest Ecosystem Solutions Ltd.

	49	subhygric-hygric SBSmc2	SBS mc2-07	Subhygric-hygric; very poor-poor	Sxw - Scrub birch - Feathermoss															
	58	hygric SBSdk	SBS dk-09	hygric	Sb - Snowberry - Sphagnum															
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	<p>The following table shows how much harvesting has occurred in these ecosystems since the year 2010:</p> <table border="1"> <thead> <tr> <th>Site Series</th> <th>Area Harvested (ha)</th> </tr> </thead> <tbody> <tr> <td>SBS dk-02</td> <td>0 ha.</td> </tr> <tr> <td>SBS dk-04</td> <td>0 ha.</td> </tr> <tr> <td>ESSF xv1-06</td> <td>0 ha.</td> </tr> <tr> <td>SBS dw1-06</td> <td>0 ha.</td> </tr> <tr> <td>SBS mc2-07</td> <td>17.9 ha.</td> </tr> <tr> <td>SBS dk-08</td> <td>0 ha.</td> </tr> <tr> <td>SBS dk-09</td> <td>0 ha.</td> </tr> </tbody> </table>					Site Series	Area Harvested (ha)	SBS dk-02	0 ha.	SBS dk-04	0 ha.	ESSF xv1-06	0 ha.	SBS dw1-06	0 ha.	SBS mc2-07	17.9 ha.	SBS dk-08	0 ha.	SBS dk-09
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Forecast	Qualitative forecast: Zero hectares logged in rare and uncommon ecosystems. Past performance has shown it is reasonable to forecast this result into the foreseeable future.																			
Target	Zero hectares of rare/uncommon ecosystem groups harvested annually in the DFA, subject to the variance.																			
Basis for the Target	Proactive measure to identify and conserve rare and uncommon ecosystems.																			
Monitoring & Measurement Periodic	Identification of rare and uncommon ecosystems to occur with inventory updates that occur in conjunction with the Timber Supply Review (generally every 5 years).																			
Monitoring & Measurement Annual	Report any incidents of harvesting that occurred in ecosystem groups defined as rare/uncommon. Also report the number of hectares where harvesting occurred within uncommon ecosystem groups and the number of these hectares where specific management strategies to retain the characteristics of unmanaged forests were implemented.																			
Variance	<p>Access construction where no other practical route is feasible.</p> <p>Harvesting may occur in rare ecosystems for access, forest health, or safety issues as rationalized and documented by a qualified professional.</p>																			

1.1.2 Forest area by type or species composition

Indicator	1.1.2 Forest area by type or species composition
Indicator Statement(s)	2 - Percent distribution of forest type (treed conifer, treed broadleaf, treed mixed) >20 years old across DFA (CI - 1.1.2)
Element(s)	1.1 Ecosystem Diversity
Value(s) and Objective(s)	<p><u>Value 1.1:</u> Biological and cultural richness and its associated values are sustained within the DFA.</p> <p><u>Objective 1.1.1:</u> Ecologically distinct habitat types are represented in an unmanaged state in the DFA to sustain lesser known species and ecological function.</p> <p><u>Objective 1.1.2:</u> The amount, distribution, and diversity of terrestrial and aquatic habitat types, elements and structure important to sustain biological richness are sustained.</p>
Background and Description	<p>Tree species composition, stand age, and stand structure are important variables that affect the biological diversity of a forest ecosystem - providing structure and habitat for other organisms. Ensuring a diversity of tree species within their natural range of variation improves ecosystem resilience and productivity and positively influences forest health. Reporting on this indicator provides high level overview information on the DFA's broad forest types, forest succession and management practices that might alter species composition.</p> <p>The lodgepole pine forests (dominant overstory) within the DFA are in a state of transition, due to the severity of beetle related mortality. Whether future forests are the result of artificial reforestation efforts associated with salvage, or ingress related to natural regeneration, coniferous forest types will remain dominant. Canfor expects that species specific mortality levels (dead pine), combined with non-coniferous retention, deciduous ingress and more species diversity at Free Growing, will result in increases in broadleaf and mixed forests in the DFA, over time.</p> <p>The BC government FREP report #14 on Tree Species Composition and Diversity in British Columbia (BCMOFR 2008) concluded that the amount of deciduous mixed stands at free growing across all reporting periods in the Northern Forest Interior Region has increased significantly, from 2,811 hectares before harvest to 55,614 hectares at free growing. This is expected to continue in the short-term in both BC and Alberta as recently harvested areas regenerate naturally with ingress from early successional broadleaf species. While adding to the overall diversity of the DFA, many of these forests will revert back to coniferous mixed forests over time. To remove some of this short-term variation in the reporting of the indicator, forests less than 20 years of age will not be included in the reporting structure.</p> <p>Treed conifer forests are those where conifers dominate the species mix (at least 75% of trees are conifer), treed broad leaf forests are those where mostly deciduous trees dominate the species mix (at least 75% of trees are broad leaf) and mixed forests are those that fall within the middle range where neither conifer or broad leaf trees dominate the species mix.</p>
Strategy	Forest plans will incorporate reforestation strategies that retain the natural balance of broad forest types within the DFA.

<p>Current Status</p>	<p>The table below shows the Current Status of the percent distribution of forest type (coniferous, broadleaf, mixed) >20 years old across the DFA (2012 Baseline data).</p> <table border="1" data-bbox="571 275 1248 493"> <thead> <tr> <th>Forest Type</th> <th>Forest Area (ha)</th> <th>Forest Area (%)</th> </tr> </thead> <tbody> <tr> <td>Coniferous</td> <td>833,753</td> <td>94.6</td> </tr> <tr> <td>Broadleaf</td> <td>13,792</td> <td>1.6</td> </tr> <tr> <td>Mixed</td> <td>34,177</td> <td>3.9</td> </tr> <tr> <td>Total</td> <td>881,722</td> <td>100</td> </tr> </tbody> </table> <p>The data is based on the Vegetation Resources Inventory (VRI). Appropriate reductions have been made for roads, landings and other non-forested areas.</p>	Forest Type	Forest Area (ha)	Forest Area (%)	Coniferous	833,753	94.6	Broadleaf	13,792	1.6	Mixed	34,177	3.9	Total	881,722	100
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<p>Forecast</p>	<p>Qualitative forecast: By implementing the above strategy, it is forecast that forest composition will be within the target ranges. Current state analysis shows that composition is consistent with target ranges.</p>															
<p>Target</p>	<p>Treed conifer: No Target, Treed Broadleaf: 1.6-5%, Treed Mixed 3.9-9%</p>															
<p>Basis for the Target</p>	<p>The need to maintain the biological diversity of forest ecosystems in future generation forests. Addresses diversity and abundance of naturally occurring tree species on the landscape. Management control restricted to areas of the Timber Harvesting Land Base (THLB).</p>															
<p>Monitoring & Measurement Periodic</p>	<p>Reporting to occur every five years. This will be used to confirm that forest types are within baseline levels. Report the area (total hectares and percent) of treed conifer, treed broad leaf, treed mixed forest types as updated for the most current Timber Supply Review (TSR) for the management unit.</p>															
<p>Monitoring & Measurement Annual</p>																
<p>Variance</p>	<p>None below suggested targets.</p>															

5.7.2 1.1.3 Forest area by seral stage or age class; 4.1.1 Net Carbon uptake

Indicator	1.1.3 Forest area by seral stage or age class 4.1.1 Net Carbon uptake
Indicator Statement(s)	3 - Percent old non-pine forest across the DFA (CI - 1.1.3 and CI – 4.1.1(a))
Element(s)	1.1 Ecosystem Diversity 4.1 Carbon Uptake and Storage
Value(s) and Objective(s)	<p><u>Value 1.1:</u> Biological and cultural richness and its associated values are sustained within the DFA.</p> <p><u>Objective 1.1.1:</u> Ecologically distinct habitat types are represented in an unmanaged state in the DFA to sustain lesser known species and ecological function.</p> <p><u>Objective 1.1.2:</u> The amount, distribution, and diversity of terrestrial and aquatic habitat types, elements and structure important to sustain biological richness are sustained.</p> <p><u>Value 4.1:</u> Forest ecosystem contributions to global ecological cycles are sustained within the DFA.</p> <p><u>Objective 4.1:</u> Maintain forest conditions that take carbon from the atmosphere and store it in forest ecosystems.</p>
Background and Description	<p>The northern interior forest ecosystems have been historically influenced by the presence or absence of fire as a dominant form of natural disturbance. The similarities in fire return intervals, and disturbance sizes and patterns form the basis for categorizing each of the ecosystems into natural disturbance units (NDU), which in turn is used to provide guidance for maintaining biodiversity. The DFA contains one Natural Disturbance Unit (NDU), the Moist Interior. However, this NDU is subdivided into the Moist Interior Plateau and the Moist Interior Mountain sub-units based on significant differences in elevation (DeLong 2002). Seven merged Biogeoclimatic Units were identified within the DFA, based on similar ecological characteristics, unit size and geographic location.</p> <p>Biodiversity can be affected by the disruption of natural processes. Future maintenance of biodiversity is in part dependent upon the maintenance of representative habitats and seral stages at the landscape and watershed level. Forests in their late seral stage offer unique habitat to certain plant and animal communities. The fact that the DFA is dominated by pine forests and has been severely impacted by MPB adds complexity to maintaining late seral stage forests in the DFA (especially in consideration of the natural range of variation). True old growth forests in the DFA (from a seral stage perspective) are generally limited to mature non-pine types that have survived the beetle epidemic.</p> <p>Through the mountain pine beetle infestation all targets have been maintained. The biggest challenge ahead will be with re-inventory of pine stands and loss of old forest area. The strategy to offset this issue is to maintain non-pine old forest well above targets as indicated in Appendix 6.</p> <p>Forests have great potential to sequester and store carbon from the atmosphere. Given this, managers should recognize the imperative of keeping forest lands in vigorous tree growth at all times. This means understanding the mortality of pine types within the DFA and undertaking salvage and prompt reforestation efforts to return beetle-killed timber types to productive forests that will serve as future carbon sinks. It also includes minimizing the amount of forest land that is converted to non-forest land during forest operations (e.g., minimizing the amount of roads and landings).</p> <p>Forest carbon has recently become a key SFM value, especially in light of Canada's</p>

	<p>international commitment to lower its net carbon outputs to the atmosphere. Models for calculating a forest carbon budget (e.g., the Canadian Forest Service’s Carbon Budget Model of the Canadian Forest Sector (CBM-CFS3)) are becoming available for use by practitioners particularly where they can be linked to forest inventory and timber supply models. Their use in forest planning can indicate whether a specific forest is expected to be a net carbon source or sink over the period normally used for wood-supply forecasts.</p> <p>In their 2009 summary of carbon management in BC’s forests²⁷, Mike Greig and Gary Bull report a need for additional guidance for forest managers and practitioners. “The interest in managing British Columbia’s forests for climate control and CO₂ offsetting projects has built to the point where forest managers are seeking guidance. Equally important is the public’s desire to understand the potential of provincial forests in mitigating climate change and to have this clearly communicated. Some work has taken place in assembling carbon yield curves, researching local carbon storage, and undertaking carbon accounting projects. However, no published handbooks or policies exist to guide forest managers, practitioners, or the public.</p> <p>Canfor’s carbon strategy will be:</p> <ul style="list-style-type: none"> • Maintain the target non-pine old growth on the land base for carbon storage; • Prompt reforestation of harvest areas for carbon uptake; • Minimize permanent access structures to maintain forest productivity for carbon uptake; and • Focus annual harvest efforts, in the short-term, on the salvage of beetle-killed pine-leading timber types (rehabilitation of areas affected by MPB). <p>Canfor will continue to report on the target for this indicator (retention of old non-pine forest) as well as related indicators and targets for forest land conversion and reforestation success. Collectively, these indicator statements and targets demonstrate the commitment to positively influence carbon balance within the management unit. Retention of old non-pine forest) throughout the DFA will assist in locking up the carbon already sequestered in these older forests. Salvaging beetle-killed pine types and converting potential sources of carbon emissions (dead & decaying timber types) to healthy productive second growth plantations will begin to process of carbon sequestration and generate future carbon sinks.</p> <p>Canfor will continue to monitor developments in carbon sequestration modeling both at the provincial and regional level and may utilize this information within the SFM Plan. At the very least, Canfor will rely upon forest carbon analysis conducted in conjunction with the next Timber Supply Review.</p> <p>It is assumed that this forecast (Vanderhoof District level) is applicable to the DFA as Canfor is such a large presence in the TSA.</p>
<p>Strategy</p>	<p>The relative amount of late seral non-pine forest within the DFA is currently mandated by the <i>Order Establishing Landscape Biodiversity Objectives for the Prince George Timber Supply Area</i> (2004). Where actual percent late seral is less than the desired target in a given ecological unit, harvesting the remaining late seral stands will be avoided. A recruitment strategy will be developed for these ecological units to meet the minimum requirements for late seral stands over time.</p>

²⁷ Carbon Management in British Columbia’s Forests: Opportunities and Challenges. Forrex Series 24. 2009

<p>Current Status</p>	<p>The amount of old non-pine forest as compared to the target amount is indicated in the following table (2011 baseline data):</p> <table border="1" data-bbox="440 275 1427 856"> <thead> <tr> <th rowspan="2">NDU/merged Biogeoclimatic Units</th> <th rowspan="2">Unit Label</th> <th rowspan="2">CFLB Area (ha)</th> <th colspan="2">Targets</th> <th colspan="2">Current Status</th> </tr> <tr> <th>% Target</th> <th>Target Area (ha)</th> <th>Current Area (ha)</th> <th>Current Percentage (%)</th> </tr> </thead> <tbody> <tr> <td>Moist Interior - Mountain ESSFmv1</td> <td>D1</td> <td>129,042</td> <td>16%</td> <td>20,647</td> <td>25,246</td> <td>20%</td> </tr> <tr> <td>Moist Interior - Plateau SBPSmc</td> <td>D2</td> <td>47,275</td> <td>3%</td> <td>1,418</td> <td>3,597</td> <td>8%</td> </tr> <tr> <td>Moist Interior - Plateau SBSdk</td> <td>D3</td> <td>166,587</td> <td>5%</td> <td>8,329</td> <td>20,829</td> <td>13%</td> </tr> <tr> <td>Moist Interior - Plateau SBSdw2</td> <td>D4</td> <td>47,536</td> <td>2%</td> <td>951</td> <td>3,422</td> <td>7%</td> </tr> <tr> <td>Moist Interior - Plateau SBSdw3</td> <td>D5</td> <td>205,974</td> <td>5%</td> <td>10,299</td> <td>26,208</td> <td>13%</td> </tr> <tr> <td>Moist Interior - Plateau SBSmc2</td> <td>D6</td> <td>240,259</td> <td>3%</td> <td>7,208</td> <td>24,217</td> <td>10%</td> </tr> <tr> <td>Moist Interior - Plateau SBSmc3</td> <td>D7</td> <td>212,817</td> <td>2%</td> <td>4,256</td> <td>17,075</td> <td>8%</td> </tr> <tr> <td colspan="2"></td> <td>1,049,491</td> <td></td> <td>53,108</td> <td>120,593</td> <td></td> </tr> </tbody> </table>	NDU/merged Biogeoclimatic Units	Unit Label	CFLB Area (ha)	Targets		Current Status		% Target	Target Area (ha)	Current Area (ha)	Current Percentage (%)	Moist Interior - Mountain ESSFmv1	D1	129,042	16%	20,647	25,246	20%	Moist Interior - Plateau SBPSmc	D2	47,275	3%	1,418	3,597	8%	Moist Interior - Plateau SBSdk	D3	166,587	5%	8,329	20,829	13%	Moist Interior - Plateau SBSdw2	D4	47,536	2%	951	3,422	7%	Moist Interior - Plateau SBSdw3	D5	205,974	5%	10,299	26,208	13%	Moist Interior - Plateau SBSmc2	D6	240,259	3%	7,208	24,217	10%	Moist Interior - Plateau SBSmc3	D7	212,817	2%	4,256	17,075	8%			1,049,491		53,108	120,593	
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<p>Forecast</p>	<p>Quantitative forecast: .As per Appendix 5, the non pine targets are forecast to stay well above targets. Once a re-inventory is conducted it will be a challenge to meet old seral targets due to the dead pine stands.</p>																																																																			
<p>Target</p>	<p>Maintain minimum % of Old Non-Pine by NDU/Merged BEC within the DFA in accordance with the Table in the SFM Plan (above).</p>																																																																			
<p>Basis for the Target</p>	<p>The following document was used as a basis for the targets:</p> <ul style="list-style-type: none"> Order Establishing Landscape Biodiversity Objectives for the Prince George Timber Supply Area, 																																																																			
<p>Monitoring & Measurement Periodic</p>	<p>Periodic Reporting – every five years Undertake landscape level analysis that includes (but is not limited to); an updated disturbance coverage, crown forested land base and VRI (inventory) layer.</p>																																																																			
<p>Monitoring & Measurement Annual</p>	<p>Tenure holders, active within the Prince George Timber Supply Area (LLOWG), collate to maintain consistency with legal landscape objectives and assess current and anticipated future performance. For the TSA, the LLOWG convenes as required to update the current and future amount of old forest and the Licensee apportionment (update harvested blocks, newly planned blocks, aging of forest, and Licensee operating area changes). The LLOWG assesses current and anticipated future performances of the signatory in meeting old forest targets and proposed recruitment strategies if targets cannot be met within the TSA.</p>																																																																			
<p>Variance</p>	<p>0%</p>																																																																			

5.7.3 1.1.4 Degree of within-stand structural retention

Indicator	1.1.4 Degree of within-stand structural retention
Indicator Statement(s)	4 - Percent of stand structure retained across the DFA in harvested areas (CI - 1.1.4(a)) 5 - Percent of cut blocks harvested consistent with riparian management area strategies identified in Site Plans (CI - 1.1.4(b))
Element(s)	1.1 Ecosystem Diversity
Value(s) and Objective(s)	<p><u>Value 1.1:</u> Biological and cultural richness and its associated values are sustained within the DFA.</p> <p><u>Objective 1.1.1:</u> Ecologically distinct habitat types are represented in an unmanaged state in the DFA to sustain lesser known species and ecological function.</p> <p><u>Objective 1.1.2:</u> The amount, distribution, and diversity of terrestrial and aquatic habitat types, elements and structure important to sustain biological richness are sustained.</p>
Background and Description	<p>Complexity of stand structure is a key component of an operational strategy to sustain biodiversity in forested ecosystems (Bunnell et al 1999). Structural complexity helps to mitigate the potential deleterious effects of large scale stand and landscape simplification associated with intensive short-rotation forest management.</p> <p>Wildlife tree retention areas (WTRAs) are a retention tool recommended for use in stand and landscape planning to help sustain biodiversity and ecological processes. They are used to provide protection for known wildlife habitat features (including standing dead and dying trees); to provide attributes important to key ecological processes (including woody debris, tree species diversity, and understory vegetation diversity); to protect small, local sites of special biological significance (e.g., unclassified riparian or wetlands, rock outcrops or rare plants or ecosystems); or to provide stand level complexity (vertical and horizontal) to harvest areas under even-aged, short-rotation management. At the landscape level WTRAs can be combined with other retention areas such as riparian reserves, old growth areas and provincial parks to better emulate natural disturbance regimes. All of the above values should be considered when planning the level and location of stand level retention. By maintaining WTRAs, that reflect natural landscape elements, it is expected that landscape level ecological processes such as habitat connectivity and genetic diversity will be maintained within an acceptable proportion of the range of natural variability. The extent of beetle impact within a pine dominated DFA adds complexity to retaining quality stand level attributes (especially from the perspective of representative timber types). As a result, when planning stand level retention the focus should be qualitative as opposed to quantitative. This indicator in conjunction with other landscape level indicators, such as old non-pine distribution and species composition will provide important information on ecosystem health.</p> <p>Riparian management areas provide forest cover connectivity along waterways and offer high value wildlife habitat and movement corridors. A Forest Stewardship Plan (FSP) provides the framework, by which riparian areas are managed relative to riparian features identified in FRPA. Results and /or strategies for riparian management are based on riparian feature attributes such as the size of a lake, or wetland, stream width, or the presence or absence of fish (FRPA classifications). Site level plans influenced by riparian areas contain site specific detail as to how riparian objectives will be achieved. Management practices range from 100% retention within riparian management areas to 100% removal of merchantable timber types, generally with efforts to manage existing understory trees and shrubs.</p>

	Riparian features can be assessed on a landscape level (i.e. watershed assessments) or at the operational level, where digital Terrain Resource Information Management (TRIM) streams or other mapped-features are classified in the field by qualified staff. Wind throw hazard (WTH) is assessed, considering landform type, soil type, soil moisture, forest cover, topography and orientation to the wind. Riparian objectives, species composition, stand structure and windthrow hazard, determine final retention levels (and locations) relative to a specific riparian feature.								
Strategy	Canfor will achieve the stand level retention targets by establishing Wildlife Tree Retention Areas (including applicable riparian buffers) during cutblock development. Site specific riparian strategies will be identified in applicable Site Plans. Post-harvest inspections validate that Site Plans are properly executed and provide the desired retention/riparian management results. Canfor’s database is utilised to track annual retention levels, riparian buffers and instances of non-conformance.								
Current Status	<p>Indicator 4: The following table displays the baseline stand-level retention levels in the DFA.</p> <table border="1"> <thead> <tr> <th>2008/09 Status</th> <th>2009/10 Status</th> <th>2010/11 Status</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>12.2%</td> <td>14.4%</td> <td>13.8%</td> <td>10%</td> </tr> </tbody> </table> <p>Indicator 5: 100 percent of cut blocks harvested were consistent with Riparian Management Area strategies identified in Site Plans (2011 baseline data).</p>	2008/09 Status	2009/10 Status	2010/11 Status	Target	12.2%	14.4%	13.8%	10%
2008/09 Status	2009/10 Status	2010/11 Status	Target						
12.2%	14.4%	13.8%	10%						
Forecast	Qualitative forecast: by implementing the above strategy, it is forecast that the percent of stand structure across the DFA will continue to meet the minimum target of 10% across the DFA. Current status described in Table 7 of the Annual Report shows that more than the minimum stand structure is being retained across the DFA currently. This forecast trend is expected to continue with the identified strategy.								
Target	Indicator 4: 10% across the DFA. Indicator 5: 100%								
Basis for the Target	Recognition that wildlife tree retention and riparian management areas are “focus areas” for successfully meeting biodiversity and ecosystem objectives. Site Plan commitments are site specific, consider landscape conditions and may exceed legal requirements.								
Monitoring & Measurement Periodic									
Monitoring & Measurement Annual	Indicator 4: For areas harvested during the annual reporting period, report the (weighted average) percent of area retained (retention relative to the gross cut block). Indicator 5: For areas harvested during the annual reporting period, report the number of instances where riparian strategies identified in Site Plan are not adhered to when the block is harvested. The number of riparian area-related non-conformances occurring during the reporting year are compared to the number of cut blocks harvested with riparian management strategies. Canfor will continue to report consistency with the draft Vanderhoof Lakeshore Classification Plan under this indicator.								
Variance	Indicator 4: 0% Indicator 5: 0%								

**5.7.4 1.2.1 Degree of habitat protection for selected focal species, including species at risk;
1.2.2 Degree of suitable habitat in the long-term for selected focal species, including species at risk**

Indicator	1.2.1 Degree of habitat protection for selected focal species, including species at risk 1.2.2 Degree of suitable habitat in the long-term for selected focal species, including species at risk
Indicator Statement(s)	6 - Percent of forest management activities consistent with management strategies for species of management concern (CI - 1.2.1 and CI – 1.2.2)
Element(s)	1.2 Species Diversity
Value(s) and Objective(s)	<p><u>Value 1.1:</u> Biological and cultural richness and its associated values are sustained within the DFA</p> <p><u>Objective 1.1.1:</u> Ecologically distinct habitat types are represented in an unmanaged state in the DFA to sustain lesser known species and ecological function</p> <p><u>Objective 1.1.2:</u> The amount, distribution, and diversity of terrestrial and aquatic habitat types, elements and structure important to sustain biological richness are sustained.</p>
Background and Description	<p>While ecosystem conservation is the coarse-filter approach to biodiversity management, species diversity management is often a fine-filter approach. For most species, forest managers can influence habitat only, not species populations. To account for the degree of habitat protection for selected focal species, including at risk species, this indicator looks at the proper execution of site level plans, which contain conservation measures for applicable Species of Management Concern.</p> <p>Maintenance of wildlife habitat over the long-term is critical to meeting the species diversity requirements of sustainable forest management. Each of the selected focal species have specific habitat attribute requirements (e.g., snags, closed canopy forests, limited road access, etc.) that need to be maintained for optimal habitat value.</p> <p>Canfor includes commitments in site/logging plans or other plans to manage the habitat of the DFA’s Species of Management Concern. A list of current species of management concern has been developed for the DFA and has been included Appendix 3 to serve as an example. This current snapshot for the DFA includes species from Schedule 1 of the Federal Species at Risk Act (SARA); the Committee on the Status of Endangered Wildlife in Canada (COSEWIC); from Schedule 1 of the provincial Identified Wildlife Management Strategy under the Forest and Range Practices Act; and Blue and Red listed species listed with the BC Conservation Data Center. It should be noted that the list of species of management concern is not static and Canfor uses databases such as BC Species and Ecosystems Explorer (http://a100.gov.bc.ca/pub/eswp/) to identify: (1) The Red and Blue-listed plants and animals and ecological communities found within the DFA; (2) Pertinent information regarding status, legal designation, distribution, life histories, conservation needs and recovery plans; and (3) The relevant publications to aid in identification of the applicable species of management concern.</p>

Strategy	<p>Government’s policy and legally established framework for the protection of biodiversity values and species at risk under provincial and federal legislation includes the establishment of parks and protected areas, as well as the protection of biodiversity, riparian and aquatic habitats, old-growth forests, ungulate winter range, specific wildlife features and the habitat for listed species at risk.</p> <p>For some of these species, specific habitat conservation targets have been established that identify the amount, distribution and attributes of desirable habitat. For the remaining species, desirable habitat conditions have been identified for each species. Canfor manages spatial information that identifies the broad habitat types and locations for each of the Species of Management Concern. Where applicable, this information is brought forward into operational plans to manage for the desired habitat conditions. Plans are properly executed providing desired results. Post harvest evaluations and other applicable post activity forms (e.g., road construction or site preparation) assess plan conformance.</p>						
Current Status	<p>The following table displays the percent of forest management activities consistent with management strategies for species of management concern (2011 Baseline data).</p> <table border="1" data-bbox="639 751 1247 814"> <thead> <tr> <th data-bbox="639 751 837 783">2008/09 Status</th> <th data-bbox="837 751 1040 783">2009/10 Status</th> <th data-bbox="1040 751 1247 783">2010/11 Status</th> </tr> </thead> <tbody> <tr> <td data-bbox="639 783 837 814">100%</td> <td data-bbox="837 783 1040 814">100%</td> <td data-bbox="1040 783 1247 814">100%</td> </tr> </tbody> </table> <p>See Appendix 3 for the complete list of Species of Management Concern within the DFA.</p>	2008/09 Status	2009/10 Status	2010/11 Status	100%	100%	100%
2008/09 Status	2009/10 Status	2010/11 Status					
100%	100%	100%					
Forecast	<p>It is anticipated that short- and long-term supply of desirable habitat for all Species of Management Concern (see Appendix 3) will be maintained on the DFA , resulting in stable populations.</p>						
Target	100%						
Basis for the Target	<p>Legal obligations, use of best available information and habitat supply modeling done at the provincial/regional level for specific focal species.</p>						
Monitoring & Measurement Periodic							
Monitoring & Measurement Annual	<p>Annually report the percentage of instances where post-harvest conditions (or other applicable forest activities) are consistent with plan commitments to manage for Species of Management Concern.</p>						
Variance	None.						

5.7.5 1.2.3 Proportion of regeneration comprised of native species; 1.3.1 Genetic diversity (not a Core Indicator)

Indicator	1.2.3 Proportion of regeneration comprised of native species 1.3.1 Genetic diversity (not a Core Indicator)
Indicator Statement(s)	7 - Regeneration will be consistent with provincial regulations and standards for seed and vegetative material use (CI - 1.2.3 and CI – 1.3.1)
Element(s)	1.2 Species Diversity 1.3 Genetic Diversity
Value(s) and Objective(s)	<u>Value 1.1:</u> Biological and cultural richness and its associated values are sustained within the DFA. <u>Objective 1.1:</u> Ecologically distinct habitat types are represented in an unmanaged state in the DFA to sustain lesser known species and ecological function. <u>Objective 1.1:</u> The amount, distribution, and diversity of terrestrial and aquatic habitat types, elements and structure important to sustain biological richness are sustained. <u>Objective 1.3:</u> The genetic diversity of plant species within the DFA is sustained.
Background and Description	One of the primary management objectives for sustainability is to conserve the diversity and abundance of native species and their habitats. Silviculture practices that promote regeneration of native species, either through planting or other natural programs, assist in meeting these objectives. The well-being and productivity of future forests are dependent upon the structure and dynamics of their genetic foundation. Seed used in Crown land reforestation that is consistent with provincial regulations and standards ensure regenerated stands are genetically diverse, adapted, healthy and productive, now and in the future. Suitable seed and vegetative lots must also be of a high quality and available in sufficient quantities to meet the specific stocking and forest health needs of a given planting site. Tree seed used for growing seedlings to meet reforestation requirements on public lands in BC must be registered by the province. The province has strict procedures pertaining to the collection, transport, testing, storage and use of registered seed. Tree seed having uniformity of species, source, quality and year of collection are referred to as a seedlot. Administrative seed zones identify which seedlot is ecologically suited for a given area. By choosing a seedlot that was suitable to the site it was to be planted in, the resulting plantation would be adapted to its site, local climate, and endemic forest health problems. As such, transfer guidelines have been developed to minimize the risks associated with moving seed or vegetative material from location to location.
Strategy	Under the Forest and Range Practices Act, Canfor must abide by seed and stock transfer guidelines and the Chief Forester may make standards for regulating the use, registration, storage, selection or transfer of seed to be used in the establishment of free growing stands. Reforestation activities are currently tracked by signatory members using information tracking system databases. Seedlots and request keys of all planted stock are recorded in this system as part of the reforestation planning activities and then confirmed after planting.
Current Status	100% of regeneration was consistent with provincial regulations and standards for seed and vegetative material use (2011 baseline data).
Forecast	Healthy, productive and genetically diverse forests that are ecologically suited to the site.
Target	100%

Basis for the Target	Legal obligations, a review of past performance and an understanding of the scope of salvage and reforestation efforts that will be undertaken within the DFA.
Monitoring & Measurement Periodic	
Monitoring & Measurement Annual	Canfor will report the number of hectares where seedlings were planted in accordance with FRPA, as compared to the total number of hectares where planting occurred.
Variance	-5%

5.7.6 1.4.1 Proportion of identified sites with implemented management strategies.

Indicator	1.4.1 Proportion of identified sites with implemented management strategies.
Indicator Statement(s)	8 - Percent of forest management activities consistent with management strategies for sites of biological significance (CI - 1.4.1)
Element(s)	1.4 Protected Areas and Sites of Special Biological and Cultural Significance
Value(s) and Objective(s)	<p><u>Value 1.1:</u> Biological and cultural richness and its associated values are sustained within the DFA.</p> <p><u>Objective 1.4:</u> Biological and culturally significant areas are identified and management strategies appropriate to their long-term maintenance are implemented.</p>
Background and Description	<p>While ecosystem conservation is the coarse-filter approach to biodiversity management, species diversity is the fine-filter approach. For most species, forest managers can influence habitat only, not species populations. To account for unique features in the DFA that are important for biodiversity and habitat protection. This indicator looks at the proper execution of operational plans where those plans contain management strategies for sites of biological significance.</p> <p>Canfor participates in higher level and strategic planning that has helped delineate a series of protected areas (e.g., parks, ecological reserves). This achieved the geographic and ecological goals of provincial Protected Areas Strategies (PAS), providing representation of the cross-section of ecosystems and of old forest attributes. Ecosystems of special biological significance have generally been given a high priority for inclusion in the protected area strategy. Timber harvesting, mining and hydroelectric development are usually not permitted within protected areas and other resource development activities, such as grazing and commercial tourism development, are permitted only in specified areas and under strict guidelines. At the stand level, sites of biological significance can include fisheries sensitive features (e.g. waterfalls, staging area, spawning area); significant mineral licks and wallows; bird stick nests (e.g. Bald Eagle, Osprey, Great Blue Heron, Goshawk); bat hibernating and roosting areas; dens (e.g. bear, fisher, wolverine); hot springs; goat cliff and avalanche chutes. Unique areas of biological significance are identified in the field during the planning phase and are managed through avoidance (either by relocating the road and/or harvest area or by protecting it with a wildlife tree retention area) or using an appropriate conservation management strategy such as timing of harvest.</p> <p>Canfor includes commitments in site/logging plans to ensure activities do not compromise these sites of biological significance.</p>
Strategy	<p>Government’s policy and legally established framework for the protection of biodiversity values and species at risk under provincial and federal legislation includes the establishment of parks and protected areas, as well as the protection of biodiversity, riparian and aquatic habitats, old-growth forests, ungulate winter range, specific wildlife features and the habitat for listed species at risk.</p> <p>Canfor accesses available spatial data layers such as parks and protected areas, ungulate winter ranges etc. in their development planning efforts. Non-spatial information pertaining to unique riparian, wildlife or geological features identified in the Vanderhoof LRMP are also considered when planning development activities. Where applicable, this information is brought forward into operational plans to ensure roads and harvest activities do not compromise protected areas or sites of biological significance. Management strategies might include plans for road deactivation or rehabilitation, additional dispersed retention or a unique silviculture regime. Operational plans are then properly executed to provide desired results. Post-harvest evaluations and other applicable post activity forms (e.g., road</p>

	<p>construction or site preparation) assess plan conformance.</p> <p>Specific strategies that may be employed to achieve the objective are:</p> <ul style="list-style-type: none"> • Sites of Biological significance: <ul style="list-style-type: none"> ○ Include training related to the identification and management of sites of biological significance with associated species at risk training provided for employees and contractors who require it; ○ Adherence to strategic level plans such as LRMP's that may identify local sites of biological significance; ○ Adherence to FRPA and associated regulations (e.g., UWR's & WHMA's); ○ Developing & implementing best management practices (eg snags, overstory trees, CWD); and ○ Harvest avoidance and/or incorporation of unique features within retention areas (e.g., ecological reserves, avalanche chutes, mineral licks, denning sites). • Protected areas: <ul style="list-style-type: none"> ○ Pre-harvest status checks to ensure no encroachment on legal and draft protected areas or reserves;and ○ Appropriate strategies are prescribed for development activities in close proximity to protected areas (e.g. no harvest buffers, timing of harvest, road deactivation, etc.)
Current Status	The current status for this indicator is 100% for the 2011-12 reporting period.
Forecast	Protected areas and unique sites of biological significance are maintained in the DFA.
Target	100% conformance with management strategies.
Basis for the Target	Legal obligations and use of best available information.
Monitoring & Measurement Periodic	
Monitoring & Measurement Annual	Annually report the percentage of instances where post-harvest conditions (or other applicable forest activities) are consistent with plan commitments to manage for Sites of Biological Significance.
Variance	0%

5.7.7 1.4.2 Protection of identified sacred and culturally important sites; 6.2.1 Evidence of understanding and use of Aboriginal knowledge through the engagement of willing Aboriginal communities, using a process that identifies and manages culturally important resources and values

Indicator	1.4.2 Protection of identified sacred and culturally important sites 6.2.1 Evidence of understanding and use of Aboriginal knowledge through the engagement of willing Aboriginal communities, using a process that identifies and manages culturally important resources and values
Indicator Statement(s)	9 - % of identified Aboriginal and non-Aboriginal heritage forest values, knowledge and uses considered in the forestry planning processes (CI - 1.4.2 and CI – 6.2.1)
Element(s)	1.4 Protected Areas and Sites of Special Biological and Cultural Significance 6.2 Respect for Aboriginal Forest Values, Knowledge and Uses
Value(s) and Objective(s)	<u>Value 1.1:</u> Biological and cultural richness and its associated values are sustained within the DFA. <u>Objective 1.4:</u> Biological and culturally significant areas are identified and management strategies appropriate to their long-term maintenance are implemented. <u>Value 6.2:</u> Forest management sustains cultural, health and capacity benefits that Aboriginal people derive from forest resources. <u>Objective 6.2:</u> Forest management conserves the unique or significant cultural features within the DFA.
Background and Description	Open communication with local Aboriginal groups, stakeholders and members of the public help to ensure that areas of cultural importance are managed in a way that retains their traditions and values. This indicator recognizes the importance of managing and protecting culturally important resources during forestry operations. Aboriginals and non-Aboriginals, with the benefit of traditional, local and historic knowledge, may provide valuable information concerning the specific location and use of these sites as well as the specific forest characteristics requiring protection or management. The intent of the indicator is to manage and/or protect those truly important sites made known or identified. All First Nation’s with asserted traditional territory overlapping the DFA have had the opportunity for participation and input in the SFM planning process. Forest Stewardship Plans depicting the results and strategies to be utilized to guide forest management operations are provided to Aboriginals, stakeholders and members of the public, for review and input. In addition, Canfor provides site level information sharing opportunities to those First Nations whose traditional territory may potentially be impacted by proposed development activities. Soliciting Aboriginal and stakeholder input enables Canfor to understand and incorporate traditional and historic knowledge into their forest management planning efforts.
Strategy	Aboriginal input and field staff observations serve to identify potential Cultural Heritage Resource (CHR) values that can be further assessed by an archaeologist or qualified professional. Canfor utilizes an accepted Archaeological Predictive Model to assess the likelihood that a given area (harvest area or road corridor) has the potential to contain CHR features. Where development activities are proposed within zones of high archaeological potential, generally an Archaeologist conducts site-level archaeological evaluations to identify, assess and record any archaeological resources that may be present. Field staff and layout contractors undertake appropriate CHR training to identify record and report features during site level development activities. Where warranted, mitigative measures to conserve

	<p>identified features are incorporated into subsequent site level plans. Cultural Heritage Resource or historic features (non-archaeological protected sites) are also recorded and mitigative recommendations proposed as warranted (e.g., historic trapper cabins, trails, post-1846 CMTs etc). Related site level plans containing appropriate management strategies are then properly executed to provide the desired results. Post-harvest evaluations and other inspections assess plan conformance.</p> <p>Information sharing records are kept for each block / road, including: the Aboriginal(s) or non-Aboriginal(s) involved; the comments received and any mitigative measures; strategy adjustment; or accommodation made as a result of the related information sharing.</p>						
Current Status	<p>The following table displays the % of identified Aboriginal and non-Aboriginal heritage forest values, knowledge and uses considered in the forestry planning processes in the DFA (2011 Baseline data).</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>2008/09 Status</th> <th>2009/10 Status</th> <th>2010/11 Status</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">100%</td> <td style="text-align: center;">100%</td> <td style="text-align: center;">100%</td> </tr> </tbody> </table>	2008/09 Status	2009/10 Status	2010/11 Status	100%	100%	100%
2008/09 Status	2009/10 Status	2010/11 Status					
100%	100%	100%					
Forecast	Open and meaningful information sharing with local Aboriginals and non-Aboriginals resulting in the identification and protection of culturally important and historic resources values in the DFA. Forest plans contain appropriate strategies on how these sites will be managed or protected.						
Target	100%						
Basis for the Target	Legal obligations, past performance and alignment with SFM Commitments.						
Monitoring & Measurement Periodic							
Monitoring & Measurement Annual	<p>Maintain a record (spatial and appropriate contact information) of the First Nation asserted traditional territories and other stakeholders that overlap the DFA for the purpose of information exchange related to proposed development activities and soliciting input relative to culturally important and historic resources values that may potentially be impacted. Undertake information sharing and track input received that demonstrates development activities were shared/discussed with Aboriginal and non-Aboriginal communities. Record the identified (by First Nations, stakeholders, staff or contractors) Aboriginal and non-Aboriginal heritage forest values, knowledge and uses that require specific management or protection. Record management strategies etc. in site level or other plans that specifies how these values will be managed.</p> <p>Report:</p> <p>Where Aboriginal and non-Aboriginal heritage forest values are identified in a development area, report the instances where site level or other plans specified management consideration of the value.</p>						
Variance	0%						

5.7.8 2.1.1 Reforestation success

Indicator	2.1.1 Reforestation success
Indicator Statement(s)	10 - Average regeneration delay for stands established annually (CI - 2.1.1 and CI – 4.1.1(b))
Element(s)	2.1 Forest Ecosystem Resilience 4.1 Carbon Uptake and Storage
Value(s) and Objective(s)	<p><u>Value 2.1:</u> The productive capability of forest ecosystems within the Timber Harvesting Land Base is sustained. <u>Objective 2.1:</u> Post harvest regeneration on the DFA is sustained.</p> <p><u>Value 4.1:</u> Forest ecosystem contributions to global ecological cycles are sustained within the DFA. <u>Objective 4.1:</u> Maintain forest conditions that take carbon from the atmosphere and store it in forest ecosystems.</p>
Background and Description	<p>Prompt reforestation of harvested areas is a major component of sustainable forest management. Ensuring that a diversity of tree species is maintained improves ecosystem resilience and productivity and positively influences forest health.</p> <p>Prompt reforestation maintains the productive capacity of the forest land base and ensures a healthy and productive forest that is capable of sequestering and storing carbon. Young plantations are typically healthy and rapidly growing so they sequester more CO₂ through photosynthesis than they release through decay. By reducing atmospheric greenhouse gases such as CO₂, regenerating cut blocks can contribute to reducing climate change. The sooner cut blocks are regenerated after completion of harvest the sooner this process can begin.</p> <p>Canfor’s carbon strategy will be:</p> <ul style="list-style-type: none"> • Maintain the target non-pine old growth on the land base for carbon storage; • Prompt reforestation of harvest areas for carbon uptake; • Minimize permanent access structures to maintain forest productivity for carbon uptake; and • Focus annual harvest efforts, in the short-term, on the salvage of beetle-killed pine-leading timber types (rehabilitation of areas affected by MPB). <p>Canfor will report on the target within this indicator (average regeneration delay for stands established annually) as well as related indicators and targets for forest land conversion, retention of old non-pine forest and focusing harvest efforts on the salvage of beetle-killed pine stands. Collectively, these indicator statements and targets demonstrate commitment to positively influence carbon balance within the DFA.</p> <p>Canfor will continue to monitor developments in carbon sequestration modeling both at the provincial and regional levels in continual improvement efforts associated with the SFM Plan.</p>
Strategy	<p>Forest Stewardship Plans (FSP’s) set out the stocking standards that relate to site level planning (i.e. Site Plans). Regeneration delay is the time allowed between the start of harvesting and the date by which a minimum number of acceptable, well-spaced trees per hectare are established in the harvested area. The acceptable tree species by standard unit (ecologically based site specific units) and the maximum permissible time allowed to achieve this standard is detailed within the FSP stocking standards (approved by government). The NAR is the area of a cut block that must be reforested, and does not include permanent access structures, wildlife tree patches, and natural non-productive area (e.g., rock, wetlands). Canfor is legally required to achieve regen delay by the date specified (in the standards above) on the NAR of all harvested cut blocks. Either planting quality assessments</p>

	or post-planting regeneration surveys are completed to ensure adequate stocking of harvested blocks. Silviculture treatment regimes and plans schedule activities consistent with established key dates contained within plans.				
Current Status	<p>The following table summarizes Canfor performance to date specific to regeneration delay (2011 Baseline data).</p> <table border="1" data-bbox="483 380 1274 470"> <thead> <tr> <th>Year</th> <th>Average years to declare regeneration delay met following the start of harvesting.</th> </tr> </thead> <tbody> <tr> <td>2011</td> <td>1.93</td> </tr> </tbody> </table>	Year	Average years to declare regeneration delay met following the start of harvesting.	2011	1.93
Year	Average years to declare regeneration delay met following the start of harvesting.				
2011	1.93				
Forecast	Prompt reforestation ensures maintenance of the productive capacity of forest land base in the DFA. Actively growing, healthy forests will best contribute to carbon uptake and storage and positively contribute to a reduction in carbon emissions.				
Target	Regeneration established in 3 years or less.				
Basis for the Target	This target promotes prompt reforestation and meets or exceeds legal requirements outlined in legislation. Early establishment of a viable crop of trees reduces the need for subsequent interventions (e.g., fill-planting, brushing) and positively contributes to carbon sequestration.				
Monitoring & Measurement Periodic					
Monitoring & Measurement Annual	Monitoring requires tracking the harvest commencement date of all Standards Units / cut blocks and the date that regeneration delay was declared. Entering and tracking this data in databases will allow for yearly reporting of the weighted average (by area) regeneration delay (in years) for all blocks on which regeneration delay is declared within the reporting period.				
Variance	+1 year				

5.7.9 2.2.1 Additions and deletions to the forest area

Indicator	2.2.1 Additions and deletions to the forest area
Indicator Statement(s)	11 - Percentage of gross forested land base in the DFA converted to non-forest land use through forest management activities (CI – 2.2.1 and CI – 4.1.1(c) and CI – 4.2.1)
Element(s)	2.2 Forest Ecosystem Productivity 4.1 Carbon Uptake and Storage 4.2 Forest Land Conversion
Value(s) and Objective(s)	<u>Value 2.2:</u> Forest ecosystem contributions to global ecological cycles are sustained within the DFA. <u>Objective 2.2:</u> Amount of productive forest land and road in the THLB. <u>Value 4.1:</u> Forest ecosystem contributions to global ecological cycles are sustained within the DFA. <u>Objective 4.1:</u> Maintain forest conditions that take carbon from the atmosphere and store it in forest ecosystems. <u>Objective 4.2:</u> Amount of productive forest land and road in the THLB.
Background and Description	<p>Given the crown forest land ownership and associated forest tenure structure in Canada, forest companies generally have little influence over additions to or deletions from the forest area, which generally are a result of government land use objectives. Where companies can have an influence is through their practices, particularly as it pertains to permanent access structures within the DFA. A permanent access structure is defined as a structure, including roads, bridges, landings, gravel pits or other similar structures that provides access for timber harvesting, silviculture, recreation, forest health, etc. The amount of area permanently lost to permanent access structures varies depending on the harvest system, season of harvest, topography and road building standards. The target for this indicator is focused on those activities where forest companies have direct control (i.e. excludes other permanent losses resulting from other industries sharing the overall forest estate). The percentage of gross forested land base in the DFA that is converted to non-forest land use through forest management activities is anticipated to increase over time until the road infrastructure in the timber harvesting land base is fully developed. As such, a periodic review of the associated targets will be necessary over time.</p> <p>Canfor’s carbon strategy will be:</p> <ul style="list-style-type: none"> • Maintain the target non-pine old growth on the land base for carbon storage; • Prompt reforestation of harvest areas for carbon uptake; • Minimize permanent access structures to maintain forest productivity for carbon uptake; and • Focus annual harvest efforts, in the short-term, on the salvage of beetle-killed pine-leading timber types (rehabilitation of areas affected by MPB). <p>Canfor will continue to report on the target within this indicator (percent of gross forested land base in the DFA converted to non-forest land use through forest management activities) as well as related indicators and targets for regeneration delay, retention of old non-pine forest and salvage efforts. Collectively, these indicator statements and targets demonstrate commitment to positively influence carbon balance within the management unit.</p> <p>Canfor will continue to monitor developments in carbon sequestration modeling both at the provincial and regional levels in continual improvement efforts associated with the SFM Plan.</p> <p>The gross forested land base (GFLB) includes:</p> <ul style="list-style-type: none"> • The timber harvesting land base (THLB); • Additional forested area not contributing to the cut (NTHLB);

	<ul style="list-style-type: none"> Naturally non-productive areas (NP Nat) (e.g. swamps, rock); and Adjacent Parks & Protected Areas; <p>The gross forested land base does not include:</p> <ul style="list-style-type: none"> Private land; Reserve land; or Water bodies. 									
Strategy	<p>Reductions to the gross forest land base due to permanent access structures resulting from forest management activities can be minimized by:</p> <ul style="list-style-type: none"> Careful total chance access planning to minimize the amount of permanent access structures; Using proper road construction, maintenance, deactivation and rehabilitation procedures; Minimizing the width of roads necessary to safely extract timber from an area; Specifying performance measures in operational plans which include proposed and maximum permanent access area and percent as well as overall road widths; Conducting pre-works to communicate road construction expectations and allowable levels of permanent access structures specified in operational plans; and Conducting harvesting inspections to assess consistency with specifications outlined in pre-works and operational plans. <p>Proposed permanent access structures are calculated and included in site plans and/or logging plans. Post-harvest evaluations and other inspections assess plan conformance.</p>									
Current Status	<p>The following table identifies the percentage of gross forested land base in the DFA converted to non-forest land use through forest management activities (2011 baseline data).</p> <table border="1"> <thead> <tr> <th>Gross Forest area = 870,701 ha.</th> <th>Current Status²</th> <th>Future Status¹</th> </tr> </thead> <tbody> <tr> <td>Permanent Access Structures (Ha.)</td> <td>20,087 ha.</td> <td>22,751</td> </tr> <tr> <td>PCT of Gross Forest Area</td> <td>2.3%</td> <td>2.61%</td> </tr> </tbody> </table> <p>¹ Future roads are permanent access structures that will constructed in approximately the next five years.</p> <p>² Based on Timberline²⁸ road study. An average of 533 ha of roads are built per year</p>	Gross Forest area = 870,701 ha.	Current Status ²	Future Status ¹	Permanent Access Structures (Ha.)	20,087 ha.	22,751	PCT of Gross Forest Area	2.3%	2.61%
Gross Forest area = 870,701 ha.	Current Status ²	Future Status ¹								
Permanent Access Structures (Ha.)	20,087 ha.	22,751								
PCT of Gross Forest Area	2.3%	2.61%								
Forecast	<p>Productive forest soils with minimized losses in forest productivity and the productive forest area resulting from the construction and maintenance of permanent access structures. Permanent access structure area (percent non-productive unnatural) is utilized in the provincial Timber Supply Review.</p>									
Target	<p>Less than 3.3% of gross forested land base in the DFA.</p>									
Basis for the Target	<p>The target focuses on deletions to the productive forest land base, which forest managers have direct management responsibility for. It provides an overall DFA performance measure, evaluating productive land base losses when accessing harvest areas and losses within harvest areas. The target is inclusive of forests that are not part of the THLB.</p> <p>The indicator in the previous version of this SFMP focused on the THLB and used this area as</p>									

²⁸ Reference: Roads, Trails and Landings Inventory Project within the Vanderhoof Forest District, 2003. FIA Project # 2668026. Prepared by: Timberline Forest Inventory Consultants Ltd.

	<p>the denominator. Because areas outside the THLB contribute to ecosystem productivity, the denominator for this indicator uses the gross forest area. The target from the original indicator (4.2%) was multiplied by the ratio of the THLB/Gross Forest Area to calculate the target for the current indicator ($690,324 \text{ ha} / 870,701 \text{ ha} \times 4.2\% = 3.3\%$).</p> <p>The current status for this indicator was calculated by determining the area of permanent access structures within the DFA relative to the total gross forest area of the DFA. It is expected that the percentage of the gross forest land base that is converted to permanent access structures will decrease as the road infrastructure in the DFA becomes fully developed. Periodic evaluation of the target will be necessary to ensure that targets are still meaningful.</p>
<p>Monitoring & Measurement Periodic</p>	<p>Permanent access structures as a percent are utilized in provincial Timber Supply Review forecasts.</p> <p>Report the percentage of gross forested land base in the DFA converted to non-forest land use through forest management activities periodically every 5 years. Calculate the area of the Gross Forested Land Base in the DFA and the area of existing permanent access structures (permanent roads, landings, borrow pits, rock quarries and permanent camps). If rehabilitated, permanent access structures should be included as part of the gross forested land base.</p>
<p>Monitoring & Measurement Annual</p>	<p>None</p>
<p>Variance</p>	<p>-0.25%</p>

5.7.10 2.2.2 Proportion of the calculated long-term sustainable harvest level that is actually harvested

Indicator	2.2.2 Proportion of the calculated long-term sustainable harvest level that is actually harvested
Indicator Statement(s)	12 - Percent of volume harvested compared to allocated harvest level (CI - 2.2.2 and CI 5.1.1(a))
Element(s)	2.2 Forest Ecosystem Productivity 5.1 Timber and Non-timber Benefits
Value(s) and Objective(s)	<u>Value 2.2:</u> Forest ecosystem contributions to global ecological cycles are sustained within the DFA. <u>Objective 2.2:</u> Amount of productive forest land and road in the THLB. <u>Value 5.1:</u> The flow of timber benefits from forests is sustained. <u>Objective 5.1:</u> The amount of timber benefits does not decline over time.
Background and Description	<p>For many, sustainability involves limiting actual timber harvest to levels within the long-term capability of the forest to grow wood. To track this, managers need data on both harvest levels and long-term production capability to make proportional calculations. In many locations, it also requires an understanding of the nature of the transition of forests from harvesting old growth to harvesting second growth. In practice, only the actual harvest level can be physically measured. The amount of wood that can be produced in perpetuity from a forest is a theoretical calculation that depends not only on the inherent wood-growing capacity of the forest ecosystem but also on the kinds and intensities of management inputs (e.g., silvicultural treatments).</p> <p>Because the latter inputs are under human control, a forest can have a wide range of potential long-term sustainable wood harvest levels. One strategy to ensure the wood growing capacity of forests is fully recognized is to retain it in a productive state. Other core indicators that directly measure this are 2.2.1 (additions and deletions to the forest area) and 2.1.1 (reforestation success).</p> <p>Timber supply is usually considered within the context of three relative timeframes — short-term, medium-term and long-term. The short-term is typically represented by the first two decades of the harvest forecast and reflects the period in which the scheduled harvest level is defined by immediate concerns of achieving socio-economic objectives and maintaining non-timber values. The medium-term corresponds to the transition from harvesting mostly old growth to harvesting managed stands. The long-term is the period that begins approximately when the harvest reaches the long-term harvest level.</p> <p>Guidance in developing harvest flow objectives is taken from the current economic and social objectives of the Crown. In the short-term, there is often a desire by government to retain the continued availability of good forest jobs and the long-term stability of communities that rely on forests. At the same time, harvest levels in the short-term must not compromise long-term sustainability.</p> <p>In general, a reasonable flow pattern provides for a managed and gradual transition from short-term to medium- and long-term harvest levels, and avoids large and abrupt disruptions in timber supply. A reasonable flow has a medium-term level that drops below the long-term level to the minimum extent and only if justified. The long-term level should provide an even level of growing stock over the long-term.</p> <p>Initial harvest levels are used by government decision makers in determining the allowable annual cut (AAC). The harvest level is set using a rigorous process that considers social, economic and biological criteria.</p>

<p>Strategy</p>	<p>Canfor contributes to the sustainable harvest level by managing to the determined harvest level for the management unit or in some cases by adhering to their apportioned harvest volume within the TSA. Cut control regulations dictate the short-term harvest flexibility. Essentially, Canfor has flexibility on harvest levels from year to year but must balance every five years or less if desired. There is also flexibility in the amount of volume harvested within the Forest Districts located in the Prince George TSA as the cut control regulation applies to the TSA not to the Vanderhoof District or the Vanderhoof DFA.</p> <p>Currently, Canfor’s replaceable Forest License in the DFA has an AAC apportionment of 1,147,443 m³ and the five year cut control is from 2012 to 2017. This volume is what is currently planned to be harvested on Canfor’s DFA.</p> <p>The volume harvested from the DFA will be tracked, compared to the target volumes, and reported. Harvest plans will be adjusted, as necessary, while considering other forest values to meet the target.</p>																								
<p>Current Status</p>	<p>BC data from most current AAC rationale http://www.for.gov.bc.ca/hts/tsas.htm</p> <p>Short and long-term harvest flows that reflect forest conditions, forest practices, and the socio-economic objectives of the Crown. Timber Supply Review has detailed timber supply forecasts which then rely on the Chief Forester to provide a determination of harvest levels utilizing forecast information, Crown objectives and input from the public.</p> <p>The latest timber supply review for the Prince George TSA (in which this DFA is contained) was determined on January 11th, 2011. The review indicated the new AAC for the Prince George TSA is 12.5 million cubic metres, including the following partitions:</p> <ul style="list-style-type: none"> • a maximum of 3.5 million cubic metres attributable to non-pine species, and non-cedar and non-deciduous leading stands; • a maximum of 23,000 cubic metres attributable to cedar-leading stands; and • a maximum of 160,000 cubic metres attributable to deciduous-leading stands in the Prince George and Fort St. James Forest Districts. <p>In addition to these partitions, it is expected that a maximum of 875,000 cubic metres per year come from spruce-leading stands. This AAC will remain in effect until a new AAC is determined, which may take place within 10 years of this determination unless postponed in accordance with Section 8(3.1) of the <i>Forest Act</i>.</p> <p>More information on the timber supply review can be found at: http://www.for.gov.bc.ca/hts/tsa/tsa24/</p> <p>The following graph shows the percentage volume that has been harvested from 2007 to 2011 and the percentage volume that is planned to be harvested in 2012 and 2013 compared to the target and variance volumes. Note targets and variance for 2007 to 2011 was based on the previous version of the Vanderhoof SFMP, while 2012 and 2013 use the current target and variance.</p> <div data-bbox="427 1507 1425 1822"> <p style="text-align: center;">Yearly Current and Forecasted Volume compared to Target and Variance (2012 and 2013 based on forecast)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>2006 - 2007</th> <th>2007 - 2008</th> <th>2008 - 2009</th> <th>2010 - 2011</th> <th>2011 - 2012</th> <th>2012 - 2013</th> <th>2013 - 2014</th> </tr> </thead> <tbody> <tr> <td>Pct of target</td> <td>21.1%</td> <td>40.8%</td> <td>57.8%</td> <td>74.5%</td> <td>91.3%</td> <td>24.5%</td> <td>48.9%</td> </tr> <tr> <td>Pct of target and variance</td> <td>16.9%</td> <td>32.8%</td> <td>46.5%</td> <td>60.0%</td> <td>73.5%</td> <td>20.0%</td> <td>40.0%</td> </tr> </tbody> </table> </div> <p>The monitoring results from the above graph will be used as baseline data for the percent of volume allocated compared to the actual harvest level.</p>		2006 - 2007	2007 - 2008	2008 - 2009	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	Pct of target	21.1%	40.8%	57.8%	74.5%	91.3%	24.5%	48.9%	Pct of target and variance	16.9%	32.8%	46.5%	60.0%	73.5%	20.0%	40.0%
	2006 - 2007	2007 - 2008	2008 - 2009	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014																		
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Forecast	See the graph in the above section for the forecast.
Target	Canfor - 100% (5,737,215 m ³) over the cut control period (2012 – 2017).
Basis for the Target	Canfor - For the purposes of this indicator the proportionate share for the Vanderhoof DFA from the AAC for the PG TSA as a whole was calculated to be 1,147,443 m ³ annually with an estimated volume of 5,737, 215m ³ for the cut control period. This will serve the basis for the target.
Monitoring & Measurement Periodic	The schedule for subsequent Timber Supply Reviews for the Prince George TSA can be found at: http://www.for.gov.bc.ca/hts/schedule.htm .
Monitoring & Measurement Annual	Report the actual volume harvested annually and the cumulative volume during the cut control period.
Variance	Canfor – Based on the Cut Control Regulation and Policy +/-10%, or 573,215 m ³ (based on the 5-year cut control period)

5.7.11 3.1.1 Level of soil disturbance

Indicator	3.1.1 Level of soil disturbance
Indicator Statement(s)	13 - Percent of harvested blocks meeting legal soil disturbance objectives (CI - 3.1.1(a))
Element(s)	3.1 Soil Quality and Quantity
Value(s) and Objective(s)	<u>Value 3.1:</u> The productive capability of forest ecosystems within the Timber Harvesting Land Base is sustained. <u>Objective 3.1:</u> Soil productivity within the Land Base is sustained.
Background and Description	<p>The objectives of soil conservation under British Columbia’s Forest and Range Practices Act (FRPA) includes:</p> <ul style="list-style-type: none"> • Limiting the extent of soil disturbance caused by harvesting and silviculture activities that negatively affect the physical, chemical and biological properties of soil; and • Conducting forest practices in a manner that addresses the inherent sensitivity of a site to soil degrading processes to minimize soil disturbance, landslides, soil erosion and sediment delivery to streams. <p>The objective of placing limits on the amount of soil disturbance allowed within the “Net Area to be Reforested” (NAR) is to ensure that site productivity is maintained and that impacts to other resource values are prevented or mitigated. Net Area to be Reforested (NAR) is defined as the area which Canfor is legally obligated to regenerate to free growing status (e.g., gross harvest area minus deletions for permanent roads, landings, gravel pits, wildlife tree patches, etc.). Harvesting and silviculture activities must be carried out such that the total amount of soil disturbance at any time during operations does not exceed the specified maximum (BCMOF 2001). Objectives set by the provincial government for soils, as well as associated practice requirements specific to soil disturbance limits, are outlined in the Forest Planning and Practices Regulation (FPPR).</p> <p>Soil Disturbance types and related categories is a general term and can include temporary access structures, corduroyed trails, compacted areas and dispersed disturbance (dispersed trails, gouges, and scalps). Soil disturbance can have positive (mineral soil exposure for seed germination) or negative (soil compaction) impacts. Managing the detrimental soil disturbance levels will help to retain the productive capacity of ecosystems. Soil compaction, displacement and erosion are components of potentially detrimental soil disturbance. These targets seek to manage soil disturbance levels caused by harvesting and silviculture operations.</p>
Strategy	<p>Site information detailing soil hazards is collected during site level planning (e.g., assess slopes, soil textures, soil moisture regimes and organic matter content). This information is then used for the identification and delineation of allowable levels of soil disturbance within the net area to reforest for harvesting and silviculture activities. Soil disturbance objectives are written into site plans by committing to the maximum planned levels of soil disturbance for standard units and roadside work areas. Prior to the commencement of harvesting activities, pre-works are completed, which include a review of applicable soil disturbance targets in the site plan. Harvest operations are conducted in a way, and during times of the year, that ensures commitments can be achieved. Monitoring throughout harvesting activities and final inspections assess (and report) conformance to the targets within the Site Plan. Soil conservation training is also periodically undertaken to increase soil conservation awareness among harvesting and silviculture contractors.</p>

Current Status	<p>The following table shows the status from 2009 to 2011 for the percent of harvested blocks meeting legal soil disturbance objectives.</p> <table border="1" data-bbox="587 275 1265 333"> <thead> <tr> <th data-bbox="587 275 813 302">2008/09 Status</th> <th data-bbox="813 275 1039 302">2009/10 Status</th> <th data-bbox="1039 275 1265 302">2010/11 Status</th> </tr> </thead> <tbody> <tr> <td data-bbox="587 302 813 333">100%</td> <td data-bbox="813 302 1039 333">98.4%</td> <td data-bbox="1039 302 1265 333">100%</td> </tr> </tbody> </table>	2008/09 Status	2009/10 Status	2010/11 Status	100%	98.4%	100%
2008/09 Status	2009/10 Status	2010/11 Status					
100%	98.4%	100%					
Forecast	Soil productivity is maintained by minimizing potential negative impacts from forest operations.						
Target	100%						
Basis for the Target	Maintenance of site productivity is a core prerequisite for achieving sustainability. Minimizing detrimental soil disturbance will help to retain the productive capacity of the land base.						
Monitoring & Measurement Periodic							
Monitoring & Measurement Annual	<p>Canfor harvest and/or silviculture inspections in conjunction with those undertaken by the contractor will monitor and measure soil disturbance levels during active operations. Final harvest and site prep inspections will indicate if the soil disturbance targets stated in the Site Plan were met through an ocular survey. If the initial ocular estimate indicates that site disturbance limits may have been exceeded, a transect soil disturbance survey (as defined in the Soil Conservation Survey Guidebook) will be completed on the site to determine if the limits have actually been exceeded and if rehabilitation work is required. Where non-conformances are identified, they will be entered into an incident tracking system and used as the basis for reporting.</p> <p>Report the number of cut blocks where soil disturbance commitments were achieved as compared to the total number of cut blocks that were harvested during the reporting year. The annual report will provide a description of any corrective actions where this indicator falls below the target.</p>						
Variance	-5%						

5.7.12 3.1.2 Level of downed woody debris

Indicator	3.1.2 Level of downed woody debris
Indicator Statement(s)	14 - Percent of harvested blocks audited where post harvest CWD BMP's are followed (CI - 3.1.2)
Element(s)	3.1 Soil Quality and Quantity
Value(s) and Objective(s)	<u>Value 3.1:</u> The productive capability of forest ecosystems within the Timber Harvesting Land Base is sustained <u>Objective 3.1:</u> Soil productivity within the Land Base is sustained
Background and Description	<p>This indicator and target addresses the need to manage for Coarse Woody Debris (CWD) given its importance as a stand attribute and component of stand-level biodiversity. CWD typically includes sound or rotting logs, stumps, or large branches that have been fallen or been cut and left in the woods, or trees and branches that have died but remain standing or leaning. For operational purposes, CWD is defined as material greater than 10cm in diameter, in all stages of decay. CWD plays numerous functional roles in natural and managed forests and aquatic ecosystems including: providing feeding, breeding and shelter substrate for many organisms; providing habitat for many forest plants, animals and microorganisms; providing a nutrient source and growing substrate for various bacteria and fungi; carbon storage; erosion control; microclimates for seedling establishment; shelter and access routes for small mammals; and influencing slope and stream geomorphology. Guiding principles related to CWD management include: minimizing CWD accumulations on landings and roadside; larger pieces are more valuable than smaller pieces; ecologically, it is advantageous to maintain the full range of decay and diameter classes of CWD; coniferous material lasts many times longer than deciduous material; CWD can be managed in conjunction with wildlife trees and other constrained or reserve areas; manage the composition and arrangement of CWD within acceptable levels of risk of wildfire, insect pest and forest disease outbreaks; and harmonize the retention of CWD with silviculture objectives. This indicator is complimented by Indicator 1.1.4: degree of within-stand structural retention.</p> <p>Potential sources of CWD in managed stands can include the following:</p> <ul style="list-style-type: none"> • Logs already lying on the forest floor that are left after harvesting; • Uneconomical wood resulting from harvest operations including breakage, short pieces and tops; • Long-term CWD recruitment may be addressed by leaving reserves and wildlife trees, possibly including cull trees; • Dispersed wildlife trees including green trees, stubbed trees and standing dead trees; and • Retention of standing trees below utilization standards (poles and bigger) as a long-term CWD recruitment source. <p>The following represents a range of Best Management Practices (BMP's) for CWD that will be implemented where these CWD attributes are achievable in harvest openings:</p> <ul style="list-style-type: none"> • To retain standing deciduous trees where operationally feasible; otherwise, left where felled; <ul style="list-style-type: none"> ○ Same as above for Douglas-fir, especially veteran trees; • To leave non-merchantable stems and under-utilization stems on the block; • To retain clumps of viable natural regeneration; • To retain existing CWD in wildlife tree patches and reserve areas will also contribute to the target; • Use of stub trees as anchors to be retained to varying degrees along riparian areas, machine free zones, and other special features;

	<ul style="list-style-type: none"> • Build loosely constructed piles around stubs. Generally, target 1 pile in every 5 ha, in blocks greater than 15 ha, if there are enough features in the harvest area; • Radiate some longer pieces of CWD out from the pile(s); • Retain CWD in clumps; • Keep longer logs intact to the extent possible; and • Jackstraw – haphazard orientation.
Strategy	<p>Objectives and targets specific to CWD will be achieved through the possible application of the following procedures and controls:</p> <ul style="list-style-type: none"> • Conduct periodic training for key licensee staff and contractors (in conjunction with pre-works) specific to CWD management and best management practices (including silviculture); • Adhering to legislative requirements specific to CWD; • Harvesting pre-works and inspections; • Conducting implementation monitoring to assess success of implementation of controls and possible opportunities for improvement; and • Conducting effectiveness monitoring to assess if controls are effective at achieving the desired results. <p>CWD is managed on a rotation basis and, as such, strategies must address recruitment of CWD over the short and long-term.</p> <p>This indicator relies on qualitative rather than quantitative approach to reflect variability in CWD that occurs in natural stands; The strategies are documented in Site Plans / Logging Plans. Inspections will to determine how well BMP's were followed in a given harvested area. Non-conformance and / or non-compliance will be tracked to report the performance in achieving this indicator.</p>
Current Status	2012 baseline data will be used to determine the percentage of harvested blocks where post harvest CWD BMP's are followed.
Forecast	Upon completion of harvesting, piling and site preparation activities, harvested areas will contain a range of standing and downed CWD sizes in a range of decay classes that will deliver a supply of CWD in the short through to the long-term.
Target	100%
Basis for the Target	Legal requirements, "Licensee Coarse Woody Debris Best Management Practices", "Chief Forester's Guidance on Coarse Woody Debris Management", and studies conducted in the DFA on "Post-harvest Monitoring for Coarse Woody Debris and Stand Structural Retention 2008".
Monitoring & Measurement Periodic	Periodic monitoring will be conducted through harvest inspections completed on active operations. Harvest inspections will assess consistency with legal requirements and CWD debris best management practices during active operations. When instances of non-compliance or non-conformance are identified, this will be entered into the licensee specific incident tracking system.
Monitoring & Measurement Annual	On an annual basis, blocks with harvesting completed during the reporting period will be assessed for consistency with CWD Best Management Practices.
Variance	0%

5.7.13 3.2.1 Proportion of watershed or water management areas with recent stand-replacing disturbance

Indicator	3.2.1 Proportion of watershed or water management areas with recent stand-replacing disturbance
Indicator Statement(s)	15 - Sensitive watersheds will have further evaluation and appropriate management strategies implemented (CI - 3.2.1(a)) 16 - In Sensitive Watersheds - the % of drainage structures (with identified water quality concerns) where mitigation strategies are implemented as scheduled (CI - 3.2.1(b))
Element(s)	3.2 Water Quality and Quantity
Value(s) and Objective(s)	<u>Value 3.2:</u> Conserve water resources <u>Objective 3.2:</u> Water resources are sustained by maintaining quality and quantity.
Background and Description	<p>Water quality and quantity can be affected by stand-replacing disturbances (human and natural-caused). The effects are normally highest in the initial post-disturbance years and diminish over time as regenerating forest cover is established. The critical threshold at which the disturbance begins to effect water values varies according to topography, soil properties, vegetation types, and climate. Certain watersheds can be classified as more sensitive to the impacts of disturbance either because of their environmental and climatic attributes or because of their inherent value to aquatic life and communities that are dependent on the water. The peak flow of a watershed can be directly influenced by the amount of area that is recently harvested or otherwise recently disturbed (as in the case of catastrophic beetle impacts within the DFA). These disturbed areas have the potential to accumulate more snow and subsequently deliver more water as the snow melts more rapidly in the spring.</p> <p>Roads and stream crossings in particular also have the potential to negatively impact water quality in a watershed. Canfor takes steps to minimize the risk of drainage structure induced sediment delivery into watercourses. Within sensitive watersheds, local conditions such as soil type, topography, road grade, road construction history and drainage structure type will determine how great a risk a drainage structure is to negatively impact water quality.</p> <p>Indicator 15 is a measure of a select group of watersheds within the DFA that have been identified as sensitive (Triton 2006)²⁹. Sensitive watersheds in the Vanderhoof District were identified using the following criteria:</p> <ul style="list-style-type: none"> • Soil and Terrain Sensitivity (Slope angle, Site and Soil Features, Terrain Class, Highly Erosive Soils); • Hydrologic Sensitivity (ECA, Biogeoclimatic unit (moisture/precipitation regime), Basin type, Area of lake and wetland buffers, Location of lake and wetland buffers, Potential for an elevated water table); • Existing impact Factors (Agricultural area, Urban/residential area, Road density (km/ha), Number of stream crossings, Length of stream harvested, Threatening natural factors (e.g. high summer water temperatures) or identified issues (e.g. slope failures, bank instability)); • Future (10-15 years) Impact Factors (Area of pine ≥ age class 3, Protected areas, Potential for stand retention), and; • Fish Habitat Value (Species present, Listed species or critical habitats, Habitat present, Recreational opportunities, Stocked lakes present, Recreation sites present,

²⁹ Reference: Triton Environmental Consultants Ltd. 2006. Watershed Sensitivity Analysis for the Vanderhoof Forest District (Version 2). June 2006. Unpublished report.

	<p>Aboriginal use or habitat investments).</p> <p>Soil and terrain sensitivity, and hydrologic sensitivity are based on a maximum score of 20, while existing impact factors and future impact factors are based on a maximum score of 18. Having a lower maximum score for the future and existing impact factor categories recognizes that moderate and potentially intensive development can occur in low sensitivity watersheds without a detrimental effect on fish and fish habitat. Conversely, even a limited amount of development in a highly sensitive watershed can result in negative effects on fish and fish habitat. The sum of soil and terrain sensitivity, hydrological sensitivity, and impact factors were used to assign an overall sensitivity classification (high, medium or low) to each basin based on quartiles:</p> <p style="padding-left: 40px;">High sensitivity = upper quartile scores Moderate sensitivity = 2nd and 3rd quartile scores Low sensitivity = 1st quartile scores</p> <p>Similar to overall sensitivity, fish habitat value scores were used to assign an overall value (high, medium or low) to each basin based on quartiles:</p> <p style="padding-left: 40px;">High value fish and fish habitat = upper quartile scores Moderate value fish and fish habitat = 2nd and 3rd quartile scores Low value fish and fish habitat = 1st quartile scores</p> <p>The sensitivity categories (high, moderate, low) were then cross-referenced with fish and fish habitat categories in a simple matrix to assign each basin a priority rank of between 1 and 7. The total basin sensitivity score was then multiplied by the fisheries values score to rank Priority 1 basins (sensitive watersheds).</p> <p>Sensitive watersheds in the Vanderhoof District are listed in the table under “<i>Current Status</i>” below. These watersheds will have further assessment, prior to harvest planning to evaluate potential impacts and where warranted incorporate strategies to mitigate negative impacts on water quality and quantity.</p> <p>Indicator 16 recognizes the importance of identifying high risk drainage structures in those watersheds that were determined to be sensitive. In order to manage the risks to water quality, the target requires that a mitigation strategy be in place for each of the identified structures and that it is being followed. A variety of strategies could be employed for mitigation based on site specific situations. These could include:</p> <ul style="list-style-type: none"> • Ditch blocks; • Sumps; • Silt fences; • Cross drains; • Grass seeding the cut or fill slopes and the road bed; and • Water bars.
<p>Strategy</p>	<p>15: Conduct an inventory of sensitive watersheds and undertake further assessment, prior to harvest planning to evaluate potential impacts and where warranted incorporate strategies to mitigate negative impacts on water quality and quantity. These assessments could include watershed sensitivity assessment, stream quality crossing index survey (Indicator 3.2.1(b)), height performance of regenerating stands, road inspections, channel stability assessment, or other suitable assessment as determined by the qualified professional.</p> <p>16: Conduct an inventory of high hazard drainage structures within sensitive watersheds and develop a mitigation strategy for each of the structures. Action plans with respect to the identified drainage structures will be implemented and monitored.</p>

Current Status

15: The following table identifies the current status and future state of the Peak Flow Index (PFI) on sensitive watersheds in the DFA. (2012 Baseline data).

Watershed	Watershed Area (Ha.)	Current Area - Dead Pine Types	Current Dead Pine PFI	Future Area - Dead Pine Types	Future Dead Pine PFI
BABLWSD000089	3,309.5	891.8	26.9%	869.8	26.3%
BIG BEND CREEK	14,214.9	6,137.4	43.2%	5,983.3	42.1%
CHESWSD000002	11,989.6	6,412.5	53.5%	6,341.3	52.9%
CHESWSD000016	9,787.3	3,661.6	37.4%	4,332.8	44.3%
CORKSCREW CREEK	7,111.4	2,313.1	32.5%	2,260.2	31.8%
CUTOFF CREEK	7,561.9	3,342.7	44.2%	3,209.0	42.4%
EUCLWSD000012	5,923.7	1,757.2	29.7%	1,757.2	29.7%
FINGER CREEK	13,501.0	5,264.5	39.0%	5,116.0	37.9%
GREER CREEK	18,703.6	6,398.3	34.2%	6,359.9	34.0%
LAVOIE CREEK	4,334.9	1,947.8	44.9%	1,905.7	44.0%
LUCAS CREEK	14,794.0	5,567.6	37.6%	5,351.1	36.2%
ORMOND CREEK	18,427.1	7,881.1	42.8%	7,890.1	42.8%
SWANSON CREEK	7,705.7	2,779.5	36.1%	2,695.9	35.0%
TAHULTZU CREEK	8,746.9	1,741.8	19.9%	1,694.5	19.4%
TAIUK CREEK	10,219.6	4,515.0	44.2%	4,389.5	43.0%
UEUTWSD000040	8,284.7	2,656.7	32.1%	2,616.1	31.6%

The current and future peak flow was calculated as follows:

- The inventory is projected to the current year using an estimate of 0.30m growth per year;
- Highways are buffered to 10m, Forest Service Roads (FSR) and mainlines are buffered to 7.5m and block roads are buffered to 5m. All buffers are set to 0% hydrologic recovery;
- For harvested cut blocks, the estimated recovery is based on the height of the crop trees that have been established (0-3m tree height 0%, 3m to 5m tree height 25%, 5m to 7m 50%, 7m to 9m 75%, greater than 9m 100%);
- The area of harvesting above the H₆₀ Line (the upper 60% of a watershed (by area)) is multiplied by 1.5; and
- Dead pine stand recovery is based on the pine percentage in the stand (Greater than 70% = 50%, 31 to 70% = 80%).

The future state is estimated based on planned blocks being harvested in sensitive watersheds that are scheduled for harvest by the end of 2013. These blocks are assumed to be harvested with a 0% recovery.

16: Mitigation strategies are developed and implemented for 100% of high risk drainage structures in sensitive watersheds.

2008/09 Status	2009/10 Status	2010/11 Status
91%	95.4%	100%

Forecast	Acceptable levels of water quality (clean water) and quantity (maintain stream-flow regimes within the range of natural variation) are maintained. Riparian systems will support human and ecological communities and aquatic life. Introduction of sedimentation into watercourses is minimized.
Target	15: 100% of Sensitive Watersheds will have further evaluation and appropriate management strategies implemented. 16: In Sensitive Watersheds, 100% of drainage structures with identified water quality concerns have mitigation strategies implemented as scheduled.
Basis for the Target	Places emphasis and resources on most sensitive and high risk areas. Ensures focused assessment of watershed conditions and drainage structures.
Monitoring & Measurement Periodic	Fisheries sensitive watersheds may become legally established in the Vanderhoof District in the short-term. If a new selection of watersheds is identified, this plan will be updated in accordance with the legislated designation of watersheds. Measurements and analysis may need to occur on the new set of watersheds.
Monitoring & Measurement Annual	15: Report the number of blocks harvested within sensitive watersheds that have had further evaluation and post-harvest conditions are consistent with management strategies prescribed to mitigate potential negative impacts on water quality and quantity. 16: Report the number of high risk drainage structures within the sensitive watersheds. Further report whether each had a mitigation strategy and whether that strategy was implemented as planned.
Variance	15: 0% 16: 0%

5.7.14 4.1 Carbon Uptake and Storage

Indicator	4.1 Carbon Uptake and Storage
Indicator Statement(s)	17 - Percent of annual LT harvest directed at mitigating the impact of mountain pine beetle to forests within the DFA (CI - 4.1.1(d))
Element(s)	4.1 Carbon Uptake and Storage
Value(s) and Objective(s)	<p><u>Value 4.1:</u> Forest ecosystem contributions to global ecological cycles are sustained within the DFA.</p> <p><u>Objective 4.1:</u> Maintain forest conditions that take carbon from the atmosphere and store it in forest ecosystems.</p>
Background and Description	<p>Trees grow by taking CO₂ from the atmosphere and convert it to sugars through photosynthesis. The sugars serve as a source of energy and provide the material to build the cellulose and lignin. When a tree rots or burns, the carbon contained in the wood is released back to the atmosphere. Active forest management (e.g., thinning, harvesting dead, or over-mature trees, followed by prompt reforestation) is very effective in maintaining a healthy productive forest which actively sequesters carbon from the atmosphere (also an effective tool to reduce the number and intensity of forest fires). The total ecosystem carbon of the Vanderhoof Forest District forested land base was estimated (FES, 2006) at a total of 178 T/ha (Trees - 62 T/ha above & 16 below-ground). In a provincial carbon analysis, Kurz et al. (2002) found that the above-ground biomass in the Vanderhoof area is approximately 50-75 T/ha. Most forests are considered net sinks of carbon dioxide - they store more carbon than they give up. Natural disturbance events can upset a forest's carbon balance. Large forest fires release CO₂ into the atmosphere and dead trees eventually decompose (due to microbial action) thus releasing more CO₂. Mountain pine beetle-induced mortality reduces carbon uptake in the forest and has the potential to increase future emissions from the decay of beetle killed trees. The mountain pine beetle epidemic may result in the conversion of pine forests from a small net carbon sink to a large net carbon source. Given the landscape conditions in the DFA, Canfor's carbon strategy will be:</p> <ul style="list-style-type: none"> • Maintain the target non-pine old growth on the land base for carbon storage; • Prompt reforestation of harvest areas for carbon uptake; • Minimize permanent access structures to maintain forest productivity for carbon uptake; and • Focus annual harvest efforts, in the short-term, on the salvage of beetle-killed pine-leading timber types (rehabilitation of areas affected by MPB). <p>Ignoring the overabundance of affected pine trees and continuing to harvest the natural species profile limits the ability of the ecosystem to recover a balance in the carbon cycle. Reducing the impact of mountain pine beetle far outweighs the impact associated with other current and historic damaging agents. Concentrating harvest efforts on beetle-killed trees within the DFA serves to reduce the carbon emissions associated with dead and decaying timber and provides for the establishment of live trees, important to carbon absorption.</p>
Strategy	<p>The mature pine forests of the DFA have been severely impacted by mountain pine beetle. Canfor continues to direct their annual harvest to the salvage of beetle-killed timber. Inventories depicting the extent of beetle mortality have been undertaken with support from color ortho-photography and satellite imagery. Both overstory and understory retention strategies for non-pine coniferous species have been developed by the Canfor). Species diversity is being enhanced at the planting and free-growing stages. Canfor continues to work co-operatively with the public to remove beetle-killed pine within rural interface areas.</p>

Current Status	<p>The following table identifies the percentage of annual licensee harvest consisting of lodgepole pine.</p> <table border="1" data-bbox="537 275 1318 394"> <tr> <td data-bbox="537 275 1045 394">Species % of Licensee Harvest Volume (Scaled) - Apr 1/11 to March 31/12</td> <td data-bbox="1045 275 1318 394"> Pine 70.9% Spruce 21.8% Balsam Fir 7.2% Douglas-Fir 0.1% </td> </tr> </table>	Species % of Licensee Harvest Volume (Scaled) - Apr 1/11 to March 31/12	Pine 70.9% Spruce 21.8% Balsam Fir 7.2% Douglas-Fir 0.1%
Species % of Licensee Harvest Volume (Scaled) - Apr 1/11 to March 31/12	Pine 70.9% Spruce 21.8% Balsam Fir 7.2% Douglas-Fir 0.1%		
Forecast	<p>Not focusing annual harvest levels on beetle-killed pine would reduce carbon sequestration associated with forests in the DFA and potentially increase CO₂ emissions associated with dead and decaying pine. In addition, non-recoverable losses would be increased, mid-term timber supply would decrease and the duration of reduced harvest levels within the DFA would increase. Without management intervention, large tracts of beetle-killed pine remaining on the landscape could negatively impact wildlife habitat, recreational opportunities, public safety, fire management, hydrological recovery and ecological cycles.</p>		
Target	<p>65% or greater of annual licensee harvest consists of lodgepole pine.</p>		
Basis for the Target	<p>The target is based on current baseline data (see above) and the understanding that dead pine trees will continue to suffer increasing volume net-downs attributable to decay. Live non-pine volumes will increase as this shelf-life imbalance is extended.</p>		
Monitoring & Measurement Periodic			
Monitoring & Measurement Annual	<p>The Ministry of Forests, Lands and Natural Resource Operations database “Harvest Billing System” will be utilized to track annual licensee harvest volume by species and verify that annual licensee harvest levels are directed towards the salvage of beetle-killed pine.</p>		
Variance	<p>0%</p>		

[Element 4.2 Forest Land Conversion]

Core Indicator 4.2 Additions and deletions to the forest area is covered under Indicator 2.2.1 (above).

5.7.15 5.1.1 Quantity and quality of timber and non-timber benefits, products, and services produced in the DFA

Indicator	5.1.1 Quantity and quality of timber and non-timber benefits, products, and services produced in the DFA								
Indicator Statement(s)	18 - Range Values: The percent of forest management operations consistent with the conservation of range resources identified in Site Plans (CI - 5.1.1(b))								
Element(s)	5.1 Timber and Non-Timber Benefits								
Value(s) and Objective(s)	<p><u>Value 5.1:</u> The flow of marketed non-timber economic benefits from forests is sustained.</p> <p><u>Objective 5.1.1:</u> The amount and quality of marketed non-timber forest resources does not decline over time.</p>								
Background and Description	<p>Range resources can include grazing or hay cutting tenures within the timber harvesting land base. Range and forest managers must work cooperatively in order to sustain both timber and range values. FSP's contain the legal measures that a forest manager will utilize, when planning forest development activities, to mitigate the removal of natural ranger barriers. These measures are then implemented through site level planning under the Site Plan or related contractual agreements in the case of proposed fencing projects. Maintenance of natural range barriers is an important aspect of range management and the overall economic viability of the range tenure. Diverse utilization of the forest resource, within the DFA, is more important than ever, given the severity of the mountain pine beetle infestation.</p>								
Strategy	<p>Range resources and related tenures are managed by the Ministry of Forests, Lands and Natural Resource Operations (MFLNRO) under FRPA. Range Use Plans, which contain specific range management detail, are developed and approved by government for all range tenures. FSP's contain the measures that a licensee will follow when proposing development that may impact natural ranger barriers. Where mitigative measures are required (usually through range tenure holder and forest manager site specific identification), they are implemented through site level plans which contain applicable operational detail. Post-harvest consistency with the applicable mitigative measures is assessed and reported through Environmental Management System (EMS) inspections. Instances of non-conformance are entered and tracked in incident tracking databases.</p> <p>Development activities (harvested blocks & related access) undertaken within the specified timeframe are reviewed to identify those within existing range tenures and those where specific measures were identified to conserve range values. EMS inspections and incident tracking system reports are then reviewed to ensure post-harvest consistency with the specified measures. This information is collated by Canfor and reported annually.</p>								
Current Status	<p>The table below shows the percent of forest management operations consistent with the conservation of range resources identified in Site Plans.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>2008/09 Status</th> <th>2009/10 Status</th> <th>2010/11 Status</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">100%</td> <td style="text-align: center;">100%</td> <td style="text-align: center;">100%</td> </tr> </tbody> </table>			2008/09 Status	2009/10 Status	2010/11 Status	100%	100%	100%
2008/09 Status	2009/10 Status	2010/11 Status							
100%	100%	100%							

Forecast	<p>The removal of natural range barriers would result in a significant increase in the cost of managing cattle within the range tenure area. This cost may be economically prohibitive to the range tenure holder and negate continued use of the area for range purposes. Not only would this negatively impact economic and social values in the DFA, but integrated and full use of the forest resource would be diminished. Forestry and range tenures are compatible uses on the forest land base and represent a desirable outcome of integrated resource management within the DFA. Canfor expects trends will indicate 100% consistency between forest management operations and the conservation of range resources identified in Site Plans.</p> <p>Continual improvement will likely focus on building relationships between Canfor and applicable range tenure holders and better understanding range tenure management (including existing natural range barriers and potential mitigative measures if these are compromised through continued salvage operations).</p>
Target	Sustain 100% consistency between forest management operations and measures to conserve range resources identified in Site Plans.
Basis for the Target	Developed with input from stakeholders, the broader public and Aboriginals. It is essential that holders of overlapping land use tenures communicate regularly with one another and with the public and Aboriginals. Conforming to commitments in plans will help measure Canfor's performance relative to operating on public lands.
Monitoring & Measurement Periodic	
Monitoring & Measurement Annual	Report the percentage of instances where post-harvest conditions or other applicable forest activities undertaken during the reporting period are consistent with plan commitments to conserve range resources.
Variance	-5%

5.7.16 5.1.1 Quantity and quality of timber and non-timber benefits, products, and services produced in the DFA

Indicator	5.1.1 Quantity and quality of timber and non-timber benefits, products, and services produced in the DFA
Indicator Statement(s)	19 - Visual Quality Values: The percent of forest management operations consistent with the conservation of Visual Quality Objectives (CI - 5.1.1(c))
Element(s)	5.1 Timber and Non-Timber Benefits
Value(s) and Objective(s)	Value 5.1: The flow of marketed non-timber economic benefits from forests is sustained. Objective 5.1.2: Maintain the Visual Quality of the managed landscape.
Background and Description	<p>A Visual Quality Objective (VQO) is an objective established, by the district manager, for a specific legally designated scenic area polygon. Under FRPA legislation, a Visual Quality Objective (VQO) means:</p> <ul style="list-style-type: none"> • an existing VQO pertaining to scenic area, grand-parented into FRPA (section 181 of FRPA), • a visual quality class, for an existing scenic area, brought into effect under the Government Actions Regulation (section 17), or • a VQO established for a scenic area under the Government Actions Regulation. <p>The first two legal means were used to bring VQO’s associated with the 2001 Vanderhoof Scenic Area Plan (applicable to the DFA) into effect under FRPA. An update to the Vanderhoof Scenic Area Plan was given effect in 2008 under the third bullet above. Depending on a proponent’s FSP approval date, either the 2001, or 2008 scenic area plan and its associated VQO’s can be in effect (scenic area polygons and applicable VQO’s at the time of approval remain in effect until FSP expiry or extension (5 yrs)).</p> <p>VQO’s reflect the desired post-harvest condition of the visually altered forest landscape. The categories of visually altered forest landscapes (resulting from the size, shape and location of cut block & roads) established in the Forest Planning and Practices Regulation under FRPA are as follows:</p> <ol style="list-style-type: none"> a. Preservation: consisting of an altered forest landscape in which the alteration (when assessed from a significant public viewpoint) is (i) very small in scale, and (ii) not easily distinguishable from the pre-harvest landscape; b. Retention: consisting of an altered forest landscape in which the alteration (when assessed from a significant public viewpoint), is (i) difficult to see, (ii) small in scale, and (iii) natural in appearance; c. Partial Retention: consisting of an altered forest landscape in which the alteration (when assessed from a significant public viewpoint) is (i) easy to see, (ii) small to medium in scale, and (iii) natural and not rectilinear or geometric in shape; d. Modification: consisting of an altered forest landscape in which the alteration (when assessed from a significant public viewpoint), (i) is very easy to see, and (ii) is (A) large in scale and natural in its appearance, or (B) small to medium in scale but with some angular characteristics; and e. Maximum Modification: consisting of an altered forest landscape in which the alteration (when assessed from a significant public viewpoint), (i) is very easy to see, and (ii) is (A) very large in scale, (B) rectilinear and geometric in shape, or (C) both. <p>This indicator is designed to ensure that where harvest operations are undertaken within designated scenic areas, the cut block designs and/or strategies identified within Site Plans to achieve the desired VQO, are implemented on the ground.</p>

Strategy	<p>The results and strategies Canfor will undertake to achieve government objectives for visual quality are contained within the applicable approved Forest Stewardship Plan. Where harvest operations are conducted within a designated scenic area, a Visual Impact Assessment (VIA) is undertaken to ensure the altered forest landscape is consistent with the established VQO (defined category of visually altered forest landscape). These VIA's can be utilized to confirm and/or establish various options related to block design, such as boundary location, access roads, wildlife tree retention area locations, applicable silviculture system, etc. The eventual block design and related applicable strategies are identified within the associated site plan. Post-harvest inspections are utilized to ensure consistency with the desired outcome and incidents of non-conformance are recorded and tracked in an incident tracking system database. This information will be collated and reported annually by Canfor.</p>						
Current Status	<p>The table below shows the percent of forest management operations consistent with the conservation of Visual Quality Objectives.</p> <table border="1" data-bbox="587 646 1266 709"> <thead> <tr> <th data-bbox="587 646 813 678">2008/09 Status</th> <th data-bbox="813 646 1039 678">2009/10 Status</th> <th data-bbox="1039 646 1266 678">2010/11 Status</th> </tr> </thead> <tbody> <tr> <td data-bbox="587 678 813 709">100%</td> <td data-bbox="813 678 1039 709">100%</td> <td data-bbox="1039 678 1266 709">100%</td> </tr> </tbody> </table>	2008/09 Status	2009/10 Status	2010/11 Status	100%	100%	100%
2008/09 Status	2009/10 Status	2010/11 Status					
100%	100%	100%					
Forecast	<p>It is likely that certain social and economic values would be impacted if forest management operations were not consistent with applicable strategies to conserve VQO's. Although the overall DFA timber supply may increase as a result of additional harvesting in scenic areas (achieving lower VQO categories), it may be at the expense of other economic and social values. Visual quality is important to various commercial recreation and outdoor tourism businesses that provide recreational opportunities such as guiding, hunting, fishing, hiking and other backcountry wilderness experiences. By not conserving desired visual values, these businesses could be negatively impacted from a financial perspective. Social values attributed to outdoor recreation and backcountry activities could also decrease within the DFA. Canfor expects trends will indicate 100% consistency between forest management operations and the conservation of Visual Quality Objectives.</p> <p>A severe level of lodgepole pine mortality exists within the majority of the scenic areas in the DFA. A balance must be obtained between the visual impact associated with salvage/rehabilitation efforts, safety concerns and impacts to existing businesses dependent on commercial recreation. Canfor envisions continual improvement will focus on enhancing cooperative and proactive planning in regard to conserving visual quality and renewal of the timber resource.</p>						
Target	<p>Sustain 100% consistency between forest operations and strategies identified in the Site Plan to conserve VQO's.</p>						
Basis for the Target	<p>Developed with input from stakeholders, the broader public and Aboriginals. It is essential that holders of overlapping land use tenures communicate regularly with one another and with the public and Aboriginals. Conforming to commitments in plans will help measure the licensee's performance relative to operating on public lands.</p>						
Monitoring & Measurement Periodic							
Monitoring & Measurement Annual	<p>Report the percentage of instances where post-harvest conditions or other applicable forest activities undertaken during the reporting period are consistent with plan commitments to conserve Visual Quality Objectives.</p>						
Variance	<p>-5%</p>						

5.7.17 5.1.1 Quantity and quality of timber and non-timber benefits, products, and services produced in the DFA

Indicator	5.1.1 Quantity and quality of timber and non-timber benefits, products, and services produced in the DFA
Indicator Statement(s)	20 - Access Management: The percent of LT conformance with the Vanderhoof Access Management Plan for Forest Recreation (CI - 5.1.1(d))
Element(s)	5.1 Timber and Non-Timber Benefits
Value(s) and Objective(s)	Value 5.1: The flow of marketed non-timber economic benefits from forests is sustained. Objective 5.1.3: Maintain opportunities for outdoor recreation activities.
Background and Description	<p>The Vanderhoof Access Management Plan for Forest Recreation (facilitated through the Vanderhoof LRMP – 1997) was given endorsement by the Regional Executive Director of the Integrated Land Management Bureau on March 14, 2008.</p> <p>The goal of the revised Vanderhoof Access Management Plan for Forest Recreation (AMP) is to:</p> <ul style="list-style-type: none"> • align the existing patterns of recreational use with the current situation regarding roads and access; • manage for the continued integrity of the recreational experiences and opportunities provided; and • ensure there is no impact to timber flow and supply. <p>The AMP does not prevent or preclude anyone from accessing Crown land; the right for industrial development and public recreational activity is still maintained. The AMP is a map that provides strategic options for “how to access an area” based on the access management designation and does not deal with implementation. The AMP is a policy plan that does not have any legislative authority to regulate compliance. Implementation is reliant on voluntary conformance from all parties including government agencies, industry, commercial recreation, the community-at-large and the general public.</p> <p>Following endorsement of the AMP, meetings were held between the MFLNRO, licensees and BCTS over the 2008/09-year to formulate an implementation strategy. Given the current landscape condition (extensive stands of beetle-killed timber), deteriorating timber resource, the need for expedited sawlog salvage, an emerging non-sawlog industry and fire management concerns, it became apparent that opinions on consistency vary and that implementing the plan as written would be problematic. The outcome of this process was the establishment of Access Management Plan Implementation Principles. The implementation strategies contained within present an operationally feasible approach at access management. The strategies are essentially focused around communication with stakeholders as operations impact specific AMP polygons. Attention has focused on the non-motorized and functionally non-roaded polygons, as well as on access control points.</p>
Strategy	Conformance with the AMP is based on Access Management Plan Implementation Principles and is currently monitored by Canfor. Planning staff provide operational strategies within non-motorized and non-roaded polygons and track implementation consistency. Operational field staff remove and replace applicable access control points and forward implementation detail to planning staff. Conformance detail is collated, summarized and reported annually.

<p>Current Status</p>	<p>The table below shows the percent of forest management operations consistent with the Vanderhoof Access Management Plan for Forest Recreation.</p> <table border="1" data-bbox="591 275 1268 333"> <thead> <tr> <th data-bbox="591 275 818 302">2008/09 Status</th> <th data-bbox="818 275 1045 302">2009/10 Status</th> <th data-bbox="1045 275 1268 302">2010/11 Status</th> </tr> </thead> <tbody> <tr> <td data-bbox="591 302 818 333">100%</td> <td data-bbox="818 302 1045 333">100%</td> <td data-bbox="1045 302 1268 333">100%</td> </tr> </tbody> </table>	2008/09 Status	2009/10 Status	2010/11 Status	100%	100%	100%
2008/09 Status	2009/10 Status	2010/11 Status					
100%	100%	100%					
<p>Forecast</p>	<p>Both conformance and non-conformance with the AMP could negatively impact social, economic and environmental values within the DFA. Non-conformance assumes industrial roads are constructed and maintained within non-motorized AMP areas and are available to the public to utilize for motorized recreational opportunities. It assumes that members of the public do not agree to voluntarily conform to the AMP. Without a balanced choice of quality recreation experiences within the DFA, conflicts will arise between diverse recreational user groups. Established businesses reliant on providing wilderness recreational opportunities (e.g., fly-in/walk-in hunting, fishing and hiking) may be forced to close and re-locate if the experience they provide is compromised by public road access. This would negatively impact local social and economic values. Public road access into sensitive wildlife habitats, or excessive road densities (accessible to the public) will also negatively impact wildlife, without changes to hunting or fishing regulations. Canfor expects trends will indicate overall conformance between forest management operations and the Vanderhoof Access Management Plan for Forest Recreation.</p> <p>Continual improvement efforts will focus on: determining expected Canfor implementation responsibilities (from government, stakeholders and the general public); determining who and how conformance with the AMP is measured; determining how public adherence to the plan will be monitored and with whom the responsibility resides; determining the operational feasibility of achieving the objectives as written in the AMP; and suggesting changes to government where warranted. It is clear there are differing opinions on AMP objectives and implementation responsibilities.</p>						
<p>Target</p>	<p>100 % conformance with the Access Management Plan for Forest Recreation.</p>						
<p>Basis for the Target</p>	<p>Developed with input from stakeholders, the broader public and Aboriginals. It is essential that holders of overlapping land use tenures, communicate regularly with one another and with the public and Aboriginals. Conforming to commitments in plans will help measure the licensee’s performance relative to operating on public lands.</p>						
<p>Monitoring & Measurement Periodic</p>							
<p>Monitoring & Measurement Annual</p>	<p>Report the percentage of instances where post-harvest conditions or other applicable forest activities undertaken during the reporting period, are consistent with commitments made to achieve Access Management Plan for Forest Recreation objectives.</p>						
<p>Variance</p>	<p>-10%</p>						

5.7.18 5.1.1 Quantity and quality of timber and non-timber benefits, products, and services produced in the DFA

Indicator	5.1.1 Quantity and quality of timber and non-timber benefits, products, and services produced in the DFA
Indicator Statement(s)	21 - Smoke Management: The percent of prescribed burns that follow the smoke management guidelines (CI - 5.1.1(e))
Element(s)	5.1 Timber and Non-Timber Benefits
Value(s) and Objective(s)	Value 5.1: The flow of marketed non-timber economic benefits from forests is sustained. Objective 5.1.4: The amount and quality of marketed non-timber forest resources does not decline over time.
Background and Description	The Vanderhoof PAG identified smoke management as a public concern and a potential area of improvement for licensee performance. Forest industry-related smoke can be attributed to the necessity to burn machine piled logging debris, either to reduce the fire hazard or to remove habitat for forest pests. Smoke is the most visible product of this controlled burning and large amounts of smoke may affect air quality and result in an increased occurrence of respiratory ailments in communities adjacent to the smoke source. The MFLNRO is mandated through the Wildfire Act and Wildfire Regulation to regulate the fire activities (open burning) of the forest industry within 1 kilometre of forest lands. The Ministry of Environment (MOE) has the mandate to regulate smoke emissions from open burning under the Environmental Management Act and the Open Burning Smoke Control Regulation (OBSCR). The MOE uses venting indices and weather information from Environment Canada and others to regulate where and when burning is permitted, and periodically issues open burn bans. The MFLNRO and MOE collectively issue an approved Burn Plan for Smoke Management within the Vanderhoof Forest District. This plan is considered a ‘burn plan’ as it pertains to the OBSCR sec. 8 (1) of Schedule A. It is also a portion of a burn plan as it pertains to section 23 of the Wildfire Regulation for the purposes of achieving smoke management objectives. This means that the venting requirements in this plan supersede the venting requirements of the OBSCR. Combined with the description or map of the smoke sensitivity areas, this Plan provides the venting conditions and other modified requirements which must be met to allow open burning to be done in compliance with the OBSCR. Thus, Canfor is responsible for obtaining current weather and venting information, making appropriate burning decisions, and managing their fire activities.
Strategy	Canfor operates within the parameters identified in the Vanderhoof Forest District Burn Plan for Smoke Management. Smoke sensitivity areas (high, moderate and low) were developed within the District and venting conditions assigned accordingly. Two-day venting index forecasting is obtained from Environment Canada’s website on a daily basis. Venting indices indicate the atmosphere’s ability to disperse pollutants and these are reported as good, fair or poor. A venting index of “good” indicates that conditions are sufficient for burning and this is when scheduled licensee burning activities are initiated. Data reporting applicable to this indicator is based on the specific business process Canfor utilizes to track burning events and adherence to the Vanderhoof Forest District Burn Plan for Smoke Management. In some instances, contractual agreements are utilized to ensure adherence to the District Burn Plan and fire hazard abatement report forms are collected as supportive documentation. Data is collated and reported annually.

Current Status	<p>The table below shows the percent of forest management operations consistent with the smoke management guidelines.</p> <table border="1" data-bbox="587 275 1265 333"> <thead> <tr> <th data-bbox="587 275 813 302">2008/09 Status</th> <th data-bbox="813 275 1039 302">2009/10 Status</th> <th data-bbox="1039 275 1265 302">2010/11 Status</th> </tr> </thead> <tbody> <tr> <td data-bbox="587 302 813 333">100%</td> <td data-bbox="813 302 1039 333">98%</td> <td data-bbox="1039 302 1265 333">98%</td> </tr> </tbody> </table>	2008/09 Status	2009/10 Status	2010/11 Status	100%	98%	98%
2008/09 Status	2009/10 Status	2010/11 Status					
100%	98%	98%					
Forecast	<p>If prescribed burns did not follow smoke management guidelines, it is likely that air pollution within and surrounding the DFA would increase during burning operations. Increased smoke in the DFA could potentially affect air quality and result in an increased occurrence of respiratory ailments in communities adjacent to the smoke source. The overall quality of life for residents and visitors to the Vanderhoof area would be diminished. Economic losses could be incurred if tourism and recreation values were affected by increased smoke.</p> <p>It is anticipated that prescribed burns in the DFA will continue to follow smoke management guidelines in the future in order to mitigate the potential negative effects.</p> <p>Continual Improvement will focus on developing a standardized methodology of tracking and reporting licensee burning activities.</p>						
Target	100% of prescribed burns follow the smoke management guidelines.						
Basis for the Target	Developed with input from stakeholders, the broader public and Aboriginals. It is essential that holders of overlapping land use tenures, communicate regularly with one another and with the public and Aboriginals. Conforming to commitments in plans will help measure the Canfor's performance relative to operating on public lands.						
Monitoring & Measurement Periodic							
Monitoring & Measurement Annual	Report the percentage of instances where prescribed burns undertaken during the reporting period follow the smoke management guidelines.						
Variance	-10%						

5.7.19 5.2.1 Level of investment in initiatives that contribute to community sustainability

Indicator	5.2.1 Level of investment in initiatives that contribute to community sustainability
Indicator Statement(s)	22 - Investment in local communities (CI - 5.2.1)
Element(s)	5.2 Communities and Sustainability
Value(s) and Objective(s)	<u>Value 5.2:</u> Forest management contributes to a diversified local economy. <u>Objective 5.2.1:</u> The public continues to receive a portion of the benefits.
Background and Description	<p>In addition to the many biological and ecological benefits provided by forests, they also contribute social and economic benefits. Forests represent not only a return on investment (measured, for example, in dollar value, person-days, donations, etc.) for the organization but also a source of income and non-financial benefits for DFA-related workers, contractors, and others; stability and opportunities for communities; and revenue for local, provincial, and federal governments.</p> <p>In the same way that larger forest organizations depend on a secure flow of resources to justify investment in an area, smaller businesses depend on a sustained flow of opportunities to develop and invest in their local community. As the majority of forest workers are hired locally, communities benefit by the forest industry.</p> <p>This target measures the amount of local contractors/suppliers spending related to forest management activities that occur in communities tributary to the DFA. For the purposes of this indicator, a local contractor or supplier is defined as one that resides within or in the vicinity of the DFA and will include local vendors and suppliers with postal codes associated with communities tributary to the DFA.</p> <p>Communities considered tributary to the DFA include: Vanderhoof, Fraser Lake, Fort Fraser and the First Nations communities of Nadleh Whut’en, Saik’uz, and Stelat’en.</p> <p>The total dollar value of goods and services considered to be local will be calculated relative to the total dollar value of all goods and services provided. This calculation will be used to derive the percentage of money spent on forest operations and management of the DFA from suppliers and contractors within local communities.</p>
Strategy	<p>Canfor tracks all purchases (expenses) pertaining to forest management related activities (administration, planning, operational expenses, contracts, training, supplies, etc) associated with their operations in the DFA.</p> <p>A query of the financial data stored within Canfor’s accounting system provides the basis for this indicator reporting. Office locations and their applicable postal codes are utilized to clarify the source of the goods and services purchased.</p>
Current Status	The percentage of dollars spent in local communities in 2011 was 49.6%.
Forecast	Achievement of the target will support resilient and stable communities within and adjacent of the DFA. 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 business opportunities (work and supplies) required to manage the forest resources of the DFA. Localized spending may also provide better management through local knowledge.
Target	55% of dollars spent in local communities.

Basis for the Target	Target reflects a desire to maintain or enhance community well-being.
Monitoring & Measurement Periodic	
Monitoring & Measurement Annual	Use internal accounting systems to calculate and report out on the percent of dollars spent in local communities (5-year rolling average) during the reporting period.
Variance	-10%

5.7.20 5.2.2 Level of investment in training and skills development

Indicator	5.2.2 Level of investment in training and skills development
Indicator Statement(s)	23 - Training in environmental & safety procedures in compliance with company training plans (CI - 5.2.2)
Element(s)	5.2 Communities and Sustainability
Value(s) and Objective(s)	<u>Value 5.2:</u> Forest management contributes to a diversified local economy. <u>Objective 5.2.2:</u> Forest management planning adequately reflects the interest and issues raised by the public in the DFA through an effective public participation process.
Background and Description	Sustainable forest management provides for training and awareness opportunities for forest workers as organizations seek continual improvement in their practices. Investments in training and skill development generally pay dividends to forest organizations by way of a safer and more environmentally conscious work environment. Assessing whether forest contractors have received both safety and environmental training is a direct way of measuring this investment. Additionally, training plans should be in place for employees of the forest organizations who work in the forest. Measuring whether the training occurred in accordance with these plans will confirm an organizations commitment to training and skills development.
Strategy	Canfor invests in skills development by ensuring operational controls are in place to ensure forest contractors have adequate safety and environmental training. Likewise, licensee forest management staff have appropriate training relative to their training plans.
Current Status	In 2011, the level of training in environmental & safety procedures in compliance with licensee training plans was 100%
Forecast	Forest planning and operations are conducted with a genuine focus on worker safety and environmental stewardship. Forest contractors and employees have the adequate knowledge and tools to conduct their jobs safely, under all conditions.
Target	100% of company employees and contractors will have both environmental & safety training.
Basis for the Target	A trained workforce is critical to safe execution of plans. The variance allows for some discretion with respect to contractors or employees whose work is insulated from forest operations (for example administrative or clerical work).
Monitoring & Measurement Periodic	When training is completed by applicable contractors or employees, it will be necessary to validate or track whether appropriate training has been taken as per the applicable training plans. These results can then be summarized to determine the percentage of training taken relative to the training plan.
Monitoring & Measurement Annual	Report the total number of company employees and forestry contractors and identify the number of those that had received both environmental and safety training in accordance with training plan expectations.
Variance	-5%

5.7.21 5.2.3 Level of direct and indirect employment

Indicator	5.2.3 Level of direct and indirect employment
Indicator Statement(s)	24 - Level of direct & indirect employment (CI - 5.2.3)
Element(s)	5.2 Communities and Sustainability
Value(s) and Objective(s)	<u>Value 5.2:</u> Forest management contributes to a diversified local economy. <u>Objective 5.2.3:</u> Employment and income sources and their contribution to the local economy continue to be diversified.
Background and Description	<p>Forests represent not only a return on investment (measured, for example, in dollar value, person-days, donations, etc.) for the organization but also a source of income and non-financial benefits for DFA-related workers, suppliers, local communities and governments.</p> <p>While employment levels have been declining in many manufacturing industries including the forest industry, there remains a very direct relationship between direct and indirect employment and annual harvest levels. Stable employment is a clear indication of the sustainable economic well-being of individuals and communities. Employment from the forest sector is an important contributor toward community stability, particularly rural communities that tend to be mostly resource-dependant. Within the context of the forest industry, direct employment refers to employment directly related to the production of forest products or services. As a result of this direct employment, employment is also generated in the businesses that supply goods and services to the forest sector. This is referred to as indirect employment. Finally, when these directly and indirectly generated incomes are spent and re-spent on a variety of items in the broader economy (e.g., food, clothing, entertainment), it gives rise to induced employment effects.</p> <p>Based on information compiled from the Socio-Economic Analysis completed for the recent Prince George Timber Supply Area Timber Supply Review (TSR), an employment multiplier of 3.26 direct, indirect, and induced jobs per 1000 m³ of harvest is used. This includes direct employment coefficients for harvesting (.21), silviculture (.01) and wood processing (.26) plus indirect and induced employment coefficients of 1.25 jobs per 1000 m³ of volume harvested for logging and 1.33 jobs per 1000 m³ of volume harvested for wood manufacturing.</p> <p>Sustainable harvest levels provide direct and indirect employment opportunities over the long-term. Government sets the harvest level using a rigorous process that considers social, economic and biological criteria.</p>
Strategy	Organizations contribute to direct and indirect employment within the region and to sustainable harvesting by adhering to their apportioned harvest volume. Cut control regulations dictate the short-term harvest flexibility.

<p>Current Status</p>	<p>The overall average annual harvest volume in the DFA by Canfor is 1,658,777m³. Using the multiplier of 3.26 jobs per 1000 m³ of volume harvested and the overall average annual harvest, the average level of direct and indirect employment maintained in the DFA would be 4611 (rounded to 4600).</p> <p>The graph below illustrates the current status and forecasted number of jobs based on past harvest and future harvest plans.</p> <div data-bbox="423 411 1419 1010" style="border: 1px solid black; padding: 10px; text-align: center;"> <h3>Jobs per 1000 m3</h3> <table border="1" style="margin: 0 auto; border-collapse: collapse;"> <caption>Data for Jobs per 1000 m3</caption> <thead> <tr> <th>Year</th> <th>no of jobs</th> </tr> </thead> <tbody> <tr> <td>2004-2009</td> <td>12,000</td> </tr> <tr> <td>2005-2010</td> <td>11,500</td> </tr> <tr> <td>2006-2011</td> <td>10,000</td> </tr> <tr> <td>2007-2012</td> <td>9,000</td> </tr> <tr> <td>2008-2013</td> <td>8,000</td> </tr> <tr> <td>2009-2014</td> <td>7,500</td> </tr> </tbody> </table> </div>	Year	no of jobs	2004-2009	12,000	2005-2010	11,500	2006-2011	10,000	2007-2012	9,000	2008-2013	8,000	2009-2014	7,500
Year	no of jobs														
2004-2009	12,000														
2005-2010	11,500														
2006-2011	10,000														
2007-2012	9,000														
2008-2013	8,000														
2009-2014	7,500														
<p>Forecast</p>	<p>Forest organizations that harvest in relation to their allocation of the allowable annual cut provide employment and taxation revenue to local communities.</p>														
<p>Target</p>	<p>4600 jobs</p>														
<p>Basis for the Target</p>	<p>Allocated AAC for Canfor and employment multiplier statistics from the Socio-Economic Analysis from the recent Prince George Timber Supply Area Timber Supply Review (TSR) provides a consistent average measure.</p>														
<p>Monitoring & Measurement Periodic</p>	<p>Update inputs used to derive targets for this indicator. As changes occur over time to the licensee AAC and/or the employment multiplier specific to the forest industry, it will be necessary to update as required.</p>														
<p>Monitoring & Measurement Annual</p>	<p>Report the 5-year rolling average harvest volume for the most recent year available and use the employment multiplier to determine the level of direct and indirect employment maintained relative to the target.</p>														
<p>Variance</p>	<p>-700</p>														

5.7.22 5.2.4 Level of Aboriginal participation in the forest economy

Indicator	5.2.4 Level of Aboriginal participation in the forest economy						
Indicator Statement(s)	25 - Number of opportunities for Aboriginals to participate in the forest economy (CI - 5.2.4)						
Element(s)	5.2 Communities and Sustainability						
Value(s) and Objective(s)	<u>Value 5.2:</u> Forest management contributes to a diversified local economy. <u>Objective 5.2.4:</u> Opportunities to share a portion of the benefits continue to exist for Aboriginals.						
Background and Description	<p>Forests represent not only a return on investment (measured, for example, in dollar value, person-days, donations, etc.) for the organization but also a source of income and non-financial benefits for DFA-related workers, local communities and governments.</p> <p>Aboriginal communities are not well represented within this distribution, but they are often geographically and culturally connected to local forest operations. Providing business opportunities for local Aboriginals to participate in the forest economy has the potential to provide social, cultural and economic benefits.</p> <p>This indicator and related target looks specifically at self-identified Aboriginal participation in the forest economy. It is designed to monitor the number of forest management related business opportunities that Canfor makes available to local Aboriginal communities (or members). It evaluates the Canfor's efforts to build capacity within Aboriginal communities on matters related to the forest industry. A business opportunity, in the context of this indicator, is defined as an opportunity provided by Canfor (or a third party financially sponsored by a licensee) to a local Aboriginal community (or member) to enter into a business relationship.</p> <p>The target recognizes that there are occasions when, after being given the opportunity, Aboriginals elect not to participate and is respectful of those decisions.</p>						
Strategy	Canfor engages in building mutually beneficial relationships with Aboriginal peoples. The data relative to this indicator is derived from Canfor's contract and accounting databases or planning records documenting Aboriginal initiatives.						
Current Status	<p>The following table shows the number of opportunities in the DFA for Aboriginals to participate in the forest economy.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>2008/09 Status*</th> <th>2009/10 Status*</th> <th>2010/11 Status*</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">9</td> <td style="text-align: center;">10</td> <td style="text-align: center;">7</td> </tr> </tbody> </table> <p>* includes both Canfor and BCTS, who was a signatory to the plan at that time</p>	2008/09 Status*	2009/10 Status*	2010/11 Status*	9	10	7
2008/09 Status*	2009/10 Status*	2010/11 Status*					
9	10	7					
Forecast	If business opportunities are made available to local Aboriginals, there would be a direct positive economic impact to the local Aboriginal community through the economic benefits derived from sustainable management of the DFA.						
Target	> 15 local Aboriginal business relationships or opportunities annually.						
Basis for the Target	Canfor engages in building mutually beneficial relationships with Aboriginal peoples.						
Monitoring & Measurement Periodic							
Monitoring & Measurement	Report on the number of opportunities provided to local Aboriginals (partnerships, joint ventures, co-operative agreements, memorandums of understanding, or business contracts)						

Annual	during the reporting year. Although the details of these opportunities are maintained in confidence, they range in monetary value and variety of project type. These business opportunities could include: specific work/service agreements, joint tenure arrangement with a First Nation Band or Aboriginal Contractor, timber harvesting contracts, silviculture planting and tending contracts and participation in archaeological contracts. Include opportunities by also reporting on contracts for work/services offered directly to Aboriginals that, for whatever reason, were declined.
Variance	-8

5.7.23 6.1.1 Evidence of a good understanding of the nature of Aboriginal title and rights

Indicator	6.1.1 Evidence of a good understanding of the nature of Aboriginal title and rights		
Indicator Statement(s)	26 - Employees will receive appropriate First Nations Awareness Training (CI - 6.1.1)		
Element(s)	6.1 Aboriginal and Treaty Rights		
Value(s) and Objective(s)	<u>Value 6.1:</u> Recognize Aboriginal and Treaty Rights. <u>Objective 6.1.1:</u> Forest Management provides the opportunity for Aboriginal community to participate in SFM.		
Background and Description	<p>Section 35 of the <i>Constitution Act</i> states “The existing Aboriginal and treaty rights of Aboriginal Peoples of Canada are hereby recognized and affirmed”. Some examples of the rights that Section 35 has been found to protect include hunting, fishing, trapping, gathering, sacred and spiritual practices, and title. SFM requirements are not in any way intended to define, limit, interpret, or prejudice ongoing or future discussions and negotiations regarding these legal rights and do not stipulate how to deal with Aboriginal title and rights, and treaty rights.</p> <p>The first step toward respecting Aboriginal title and rights, and treaty rights is compliance with the law. Section 7.3.3 of the CSA Z809 Standard reinforces legal requirements for many reasons, including the reality that demonstrating respect for Aboriginal title and rights, and treaty rights, can be challenging in Canada’s fluid legislative landscape. Therefore, it is important to identify these legal requirements as a starting point. It is important for companies to have an understanding of applicable Aboriginal title and rights, and treaty rights, as well as the Aboriginal interests that relate to the DFA. There are no final First Nation Treaty Agreements within the DFA. See the Ministry of Aboriginal Relations and Reconciliation website (http://www.gov.bc.ca/arr/treaty/agreements.html) for the current status of BC Treaty Negotiations within the DFA. Both legal requirements and the desire for open communication with local Aboriginals requires that company staff members have a good understanding of Aboriginal title and rights and treaty rights.</p>		
Strategy	Canfor invests in cultural awareness and skill development by ensuring that appropriate licensee employees (forest management staff) have received Aboriginal awareness training. Licensee-specific training matrices indicate appropriate training levels according to employee job function and responsibilities. Refresher training is generally scheduled every 5 years, or sooner, if warranted by business processes or substantive changes in Aboriginal law.		
Current Status	<p>The following table shows the percentage of employees receiving Aboriginal awareness training by Canfor.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>2011/2012 Status</td> </tr> <tr> <td>100%</td> </tr> </table>	2011/2012 Status	100%
2011/2012 Status			
100%			
Forecast	Forest operations that respect Aboriginal title and rights and reflect the timber and non-timber interests of local Aboriginals.		
Target	100%		

<p>Basis for the Target</p>	<p>Legal obligations and the communication process with Aboriginals. Licensee information sharing with Aboriginals relative to their FSP supports the provincial government’s legal obligation to consult with First Nations regarding Aboriginal rights and title. This is the initial step in the formal consultation process for an operational plan (FSP) and is generally completed when the MoFLNRO District Manager assesses the adequacy of consultation as part of the final decision-making process on plan approval. Canfor undertakes subsequent site level (cutting permit) information sharing as a component of MoFLNRO consultation efforts. Canfor is committed to sharing information with Aboriginals and endeavouring to address concerns as warranted.</p> <p>Appropriate Aboriginal awareness training helps employees involved in the above activities to understand Aboriginal title and rights, treaty rights and the potential for Aboriginal interests. The term Aboriginal interests is generally used to refer to potentially existing but unproven Aboriginal rights and/or title.</p>
<p>Monitoring & Measurement Periodic</p>	
<p>Monitoring & Measurement Annual</p>	<p>Training matrices indicate Aboriginal awareness training requirements according to employee job function and responsibility. Training records or databases record Aboriginal awareness training. Annually report the number of employees working within the DFA that are consistent with identified Aboriginal awareness training requirements.</p>
<p>Variance</p>	<p>-10%</p>

5.7.24 6.1.2 Evidence of best efforts to obtain acceptance of management plans based on Aboriginal communities having a clear understanding of the plans: 6.4.3 Evidence of efforts to promote capacity development and meaningful participation for Aboriginal communities

Indicator	<p>6.1.2 Evidence of best efforts to obtain acceptance of management plans based on Aboriginal communities having a clear understanding of the plans.</p> <p>6.4.3 Evidence of efforts to promote capacity development and meaningful participation for Aboriginal communities</p>
Indicator Statement(s)	<p>27 - Evidence of best efforts to share interests and plans with Aboriginal communities (CI - 6.1.2 and CI – 6.4.3)</p>
Element(s)	<p>6.1 Aboriginal and Treaty Rights</p> <p>6.4 Fair and Effective Decision-Making</p>
Value(s) and Objective(s)	<p><u>Value 6.1:</u> Recognize Aboriginal and Treaty Rights.</p> <p><u>Objective 6.1.2:</u> Forest management recognizes and respects Aboriginal and treaty rights.</p> <p><u>Value 6.4:</u> Decisions guiding forest management on the DFA are informed and respond to a wide range of social and cultural values.</p> <p><u>Objective 6.4.2:</u> The collective understanding of SFM by the forest industry and the public is increased.</p>
Background and Description	<p>The first step toward respecting Aboriginal title and rights, and treaty rights, is compliance with the law. Section 7.3.3 of the CSA Z809 Standard reinforces legal requirements for many reasons, including the reality that demonstrating respect for Aboriginal title and rights, and treaty rights can be challenging in Canada’s evolving legislative landscape. Therefore, it is important to identify these legal requirements as a starting point. It is important for the organization to have an understanding of asserted Aboriginal title and rights, and treaty rights, as well as the Aboriginal interests that relate to the DFA.</p> <p>Open, respectful communication with local Aboriginal communities includes not only Canfor understanding of Aboriginal rights and interests within their asserted traditional territory but for Aboriginals to understand Canfor forest management plans. With this open dialogue, the two parties can then best work towards plans and operations that are mutually acceptable to both parties. The re-wording of the core indicator statement to include the phrase “share interests and plans” is intended to demonstrate two-way communication, rather than one-way. The reference to “Aboriginal communities” corresponds to Canfor interacting with the Natural Resources Office and Chief and Council (or equivalent positions).</p> <p>For the purpose of this indicator, “management plans” include Forest Stewardship Plans (major amendments), Pest Management Plans, block information sharing, and SFM Plans. “Clear understanding” is very difficult to measure, but will be considered as part of the continuum of relationship building between Canfor and Aboriginal communities, and will be a qualitative measure based on the summary of interests and concerns. “Best Efforts” will consist of an initial attempt to contact by mail, a number of follow-up phone calls and an interest in meeting in person (if required).</p> <p>This indicator reports the opportunities provided to Aboriginal people to be involved in the forest management planning processes and/or provide Cultural Heritage Resource input relative to proposed Canfor development activities. This indicator will contribute to respecting the social, cultural and spiritual needs of those First Nation’s whose traditional territory overlap the DFA.</p>

Strategy	<p>Open, respectful communication of forest management plans with affected local Aboriginals. “Best efforts” is a very subjective term, but will reflect the development over time of meaningful and effective working relationships with willing Aboriginal peoples. As detailed in the Monitoring section below, annual reporting will include a qualitative as well as quantitative aspect to attempt to convey the development of long-term relationships.</p> <p>All Aboriginal communities have had the opportunity for participation and input in the SFM planning process. Forest Stewardship Plans depicting the results and strategies to be utilized to guide forest management operations are provided to Aboriginals for review and to solicit input. In addition, Canfor provides site level information sharing opportunities to those First Nations whose traditional territory may potentially be impacted by development activities proposed under approved FSPs. The table below indicates the type of opportunities that are made available to Aboriginal to become involved in the planning process throughout the DFA.</p>																
Current Status	<p>For the 2011 reporting period, Canfor shared 100% of the plans with applicable Aboriginal communities with interests in the DFA. The following table shows the details of best efforts to share interests and plans with Aboriginal communities.</p> <table border="1" data-bbox="440 747 1313 995"> <thead> <tr> <th>Opportunity Type</th> <th>Number of Opportunities</th> </tr> </thead> <tbody> <tr> <td>Open House</td> <td>0</td> </tr> <tr> <td>Letters</td> <td>101</td> </tr> <tr> <td>Newspaper Advertisements</td> <td>0</td> </tr> <tr> <td>Pest Management Prescriptions</td> <td>13</td> </tr> <tr> <td>Individual Meetings</td> <td>2</td> </tr> <tr> <td>Other (E-mails / phone calls)</td> <td>59</td> </tr> <tr> <td>Total</td> <td>175</td> </tr> </tbody> </table>	Opportunity Type	Number of Opportunities	Open House	0	Letters	101	Newspaper Advertisements	0	Pest Management Prescriptions	13	Individual Meetings	2	Other (E-mails / phone calls)	59	Total	175
Opportunity Type	Number of Opportunities																
Open House	0																
Letters	101																
Newspaper Advertisements	0																
Pest Management Prescriptions	13																
Individual Meetings	2																
Other (E-mails / phone calls)	59																
Total	175																
Forecast	<p>Forest operations that respect Aboriginal title and rights, and treaty rights and reflect the timber and non-timber interests of local Aboriginals.</p>																
Target	<p>100% .</p>																
Basis for the Target	<p>Legal obligations and alignment with Canfor’s Environmental Policy and SFM Commitments.</p>																
Monitoring & Measurement Periodic																	
Monitoring & Measurement Annual	<p>Annual reporting will address “best efforts” by providing detail about number of plans, forms of communication initiated, and summary of interests/concerns. “Acceptance” will be reported by highlighting the comments received from Aboriginal communities that take exception to the management plans. “Clear understanding” is difficult to measure but will be measured as part of the continuum of relationship-building between Canfor and Aboriginal communities, and will be a qualitative measure based on the summary of interests and concerns.</p> <p>Canfor utilizes a variety of methods to share proposed development planning with potentially affected Aboriginals. Despite the means utilized, the objective is to build a relationship of mutually beneficial information sharing (e.g., sharing of proposed development & potentially impacted Aboriginal interests). Opportunities for Aboriginal involvement in the planning process and/or to provide input on proposed development activities is documented and tracked by planning staff. This information will be collated, summarized and reported out annually to ensure the target is achieved.</p> <p>Maintain a record (spatial and appropriate contact information) of the First Nation asserted</p>																

	<p>traditional territories that overlap the DFA for the purpose of information exchange related to proposed development activities and soliciting input relative to Aboriginal interests that may potentially be impacted. Undertake information sharing and track opportunities provided and input received that demonstrates development activities were shared/discussed with Aboriginal communities.</p> <p>Report the percentage of blocks harvested during the reporting period (including related access roads) where prior information sharing was undertaken with the appropriate Aboriginal community.</p> <p>The annual report will document the opportunities provided by type to applicable Aboriginal communities.</p>
Variance	0%

5.7.25 6.1.3 Level of management and/or protection of areas where culturally important practices and activities (hunting, fishing, gathering) occur

Indicator	6.1.3 Level of management and/or protection of areas where culturally important practices and activities (hunting, fishing, gathering) occur
Indicator Statement(s)	28 - % of forest operations in conformance with operational/site plans developed to address Aboriginal forest values, knowledge and uses (CI - 6.1.3)
Element(s)	6.1 Aboriginal and Treaty Rights
Value(s) and Objective(s)	Value 6.1.3: Recognize Aboriginal and Treaty Rights. <u>Objective 6.1.3:</u> Forest management conserves the unique or significant cultural features within the DFA.
Background and Description	<p>Open communication with local Aboriginals helps ensure that areas of cultural importance are managed in a way that retains their traditions and values. This indicator recognizes the importance of managing and protecting culturally important resources during forestry operations. Aboriginals, with the benefit of local and traditional knowledge, may provide valuable information concerning the specific location and use of these sites, as well as the specific forest characteristics requiring protection or management. The intent of this indicator is to manage and/or protect those truly important sites made known or identified.</p> <p>All First Nation’s with asserted traditional territory overlapping the DFA have had the opportunity for participation and input in the SFM planning process. Opportunities are provided to Aboriginals for review, and to solicit input on, Forest Stewardship Plans, including proposed results and strategies. In addition, Canfor provides site level information sharing opportunities to those First Nations whose traditional territory may potentially be impacted by proposed development activities. Soliciting Aboriginal input assists Canfor in identifying unique or significant cultural features and incorporating the means to manage/protect these values in site level or other plans. The target serves to verify that consideration was given in plans, then follows through with assessing plan execution.</p> <p>This indicator is designed to ensure that the strategies contained within Site Plans, pertaining to forest development areas with identified unique or significant cultural features, are implemented on the ground</p> <p>This indicator closely aligns with Indicators 1.4.2 protection of identified sacred and culturally important sites and 6.2.1 evidence of understanding and use of Aboriginal knowledge through the engagement of willing Aboriginal communities, using a process that identifies and manages culturally important resources and values.</p>
Strategy	Aboriginal input and field staff observations serve to identify potential Cultural Heritage Resource (CHR) values that can be further assessed by an archaeologist or qualified professional. Canfor utilizes an accepted Archaeological Predictive Model to assess the likelihood that a given area (harvest area or road corridor) has the potential to contain CHR features. Where development activities are proposed within zones of high archaeological potential, generally, an Archaeologist conducts site level archaeological evaluations to identify, assess and record any archaeological resources that may be present. Field staff and layout contractors undertake appropriate CHR training to identify, record and report features during site level development activities. Where warranted, mitigative measures to conserve identified features are incorporated into subsequent site level plans. Cultural Heritage Resource or historic features (e.g., non-archaeological protected sites) are also recorded and mitigative recommendations proposed as warranted (e.g., historic trapper cabins, trails, post-1846 CMTs, etc). Related site level plans containing appropriate management strategies are then properly executed to provide the desired results. Post-

	<p>harvest evaluations and other inspections assess plan conformance.</p> <p>Information sharing records are kept for each block or road, including the Aboriginal communities involved, the input received and any mitigative measures, strategy adjustment, or accommodation made as a result of the related information sharing.</p>		
Current Status	<p>The following table shows the current status of the percent of forest operations in conformance with operational/site plans developed to address Aboriginal forest values, knowledge and uses.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>2010/11 Status</td> </tr> <tr> <td>100%</td> </tr> </table>	2010/11 Status	100%
2010/11 Status			
100%			
Forecast	<p>Open and meaningful relationships with local Aboriginals leading to a trust in sharing sensitive information.</p> <p>Operational plans contain information on how these sites will be managed or protected. Forest operations that properly execute the site level plan.</p>		
Target	100%		
Basis for the Target	Legal obligations, past performance and alignment with Canfor SFM Commitments.		
Monitoring & Measurement Periodic			
Monitoring & Measurement Annual	<p>Maintain a record (spatial and appropriate contact information) of the First Nation asserted traditional territories that overlap the DFA for the purpose of information exchange related to proposed development activities and soliciting input relative to culturally important values that may potentially be impacted. Undertake information sharing and track input received that demonstrates development activities were shared/discussed with Aboriginal communities. Record the identified (by First Nations, staff or contractors) Aboriginal heritage forest values, knowledge and uses that require specific management or protection. Incorporate management strategies in site level plans or other plans that specify how these values will be managed. EMS inspections assess post-harvest consistency with applicable site level plans (in this case whether CHR strategies were implemented as prescribed). Incident tracking systems record any identified non-conformances.</p> <p>Report:</p> <p>The data sources above will be queried and collated to report on Canfor performance relative to the target.</p> <p>Annually report the percentage of instances where post-harvest conditions (or other applicable forest activities) undertaken during the reporting period, are consistent with plan commitments to address Aboriginal forest values, knowledge and uses.</p>		
Variance	0%		

[Element 6.2 Respect for Aboriginal Forest Values, Knowledge, and Uses]

The indicator for Element 6.2 is covered under indicator 1.4.2 (above).

5.7.26 6.3.1 Evidence that the organization has co-operated with other forest-dependent businesses, forest users, and the local community to strengthen and diversify the local economy

Indicator	6.3.1 Evidence that the organization has co-operated with other forest-dependent businesses, forest users, and the local community to strengthen and diversify the local economy																
Indicator Statement(s)	29 - Primary and by-products, support opportunities and business relationships that are bought, sold, traded, or donated with other forest dependent businesses, forest users and the local community (CI - 6.3.1(a))																
Element(s)	6.3 Forest Community Well-Being and Resilience																
Value(s) and Objective(s)	<p><u>Value 6.3:</u> Decisions guiding forest management on the DFA are informed and respond to a wide range of social and cultural values</p> <p><u>Objective 6.3:</u> Forest management planning adequately reflects the interest and issues raised by the public in the DFA through an effective public participation process.</p>																
Background and Description	<p>An economically and socially diverse community is often more sustainable in the long-term with its ability to weather market downturns of a particular sector. Support of efforts to increase diversity, the establishment of other enterprises and co-operation with other forest-dependent businesses and forest users is desirable.</p> <p>Support for local communities through business relationships (defined for this indicator as purchases, sales, or trading of primary forest products , forest by-products, and forest management services including research and analysis) provides employment diversification and increased local revenue. For the purposes of this indicator, local area is defined as postal codes that occur within communities tributary to the DFA. Communities considered tributary to the DFA include: Vanderhoof, Fraser Lake, Fort Fraser and the First Nations communities of Nadleh Whut'en, Saik'uz, and Stelat'en.</p>																
Strategy	<p>Canfor seeks and maintains active, mutually beneficial business relationships (purchases, sales, service, trade or consulting service arrangements) with other forest products and service businesses within or in the immediate vicinity of the DFA. Examples of primary products include logs, lumber, plywood, strand board, pulp. Examples of by-products include chips, sawdust, shavings, hog fuel and trim blocks. Examples of services include, Timber cursing, field layout,, surveys, research and analysis.</p>																
Current Status	<p>The following table summarizes Canfor performance for 2011.</p> <table border="1"> <thead> <tr> <th>Type</th> <th>#</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>Primary and by-products</td> <td>24</td> <td></td> </tr> <tr> <td>Support Opportunities</td> <td>50</td> <td>Cash Donations 18 Product Donations 4 Resource and Worker Donations 14 Community Events 14</td> </tr> <tr> <td>Business Relationships</td> <td>75</td> <td>Forestry Management 23 Silviculture 13 Harvesting / Road Construction 39</td> </tr> <tr> <td>Total</td> <td>149</td> <td></td> </tr> </tbody> </table> <p>...</p>		Type	#	Details	Primary and by-products	24		Support Opportunities	50	Cash Donations 18 Product Donations 4 Resource and Worker Donations 14 Community Events 14	Business Relationships	75	Forestry Management 23 Silviculture 13 Harvesting / Road Construction 39	Total	149	
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Total	149																
Forecast	<p>Support for local communities through business relationships provides employment diversification and increased local revenue.</p>																
Target	<p>170 purchase /sale /trade / service relationships/ support opportunities in the local</p>																

	community.
Basis for the Target	Business initiatives and relationships built on sound principles are not only beneficial to the partners, but also to the economy and vitality of communities within and adjacent to the DFA.
Monitoring & Measurement Periodic	
Monitoring & Measurement Annual	Report on the number of purchase, sale, service, trade relationships, or support opportunities provided to forest dependant businesses or communities tributary to the DFA. Tracking is the number of relationships, not the number of transactions within each relationship.
Variance	-60

5.7.27 6.3.1 Evidence that the organization has co-operated with other forest-dependent businesses, forest users, and the local community to strengthen and diversify the local economy

Indicator	6.3.1 Evidence that the organization has co-operated with other forest-dependent businesses, forest users, and the local community to strengthen and diversify the local economy														
Indicator Statement(s)	30 - % of identified tenure holders, stakeholders and residents' forest values, knowledge and uses considered in the forestry planning processes (CI - 6.3.1(b))														
Element(s)	6.3 Forest Community Well-Being and Resilience														
Value(s) and Objective(s)	<p><u>Value 6.3:</u> Decisions guiding forest management on the DFA are informed and respond to a wide range of social and cultural values.</p> <p><u>Objective 6.3:</u> Decisions guiding forest management on the DFA are informed and respond to a wide range of social and cultural values.</p>														
Background and Description	This indicator was designed to assess the licensee performance relative to providing stakeholders effective opportunities to be proactively involved in forest management activities and provide input on proposed development activities. This will ensure that when forestry activities are planned, information is exchanged in an effective and timely manner, so as to resolve potential land use conflicts before they occur. This process will help to identify public/stakeholder interests and non-timber values that require consideration within the Canfor's planning framework. Resulting stakeholder input could include the identification of interest areas, detail as to the nature of the interest on the land base and site level detail regarding potential impacts resulting from proposed development activities.														
Strategy	Canfor solicits public and stakeholder input on a landscape basis through a review and comment process associated with FSP approval. Public and stakeholder input is sought on the results and strategies that guide forest management operations. Once an FSP is approved, an information sharing process is utilized to share proposed site level planning and seek public and stakeholder input. These review and comment/ information-sharing opportunities are provided through a variety of methods including: open houses, individual meetings, letters, newspaper advertisements, etc. Any information sharing opportunities which requires a reply will be responded to within 30 days of receiving the correspondence.														
Current Status	<p>The following table displays the number and variety of effective opportunities provided to identified tenure holders, stakeholders and residents to be proactively involved in planning processes and provide input on forest values, knowledge and uses considered in the forestry planning processes (2011 Baseline data).</p> <table border="1"> <thead> <tr> <th>Description of Opportunity</th> <th>Opportunities (Responses)</th> </tr> </thead> <tbody> <tr> <td>Open Houses</td> <td>0</td> </tr> <tr> <td>Individual Meetings</td> <td>4</td> </tr> <tr> <td>Letters</td> <td>183</td> </tr> <tr> <td>Newspaper Advertisements</td> <td>0</td> </tr> <tr> <td>Other (E-mail / phone)</td> <td>17</td> </tr> <tr> <td>Total</td> <td>204</td> </tr> </tbody> </table> <p>In the 2011-12 Annual Report, this indicator will be reported as the percent of identified tenure holders, stakeholders and residents' forest values, knowledge and uses considered in the forestry planning processes.</p>	Description of Opportunity	Opportunities (Responses)	Open Houses	0	Individual Meetings	4	Letters	183	Newspaper Advertisements	0	Other (E-mail / phone)	17	Total	204
Description of Opportunity	Opportunities (Responses)														
Open Houses	0														
Individual Meetings	4														
Letters	183														
Newspaper Advertisements	0														
Other (E-mail / phone)	17														
Total	204														
Forecast	Support for local communities through business relationships provides employment diversification and increased local revenue.														

Target	100%
Basis for the Target	Open and meaningful relationships with local identified tenure holders, stakeholders and residents leading to a trust in sharing sensitive information. Forest plans contain information on how these sites will be managed or protected.
Monitoring & Measurement Periodic	
Monitoring & Measurement Annual	The number and type of licensee opportunities provided for residents and stakeholders to be pro-actively involved in forest management activities and provide input regarding proposed development will be tracked by planning staff. Canfor will be required to review and summarize this information annually for collating and reporting purposes.
Variance	0%

5.7.28 6.3.2 Evidence of co-operation with DFA-related workers and their unions to improve and enhance safety standards, procedures and outcomes in all DFA-related workplaces and affected communities. 6.3.3 Evidence that a worker safety program has been implemented and is periodically reviewed and improved

Indicator	<p>6.3.2 Evidence of co-operation with DFA-related workers and their unions to improve and enhance safety standards, procedures and outcomes in all DFA-related workplaces and affected communities</p> <p>6.3.3 Evidence that a worker safety program has been implemented and is periodically reviewed and improved</p>
Indicator Statement(s)	<p>31- Implementation and maintenance of a certified safety program (CI - 6.3.2 and CI - 6.3.3)</p>
Element(s)	<p>6.3 Forest Community Well-Being and Resilience</p>
Value(s) and Objective(s)	<p><u>Value 6.3:</u> Decisions guiding forest management on the DFA are informed and respond to a wide range of social and cultural values.</p> <p><u>Objective 6.3:</u> Decisions guiding forest management on the DFA are informed and respond to a wide range of social and cultural values.</p>
Background and Description	<p>From 1998 to 2005, WorkSafe BC accepted an average of nearly 22 harvesting fatality claims each year — the worst in 2005 with 34 claims. But the industry averaged fewer than 14 fatalities from 2006 to 2008. Canfor’s first measure of success is the health and safety of our people. This philosophy is embraced and promoted from the mill floor to the executive offices. This commitment is reflected in the work practices and safety programs employed at all worksites. Canfor implements their safety programs by assigning responsibilities to managers, supervisors and employees as follows:</p> <p>Management:</p> <ul style="list-style-type: none"> • Develop and maintain a comprehensive occupational health and safety program; • Conduct regular health and safety audits and implement appropriate action steps; • Facilitate active employee participation in health and safety initiatives and programs; and • Provide the necessary education and training in safe work practices and procedures for supervisors, Occupational Health & Safety (OH&S) committee members, and all employees. <p>Supervisors:</p> <ul style="list-style-type: none"> • Ensure that all employees under their direction receive proper training and instruction and that all work is performed safely; • Ensure that employees are made aware of all known or reasonably foreseeable health or safety hazards in the areas where they work; and • Initiate actions and follow-up in order to maintain a healthy and safe working environment within their areas of responsibility. <p>Employees:</p> <ul style="list-style-type: none"> • Take responsibility for avoiding risk to themselves and others and following all known safe work rules, procedures and instructions; and • Eliminate all accidents by working together to identify any potential hazards in the workplace and to take the appropriate corrective action <p>All of Canfor’s forest operations are third party certified to a safety program that meets or exceeds provincial safety programs - SAFE Company in BC.</p>
Strategy	<p>Forest operations retain their safety program certification.</p>

Current Status	Forest organizations who safely execute their work assignments. Canfor's safety program was initially third party certified in 2009.
Forecast	Canfor conducts their work in accordance with their certified safety program requirements and demonstrate efforts to make safety integral to each worker's life.
Target	100%
Basis for the Target	Continuously improve forest worker safety record.
Monitoring & Measurement Periodic	
Monitoring & Measurement Annual	Report whether third-party safety certification has been maintained on the DFA.
Variance	None

5.7.29 6.4.1 Level of participant satisfaction with the public participation process

Indicator	6.4.1 Level of participant satisfaction with the public participation process														
Indicator Statement(s)	32 - PAG established and maintained and satisfaction survey implemented (CI - 6.4.1)														
Element(s)	6.4 Fair and Effective Decision-Making														
Value(s) and Objective(s)	<p><u>Value 6.4:</u> Decisions guiding forest management on the DFA are informed and respond to a wide range of social and cultural values.</p> <p><u>Objective 6.4.1:</u> Forest management planning adequately reflects the interest and issues raised by the public in the DFA through an effective public participation process.</p>														
Background and Description	<p>The public participation process is a process of engagement that incorporates a diversity of values into SFM. Implementation of a public participation process as outlined in the CSA standard gives the public an opportunity to be involved proactively in the management of a DFA. An effective public participation process accommodates the public’s wide range of knowledge, interests, and involvement with regard to SFM, as well as differing cultural and economic ties to the forest. The SFM Public Advisory Group (PAG) was established to assist Canfor in:</p> <ul style="list-style-type: none"> • Developing and reviewing the SFM Plan; • Identifying and selecting values, objectives, indicators, and targets based on SFM elements and issues of relevance to the DFA; • Developing, assessing and selecting one or more possible strategies; • Designing monitoring programs, evaluating results and recommending improvements; and • Discussing and resolving any issues relevant to SFM in the DFA. <p>The SFM Plan is an evolving document that will be reviewed for effectiveness and revised as needed with the assistance of the PAG to address changes in forest condition and local community values. Ensuring the continuing interest and participation of the PAG is an integral part of a dynamic and responsive SFM Plan. The ability of people to share information, discuss and solve problems, and set and meet objectives is key to achieving and maintaining meaningful public participation.</p>														
Strategy	<p>At the end of each PAG meeting, Canfor will provide all PAG members in attendance a feedback form (survey) to assess their satisfaction with the meeting and associated process. The survey content and process will be that described in the AG’s Terms of Reference. All survey questions will have a 1-5 scoring assessment (1 being very poor, 2 being poor, 3 being average, 4 being good and 5 being very good).</p> <p>The results of the surveys will be collated and reviewed at the subsequent PAG meeting with any corresponding actions or recommendations. The results of all surveys completed will be summarized to determine an overall average score for a PAG meeting as well as the average overall score for all meetings that fall within a reporting period. When the average scoring assessment for a PAG meeting falls below 4, corrective action will be developed in conjunction with the PAG.</p>														
Current Status	<p>The following table shows a summary of the average meeting satisfaction score based on responses received.</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>2008/09 Status</th> <th>2009/10 Status</th> <th>2010/11 Status</th> <th>2011/12 Status</th> <th>2012/13 Status</th> </tr> </thead> <tbody> <tr> <td>4.1</td> <td>4.1</td> <td>4</td> <td>4.2</td> <td>4.8</td> </tr> </tbody> </table> <p>....</p>					2008/09 Status	2009/10 Status	2010/11 Status	2011/12 Status	2012/13 Status	4.1	4.1	4	4.2	4.8
2008/09 Status	2009/10 Status	2010/11 Status	2011/12 Status	2012/13 Status											
4.1	4.1	4	4.2	4.8											

Forecast	Active and engaged PAG.
Target	80% satisfaction from surveys (80% = 4/5).
Basis for the Target	Ensure issues are identified in a timely manner, discussed and, where possible, resolved. The PAG process is being continually improved.
Monitoring & Measurement Periodic	Periodic monitoring and measurement will be completed for each PAG meeting conducted within a given reporting period. The satisfaction score for a meeting will be determined and presented to the PAG at a subsequent meeting. The results will be discussed, opportunities will be reviewed and action plans will be developed when the overall average PAG meeting satisfaction score falls below 4.
Monitoring & Measurement Annual	Annual monitoring and measurement will entail summarizing the overall PAG meeting satisfaction score for all meetings that fall within a given reporting period to arrive at an overall score for the year. This will be for monitoring purposes only given that opportunities and actions plans have already been completed as part of the meeting summaries.
Variance	-10%

5.7.30 6.4.2 Evidence of efforts to promote capacity development and meaningful participation in general

Indicator	6.4.2 Evidence of efforts to promote capacity development and meaningful participation in general								
Indicator Statement(s)	33 - Number of educational opportunities for information/training that are delivered to the PAG (CI - 6.4.2)								
Element(s)	6.4 Fair and Effective Decision-Making								
Value(s) and Objective(s)	<p><u>Value 6.4:</u> Decisions guiding forest management on the DFA are informed and respond to a wide range of social and cultural values.</p> <p><u>Objective 6.4.2:</u> The collective understanding of SFM by the forest industry and the public is increased..</p>								
Background and Description	<p>The ability of people to share information, discuss and solve problems, and set and meet objectives is critical to achieving and maintaining meaningful public participation within the context of forest management and the CSA public participation process. Many types of capacity development initiatives can be used to help achieve meaningful public participation.</p> <p>This indicator recognizes the importance of providing information and/or training opportunities for members of the Public Advisory Group (PAG) that in turn contributes to a more knowledgeable and effective PAG. Examples of educational opportunities could include field trips and guest presentations on a particular topic of interest to the PAG. Members of the public provide local knowledge that contributes to the achievement of socially and environmentally responsible forest management. At times, public members may feel limited in their ability to contribute to discussions because they may lack the required technical forestry knowledge. Broadening this knowledge base enables better dialogue and helps contribute to balanced decisions and an SFM Plan acceptable to the majority of the affected public.</p>								
Strategy	Canfor is committed to work with members of the PAG on forest management issues and to improve the effectiveness of the public processes through capacity development. Canfor will provide informational/educational opportunities for PAG participants on an annual basis as part of regularly held meetings.								
Current Status	<p>The following table shows a summary of the number of educational opportunities for information/training delivered to the PAG.</p> <table border="1"> <thead> <tr> <th>2009/10 Status</th> <th>2010/11 Status</th> <th>2011/12 Status</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> No opportunities. </td> <td> <ul style="list-style-type: none"> One (1) opportunity: Gerd Erasmus - Coarse Woody Debris. </td> <td> <ul style="list-style-type: none"> Five (5) opportunities: Dr. Greg Halseth, Canada Research Chair in Rural and Small Town Studies, UNBC – community development; John DeGagne and Gord Saito, MoFLNRO - Access Management Plan; Gerd Erasmus – Habitat Elements; Jim McCormack, Canfor – Canfor’s Biodiversity Strategy; Ralph Hausot, Canfor - Silviculture Management in the DFA. </td> </tr> </tbody> </table>			2009/10 Status	2010/11 Status	2011/12 Status	<ul style="list-style-type: none"> No opportunities. 	<ul style="list-style-type: none"> One (1) opportunity: Gerd Erasmus - Coarse Woody Debris. 	<ul style="list-style-type: none"> Five (5) opportunities: Dr. Greg Halseth, Canada Research Chair in Rural and Small Town Studies, UNBC – community development; John DeGagne and Gord Saito, MoFLNRO - Access Management Plan; Gerd Erasmus – Habitat Elements; Jim McCormack, Canfor – Canfor’s Biodiversity Strategy; Ralph Hausot, Canfor - Silviculture Management in the DFA.
2009/10 Status	2010/11 Status	2011/12 Status							
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Forecast	An informed Public Advisory Group (PAG) is better able to represent public interests pertaining to sustainable forest management in the DFA..
Target	≥ 4
Basis for the Target	Additional knowledge provides for better dialogue and ultimately better decisions.
Monitoring & Measurement Periodic	
Monitoring & Measurement Annual	Report the number of educational opportunities that were presented to the public advisory group during the reporting period. PAG meeting minutes will contain supporting documentation specific to the educational opportunity discussed.
Variance	-1.

[Element 6.4 Fair and Effective Decision-Making]

Core Indicator 6.4.3 Evidence of best efforts to obtain acceptance of management plans based on Aboriginal communities having a clear understanding of the plans is covered under Indicator 6.1.2 (above).

5.7.31 6.5.1 Number of people reached through educational outreach

Indicator	6.5.1 Number of people reached through educational outreach											
Indicator Statement(s)	34 - The number of educational opportunities provided (CI - 6.5.1)											
Element(s)	6.5 Information for Decision-Making											
Value(s) and Objective(s)	<p><u>Value 6.4:</u> Decisions guiding forest management on the DFA are informed and respond to a wide range of social and cultural values.</p> <p><u>Objective 6.5:</u> The collective understanding of SFM by the forest industry and the public is increased.</p>											
Background and Description	<p>Canfor is committed to working with directly affected stakeholders and members of the public on forest management issues and have a well-established history of participation in community meetings, including local planning processes. The sharing of knowledge with affected stakeholders contributes to informed, balanced decisions and plans acceptable to the majority of public. When informed and engaged, members of the public can provide local knowledge and support that contributes to socially and environmentally responsible forest management within the DFA.</p>											
Strategy	<p>Canfor maintains their involvement in educational outreach initiatives. Examples of educational outreach initiatives include:</p> <ul style="list-style-type: none"> • Maintaining an open and active public advisory group, • Field tours, and open houses, • School classroom visits, • Continual improvement projects, • Knowledge transfer sessions, • Participation in trade shows, • Regional District presentations, and • Forestry tours. <p>Canfor will work with the PAG (and others) to identify more opportunities over time.</p>											
Current Status	<p>The following table shows a summary of the number of educational opportunities provided by Canfor.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">2008/09 Status</th> <th style="text-align: center;">2009/10 Status</th> <th style="text-align: center;">2010/11 Status</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;"> <ul style="list-style-type: none"> • Project Forest Management at Echo Lake Bible Camp • Canfor external website and certification initiatives posting • 2 different PAG meeting Presentations on completed FIA projects • Riverside Park Wildlife Detective Event </td> <td style="vertical-align: top;"> <ul style="list-style-type: none"> • Advertising (newspaper & website) related to participating on the PAG • Canfor external website • Booklets & Staff Guides </td> <td style="vertical-align: top;"> <ul style="list-style-type: none"> • Canfor external certification website and Canfor annual staff & contractor training. • The PG TSA SFM Website provides access to relevant materials (e.g., Old Growth, lakeshore Management). </td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">3</td> <td style="text-align: center;">2</td> </tr> </tbody> </table>			2008/09 Status	2009/10 Status	2010/11 Status	<ul style="list-style-type: none"> • Project Forest Management at Echo Lake Bible Camp • Canfor external website and certification initiatives posting • 2 different PAG meeting Presentations on completed FIA projects • Riverside Park Wildlife Detective Event 	<ul style="list-style-type: none"> • Advertising (newspaper & website) related to participating on the PAG • Canfor external website • Booklets & Staff Guides 	<ul style="list-style-type: none"> • Canfor external certification website and Canfor annual staff & contractor training. • The PG TSA SFM Website provides access to relevant materials (e.g., Old Growth, lakeshore Management). 	4	3	2
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4	3	2										
Forecast	An educated and informed public with a broad understanding of forestry that can provide local input and support on matters pertaining to forest planning and operations.											
Target	5 Annually											

Basis for the Target	Aligns with Canfor's Environmental Policy and SFM Commitments.
Monitoring & Measurement Periodic	
Monitoring & Measurement Annual	Track and report the number of educational opportunities provided. Record attendance level at each meeting or tour (public and stakeholders). Provide a description of each type of opportunity in the Annual Report.
Variance	-2.

5.7.32 6.5.2 Availability of summary information on issues of concern to the public

Indicator	6.5.2 Availability of summary information on issues of concern to the public
Indicator Statement(s)	35 - SFM Annual Report made available to the public (CI - 6.5.2)
Element(s)	6.5 Information for Decision-Making
Value(s) and Objective(s)	<u>Value 6.4:</u> Decisions guiding forest management on the DFA are informed and respond to a wide range of social and cultural values <u>Objective 6.5:</u> The collective understanding of SFM by the forest industry and the public is increased.
Background and Description	This indicator recognizes the importance of keeping members of the public informed on forestry strategies being developed, planning occurring in their area and results from forest management activities. Issues of concern brought forward by the public are part of the discussions occurring at public advisory group meetings and often work their way into a reporting requirement in the SFM Plan or an action in SFM monitoring reports. Annual reporting of the Plan’s performance measures to the advisory group and to the broader public provides an open and transparent means of demonstrating how issues of concern are being managed. It provides the public with an opportunity to respond to results and associated actions outlined in the annual SFM Monitoring report and make recommendations for improvement. Members of the public can provide local knowledge that contributes to socially and environmentally responsible forest management.
Strategy	Canfor maintains an external website that makes the SFM monitoring report publicly available.
Current Status	External websites containing the annual SFM monitoring report have been maintained since 2001. http://www.sfmptsa.com http://www.canfor.com/responsibility/environmental/certification
Forecast	Public awareness and understanding of the SFM Plan and annual performance relative to the Plan’s targets. A continuously improving SFM Plan that has openly informed, included and responded to the public.
Target	Annual Report made available to the public annually via the web.
Basis for the Target	Provides topical information to the local public as well as a worldwide audience. Has a contact mechanism for those looking for additional information.
Monitoring & Measurement Periodic	
Monitoring & Measurement Annual	Report a yes/no answer as to whether the annual monitoring report was made publically available on an external website.
Variance	None

6.0 LINKS TO OTHER PLANNING PROCESSES

6.1 Strategic Plans

Vanderhoof Land and Resource Management Plan (LRMP)

The Government of British Columbia announced the Vanderhoof Land and Resource Management Plan (LRMP) in January 1997. The LRMP addresses the long-term balance of the environment and economy in the District. It provides access to timber for the local forest industry, certainty for the mining, ranching and tourism industries while also establishing conservation and recreation objectives for many natural values in the District. The stability and security provided by the plan provides economic and social stability and increased opportunities for growth and investment throughout the region.

6.2 Plans, Policies and Strategies That Relate to the SFM Plan

The Forest Stewardship Plan

Under the Forest & Range Practices Act (FRPA), major forest licensees are required to operate under a Forest Stewardship Plan (FSP). Forest Stewardship Plans contain the results and/or strategies for managing FRPA's CORE Values or Objectives Set by Government (OSBG) (e.g. biodiversity, soils, scenic areas, etc.). FSPs, including their results and/or strategies are approved by government. All developments under FSPs must adhere to results and/or strategies specified therein, as well as applicable FRPA practice requirements. Canfor is not required to indicate where cut blocks will be located and how harvesting and reforestation will be carried out in FSPs. Canfor is required to prepare a site plan for planned cut blocks and roads prior to harvesting.

Site Plan

A key requirement under FRPA and a key regulation under the act - the Forest Planning and Practices Regulation (FPPR) - is for the license holder, prior to harvesting a cut block, to develop a Site Plan (SP) for any road or block. SPs must contain or do several key things: show the approximate locations and area of cut blocks and roads; be consistent with the FSP, the FRPA and the regulations; identify standards units (SU's - describes soils hazards and stocking standards) within the block; and identify how the intended results and/or strategies described in the FSP apply to the site. Fieldwork and confirmation of ecological identification is carried out in accordance with the Forester's Act by qualified persons and/or those under the direct supervision of qualified forest professionals. Finally, consistent with the Forester's Act, SPs must be signed and sealed by a Registered Professional Forester (who then accepts professional accountability for the content of that plan). SPs are not approved by government but are available to the public.

Canfor's Sustainable Forest Management Commitments

The Sustainable Forest Management Commitments are based on the tenets of accountability, continuous improvement, Aboriginal and public involvement and third party verification of performance. Canfor views these commitments as a fundamental component in improving its existing sustainable forest management practices, ensuring the transparency of its operations and fulfilling sustainable forest management certification requirements. The Sustainable Forest Management Commitments are found at the beginning of this document.

Canfor's Environmental Management Systems

An Environmental Management System (EMS) is a management tool that enables an organization to control the impacts of its activities, products or services on the environment. It is a structured approach for setting and achieving environmental objectives and targets, and for demonstrating that they have been achieved. The EMS requires an organization to have in place the mechanisms, policies and structure to comply with environmental legislation and regulations and to evaluate such mechanisms, policies and structure with the objective of continual improvement.

The International Organization for Standardization (ISO) is a worldwide federation of national standards bodies from 130 countries. This non-governmental organization was established in 1947 to promote the standardization of related economic activities around the world. In 1996, ISO developed an international standard for environmental management systems: ISO 14001. This standard was subsequently updated in 2004.

The Environmental Management Systems for Canfor's woodlands operations received certification to ISO 14001 following an audit from independent registrars. The EMS standardizes woodlands environmental management for the identified woodlands operations and will help to ensure environmental performance improves over time. Canfor recognizes that the ISO 14001 standard is an essential step in achieving independent recognition of our commitment to sustainable forest management.

LIST OF ACRONYMS

AAC: Allowable Annual Cut
AMP: Access Management Plan
BCTS: BC Timber Sales
BEC: Biogeoclimatic Ecosystem Classification
CFP: Canadian Forest Products, Ltd. (Canfor)
CHR: Cultural Heritage Resource
CO₂: Carbon Dioxide
COSEWIC: Committee on the Status of Endangered Wildlife in Canada
CSA: Canadian Standards Association
CWD: Coarse Woody Debris
DFA: Defined Forest Area
ECA: Equivalent Clearcut Area
EMS: Environmental Management System
EOI: Expression of Interest
ESA: Environmentally Sensitive Area
ESSF: Engelmann Spruce-Subalpine Fir
FDP: Forest Development Plan
FMLB: Forest Management Land Base
FN: First Nation
FPPR: Forest Planning and Practices Regulation
FREP: Forest and Range Evaluation Program
FRPA: Forest and Range Practices Act
FSP: Forest Stewardship Plan
FSR: Forest Service Road
FSW: Fisheries Sensitive Watersheds
GAR: Government Actions Regulation
GWM: General Wildlife Measures
IFPA: Innovative Forest Practices Agreement
ISO: International Organization for Standardization
LRMP: Land and Resource Management Plan
LT: Licensee Team
MFLNRO: BC Ministry of Forests, Lands and Natural Resource Operations
MOE: BC Ministry of Environment
MPB: Mountain Pine Beetle
NAR: Net Area to be Reforested
NDT: Natural Disturbance Type
NHLB: Non – Harvestable Land Base
NRFL: Non-Replaceable Forest License
OAF: Operational Adjustment Factor
OBSCR: Open Burning Smoke Control Regulation
OGMA: Old Growth Management Area
OGSI: Old Growth Site Index
OH&S: Occupational Health & Safety
OSBG: Objectives Set by Government
PAG: Public Advisory Group
PAS: Protected Area Strategy
PEFC: Programme for the Endorsement of Forest Certification

PEM: Predictive Ecosystem Mapping
PFI: Peak Flow Index
PIR: Partners in Injury Reduction
PL: Lodgepole Pine
RDI: Road Density Index
RPF: Registered Professional Forester
SARA: Federal Species at Risk Act
SBS: Sub-Boreal Spruce
SFI: Sustainable Forestry Initiative
SFM: Sustainable Forest Management
SFMP: Sustainable Forest Management Plan
SIBEC: Site Index Estimates by Site Series
SU: Standards Unit
THLB: Timber Harvesting Land Base
TOR: Terms of Reference
TSA: Timber Supply Area
TSL: Timber Sale License
TSR: Timber Supply Review
TRIM: Terrain Resource Information Management
UWR: Ungulate Winter Range
VIA: Visual Impact Assessment
VOIT: Values, Objectives, Indicators, Targets
VQO: Visual Quality Objective
WCB: Workers' Compensation Board
WHA: Wildlife Habitat Areas
WTH: Wind Throw Hazard
WTP: Wildlife Tree Patch
WTRA: Wildlife Tree Retention Areas

GLOSSARY

Abiotic – pertaining to the non-living component of the environment (e.g., climate, ice, soil and water). (Canadian Council of Forest Ministers)

Aboriginal – “aboriginal peoples of Canada” [which] include Indian, Inuit, and Métis peoples of Canada (Constitution Act 1992, Subsection 35(2)). (CSA Z808-96)

Abundance – the number of organisms in a population, combining density within inhabited areas with number and size of inhabited areas. (Canadian Council of Forest Ministers)

Access Management Plan - An operational plan that shows how road construction, modification and deactivation will be carried out to protect, or mitigate impacts on, known resources or sensitive areas, while maximizing the efficacy of forest resource development.

Access Structures - a structure, including a road, bridge, landing, gravel pit or other similar structure that provides access for forest management such as harvesting.

Activities – energetic action or movement; liveliness. (The American Heritage Dictionary of the English Language, Third Edition)

Adaptive Management (AM) – a systematic, rigorous approach to improving management and accommodating change by learning from the outcomes of management interventions. (BC Ministry of Forests - Forest Practices Management Branch)

Age Class – any interval of time into which the age range of trees, forests, stands or forest types is decided for classification and use. (BC Ministry of Forests)

Agriculture Land (High Value) – parcels of land, which, based on soil and climate capability hearings, are deemed necessary to be maintained for agricultural use. (Common Usage)

Allowable Annual Cut (AAC) – the allowable rate of timber harvest from a specified area of land. British Columbia’s Chief Forester sets AACs for timber supply areas (TSAs) and tree farm licenses (TFLs) in accordance with Section 8 of the BC Forest Act. (BC Ministry of Forests)

Analysis Units – the basic building blocks around which inventory data and other information are organized for use in forest planning models. Typically, these involve specific tree species or type groups that are further defined by site class, geographic location or similarity of management regimes. (BC MoFLNRO Website Glossary)

Anthropogenic – relating to or influenced by the impact of man on nature (e.g., ecosystems) (Webster’s Collegiate Dictionary)

Aquatic – consisting of, relating to, or being in water. (The American Heritage Dictionary of the English Language, Third Edition)

Apportionment – the distribution of the AAC for a TSA among timber tenures by the Minister in accordance with Section 10 of the *Forest Act*. (BC MoFLNRO Website Glossary)

Backlog – a Ministry of Forests term applied to forest land areas where silviculture treatments such as planting and site preparation are overdue. Planting is considered backlog if more than 5 years have elapsed since a site was cleared (by harvesting or fire) in the interior and more than 3 years on the coast of British Columbia. (BC MoFLNRO Website Glossary)

Basic silviculture – harvesting methods and silviculture operations including seed collecting, site preparation, artificial and natural regeneration, brushing, spacing and stand tending, and other operations that are for the purpose of establishing a free growing crop of trees of a commercially valuable species and are required in a regulation, pre-harvest silviculture prescription or silviculture prescription. (BC MoFLNRO Website Glossary)

Best Management Practices – a practice or combination of practices that are determined to be the most technologically or economically feasible means of preventing or managing potential impacts. (Best Management Practices Handbook: Hillslope Restoration in British Columbia; Watershed Restoration Technical Circular No.3 (revised); May 2000; Watershed Restoration Program, BC MoF)

Biodiversity (or biological diversity) – the variability among living organisms from all sources including *inter alia* terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (Canadian Biodiversity Strategy 1995) (CSA Z808-96)

Biogeoclimatic ecosystem classification (BEC) – a hierarchical classification system scheme having three levels of integration: regional, local and chronological; and combining climatic, vegetation and site factors. (BC Ministry of Forests)

Biogeoclimatic zone – a large geographic area with a broadly homogenous macroclimate. Each zone is named after one or more of the dominant climax species of the ecosystems in the zone, and a geographic or climatic modifier. British Columbia has 14 biogeoclimatic zones. (BC Ministry of Forests)

Biota – all of the living organisms in given ecosystem, including microorganisms, plants and animals. (Canadian Council of Forest Ministers)

Biological Richness (species richness) – Species presence, distribution, and abundance in a given area.

Biomass – The total dry weight or volume of all or part of a tree.

Biotic – pertaining to any living aspect of the environment, especially population or community characteristics. (Canadian Council of Forest Ministers)

Blowdown (windthrow) – uprooting by the wind. Also refers to a tree or trees so uprooted. (BC MoFLNRO Website Glossary)

Carbon Cycle – The storage and cyclic movement of organic and inorganic forms of carbon between the biosphere, lithosphere, hydrosphere, and atmosphere.

Carbon Sink - Forests and other ecosystems that absorb carbon, thereby removing it from the atmosphere and offsetting CO₂ emissions.

Coarse-filter Ecosystem Group - Is the outcome of grouping site series that have relative similarities of their indicator plant communities. This term is also referred to habitat types in the SFM Plan.

Coarse Woody Debris (CWD) – Dead woody material of a minimum diameter or greater, either resting on the forest floor or at an angle to the ground of 45 degrees or less. Coarse woody debris consists of sound and rotting logs and branches, and may include stumps when specified. CWD provides habitat for plants, animals and insects, and a source of nutrients for soil development.

Community – a group of people with collective, common goals. (Common Usage)

Community Forest Tenures – the control and use of land and resources contained within an area influenced by the urban population. (Dictionary of Natural Resource Management- J. & K. Dunster)

Communities of Interest – sectors of society which share common goals and interests e.g. Aboriginals, Recreation Associations. (Common usage)

Connectivity – a qualitative term describing the degree to which late-succession ecosystems are linked to one another to form an interconnected network. The degree of interconnectedness and the characteristics of the linkages vary in natural landscapes based on topography and natural disturbance regime. (BC Ministry of Forests)

Cultural Heritage Resource – Unique or significant places and features of social, cultural or spiritual importance, such as an archaeological site, recreational site or trail, cultural heritage site or trail, historic site, or protected area.

Considered – mentally contemplate. (Canadian Oxford Dictionary)

Critical – being in or verging on a state of crisis or emergency. (The American Heritage Dictionary of the English Language, Fourth Edition)

Crown Land – land that is owned by the Crown; referred to as federal land when it is owned by Canada, and as provincial Crown land when it is owned by a province. Land refers to the land itself and the resources or values on or under it. (BC Ministry of Forests)

Cut Control – a set of rules and actions specified in the *Forest Act* that describes the allowable variation in the annual harvest rate either above or below the allowable annual cut (AAC) approved by the chief forester. (BC MoFLNRO Website Glossary)

Deactivation – measures taken to stabilize roads and logging trails during periods of inactivity, including the control of drainage, the removal of sidecast where necessary, and the re-establishment of vegetation for permanent deactivation. Road deactivation ranges from temporary to permanent.

Defined Forest Area (DFA) – a specified area of forest, land, and water delineated for the purposes of registration of a Sustainable Forest Management System. (CSA Z808-96)

Disturbed areas – localities which have been impacted by natural events (fire, wind, flood, insects and also by human activities such as forest harvesting or construction of roads (Dictionary of Natural resource management + common usage)

Diverse – made up of distinct characteristics, qualities, or elements. (The American Heritage Dictionary of the English Language, Fourth Edition)

Duly Established Aboriginal and Treaty Rights – existing Aboriginal and Treaty Rights are recognized and affirmed in the Canadian Constitution. When discussed in relation to renewable resources, such Aboriginal and Treaty Rights generally relate to hunting, fishing, and trapping, and in some cases, gathering. (CSA Z808-96 Page 31 Section 2.6.1)

Ecological Reserves – areas of Crown land which have the potential to satisfy one or more of the following criteria:

- areas suitable for scientific research and educational purposes associated with studies in productivity and other aspects of the natural environment;
- areas which are representative of natural ecosystems;
- areas in which rare or endangered native plants or animals may be preserved in their natural habitat; and

- areas that contain unique geological phenomena. (BC MoFLNRO Website Glossary)

Ecosystem – a functional unit consisting of all the living organisms (plants, animals, and microbes) in a given area, and all the non-living physical and chemical factors of their environment, linked together through nutrient cycling and energy flow. An ecosystem can be of any size—a log, pond, field, forest, or the earth's biosphere—but it always functions as a whole unit. Ecosystems are commonly described according to the major type of vegetation, for example, forest ecosystem, old-growth ecosystem, or range ecosystem. (BC MoFLNRO Website Glossary)

Educational – of or relating to education. (The American Heritage Dictionary of the English Language, Fourth Edition)

Enhance – to make greater (as in value, desirability, or attractiveness). (Webster's Collegiate Dictionary)

Effectiveness Monitoring Plan (wildlife) – The purpose of an effectiveness monitoring plan is to assess trends in wildlife populations related to their habitat to meet SFMP indicator goal(s). Components of an effectiveness monitoring plan include: goals, current information, conceptual model, indicators & measures, sampling design, analysis and implementation. Those wishing more detailed information on general effectiveness monitoring should review “The strategy and design of effectiveness monitoring program for the Northwest Forrest Plan” USDA General Technical report PNW-GTR-437, January 1999.

Environment – the surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation. (CSA Z808-96)

Environmentally Sensitive Area (ESA) – An area requiring special management attention to protect important scenic values, fish and wildlife resources, historical and cultural values, or other natural systems or processes. ESAs for forestry include potentially fragile, unstable soils that may deteriorate unacceptably after forest harvesting, and areas of high value to non-timber resources such as fisheries, wildlife, water, and recreation.

Extension Services – Assistance provided to people to help them learn more about a particular subject from people with specific technical expertise.

Extraction – the act of extracting, or drawing out; as, the extraction of a tooth, of a bone or an arrow from the body, of a stump from earth, of a passage from a book, of an essence or tincture. (Webster's Revised Unabridged Dictionary)

Fauna – the animal community found in one or more regions. (Canadian Council of Forest Ministers)

Flora – the plant species found in one or more regions. (Canadian Council of Forest Ministers)

Forest – a plant community of predominantly trees and other woody vegetation growing more or less closely together, its related flora and fauna, and the values attributed to it. (CSA Z808-96)

Forest and Range Practices Act (FRPA) – The Forest and Range Practices Act and its regulations govern the activities of forest and range licensees in B.C. The statute sets the requirements for planning, road building, logging, reforestation, and grazing. FRPA and its regulations took effect on Jan. 31, 2004.

Forest Land – land supporting forest growth or capable of so doing, or, if totally lacking forest growth, bearing evidence of former forest growth and not now in other use. (CSA Z808-96)

Forest Product – an item that is manufactured from trees. Forest products can be classified as primary (originating from harvested timber, e.g., lumber, pulp, etc.), or secondary (a by-product of the lumber or pulp process, e.g., furniture, wood-based chemicals, etc.). (Common Usage)

Forest Resources – resources and values associated with forests and range including, without limitation, timber, water, wildlife, recreation, botanical forest products, forage and biological diversity. (Forest Practices Code of British Columbia Act)

Fragmentation – the process of transforming large continuous forest patches into one or more smaller patches surrounded by disturbed areas. This occurs naturally through such agents as fire, landslides, windthrow and insect attack. In managed forests timber harvesting and related activities have been the dominant disturbance agents. (BC MoFLNRO Website Glossary)

Free-growing Stand – A stand of healthy trees of a commercially valuable species, the growth of which is not impeded by competition from plants, shrubs or other trees.

Free-growing Assessment – the determination for whether young trees have attained free-growing status.

Genetic diversity – variation among and within species that is attributable to differences in hereditary material. (BC MoFLNRO Website Glossary)

Genetically improved stock – seed or propagule that originate from a tree breeding program and that have been specifically designed to improve some attribute of seeds, seedlings, or vegetative propagules selection. (BC MoFLNRO Website Glossary)

Global Ecological Cycles – The complex of self-regulating processes responsible for recycling the Earth's limited supplies of water, carbon, nitrogen, and other life-sustaining elements

Goal – a broad, general statement that describes a desired state or condition related to one or more forest values. (CSA Z808-96)

Grazing Tenure – the use and control of range land for cattle grazing purposes (common usage)

Habitat - the place where an organism lives and/or the conditions of that environment including the soil, vegetation, water, and food. (BC MoFLNRO Website Glossary)

Habitat Types – See Coarse-filter Ecosystem Group

Haylage - Haylage is a name for high dry matter silage of around 45% to 75%.

Healthy – having or indicating good health in body or mind; free from infirmity or disease. (Dictionary.com)

Healthy Community – a community evidencing growth, interdependence, and cooperation in a variety of areas. (Common usage)

High Biodiversity Emphasis Area (HBEA) – a spatially explicit portion of the forested landscape managed for high biodiversity values, particularly structural integrity. HBEAs are distributed throughout the plan area and are related to, but not limited by, landscape unit boundaries. (MSRM 2004 - Morice Land and Resource Management Plan Final Land Use Recommendation)

High Value Trails – a widely used, unrestricted right of way acknowledged as having local social or cultural significance. (Common usage)

Hydrologic Flows – the movement of groundwater near the surface. (Common Usage)

Hydrogeology – the branch of geology that deals with the occurrence, distribution, and effect of ground water. (The American Heritage Dictionary of the English Language, Fourth Edition)

Hydrology – the science that describes and analyzes the occurrence of water in nature, and its circulation near the surface of the earth. (BC MoFLNRO Website Glossary)

Incremental silviculture – a Ministry of Forests term that refers to the treatments carried out to maintain or increase the yield and value of forest stands. Includes treatments such as site rehabilitation, conifer release, spacing, pruning, and fertilization. Also known as intensive silviculture. See Basic silviculture. (BC MoFLNRO Website Glossary)

Indicator – a measurable variable used to report progress toward the achievement of a goal. (CSA Z808-96)

Indicator species – species of plants used to predict site quality and characteristics. (BC MoFLNRO website glossary)

Indigenous – a species of plant, animal, or abiotic material that is nature to a particular area (e.g., occurs naturally in an area and is not introduced). (Dictionary of Natural Resource Management, Julian and Katherine Dunster, 1996)

Independent – autonomous, self regulating. (Common Usage)

Inoperable lands – lands that are unsuited for timber production now and in the foreseeable future by virtue of: elevation, topography, inaccessible location, low value of timber, small size of timber stands, steep or unstable soils that cannot be harvested without serious and irreversible damage to the soil or water resources, or designation as parks, wilderness areas, or other uses incompatible with timber production. (BC MoFLNRO website glossary)

Interior Forest – Forest that is far enough away from a natural or harvested edge that the edge does not influence its environmental conditions, such as light intensity, temperature, wind, relative humidity, and snow accumulation and melt.

Known – to be able to distinguish; recognize as distinct. (The American Heritage Dictionary of the English Language, Fourth Edition)

Landscape – a spatial mosaic of several ecosystems, landforms and plant communities intermediate between an organism's normal home-range, size and its regional distribution. (Canadian Council of Forest Ministers). A watershed or series of similar and interacting watersheds, usually between 10,000 and 100,000 hectares in size. (BC Ministry of Forests Biodiversity Guidebook pp76.)

Linkage – a physical, biological, cultural, psychological, or policy connection or influence between two or more objects, processes, or policies. (Dictionary of Natural Resource Management, Julian and Katherine Dunster, 1996)

Local Community – postal codes that occur within communities tributary to the Defined Forest Area. Communities considered tributary to the DFA include: Vanderhoof, Fraser Lake, Fort Fraser and the First Nations communities of Nadleh Whut'en, Saik'uz, and Stellat'en.

Log (CWD) – For the purposes of coarse woody debris, a log is considered as being a minimum of 2 m in length and 7.5 cm in diameter at one end.

Mean Annual Increment – the total volume increment for a given area to a given age in years, divided by that age (m³/ha/year). (BC MoFLNRO website glossary)

Minimum Harvest Age - The age at which the minimum harvest volume of a stand of trees is reached on the corresponding yield curve.

Minimum Harvest Volume – The minimum amount of merchantable volume (m³/hectare) by leading tree species required before a stand of trees is considered economically suitable for harvest.

Natural – being in accordance with or determined by nature or having a form or appearance found in nature. (Webster’ Collegiate Dictionary)

Natural Disturbance – The historic process of fire, insects, wind, landslides, and other natural events in an area not caused by humans.

Natural Disturbance Unit (NDU) – Large geographic areas that have similar topography, climate, disturbance dynamics (e.g., fire cycle, patch size), stand development and successional patterns.

Natural range of variability – the variation in extent or occurrence through time of ecosystems, and species resulting from naturally occurring biotic or abiotic disturbances. (Common Usage)

Net Area to be Reforested (NAR) – (a) the portion of the area under a silviculture prescription or Site Plan that does not include:

- (i) an area occupied by permanent access structures,
 - (ii) an area of rock, wetland or other area that in its natural state is incapable of growing a stand of trees that meets the stocking requirements specified in the prescription,
 - (iii) an area of non-commercial forest cover of 4 ha or less that is indicated in the silviculture prescription as an area where the establishment of a free growing stand is not required,
 - (iv) a contiguous area of more than 4 ha that the district manager determines is composed of non-commercial forest cover, or
 - (v) an area indicated in the silviculture prescription as a reserve area where the establishment of a free growing stand is not required, and
- (b) if there is no silviculture prescription for a cut block in a woodlot license area or community forest agreement area, the portion of the cut block that does not include:
- (i) an area occupied by permanent access structures,
 - (ii) an area of rock, wetland or other area that in its natural state is not capable of supporting a stand of trees that meets the stocking requirements specified in the regulations,
 - (iii) an area of non-commercial forest cover of 4 ha or less that is indicated in an operational plan as an area where the establishment of a free growing stand is not required,
 - (iv) a contiguous area of more than 4 ha that the district manager determines is composed of non-commercial forest cover, or
 - (v) an area indicated in an operational plan as a reserve area where the establishment of a free growing stand is not required. (Forest Practices Code of BC Act; Part 1 – Definitions)

Non-contributing – having no involvement or effect (Common Usage)

NHLB – Non-Harvestable Land Base. The portion of the total area of the Defined Forest Area considered **not** to contribute to, and **not** to be available for, long-term timber supply. The non-harvestable land base includes parks, protected areas, inoperable areas, and other areas and tends to change slightly over time.

Objective – a clear, specific statement of expected quantifiable results to be achieved within a defined period of time related to one or more goals. An objective is commonly stated as a desired level of an indicator. (CSA Z808-96)

Old Growth Management Areas - areas which contain, or are managed to replace, specific structural old-growth attributes and which are mapped out and treated as special management areas.

Opportunities – potential or possibilities of action and change (Common Usage)

Patch – a stand of similar-aged forest that differs in age from adjacent patches by more than 20 years. When used in the design of landscape patterns, the term refers to the size of either a natural disturbance opening that led to an even-aged forest or an opening created by cut blocks. (BC Ministry of Forests Biodiversity Guidebook pp76.)

Peak Flow Index (PFI) – Is an index of the maximum water flow rate that occurs within a specified period of time, usually on an annual or event basis. In the interior of British Columbia, peak flows occur as the snowpack melts in the spring.

Period – an interval of time, typically expressed in hours, days, months or years.

Permanent Access Structures – A structure, including a road, bridge, landing, gravel pit or other similar structure, that provides access for timber harvesting and is shown on a forest development plan, access management plan, logging plan, road permit or silviculture prescription / site plan as remaining operational after timber harvesting activities on the area are complete.

Permanent Site Disturbance – roads, landings, gravel pits, and permanent skid trails

Plant Association – A community of plants. A plant association is generally comprised of, at least the three most abundant species found growing on a site, with at least one representative from the tree layer and one or more representatives from either the shrub, herb, or bryophyte layers.

Productive forest land – forest land that is capable of producing a merchantable stand within a defined period of time. (BC MoFLNRO Website Glossary)

Predictive Ecosystem Mapping (PEM) – A computer-GIS, and knowledge-based method that divides landscapes into ecologically-oriented map units for management purposes. PEM is a new and evolving inventory approach designed to use available spatial data and knowledge of ecological-landscape relationships to automate the computer generation of ecosystem maps. Spatial data typically includes forest cover, digital elevation models, biogeoclimatic units, and may also include bioterrain information. Spatial data layers are overlaid using GIS to produce resultant maps and attributes. The resultant attributes are passed through the PEM knowledge base to derive final ecosystem maps. Field sampling is used to calibrate the knowledge base and to validate the final classification.

Protect – the action of safe guarding and caring for the welfare of a person, area or thing. (Common Usage)

Public Advisory Group – an assembly that provides local people, community groups and general public that are interested in, or affected by Sustainable Forest Management (SFM) certification. (Common Usage)

Rare Ecosystems – infrequently occurring; uncommon functional unit consisting of all the living organisms (plants, animals, and microbes) in a given area, and all the non-living physical and chemical factors of their environment, linked together through nutrient cycling and energy flow. (Common Usage)

Rare Flora and Fauna – infrequently occurring; uncommon plants and animals in a given area. (Common Usage)

Recreation Feature – a biological, physical, cultural or historic feature that has recreational significance or value. (BC MoFLNRO Website Glossary)

Recreation Opportunity Spectrum (ROS) – a mix of outdoor settings based on remoteness, area size, and evidence of humans, which allows for a variety of recreation activities and experiences. The descriptions used to classify the settings are on a continuum and are described as: rural, roaded resource, semi-primitive motorized, semi-primitive non-motorized, and primitive. (BC MoFLNRO Website Glossary)

Recruitment – the action of enrolling or enlisting people and resources (Common Usage)

Regeneration – the renewal of a tree crop through either natural means (seeded on-site from adjacent stands or deposited by wind, birds, or animals) or artificial means (by planting seedlings or direct seeding). (BC MoFLNRO Website Glossary)

Regeneration Delay – the maximum time allowed in a prescription, between the start of harvesting in the area to which the prescription applies, and the earliest date by which the prescription requires a minimum number of acceptable well-spaced trees per hectare to be growing in that area. (BC MoFLNRO Website Glossary)

Resource Value – values on Crown land which include but are not limited to biological diversity, fisheries, wildlife, minerals, oil and gas, energy, water quality and quantity, recreation and tourism, natural and cultural heritage resource, timber, forage, wilderness and aesthetic values. (BC Ministry of Forests)

Return on Capital Employed – a key financial statistic reflecting the rate of return that the company's management has obtained, on the shareholders' behalf, by their management of the company's assets. ROCE is determined by dividing net income before income taxes for the past 12 months by Common Shareholder's Equity and Long-term Liability. The result is shown as a percentage. (Common Usage)

Riparian – an area of land adjacent to a stream, river, lake or wetland that contains vegetation that, due to the presence of water, is distinctly different from the vegetation of adjacent upland areas. (BC MoFLNRO Website Glossary)

Riparian Habitat - Vegetation growing close to a watercourse, lake, swamp, or spring that is generally critical for wildlife cover, fish food organisms, stream nutrients and large organic debris, and for stream bank stability.

Riparian Management Area (RMA) – Defined in the Forest Practices Code of British Columbia Act Operational Planning Regulation as an area, of width determined in accordance with Part 10 or the regulation, that is adjacent to a stream, wetland or lake with a riparian class of L2, L3 or L4; and, consists of a riparian management zone and, depending on the riparian class of the stream, wetland or lake, a riparian reserve zone. See Figure 1.

Riparian Management Zone (RMZ) – Defined in the Forest Practices Code of British Columbia Act Operational Planning Regulation as that portion of the riparian management area that is outside of any riparian reserve zone or if there is no riparian zone, that area located adjacent to a stream, wetland or lake of a width determined in accordance with Part 10 or the regulation. See Figure 1.

Riparian Reserve Zone (RRZ) – Defined in the Forest Practices Code of British Columbia Act Operational Planning Regulation as that portion, if any, of the riparian management area

or lakeshore management area located adjacent to a stream, wetland or lake of a width determined in accordance with Part 10 of the regulation. See Figure 1.

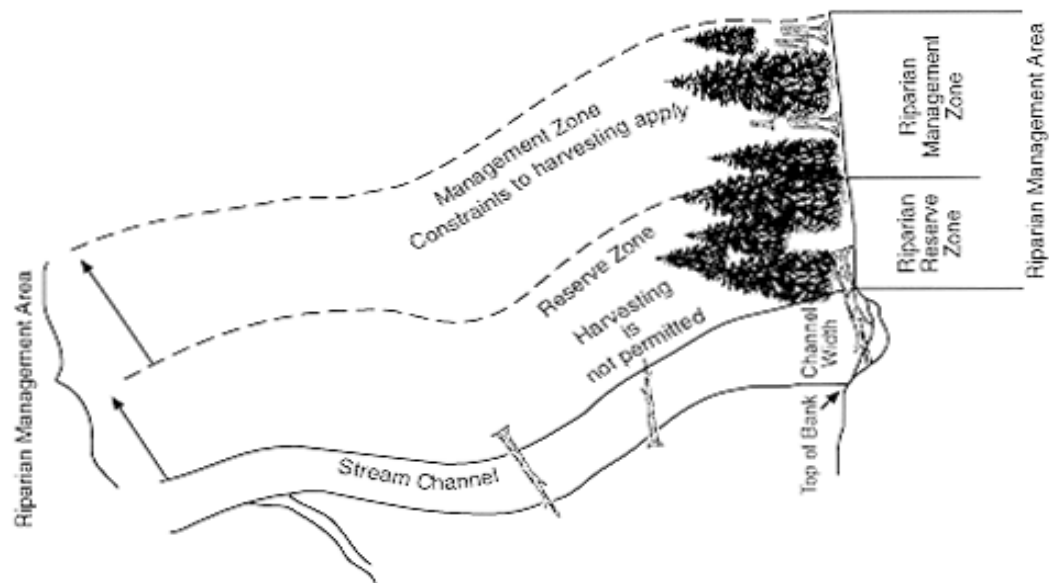


Figure 1. Riparian management area showing a management zone and a reserve zone. Source: Riparian Management Area Guidebook 1995.

Road - A path or way with a specifically prepared surface for use by vehicles.

Road Permit – An agreement entered into under Part 8 of the Forest Act to allow for the construction or modification of a forest road to facilitate access to timber planned for harvest.

Road Density Index – a ratio describing the extent of road development within a given watershed. (Common Usage)

Scenic area – any visually sensitive area or scenic landscape identified through a visual landscape inventory or planning process carried out or approved by the district manager. (BC MoFLNRO Website Glossary)

Seral Stages – the stages of ecological succession of a plant community, e.g., from young stage to old stage. The characteristic sequence of biotic communities that successively occupy and replace each other by which some components of the physical environment becomes altered over time. The age and structure of seral stages varies significantly from one biogeoclimatic zone to another. (BC Ministry of Forests Biodiversity Guidebook).

Silviculture – The theory and practice of controlling the establishment, composition, growth and quality of forest stands; can include basic silviculture (e.g., planting and seeding) and intensive silviculture (e.g., site rehabilitation, spacing and fertilization).

Site Index – The height of a tree at 50 years of age (age is measured at 1.3m above the ground) In managed forest stands site index may be predicted using either (1) the biogeoclimatic ecosystem classification for the site or (2) the Site Index Curve which uses the height and age of sample trees over 30 years old.

Site Plan – Replaces the silviculture prescription and is created and kept on file by the licensee and does not need Ministry of Forests approval. The site plan identifies the appropriate standards for:

- Stand-level biodiversity and permanent access structures at the cut block level; and
- Soil disturbance limits, stocking requirements, regeneration date, and free-growing date at the standards unit level

Site Productivity – The site capacity of the land to produce vegetative cover (biomass).

Site Series – A landscape position consisting of a unique combination of soil edaphic features, such as soil nutrient and moisture regimes within a biogeoclimatic subzone or variant. Soil nutrient and moisture regimes define a site series, which can produce various plant associations (see definition of "plant association"). In the BEC system, site series is identified as a number (e.g., 01,02, 03, ...).

Snag – A standing dead tree, or part of a dead tree, found in various stages of decay—from recently dead to very decomposed.

Social – of or relating to human society and its modes of organization. (The American Heritage Dictionary of the English Language, Fourth Edition).

Soil – the naturally occurring, unconsolidated mineral or organic material at the surface of the earth that is capable of supporting plant growth. It extends from the surface to 15 cm below the depth at which properties produced by soil-forming processes can be detected. The soil-forming processes are an interaction between climate, living organisms, and relief acting on soil and soil parent material. Unconsolidated material includes material cemented or compacted by soil-forming processes. Soil may have water covering its surface to a depth of 60 cm or less in the driest part of the year. (BC MoFLNRO Website Glossary).

Soil Disturbance – Disturbance caused by a forest practice on an area. This includes areas occupied by excavated or bladed trails of a temporary nature, areas occupied by corduroyed trails, compacted areas, and areas of dispersed disturbance.

Soil Moisture Regime – The amount of moisture in the soil. Generally shown on a scale going from **xeric** (being deficient in moisture - dry) to **mesic** (characterized by moderate or a well-balanced supply of moisture) to **hydric** (characterized by excessive moisture).

Species at risk– A wildlife species that is facing extirpation or extinction if nothing is done to reverse the factors causing its decline, or that is of special concern because it is particularly sensitive to human activities or natural events.

Species Sensitive to Disturbance – plants or animals susceptible to disturbance by natural events (fire, wind, flood, insects) and also by human activities such as forest harvesting or construction of roads. (Common Usage).

Stakeholder – A person with an interest or concern with resource management within a defined area (e.g., community, forest district, defined forest area).

Stand – a community of trees sufficiently uniform in species composition, age, arrangement, and condition to be distinguishable as a group from the forest or other growth on the adjoining area, and thus forming a silviculture or management entity. (BC MoFLNRO Website Glossary)

Standards Unit - An area that is managed through the uniform application of a silvicultural system, stocking standards, and soil conservation standards. These standards are used to determine if legal regeneration, free growing, and soil conservation obligations are met.

Stocking Standard – The required range of healthy, well-spaced, acceptable trees growing on an area to achieve a free-growing stand.

Sustainability – the concept of producing a biological resource under management practices that ensure replacement of the part harvested, by regrowth or reproduction, before another harvest occurs. (BC MoFLNRO Website Glossary)

Sustainable Forest Management (SFM) – Management “to maintain and enhance the long-term health of forest ecosystems, while providing ecological, economic, social, and cultural opportunities for the benefit of present and future generations”³⁰

Temporary Access Structures – the area of land within the Designated Forest Area that has been converted through land-use policy (temporarily removed from the productive forest land base to be rehabilitated after use) to provide access for resources development and protection. Temporary access structures include those haul roads, landings and excavated or bladed trails that will be restored to a productive state upon completion of harvesting. Temporary access structures are identified on operational plans and prescriptions. All areas occupied by temporary access structures must be rehabilitated so that all silvicultural obligations are achieved on the whole of the net area to be reforested. (BC Forest Practices Code Soil Conservation Guidebook)

Terrestrial Ecosystem Mapping (TEM) – Terrestrial Ecosystem Mapping is a process of dividing landscapes into ecological units that differ from one another with respect to climate, geomorphology, bedrock geology and vegetation. In British Columbia, a total of four classifications are typically mapped, including: ecoregions, biogeoclimatic units, ecosystem units (site series), and seral community types (structural stage). Ecosystem units are delineated on aerial photographs using biophysical criteria and are confirmed through field sampling. In Alberta, forest cover and other landscape information, augmented by extensive ground sampling, is used to produce ecosystem unit maps (ecosites) within natural subregions.

Timber Harvesting Land Base (THLB) – The portion of the total area of the Defined Forest Area considered to contribute to, and to be available for, long-term timber supply. The harvesting land base is defined by reducing the total land base according to specified management assumptions and tends to change slightly over time.

Understory – any plants growing under the canopy formed by other plants, particularly herbaceous and shrub vegetation under a tree canopy. (BC MoFLNRO Website Glossary)

Value – a principle, standard, or quality considered worthwhile or desirable. (CSA Z808-96)

Viable – an action or proposed action which has a feasible, realistic outcome (Common Usage)

Visually Effective Greenup – the stage at which regeneration is seen by the public as newly established forest. When VEG is achieved the forest cover generally blocks views of tree stumps, logging debris and bare ground. Distinctions in height, colour, and texture may remain between a cut block and adjacent forest but the cut block will no longer be seen as recently cut-over. (BC MoF Visual Landscape Design, Training Manual)

Visual Quality Objective – a resource management objective established by the district manager or contained in a higher level plan that reflects the desired level of visual quality

³⁰ *The State of Canada's Forests* 2001/2002, as cited by the CSA.

based on the physical characteristics and social concern for the area. Five categories of VQO are commonly used: preservation; retention; partial retention; modification; and, maximum modification. (BC MoFLNRO Website Glossary)

Unsalvaged Losses - the volume of timber destroyed by natural causes such as fire, insect, disease or blowdown and not harvested, including the timber actually killed plus any residual volume rendered non-merchantable.

Utilization Standards - the dimensions (stump height, top diameter, base diameter, and length) and quality of trees that must be cut and removed from Crown land during harvesting operations. For detailed standards see the Provincial Logging Residue and Waste Measurement Procedures Manual (July 1, 2002 & May 1, 2004 – Draft).

Waste - the volume of timber left on the harvested area that should have been removed in accordance with the minimum utilization standards in the cutting authority. It forms part of the allowable annual cut for cut-control purposes. For detailed standards see the Provincial Logging Residue and Waste Measurement Procedures Manual (July 1, 2002 & May 1, 2004 – Draft).

Watershed – an area of land, which may or may not be under forest cover, draining water, organic matter, dissolved nutrients, and sediments into a lake or stream. The topographic boundary, usually a height of land that marks the dividing line from which surface streams flow in two different directions. (Dictionary of Natural Resource Management, Julian and Katherine Dunster, 1996)

Windthrow – see Blowdown.

Winter Range – a range, usually at lower elevation, used by migratory deer, elk, caribou, moose, etc., during the winter months and typically better defined and smaller than summer range. (BC MoFLNRO Website Glossary)

APPENDIX 1 – LIST OF REFERENCES

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APPENDIX 2 – SUMMARY OF PUBLICLY DEVELOPED VALUES, OBJECTIVES AND INDICATORS

CCFM Criterion	CSA Element	Value	Objective	Core Indicator	Indicator Statement	Target	Previous Vanderhoof SFMP Indicator
1. Biological Diversity Conserve biological diversity by maintaining integrity, function, and diversity of living organisms and the complexes of which they are part	1.1 Ecosystem Diversity Conserve ecosystem diversity at the stand and landscape level by maintaining the variety of communities and ecosystems that naturally occur in the DFA	Biological and cultural richness and its associated values are sustained within the DFA.	Ecologically distinct habitat types are represented in an unmanaged state in the DFA to sustain lesser known species and ecological function. The amount, distribution, and diversity of terrestrial and aquatic habitat types, elements and structure important to sustain biological richness are sustained.	1.1.1 Ecosystem Area by Type	1 - Retention of rare ecosystem groups across the DFA	0% area harvested of rare ecosystem groups in the DFA. Variance: Access construction where no other practical route is feasible.	1 - Distinct Habitat Types: The percent area of distinct habitat types in DFA.
				1.1.2 Forest area by type or species composition	2 - Percent distribution of forest type (treed conifer, treed broadleaf, treed mixed) >20 years old across DFA	Treed conifer: No Target, Treed Broadleaf: 1.6-5%, Treed Mixed 3.9-9% Variance: None below suggested targets.	
				1.1.3 Forest area by seral stage or age class	3 - Percent old non-pine forest across the DFA	Maintain the minimum % of old non-pine by NDU/merged BEC within the DFA in accordance with the table. Variance: 0%	2 - Late Seral Forest: The minimum proportion of late seral forest (%) by NDU. 3 - Patch Size: The percent area of young forest patch size class by NDU.
				1.1.4 Degree of within-stand structural retention	4 - Percent of stand structure retained across the DFA in harvested areas	10% across the DFA. Variance: 0%	4 - Stand Level Retention: The average stand level percent retention for all LT harvested blocks by NDU.

					5 - Percent of cut blocks harvested consistent with riparian management area strategies identified in Site Plans	100% Variance: 0%	14 - Riparian Management Zones: The percent of forest management operations consistent with Riparian Management Zone strategies identified in the Site Plan. 13 - Riparian Reserves: The percent of forest management operations consistent with Riparian Reserve Zone strategies identified in the Site Plan (including the Vanderhoof Draft Lakeshore Management Plan).
	1.2 Species Diversity Conserve species diversity by ensuring that habitats for the native species found in the DFA are maintained through time, including habitats for known occurrences of species at risk			1.2.1 Degree of habitat protection for selected focal species, including species at risk	6 - Percent of forest management activities consistent with management strategies for species of management concern	100% Variance: 0%	6 - Species at Risk: Species at Risk “Management Strategies” are being implemented as prescribed.
			1.2.2 Degree of suitable habitat in the long-term for selected focal species, including species at risk				
				1.2.3 Proportion of Regeneration comprised of native species	7 - Regeneration will be consistent with provincial regulations and standards for seed and vegetative material use	100% Variance: 5%	5 - Seed Use: Percentage of seed for coniferous species collected and seedlings planted in accordance with FRPA.

	<p>1.3 Genetic Diversity Conserve genetic diversity by maintaining the variation of genes within species and ensuring that reforestation programs are free of genetically modified organisms</p>		<p>The genetic diversity of plant species within the DFA is sustained</p>	<p>No core indicator in Z809-08 for Element 1.3</p>	<p>7 - Regeneration will be consistent with provincial regulations and standards for seed and vegetative material use</p>	<p>100% Variance: 5%</p>	
	<p>1.4 Protected Areas and Sites of Special Biological and Cultural Significance Respect protected areas identified through government processes. Cooperate in broader landscape management related to protected areas and sites of special biological and cultural significance. Identify sites of special geological, biological, or cultural significance within the DFA and implement management strategies appropriate to their long-term maintenance</p>		<p>Biological and culturally significant areas are identified and management strategies appropriate to their long-term maintenance are implemented</p>	<p>1.4.1 Proportion of identified sites with implemented management strategies</p>	<p>8 - Percent of forest management activities consistent with management strategies for sites of biological significance</p>	<p>100% conformance with management strategies. Variance: 0%</p>	
				<p>1.4.2 Protection of identified sacred and culturally important sites</p>	<p>9 - % of identified Aboriginal and non-Aboriginal heritage forest values, knowledge and uses considered in the forestry planning processes</p>	<p>100% Variance: 0%</p>	<p>34 - Cultural Resource Values: The percent of forest management operations consistent with the conservation of identified unique or significant Cultural Heritage Resource features.</p>
<p>2. Ecosystem Condition and Productivity Conserve forest ecosystem condition and productivity by maintaining the health, vitality, and rates of biological production</p>	<p>2.1 Forest Ecosystem Resilience Conserve ecosystem resilience by maintaining both ecosystem processes and ecosystem conditions</p>	<p>The productive capability of forest ecosystems within the Timber Harvesting Land Base is sustained</p>	<p>Post harvest regeneration on the DFA is sustained</p>	<p>2.1.1 Reforestation success</p>	<p>10 - Average Regeneration delay for stands established annually</p>	<p>Regeneration established in 3 years or less. Variance: +1 year</p>	<p>7 – Regeneration Delay: Percent of harvested standard units meeting the Regeneration Delay date.</p>

	2.2 Forest Ecosystem Productivity Conserve ecosystem productivity and productive capacity by maintaining ecosystem conditions that are capable of supporting naturally occurring species. Reforest promptly and use tree species ecologically suited to the site	Forest ecosystem contributions to global ecological cycles are sustained within the DFA	Amount of productive forest land and road in the THLB	2.2.1 Additions and deletions to the forest area	11 - Percentage of gross forested land base in the DFA converted to non-forest land use through forest management activities	Less than 3.3% of gross forested land base in the DFA. Variance: 0.25%	19 - Forest Land Conversion: The percentage of area within the THLB of the DFA in permanent access.
				2.2.2 Proportion of the calculated long-term sustainable harvest level that is actually harvested	12 - Percent of volume harvested compared to allocated harvest level	Canfor - 100% (5,737,215 m3) over the cut control period (2012 – 2017). Variance: Canfor – Based on the Cut Control Regulation and Policy +/-10%, or 573,215 m3	20 – Annual Harvest: Annually, total volume (m3/ha) of timber harvested in the DFA (Actual).
3. Soil and Water Conserve soil and water resources by maintaining their quantity and quality in forest ecosystems	3.1 Soil Quality and Quantity Conserve soil resources by maintaining soil quality and quantity	The productive capability of forest ecosystems within the Timber Harvesting Land Base is sustained	Soil productivity within the Land Base is sustained	3.1.1 Level of soil disturbance	13 - Percent of harvested blocks meeting legal soil disturbance objectives	100% of blocks meet soil disturbance objectives. Variance: 5%	11 - Soil Conservation: Percentage of blocks meeting soil conservation targets after harvesting and silviculture activities.
				3.1.2 Level of downed woody debris	14 - Percent of harvested blocks audited where post harvest CWD BMP's are followed	100% of blocks reviewed annually will meet target. Variance: 0%	12 - Coarse Woody Debris: The amount of Coarse Woody Debris retained on prescribed areas.
	3.2 Water Quality and Quantity Conserve water resources by maintaining water quality and quantity	Conserve water resources	Water resources are sustained by maintaining quality and quantity	3.2.1 Proportion of watershed or water management areas with recent stand-replacing disturbance	15 - Sensitive watersheds will have further evaluation and appropriate management strategies implemented	100% of Sensitive Watersheds will have further evaluation and appropriate management strategies implemented. Variance: 0%	15 - Stream Crossing Density: Stream crossing density in the DFA.
					16 - In Sensitive Watersheds - the % of drainage structures (with identified water quality concerns)	In Sensitive Watersheds, 100% of drainage structures with identified water quality concerns have	16 - Stream Crossings: Percentage of stream crossings planned and installed to design / standard.

					where mitigation strategies are implemented as scheduled	mitigation strategies implemented as scheduled. Variance: 0%	17 - Stream Crossing Mitigation Measures: Percentage of stream crossing inspections and resulting mitigation measures completed according to schedule.
4. Role in Global Ecological Cycles Maintain forest conditions and management activities that contribute to the health of global ecological cycles	4.1 Carbon Uptake and Storage Maintain the processes that take carbon from the atmosphere and store it in forest ecosystems	Forest ecosystem contributions to global ecological cycles are sustained within the DFA	Maintain forest conditions that take carbon from the atmosphere and store it in forest ecosystems	4.1.1 Net carbon uptake	3 - Percent old non-pine forest across the DFA	Maintain the minimum % of old non-pine by NDU/merged BEC within the DFA in accordance with the table. Variance: 0%	18 - Residual Fibre: The percentage of blocks where a portion of the residual wood is utilized or left on block to contribute to other values.
					10 - Average regeneration delay for stands established annually	Regeneration established in 3 years or less. Variance: +1 year	8 - Free Growing: Percent of harvested standard units meeting the free growing assessment date.
					11 - Percentage of gross forested land base in the DFA converted to non-forest land use through forest management activities	Less than 3.3% of gross forested land base in the DFA. Variance: 0.25%	9 - Damaging Agents: Management Strategies are implemented to reduce the impact of damaging events or agents (i.e. target harvest toward beetle salvage).
					17 - Percent of annual LT harvest directed at mitigating the impact of mountain pine beetle to forests within the DFA	65% or greater of annual LT harvest consists of Lodgepole Pine. Variance: 0%	25 - Accidental Industrial Fires: The number of hectares of accidental fires caused within the DFA by forest industry operations.

	4.2 Forest Land Conversion Protect forest lands from deforestation or conversion to non-forests, where ecologically appropriate		Amount of productive forest land and road in the THLB	2.2.1 Additions and deletions to the forest area	11 - Percentage of gross forested land base in the DFA converted to non-forest land use through forest management activities	Less than 3.3% of gross forested land base in the DFA. Variance: 0.25%	19 - Forest Land Conversion: The percentage of area within the THLB of the DFA in permanent access.
5. Economic and Social Benefits Sustain flows of forest benefits for current and future generations by providing multiple goods and services	5.1 Timber and Non-Timber Benefits Manage the forest sustainably to produce an acceptable and feasible mix of timber and non-timber benefits. Evaluate timber and non-timber forest products and forest-based services	The flow of timber benefits from forests is sustained.	The amount of timber benefits does not decline over time.	5.1.1 Quantity and quality of timber and non-timber benefits, products, and services produced in the DFA	12 - Percent of volume harvested compared to allocated harvest level	Canfor - 100% (5,737,215 m3) over the cut control period (2012 – 2017). Variance: Canfor – Based on the Cut Control Regulation and Policy +/-10%, or 573,215 m3	
		The flow of marketed non-timber economic benefits from forests is sustained	The amount and quality of marketed non-timber forest resources does not decline over time		18- Range Values: The percent of forest management operations consistent with the conservation of range resources identified in Site Plans	Sustain 100% consistency between forest management operations and measures to conserve range resources identified in Site Plans. Variance: -5%	21 - Range Values: The percent of forest management operations consistent with the conservation of range resources identified in Site Plans.
			Maintain the Visual Quality of the managed landscape		19 - Visual Quality Values: The percent of forest management operations consistent with the conservation of Visual Quality Objectives	Sustain 100% consistency between forest mgmt operations and strategies identified in the Site Plan to conserve VQO's. Variance: -5%	22 - Visual Quality Values: The percent of forest management operations consistent with the conservation of Visual Quality Objectives.
			Maintain opportunities for outdoor recreation activities		20 - Access Management: The percent of LT conformance with the Vanderhoof Access Management Plan for Forest Recreation	100 % LT conformance with the Access Management Plan for Forest Recreation. Variance: -10%	23 - Access Management: The percent of LT conformance with the Vanderhoof Access Management Plan for Forest Recreation.

			The amount and quality of marketed non-timber forest resources does not decline over time		21 - Smoke Management: The percent of prescribed burns that follow the smoke management guidelines	100% of prescribed burns follow the smoke management guidelines.. Variance: -10%	28 - Smoke Management: The percent of prescribed burns that follow the smoke management guidelines.
							24 - Monitoring Access Management: Effectiveness Monitoring Plans are developed and implemented for selected AMP polygons to continually improve implementation strategies
							27 - Forest Roads: The number of Kilometers of forest road maintained annually for public use
	5.2 Communities and Sustainability Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and by supporting local community economies	Forest management contributes to a diversified local economy	The public continues to receive a portion of the benefits	5.2.1 Level of investment in initiatives that contribute to community sustainability	22 - Investment in local communities	55% of dollars spent in local communities. Variance: -10%	26 - Money Spent in DFA: The percent of money spent on DFA forest management activities, provided from the northern central interior suppliers (stumpage not included).
			Forest management planning adequately reflects the interest and issues raised by the public in the DFA through an effective public participation process	5.2.2 Level of investment in training and skills development	23 - Training in environmental & safety procedures in compliance with company training plans	100% of company employees and contractors will have both environmental & safety training. Variance = 5%	

			Employment and income sources and their contribution to the local economy continue to be diversified	5.2.3 Level of direct and indirect employment	24 - Level of direct & indirect employment	4600 jobs. Variance: 700	
			Opportunities to share a portion of the benefits continue to exist for Aboriginals	5.2.4 Level of Aboriginal participation in the forest economy	25 - Number of opportunities for Aboriginals to participate in the forest economy	> 15 local Aboriginal business relationships or opportunities annually. Variance = 8	31 - First Nations Business Relationships: The number of LT business relationships or opportunities made available to local First Nations.
6. Society's Responsibility Society's responsibility for sustainable forest management requires that fair, equitable, and effective forest management decisions are made	6.1 Aboriginal and Treaty Rights Recognize and respect Aboriginal title and rights, and treaty rights. Understand and comply with current legal requirements related to Aboriginal title and rights, and treaty rights	Recognize Aboriginal and Treaty Rights	Forest Management provides the opportunity for Aboriginal community to participate in SFM	6.1.1 Evidence of a good understanding of the nature of Aboriginal title and rights	26 - Employees will receive appropriate First Nations Awareness Training	100% Variance = -10%	
			Forest management recognizes and respects Aboriginal and treaty rights	6.1.2 Evidence of best efforts to obtain acceptance of management plans based on Aboriginal communities having a clear understanding of the plans	27 - Evidence of best efforts to share interests and plans with Aboriginal communities	100% Variance = 0%	33 - First Nations Involvement in Planning Processes: The number of opportunities provided to Aboriginal people to be involved in the planning process and/or to provide Cultural Heritage Resource input.
			Forest management conserves the unique or significant cultural features within the DFA	6.1.3 Level of management and/or protection of areas where culturally important practices and activities	28 - % of forest operations in conformance with operational/site plans developed to address Aboriginal forest values, knowledge and uses	100% Variance = 0%	34 - Cultural Resource Values: The percent of forest management operations consistent with the conservation of identified unique or significant Cultural Heritage Resource

				(hunting, fishing, gathering) occur			features.
	6.2 Respect for Aboriginal Forest Values, Knowledge and Uses Respect traditional Aboriginal forest values, knowledge, and uses as identified through the Aboriginal input process	Forest management sustains cultural, health and capacity benefits that Aboriginal people derive from forest resources	Forest management conserves the unique or significant cultural features within the DFA	6.2.1 Evidence of understanding and use of Aboriginal knowledge through the engagement of willing Aboriginal communities, using a process that identifies and manages culturally important resources and values	9 - % of identified Aboriginal and non-Aboriginal heritage forest values, knowledge and uses considered in the forestry planning processes	100% Variance = 0%	
	6.3 Forest Community Well-Being and Resilience Encourage, co-operate with, or help to provide opportunities for economic diversity within the community	Decisions guiding forest management on the DFA are informed and respond to a wide range of social and cultural values	Forest management planning adequately reflects the interest and issues raised by the public in the DFA through an effective public participation process	6.3.1 Evidence that the organization has co-operated with other forest-dependent businesses, forest users, and the local community to strengthen and diversify the local economy	29 - Primary and by-products, support opportunities and business relationships that are bought, sold, traded, or donated with other forest dependent businesses, forest users and the local community	170 purchase /sale /trade / service relationships/ support opportunities in the local community. Variance: -60	29 - Support Opportunities: Annually, the number of support opportunities provided in the DFA.
30 - Local Business Relationships: The number of annual business relationships or opportunities with businesses within those communities tributary to the DFA.							
32 - Diversity of Forest Products: The number of different forest products produced by milling facilities tributary to the DFA.							

					30 - % of identified tenure holders, stakeholders and residents' forest values, knowledge and uses considered in the forestry planning processes	100% Variance = 0%	40 - Public and Resource Users Involvement in Planning Processes: The number and variety of effective opportunities given to the residents and stakeholders to be proactively involved in planning processes and provide input on proposed development.
				6.3.2 Evidence of co-operation with DFA-related workers and their unions to improve and enhance safety standards, procedures, and outcomes in all DFA-related workplaces and affected communities	31 - Implementation and maintenance of a certified safety program	100% Variance = 0%	
				6.3.3 Evidence that a worker safety program has been implemented and is periodically reviewed and improved			
	6.4 Fair and Effective Decision-Making Demonstrate that the SFM public participation	Decisions guiding forest management on the DFA are	Forest management planning adequately	6.4.1 Level of participant satisfaction with the public	32 - PAG established and maintained and satisfaction survey implemented	80% satisfaction from surveys (80% = 4/5). Variance = -10%	35 - PAG Meetings: Number of Public Advisory Group meeting per year.

	process is designed and functioning to the satisfaction of the participants and that there is general public awareness of the process and it's progress	informed and respond to a wide range of social and cultural values.	reflects the interest and issues raised by the public in the DFA through an effective public participation process.	participation process			36 - PAG Satisfaction: Measure the level of satisfaction of the PAG members with the SFM process annually.				
							37 - PAG Terms of Reference: Maintain and review annually the SFM plan PAG TOR, to ensure a credible and transparent process.				
	6.5 Information for Decision-Making Provide relevant information and educational opportunities to interested parties to support their involvement in the public participation process, and increase knowledge of ecosystem processes and human interactions with forest ecosystems	The collective understanding of SFM by the forest industry and the public is increased.	6.4.2 Evidence of efforts to promote capacity development and meaningful participation in general	33 - Number of educational opportunities for information/training that are delivered to the PAG	>=4. Variance = 1.						
								6.4.3 Evidence of efforts to promote capacity development and meaningful participation for Aboriginal communities	27 - Evidence of best efforts to share interests and plans with Aboriginal communities	100% Variance: 0%	
6.5.1 Number of people reached through educational outreach	34 - The number of educational opportunities provided	5. Variance: 2	39 - SFM Extension: The number of opportunities provided for SFM extension activities annually.								
							6.5.2 Availability of summary information on issues of concern to the public	35 - SFM Annual Report made available to the public	Annual Report made available to the public annually via the web. Variance: none	38 - SFM Plan Available for Review: The number of times the SFM plan and associated annual reports will be communicated to the public for review and	

							comment annually.
				Total	35proposed indicators		
Additional Local Level Indicators Removed from the SFMP							10 - Site Index: Site Index for managed stands within the DFA is sustained at the subzone level
							41 - Research and Projects: The number of research and development projects and/or partnerships completed within the DFA
							42 - Timely Response to Inquiries: The percent of timely responses to documented Forest Management Planning concerns
							43 - SFM Public Opinion Survey: Periodically conduct and report out on a DFA wide SFM Public Opinion Survey

APPENDIX 3 – SPECIES OF MANAGEMENT CONCERN

Plants & Animals - English Name	BC List
White Sturgeon (Nechako River population)	Red
Amblystegium varium (plant)	Blue
Western Toad	Blue
Great Blue Heron, <i>herodias</i> subspecies	Blue
Back's sedge	Blue
two-coloured sedge	Blue
many-headed sedge	Blue
Olive-sided Flycatcher	Blue
Hall's willowherb	Blue
Beaverpond Baskettail	Blue
Rusty Blackbird	Blue
slender mannagrass	Blue
Wolverine, <i>luscus</i> subspecies	Blue
Barn Swallow	Blue
Caspian Tern	Blue
California Gull	Blue
Fisher	Blue
Meesia longiseta (plant)	Blue
American White Pelican	Red
elegant Jacob's-ladder (plant)	Blue
Caribou (northern mountain population)	Blue
Bull Trout	Blue
Kennedy's Emerald	Blue
Fernald's false manna	Red
Sharp-tailed Grouse, <i>columbianus</i> subspecies	Blue
Grizzly Bear	Blue
Sandhill Crane (Vanderhoof - Provincial Identified Wildlife)	Yellow
Common Nighthawk (Vanderhoof - SARA List)	Yellow
Species considered to be Regionally important : Arctic Grayling, Dolly Varden, Lake Trout, Bald Eagles, Brown Creeper, Northern Goshawk, Osprey, Northern long-eared Myotis, Silverhaired Bat, Steelhead, Marten, Mountain Goat, Plants - Douglas fir, Tamarack, Terrestrial Lichens, Cottonwood	Source: MOE - DVA Objectives Matrix - April 2006

Plant Communities - English Name	BC List
mountain alder / red-osier dogwood / lady fern	Blue
mountain alder / common horsetail	Blue
saskatoon / slender wheatgrass	Red
scrub birch / water sedge	Blue
awned sedge Fen - Marsh	Red
slender sedge / common hook-moss	Blue
shore sedge - buckbean / hook-mosses	Blue
shore sedge - buckbean / peat-mosses	Blue
tufted hairgrass Community	Blue
common spike-rush Herbaceous Vegetation	Blue
few-flowered spike-rush / hook-mosses	Red
swamp horsetail - beaked sedge	Blue
northern mannagrass Fen	Blue
Baltic rush - field sedge	Blue
tamarack / low birch / bluejoint reedgrass - sedges / peat-mosses	Red
buckbean - slender sedge	Blue
hybrid white spruce / pinegrass / step moss	Blue
hybrid white spruce / horsetails - western meadowrue	Blue
hybrid white spruce / hardhack - prickly rose	Blue
hybrid white spruce / foam lichens	Red
black spruce / common horsetail / peat-mosses	Blue
black spruce / creeping-snowberry / peat-mosses	Blue
black spruce / buckbean / peat-mosses	Blue
lodgepole pine / few-flowered sedge / peat-mosses	Blue
lodgepole pine / clad lichens - juniper haircap moss	Blue
lodgepole pine / Altai fescue / foam lichens	Blue
lodgepole pine / common juniper / rough-leaved ricegrass	Blue
lodgepole pine - black spruce / red-stemmed feathermoss	Blue
Sandberg's bluegrass - slender wheatgrass	Red
(balsam poplar, black cottonwood) - spruces / red-osier dogwood	Red
Douglas-fir - hybrid white spruce / knight's plume	Blue
Douglas-fir - hybrid white spruce / electrified cat's-tail moss	Blue
Douglas-fir - lodgepole pine / clad lichens	Blue
Douglas-fir / red-stemmed feathermoss - step moss	Blue
Nuttall's alkaligrass - foxtail barley	Red
Bebb's willow / bluejoint reedgrass	Blue
Drummond's willow / bluejoint reedgrass	Blue
MacCalla's willow / beaked sedge	Blue

Plant Communities - English Name	BC List
scheuchzeria / peat-mosses	Blue
hard-stemmed bulrush Deep Marsh	Blue
Hudson Bay clubrush / rusty hook-moss	Red
tufted clubrush / golden star-moss	Blue
seaside arrow-grass Marsh	Red

Data From BC Ecosystems Explorer <http://a100.gov.bc.ca/pub/eswp>

Current as of June 2012

Includes BC Red & Blue listed (Plants, Animals & Plant Communities) cross referenced against Provincial Identified Wildlife, SARA and Regionally Important Wildlife indicated by MOE.

Species of Management Concern identifies species that both occur in the DFA and are affected by Forest Management.

APPENDIX 4 – NON-REPLACABLE FOREST LICENSE (NRFL) RISK ASSESSMENT

Canfor does not have exclusive rights to harvesting on the DFA. Other license holders, primarily small companies holding non-replaceable forest licenses issued to address the salvage of mountain pine beetle killed timber, also operate within the DFA. As a result, these license holders do have the ability to impact Canfor's ability to achieve their targets for some of the indicators in this plan. To provide confidence that the reporting is representative of what is happening in the DFA, the matrix below describes how each indicator is or is not impacted by other operators, and exactly what is being reported.

Vanderhoof District Licensee Volume Summary Table

Licensee	License	Expiry	Type	AAC	Volume that could be harvested in DFA	Volume managed by SFMP signatories	total volume for non replaceable licenses	Remarks/Risk assessment	Risk to SFMP
Sinclar Group (L&M Lumber)	A55578	30-Jun-2018	RLO	250,000	250,000		1,000,000	Vanderhoof District - Small Pine Opportunity Licence	Low
Sinclar Group (L&M Lumber)	A17842	30-Nov-2021	Replaceable	49,514				Operating Area outside DFA	N/A
West Fraser (Fraser Lake Sawmills)	A18162	14-Nov-2021	Replaceable	240,908				Operating Area outside DFA	N/A
Canadian Forest Products	A18157	31-Oct-2021	Replaceable	588,223	588,223	588,223		Signatory to the SFM plan.	N/A
Canadian Forest Products	A40873	31-Oct-2021	Replaceable	1,597,771	371,000	371,000		Signatory to the SFM plan.	N/A
Canadian Forest Products	A18165	31-Oct-2021	Replaceable	1,104,858	371,000	371,000		Signatory to the SFM plan.	N/A

Licensee	License	Expiry	Type	AAC	Volume that could be harvested in DFA	Volume managed by SFMP signatories	total volume for non replaceable licenses	Remarks/Risk assessment	Risk to SFMP
BC timber Sales Stuart/Nechako	NA		Timber sales	2,460,000 (Total PG TSA)	511,334	511,334		includes 200,000m ³ EOI.	N/A
Sinclar Group (Lakeland Mill)	A18163	30-Nov-2021	Replaceable	249,827				Majority remaining volume outside DFA	Low
B&T Forest Products	A75472	31-Dec-2014	NRFL	50,000	50,000		250,000	Licence not active	Low
RPP Holdings	A76218	31-Oct-2015	NRFL	250,000	250,000		2,500,000	Licence not active	Low
RPP Holdings	A76219	31-Oct-2015	NRFL	250,000	250,000		2,500,000	Licence not active	Low
Pinnacle Pellet	A76400	31-Oct-2015	NRFL	250,000	250,000		2,500,000	Licence not active	Low
Nadleh Whuten	A86573	19-Sep-2015	NRFL - RLM	75,000	24,000		375,000	One (1) permit (approx 24,000m ³) left on initial FN NRFL	Low
Nadleh Whuten	A82521		NRFL - RLM	125,000	125,000		375,000	New FN NRFL - managed by West Fraser	Low
Stellako Custom Wood	A86572	31-Dec-2015	NRFL - RLM	51,200	51,200	51,200	267,500	FN NRFL - managed by Canfor	Low

Licensee	License	Expiry	Type	AAC	Volume that could be harvested in DFA	Volume managed by SFMP signatories	total volume for non replaceable licenses	Remarks/Risk assessment	Risk to SFMP
	Total volume			5,132,301	3,091,757	1,892,757	9,767,500		
	Pct of volume that could be harvested in DFA managed by SFMP signatories					61.2%			
	Volume that could be harvested in DFA assessed as low risk					1,199,000		L&M - SFI certified, NRFL's - not active, FN NRFL - very minor volume	
	Pct of volume that is low risk to the DFA					38.8%			
	Volume that could be harvested assessed as moderate risk					0			
	Pct of volume that is moderate risk to the DFA					0.0%			

Risk Rank Ref	Expected Impact of Other Licensees on the Indicator
a	Other licensees (NRFL holders) DO have the ability to impact the target, however, the annual report will include these activities in the analysis to the extent the data that is publically available is current.
b	Other licensees (NRFL holders) DO have the ability to impact the target, however, legislation exists that regulates the activity and result. As all licensees are subject to this regulation, the risk of others impacting Canfor's ability to achieve the target is considered LOW
c	This indicator applies only to Canfor's activities on the DFA.

Indicator #	Indicator Statement	Target	Risk Rank Ref
1.1.1	1- Retention of rare ecosystem groups across the DFA	0% area harvested of rare ecosystem groups in the DFA. Variance: Access construction where no other practical route is feasible.	a
1.1.2	2 - Percent distribution of forest type (treed conifer, treed broadleaf, treed mixed) >20 years old across DFA	Treed conifer: No Target, Treed Broadleaf: 1.6-5%, Treed Mixed 3.9-9%. Variance: None below suggested targets.	a
1.1.3	3 - Percent old non-pine forest across the DFA	Maintain the minimum % of old non-pine by NDU/merged BEC within the DFA in accordance with the table. Variance: 0%	b
1.1.4(a)	4 - Percent of stand structure retained across the DFA in harvested areas	10% across the DFA. Variance: 0%	b
1.1.4(b)	5 - Percent of cut blocks harvested consistent with Riparian Management Area strategies identified in Site Plans	100%. Variance: 0%	b

Indicator #	Indicator Statement	Target	Risk Rank Ref
1.2.1 & 1.2.2	6 - Percent of forest management activities consistent with management strategies for species of management concern	100%. Variance: 0%	b
1.2.3	7 - Regeneration will be consistent with provincial regulations and standards for seed and vegetative material use	100%. Variance: 5%	b
1.3.1	(Duplicate) 7 - Regeneration will be consistent with provincial regulations and standards for seed and vegetative material use	100%. Variance: 5%	b
1.4.1	8 - Percent of forest management activities consistent with management strategies for sites of biological significance	100% conformance with management strategies. Variance: 0%	b
1.4.2	9 - % of identified Aboriginal and non-Aboriginal heritage forest values, knowledge and uses considered in the forestry planning processes	100%. Variance: 0%	b
2.1.1	10 - Average regeneration delay for stands established annually	Regeneration established in 3 years or less. Variance: +1 year	b
2.2.1	11 - Percentage of gross forested land base in the DFA converted to non-forest land use through forest management activities	Less than 3.3% of gross forested land base in the DFA. Variance: 0.25%	a
2.2.2	12 - Percent of volume harvested compared to allocated harvest level	Canfor - 100% (5,737,215 m ³) over the cut control period (2012 – 2017). Variance: Canfor – Based on the Cut Control Regulation and Policy +/10%, or 573,215 m ³	c
3.1.1	13 - Percent of harvested blocks meeting legal soil disturbance objectives	100% of blocks meet soil disturbance objectives. Variance: 5%	b

Indicator #	Indicator Statement	Target	Risk Rank Ref
3.1.2	14 - Percent of harvested blocks audited where post harvest CWD BMP's are followed	100% of blocks reviewed annually will meet target. Variance: 0%	b
3.2.1(a)	15 - Sensitive watersheds will have further evaluation and appropriate management strategies implemented	100% of Sensitive Watersheds will have further evaluation and appropriate management strategies implemented. Variance: 0%	a
3.2.1(b)	16 - In Sensitive Watersheds - the % of drainage structures (with identified water quality concerns) where mitigation strategies are implemented as scheduled	In Sensitive Watersheds, 100% of drainage structures with identified water quality concerns have mitigation strategies implemented as scheduled. Variance: 0%	c
4.1.1(a)	(Duplicate) 10 - Average regeneration delay for stands established annually	Regeneration established in 3 years or less. Variance: +1 year	b
4.1.1(b)	(Duplicate) 11 - Percentage of gross forested land base in the DFA converted to non-forest land use through forest management activities	Less than 3.3% of gross forested land base in the DFA. Variance: 0.25%	a
4.1.1(c)	(Duplicate) 3 - Percent old non-pine forest across the DFA	Maintain the minimum % of old non-pine by NDU/merged BEC within the DFA in accordance with the table. Variance: 0%	b
4.1.1(d)	17 - Percent of annual LT harvest directed at mitigating the impact of mountain pine beetle to forests within the DFA	65% or greater of annual LT harvest consists of Lodgepole Pine. Variance: 0%	c
4.2.1	(Duplicate) 11 - Percentage of gross forested land base in the DFA converted to non-forest land use through forest management activities	Less than 3.3% of gross forested land base in the DFA. Variance: 0.25%	a
5.1.1(a)	(Duplicate) 12 - Percent of volume harvested compared to allocated harvest level	Canfor - 100% (5,737,215 m3) over the cut control period (2012 – 2017). Variance: Canfor – Based on the Cut Control Regulation and Policy +/-10%, or 573,215 m3	c

Indicator #	Indicator Statement	Target	Risk Rank Ref
5.1.1(b)	18- Range Values: The percent of forest management operations consistent with the conservation of range resources identified in Site Plans	Sustain 100% consistency between forest management operations and measures to conserve range resources identified in Site Plans. Variance: -5%	b
5.1.1(c)	19 - Visual Quality Values: The percent of forest management operations consistent with the conservation of Visual Quality Objectives	Sustain 100% consistency between forest mgmt operations and strategies identified in the Site Plan to conserve VQO's. Variance: -5%	b
5.1.1(d)	20 - Access Management: The percent of LT conformance with the Vanderhoof Access Management Plan for Forest Recreation	100 % LT conformance with the Access Management Plan for Forest Recreation. Variance: -10%	b
5.1.1(e)	21 - Smoke Management: The percent of prescribed burns that follow the smoke management guidelines	100% of prescribed burns follow the smoke management guidelines.. Variance: -10%	
5.2.	22 - Investment in local communities	55% of dollars spent in local communities. Variance: -10%	c
5.2.2	23 - Training in environmental & safety procedures in compliance with company training plans	100% of company employees and contractors will have both environmental & safety training. Variance = 5%	c
5.2.3	24 - Level of direct & indirect employment	4600 jobs. Variance: 700	c
5.2.4	25 - Number of opportunities for Aboriginals to participate in the forest economy	> 15 local Aboriginal business relationships or opportunities annually. Variance = 8	c
6.1.1	26 - Employees will receive appropriate First Nations Awareness Training	100%. Variance = -10%	c
6.1.2	27 - Evidence of best efforts to share interests and plans with Aboriginal communities	100%. Variance = 0%	c
6.1.3	28 - % of forest operations in conformance with operational/site plans developed to address Aboriginal	100%. Variance = 0%	c

Indicator #	Indicator Statement	Target	Risk Rank Ref
	forest values, knowledge and uses		
6.2.1	9 - % of identified Aboriginal and non-Aboriginal heritage forest values, knowledge and uses considered in the forestry planning processes	100%. Variance = 0%	c
6.3.1(a)	30 - Primary and by-products, support opportunities and business relationships that are bought, sold, traded, or donated with other forest dependent businesses, forest users and the local community	170 purchase /sale /trade / service relationships/ support opportunities in the local community. Variance: -60	c
6.3.1(b)	31 - % of identified tenure holders, stakeholders and residents' forest values, knowledge and uses considered in the forestry planning processes	100%. Variance = 0%	c
6.3.2	32 - Implementation and maintenance of a certified safety program	100%. Variance = 0%	c
6.3.3	(Duplicate) 32 - Implementation and maintenance of a certified safety program	100%. Variance = 0%	c
6.4.1	33 - PAG established and maintained and satisfaction survey implemented	80% satisfaction from surveys (80% = 4/5). Variance = -10%	c
6.4.2	34 - Number of educational opportunities for information/training that are delivered to the PAG	≥4. Variance = 1	c
6.4.3	(Duplicate) 27 - Evidence of best efforts to share interests and plans with Aboriginal communities	100%. Variance: 0%	c
6.5.1	36 - The number of educational opportunities provided	5. Variance: 2	c
6.5.2	37 - SFM Annual report made available to the public	Annual Report made available to the public annually via web. Variance: none	c

APPENDIX 5: OLD NON PINE FOREST FORECAST BY NDU FOR THE VANDERHOOF FOREST DISTRICT

Merged Biogeoclimatic Unit	Age of Old (years)	Minimum area of old forest (ha)	Old Non Pine Forest Area (ha)						
			Current	2027	2057	2107	2157	2207	2257
D1 Moist Interior - Mountain ESSFmv 1	140	20,647	37,979	39,838	31,756	29,819	28,303	25,198	25,334
D2 Moist Interior - Plateau SBPSmc	120	1,418	4,147	4,269	5,368	4,647	4,278	4,016	4,053
D3 Moist Interior - Plateau SBS dk	120	8,329	21,228	23,629	22,940	20,394	19,889	20,376	20,617
D4 Moist Interior - Plateau SBS dw 2	120	951	4,067	4,128	4,279	4,041	3,931	3,771	3,841
D5 Moist Interior - Plateau SBS dw 3	120	10,299	23,866	28,594	24,329	22,472	19,883	20,872	21,532
D6 Moist Interior - Plateau SBS mc 2	120	7,208	23,460	21,250	16,752	15,015	13,768	13,855	13,650
D7 Moist Interior - Plateau SBS mc 3	120	4,256	19,839	18,575	17,124	13,545	12,369	12,657	13,554