

**Nicola
Thompson
Fraser**

Sustainable Forest Management Plan



January 2018

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Vision Statement

The Nicola Thompson Fraser Sustainable Forest Management Plan will foster forest management practices based on science, professional experience and local public and First Nations input that contribute to the long-term health and productivity of forest ecosystems, a strong economy and thriving communities throughout the Plan area.

Executive Summary

Between February 2000 and May 2001 the forest Licensees operating in the Merritt and Kamloops Timber Supply Areas worked with local public groups and First Nation representatives (the SFM Advisory Group) to develop Sustainable Forest Management (SFM) Plans for the Merritt and Kamloops areas. A similar process occurred in the Lillooet Timber Supply Area in 2004. Members of all three of these SFM Advisory Group represented a cross-section of local interests including recreation, ranching, forestry, conservation, water, community, and First Nations.

The Nicola Thompson Fraser SFM Plan brings together these three separate SFM Plans into one larger area plan with involvement of forest licensees, First Nations and public members from the broader area.

The SFM Plan includes a set of values, objectives, indicators and targets that address environmental, economic and social aspects of forest management in the Nicola Thompson Fraser area. The Plan is based on the Canadian Standards Association (CSA) Sustainable Forest Management Requirements and Guidance, which is one of the primary certification systems currently being used in British Columbia. An SFM Plan developed according to the CSA standard sets performance objectives and targets over a defined forest area 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. This SFM Plan is in the process of revision to align with the requirements of CSA SFM Standard Z809-16. Some of this change occurs in this Plan with the remainder expected to occur in the subsequent year.

Irrespective of changes occurring to the CSA SFM Standard, the SFM Plan is an evolving document that is reviewed and revised on an annual basis with the SFM Advisory Group to address changes in forest conditions and local community values. All participating forest licensees are committed to the achievement of the SFM Plan. Each year the SFM Advisory Group reviews an annual report prepared by the licensees to assess achievement of performance measures. This monitoring process provides the licensees, public and First Nations 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 SFM Plan.

The Nicola Thompson Fraser Sustainable Forest Management Plan, annual reporting and other relevant information can be obtained at Nicola Thompson Fraser Certification website:

<http://thompsonokanaganustainableforestry.ca/>

1.0 Introduction and 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 forest products have been produced using environmentally and socially responsible forest practices.

The Canadian Standards Association (CSA) *Sustainable Forest Management Standard (CAN/CSA Z809)*; is one of the primary forest certification programs currently being used in British Columbia and Canada. The CSA system requires the development of performance objectives and targets over a defined forest area to reflect local and regional interests. The process of CSA certification includes advisory committees composed of a range of public, stakeholders with specified interests and First Nations.

Aspen Planers Ltd., Canadian Forest Products Ltd., and Gilbert Smith Forest Products Ltd. are the participating entities in the Nicola Thompson Fraser Sustainable Forest Management Plan. These organizations are commonly referred to in the plan as the “participating licensees” or “Licensees”. The Licensees, with advice from the SFM Public Advisory Group, have used the CSA certification system as the basis to develop the Nicola Thompson Fraser Sustainable Forest Management (SFM) Plan. This Plan provides management direction for Canfor and Gilbert Smith’s operating areas in the Kamloops TSA (also including TFL 18 for Canfor) and Aspen’s operating areas in the Kamloops, Lillooet and Merritt TSA’s.

The licensees have been consulting with the public to develop responsible forest management plans for over 25 years. Many planning processes, including those for Forest Stewardship Plans, provide for public and First Nations review and comment. The Licensees prepare Forest Stewardship Plans that incorporate the direction provided through these various planning processes. Licensee standards and operating plans are continuously updated as new information comes forward. The SFM Plan is one component of the licensees’ commitment to adapt their management practices in response to changes in societal values.

The Sustainable Forest Management (SFM) Plan is a “roadmap” to current and future strategies related to long-term performance. The values, objectives, indicators and targets described in this document were developed with advice from the SFM Advisory Group. The Licensees adherence to these values, objectives, indicators and targets will support sustainable forest management within their historic operating areas and within the Plan area as a whole.

The SFM Plan is an evolving document that will be reviewed and revised on an annual basis with the SFM Advisory Group to address changes in forest conditions and local community values. More information about the Nicola Thompson Fraser Sustainable Forest Management planning, meeting summaries, annual reporting and maps can be obtained at the Nicola Thompson Fraser Certification webpage:

<http://thompsonokanagansustainableforestry.ca/>

2.0 The Plan Area

2.1 Area Description

The Nicola Thompson Fraser SFM Plan area is situated in the southern interior, east of the Coast Mountains and encompassing the Thompson-Okanagan Plateau. The area extends south to the Canada-USA border and northward to Wells Gray Provincial Park. The overall Plan area follows the administrative boundaries of the Cascades Forest District (Merritt TSA and Lillooet TSA) and the Thompson Rivers Forest District (Kamloops TSA).

The topography of Nicola Thompson Fraser is one of sharp contrasts, from dry, hot grasslands to large lakes and rugged mountains. The Nicola and Thompson Rivers join the Fraser River in the western section of the Plan area while the Similkameen River flows through the southern portion. The Plan area encompasses a wide range of Biogeoclimatic zones and subzones that reflect the complexity of the landscape and the different topographical conditions in each TSA.

In the north, the North Thompson River is bounded by the high peaks of the Monashee and Cariboo Mountains. Cool, wet conditions, with high snowfalls and dense spruce and cedar forests, are reflective of the Engelmann Spruce Subalpine Fir zone. In the central and southern portion, the mountains give way to high plateaus dissected by steep valleys and dotted with lakes and rivers. Moist and dry subzones of the Montane Spruce and Interior Douglas-fir zones, with mixed pine and pine-fir forests, reflect the differences in climate between east and west sides of the major valleys.

The landscape continues to become drier and gentler towards the south, with rolling uplands and numerous lakes. The driest Interior Douglas-fir subzones occur on the uplands, with the grasslands of the Bunchgrass subzones in the river valleys. The western boundary is influenced by the Coastal Mountains, where cool, wet coastal conditions predominate. Extensive areas of alpine and sub-alpine conditions limit forests to the middle and lower slopes of the deep valleys and wide river junctions. Engelmann Spruce-Subalpine fir, Montane Spruce and Interior Douglas-fir subzones closely follow the topography.

The diverse ecology of the area provides habitat for a wide range of fish and wildlife species including moose, mule deer, elk, mountain goat, and over 200 bird species. Predator species such as black bear, marten, cougar and coyote are also found. Many wildlife species range over large areas and some have specific habitat requirements at different times of the year. The area is also home to a number of wildlife species identified as Species at Risk, including spotted owl, American badger, bighorn sheep, grizzly bear and wolverine.

The numerous lakes and watercourses within the area are home to many fish species, including all five species of salmon, steelhead, rainbow trout, kokanee, brook trout, bull trout, and white sturgeon.

The forests of the Nicola Thompson Fraser provide numerous natural resource values, including forest products, minerals, fish, wildlife, and recreation and tourism opportunities. Extensive grassland and forested areas provide forage for both livestock and wildlife.

Major highways pass through areas of exceptional natural scenery, providing easy access to a number of communities ranging from the City of Kamloops with over 80,000 people to smaller towns such as Merritt with a population of 7,000, Lillooet, population 2,324, Cache Creek, population 1,037, and many smaller communities with populations of 200 or less. Other highways and hundreds of kilometers of unpaved roads provide access into the extensive grasslands, forested lands and backcountry areas.

A number of significant provincial parks, such as Wells Gray Provincial Park, Manning Provincial Park, Cathedral Provincial Park, Stein Valley Nlaka'pamux Heritage Park and Spruce Lake Protected Area are situated in the Plan area. Numerous smaller provincial parks, recreation sites and other Crown lands provide the setting for a host of activities including camping, hiking, wildlife and scenic viewing, fishing, hunting, hang-gliding, boating, river rafting, mountain-biking, four-wheel driving, ATV use, snowmobiling, and downhill, helicopter and cross country skiing.

2.2 Description of the Kamloops, Merritt and Lillooet Timber Supply Areas

The SFM Plan area consists of the participating licensees operating area within the Kamloops, Lillooet and Merritt Timber Supply Areas (TSAs) as well as Tree Farm Licence 18. Unless identified specifically in the Plan, all publicly developed sustainable forest management values, objectives, indicators and targets and their associated forecasts and strategies apply to all participating licensees within the overall Plan area. For the purposes of CSA certification, the Licensee-specific plan areas are a subset of the overall Plan area.

Below is information for each of the management units taken from recent Timber Supply Review (TSR), followed by overall Plan area information for these areas combined. Plan area information is updated near the conclusion of the TSR process following the Chief Forester's allowable cut determination. The Plan-specific information for each of the participating licensees concludes this section. Participating Licensees in this SFM Plan and their combined Defined Forest Area comprise over 50% of the allocated volume harvested within the three TSAs. It is reasonable therefore to expect that at the DFA level, forest inventory characteristics such as species and age distribution, site ecology, and resource use are similar to those found within each of the management units.

Further information on Timber Supply Reviews (TSR's) for each of the management units can be found by copying the following link into your internet web browser (from there one can go to specific information for each TSA and TFL 18):

<https://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/timber-supply-review-and-allowable-annual-cut>

Kamloops TSA

The **Kamloops TSA** is located in south central BC and covers approximately 2.77 million hectares of the Southern Interior Forest Region. Ranging from Logan Lake in the south to Wells Gray Park and TFL 18 in the north-west, the TSA includes the Blue River area and surrounds TFL 35. The TSA is bounded by the Columbia Mountains to the east and the Cariboo Mountains area to the west. Administratively, the Kamloops TSA falls within the jurisdiction of the Thompson Rivers Forest District. See the Nicola Thompson Fraser map in Appendix 1.

The topography of the Kamloops TSA is diverse ranging from hot, dry grasslands in the valley bottoms in the south to wet rugged mountains in the north. The TSA is bisected by the North Thompson River which joins the South Thompson River at Kamloops. Lush spruce and cedar forests in the Engelmann Spruce-Subalpine Fir, Interior Cedar-Hemlock and Sub-boreal Spruce subzones dominate the forests on each side of the North Thompson River valley. Dry Douglas-fir and lodgepole pine forests of the Interior Douglas-fir and Montane Spruce subzones are extensive on the lower elevation slopes and plateau areas. Bunchgrass subzones cover the lowest grassland areas of the Thompson valleys.

The diverse landscapes of the Kamloops TSA provide a variety of wildlife habitats, including grasslands, lakes and wetlands, forested slopes, and alpine areas. Grizzly bear, black bear, mule deer, moose, bighorn sheep, and many smaller furbearers, as well as many species of birds and amphibians, are common. In addition, the TSA includes portions of the range of three herds of mountain caribou.

Water is a primary and fundamental resource of the Kamloops TSA. Numerous rivers, lakes and streams support many species of fish, such as rainbow trout, kokanee, steelhead, brook trout and white fish. Significant demands are also placed on water resources for domestic, agricultural and mining purposes. There are currently 16 community watersheds within the Kamloops TSA.

Extensive grassland and forested areas provide important forage for both livestock and wildlife. Ranching continues to play an important role in the TSA. The range program in the TSA is the second largest in the province and has a significant impact on the local economy.

Parks, recreation sites and trails, in addition to roaded and non-roaded areas, provide opportunities for numerous outdoor activities. Residents and tourists enjoy recreation activities such as hiking, camping, hunting, fishing, wildlife viewing, boating, mountain-biking, snowmobiling, downhill and cross country skiing, and ski touring. Major highways pass through areas of exceptional natural scenery, providing easy access to national and provincial parks, such as Wells Gray Provincial Park and Jasper National Park.

Excluding Wells Gray Park, the timber harvesting land base makes up about 45% of the Kamloops TSA (see table below). Apart from lodgepole pine stands, which occupy about 30% of the timber harvesting land base, other commonly found tree species within the TSA include Douglas-fir (33%), spruce (18%), ponderosa pine, western red cedar, western hemlock, trembling aspen and subalpine fir.

Timber harvesting land base determination (from the September 2015 TSR data package – Kamloops TSA)

	Total Area (ha)	Percent of total area
Total Area	2,769,436	100
Non-forest including water, roads, trails	839,744	30
Other lands (not managed by FLNR, or excluded from TSA AAC)	406,039	15
Total Crown managed forest land base	1,686,363	60.9
Parks and reserves	624,731	23
Inoperable	325,784	12
Unstable terrain	111,202	4
Deciduous	84,207	3
Balsam	86,356	
Low Site Growing Potential	175,869	6
Riparian	68,241	3
Mountain Caribou habitat	236,299	9
Old Growth Management Areas	201,451	7
Current timber harvesting land base (THLB)	931,373	33.6

Merritt TSA

The **Merritt TSA** covers approximately 1.13 million hectares of the Southern Interior Forest Region. To the north of the Merritt TSA is the Kamloops TSA, to the west are the Lillooet and Fraser TSA's, and to the east is the Okanagan TSA. Manning Park, Cathedral Park and the Canada-United States border lie to the south. See the Nicola Thompson Fraser map in Appendix 1.

The Merritt TSA includes the mountainous terrain and steep river valleys of the Cascade Mountains in the west and the relatively dry, flat Thompson Plateau in the east. The TSA encompasses two major river systems: the Similkameen and the Nicola. Forest types throughout the area reflect the complexity of the landscape. The northern half of the TSA is dominated by the open grasslands of the Bunchgrass subzones and the dry Interior Douglas-fir subzone forests in the Douglas Lake-Nicola Lake-Merritt basin. North of the basin, the north-facing slopes of the Montane Spruce subzone forests are dry and cool. In the south, the Ponderosa Pine subzone of the Princeton basin is also surrounded by Interior Douglas-fir subzones. Dry, mild Montane Spruce subzone forests cover the slopes in the lee of the Cascades to the north, west and south with dry cool subzones to the east. Engelmann Spruce-Subalpine fir subzones are restricted to the highest slopes of the Cascades and on Brent Mountain above the Okanagan valley in the east.

The diverse landscapes of the Merritt TSA provide a variety of wildlife habitats, including extensive grasslands, lakes and wetlands, forested slopes, and alpine areas. At lower elevations mule deer, moose, black bear and many smaller furbearers, as well as many species of birds and amphibians, are common. Many Species at Risk occur throughout the TSA, including grizzly bears. Although the grizzly bear population is low, this area is part of the Canada/USA North Cascades grizzly bear population unit and may be subject to future recovery planning efforts.

2.0 – The Plan Area

Water is a primary and fundamental resource of the Merritt TSA. Numerous rivers, lakes and streams support many species of fish, such as rainbow trout, kokanee, burbot, mountain whitefish, eastern brook trout, bull trout and steelhead. Coho, chinook and pink salmon spawn in the Nicola River. Significant demands are also placed on water resources for domestic, agricultural and mining purposes. There are currently 10 community watersheds within the Merritt TSA.

Parks, recreation sites and trails, and roaded and non-roaded areas provide opportunities for numerous outdoor activities. Residents and tourists enjoy recreation activities such as hiking, camping, hunting, fishing, wildlife watching, boating, mountain biking, snowmobiling, and ski touring. The TSA includes a number of very large and smaller parks and popular recreation areas in the vicinity including the Coquihalla Summit, Cascade Recreation Area, Manning Park and Cathedral Park. Recreation visits have increased significantly since the completion of the Coquihalla highway and the Okanagan connector.

The grasslands and dry forests are used for grazing by cattle from the many local ranches. The timber harvesting land base — the area considered available for harvesting — makes up about 58% of the Merritt TSA (see table below). Lodgepole pine stands occupy about two-thirds of the timber harvesting land base with other common species including Douglas-fir, spruce, ponderosa pine, trembling aspen and subalpine fir.

Timber harvesting land base determination (from the July 2015 Public Discussion Paper – Merritt TSA)

Land Classification	Total Area (ha)	Percent of total area
Total Area	1,131,178	100
Non-forest including water, roads, trails	220,910	20
Other lands (not managed by FLNR, or excluded from TSA AAC)	222,752	20
Total Crown managed forest land base	805,857	71.2
Parks and reserves	16,951	1
Inoperable	86,435	8
Unstable terrain	68,141	6
Deciduous	84,207	8
Riparian	38,775	3
Old growth management area	114,467	10
Ungulate snow interception area	43,165	4
Current timber harvesting land base (THLB)	592,687	52.4

Lillooet TSA

The **Lillooet TSA** is situated in southwestern British Columbia between the Coast Mountains and the Thompson-Okanagan Plateau and covers approximately 1.125 million hectares. See the Nicola Thompson Fraser map in Appendix 1.

The Lillooet TSA is characterized by rugged topography and dramatic climatic variations associated with the mountainous terrain found in this region. In the western portion of the TSA temperate rain forest conditions predominate, while the eastern portion is dominated by the dry grasslands and semi-arid landscapes that comprise the interior dry belt.

Given the climatic diversity, the steepness of the topography and the variety of aspects, the forests of the Lillooet TSA are fairly diverse. Lodgepole pine, Douglas-fir and spruce-leading stands dominate, but other tree species are also present including ponderosa pine, whitebark pine, subalpine fir (balsam), western red cedar and hemlock.

East of the Fraser River forests are typical of the Thompson Plateau to the east, with Ponderosa Pine (PPxh2) in the valley bottoms, followed upslope by Interior Douglas-fir subzones varying from IDFxh2a, to IDF xh2, or IDFd1, or IDF dk2, depending on aspect and location. West of the Fraser River ponderosa pine forests (PPxh2), cover the valley bottoms in a narrow band from south of Lytton north to Pavilion and up the Bridge and Yalokom Rivers. Above the pine are Interior Douglas-Fir subzones including IDFXc and IDFww in the Seton Lake valley and IDFDc in the Bridge Creek-Downton Creek valleys. IDF xw and IDF dk3 are found in the Watson Bar to French Bar creek area. Narrow bands of Montane Spruce and Engelmann Spruce- Subalpine fir subzones cover the steeper slopes above the Douglas-fir.

The grasslands and dry forests are used for grazing by cattle from the many local ranches. About 80 percent of the forests in the TSA are currently over the age of 60 years. Over time, as harvesting and mortality due to mountain pine beetle occurs, younger forests will become more predominant.

The diverse forests and landscapes of the Lillooet TSA are home to a wide range of wildlife species. A variety of ungulates are found within the TSA including elk, mule deer, moose, bighorn sheep, and mountain goat. Other large mammals include grizzly and black bear. Also found are various furbearers such as beaver, mink, muskrat, otter, marten, weasel, wolverine, bobcat and lynx. The rivers and lakes of the TSA support many fish species, including; steelhead trout, rainbow trout, bull trout, whitefish, white sturgeon, cutthroat trout, whitefish and all five species of Pacific salmon.

Parks, recreation sites and trails, and roaded and non-roaded areas provide opportunities for numerous rugged outdoor activities. Residents and tourists enjoy recreation activities such as hiking, camping, hunting, fishing, boating, wildlife viewing, horseback riding, rock climbing, mountain-biking, snowmobiling, and ski touring. The TSA includes a number of very large and smaller parks and popular recreation sites including the Stein Valley Nlaka'pamux Heritage Park and Spruce Lake Protected Area with their many backcountry hiking opportunities.

2.0 – The Plan Area

Forested areas both inside and outside the timber harvesting land base help to provide critical forest habitats for many species. In the Lillooet TSA about 53 percent of the productive forest land is not considered available for timber harvesting. About 528 000 hectares within the Lillooet TSA are considered productive forest land and 47 percent of this is considered available and suitable for timber harvesting. The timber harvesting land base therefore represents approximately 250 000 hectares or 22 percent of the total area within the TSA (see table below).

Timber harvesting land base determination (from the TSR data package – Lillooet TSA)

Land Classification	Land Base		Eligible ⁽¹⁾
	Area (ha)	Volume (m ³)	Area (ha)
<i>Total Area</i>	1,125,025	124,906,601	
Not administered by MoFLNRO	166,313	20,190,889	166,313
<i>Total TSA</i>	958,712	104,715,712	
Non-forest / Non-productive	453,534	6,449,728	546,904
<i>Productive Forest</i>	505,178	98,265	984
Inoperable	97,964	20,272,528	97,964
<i>Operable Forest</i>	407,214	77,993,456	
Non-commercial	404	427	523
Environmentally sensitive – terrain mapping	18,032	3,695,483	23,838
Environmentally sensitive – forest cover	25,831	4,534,726	129,376
Sites with low growing potential	41,046	6,055,369	75,316
Unmerchantable	4,302	545,492	23,896
Community watershed intakes	6	1,256	8
Riparian	6,961	2,033,867	9,651
Existing roads, trails, and landings	4,380	615,908	5,331
Spruce Lake protected area OIC	12,912	4,171,145	20,811
Cultural heritage resources,	984 235	667	1,770
<i>Total Reductions</i>	114,858	21,88 9,340	
<i>Current Timber Harvesting Land Base</i>	292,357	56,104,116	
Less future roads	18,207		
<i>Future Timber Harvesting Land Base</i>	274,150		

(1) These values represent the total area of the land base that meets the criteria for the removal at each step, regardless of area removed previously

Description of Tree Farm Licence 18

Tree Farm Licence (TFL) 18 is held by Canadian Forest Products Limited (Canfor). In 2004, Canfor acquired Slocan Forest Products Ltd who previously held the TFL.

TFL 18 is located in central British Columbia (BC) in an area known as the North Thompson region. The TFL is located west of the town of Clearwater and Canfor’s mill in Vavenby, and south of Wells Gray Provincial Park.

The total land base within the TFL boundary is 74 542 hectares, with a high percentage considered productive forest (90 percent). The majority of the TFL area is characterized by high-elevation plateau with gently rolling terrain. Numerous small lakes and swamp complexes are located within the TFL. Three biogeoclimatic zones occur: the Engelmann Spruce-Subalpine Fir zone, which occupies about 51 percent of the TFL, the Sub-Boreal Spruce which occupies 32 percent, and the Interior Cedar-Hemlock zone representing about 16 percent of the area.

The main commercial tree species are Engelmann and white spruce, lodgepole pine, subalpine fir (also known as balsam), Douglas-fir, western hemlock, and western red cedar.

Forestry is the principal employment sector in the North Thompson region. Also significant are the tourism, ranching and transportation sectors. Road access is provided by provincial Highway 5, which serves the North Thompson region including Wells Gray Park. There is also a connecting railway that is used to transport forest products from local processing facilities.

TFL 18 Timber harvesting land base determination.

Land Classification	Total Area (ha)	Net Area (ha)
TFL 18 Area		74,542
Non forest and non productive	5834	5834
Non Commercial Brush	13	12
Existing roads	1402	1381
Total Non Productive reductions		7227
Productive Forest		67,315
Protected Areas	282	268
Riparian	1991	1879
Unstable terrain	39	36
Difficult regeneration	901	741
Perm sample plots	50	46
Non-merchantable stands	175	37
Future Wildlife Tree retention	513	496
Total reductions to productive forest		3503
Current THLB		63,812
Future road reduction		628
Long term THLB		63,184

Area Summary for the Nicola Thompson Fraser SFM Plan

2.0 – The Plan Area

Approximately 39 percent of the total area of the combined area comprises the long term timber harvesting land base. The table below provides summary information from the preceding TSA tables and that of TFL 18.

Land base summary for the SFM Plan Area.

	Kamloops	TFL 18	Lillooet	Merritt	Plan Area
Total Area (ha)	2,769,436	74,542	1,125,025	1,131,178	5,100,181
Non-crown	406,039		166,313	222,752	795,104
Non-productive, non-forest	839,744	5,847	453,534	220,910	1,520,035
Productive (managed) Forest (ha)	1,686,363	67,315	504,774	805,857	3,067,309
Parks, protected areas, OGMA's, reserves	826,162	795	20,811	131,418	979,186
Inoperable	325,784		97,964	86,435	510,183
Environmentally Sensitive	111,202	39	43,863	68,141	223,245
Existing Roads	n/a	1402	4,380	n/a	5,782
Low site, reforestation potential	175,869	901	41,046	45,011	262,827
Non-merchantable stands	170,563	175	4,302		175,040
Riparian	68,241	1,991	6,961	38,775	115,968
Timber harvesting land base (ha)	931,373	63,184	292,357	592,687	1,879,601

Based on earlier licenced volume allocations, the participating licensees have forest management responsibility for 21.2% of the total Plan area. In addition, licensees certified to the Sustainable Forestry Initiative (SFI) forest certification program (59.8%) contribute to SFM objectives and are of low risk to impact the successful achievement of this Plan's objectives. A risk assessment (2017) was performed to determine what (if any) the risks were of companies not subscribing to the SFM Plan jeopardizing the achievement of targets within the Plan. The assessment report concluded that at the scale of the Plan area, a maximum of 19% of volume allocated and awarded could be managed by licensees not reporting into the Plan or certified to SFI. Coupled with their legal obligations to meet the stewardship objectives of the Crown, there is limited risk of Plan indicators and targets not being achieved as a result of actions by this group. The table below reveals AAC allocation by management unit.

AAC allocation for the SFM Plan Area.

	AAC (m³)	Percent
Management Unit		
Kamloops	2,300,000	50.6
TFL 18	175,000	3.9
Lillooet	570,000	12.5
Merritt	1,500,000	33.0
Total Plan Area	4,545,000	100

2.0 – The Plan Area

Maps for the Cascades and Thompson Rivers Forest Districts can be found at the websites:

Cascades - http://www.for.gov.bc.ca/dcs/geomatics/maps_dcs.htm

Thompson Rivers - <http://www.for.gov.bc.ca/dka/Maps.htm>

The Defined Forest Area (DFA) for Canfor and Gilbert Smith's operations are within the Kamloops TSA (and TFL 18 for Canfor). The DFA for Aspen includes operations in the Kamloops, Lillooet, and Merritt TSAs. The location of the DFA is specified in the licensees' geographic information system (GIS) inventory. A map of the area, depicting the Licensees historical operating areas, is shown in Appendix 1. In order to generate a legible map for the SFM Plan, land ownership status is incomplete. It should be noted that private land, federal land, and other reserves are not part of the DFA. Licensees have access to more detailed mapping that can identify ownership should there be an interest in looking at a refined map area of their specific operations.

The scope of the DFA within the SFM Plan area by company includes forestry and logging operations on Crown land within the following agreements (includes Licences issued to others with management responsibilities assigned to the Company):

Aspen Planers	FL A18695, A75062, A18700, A18701, A81042, A81043, and Logan Lake Community Forest Licence CFAK2E. Also for A65006, all cutting permits managed by Aspen including all those under the authority of Aspen's FSP ID# 76 (as opposed to those managed independently by Stuwix). Aspen also manages numerous Forestry Licences to Cut and Non-Replaceable Forest Licences which are identified within one of two Forest Stewardship Plans – FSP ID#76 (Merritt TSA) and FSP ID#379 (Lillooet TSA). In the Kamloops TSA, Aspen-managed blocks under A84885, A89254, and A81371 are also included.
Canadian Forest Products	FL A18688, FL A88223 and TFL 18. FSP ID #117 (Kamloops TSA)
Gilbert Smith Forest Products	FL A18692, A89106 and TL T0713. Additionally, Gilbert Smith may manage other Licences (i.e. Non-Replaceable Forest Licences) that are identified in its Forest Stewardship Plan – FSP ID#457 (Kamloops TSA).

The above referenced forest tenures provide the participating licensees the authority to access and harvest trees on Crown land along with responsibilities for forest planning, reforestation, and road maintenance. Management plans, including Forest Stewardship Plans are developed for most of the Licences or allocations listed in the above table. Results and strategies that align with government objectives are identified in these plans and guide how the tenures are managed. The implementation of these results and strategies are described as inputs into the Timber Supply Review process. A separate, unique management plan is developed for area-based tenures such as that for TFL 18. Located within the Plan area are other forest and non-forest tenure holders that occupy or manage natural resources. The participating licensees understand that the Crown has issued multiple tenures on the land base and where this has occurred the licensees recognize and respect those other tenures.

In addition to the listed licences, there may be other licences that are assigned to participating Licensees within the Plan area through such mechanisms as Non-Replaceable Forest Licences or Forestry Licences to Cut. Where this occurs, these licences will be listed in the respective company's Forest Stewardship Plan. Annual reporting will occur for these licences where they are under the control of the participating Licensees or where the Ministry of Forests and Range has included the requirement for reporting in the licence document. Reporting data for these licences will generally be area/cutblock specific.

2.3 Communities and Economy

The Nicola Thompson Fraser Plan area is made up of the Kamloops, Merritt, and Lillooet Timber Supply Areas (TSAs) as well as TFL 18. A brief description of the communities within these areas is provided (information taken from most current Timber Supply Review public discussion papers) below. Following that, a table from a BC Stats report dated February 2009 indicates employment and income by sector for the three Forest Districts that make up the NTF Plan area:

Kamloops

Almost 80% of the area's residents live in the City of Kamloops. Other communities include Ashcroft, Cache Creek, Savona, Chase, and Logan Lake in the south, and Barriere, Blue River, Avola, Clearwater, Little Fort, and Vavenby in the north. The 2006 Census data indicate a total population of 107,298 people residing in the TSA, a 5% increase from 1996. The Secwepemc Nation, the Nlaka'pamux Nation, the St'at'imc Nation, the Okanagan Nation and the South Carrier Nation have traditional territories within the Kamloops - North Thompson. Currently there are ten First Nation communities with a population of about 4,500 people.

Merritt

The major population centres are Merritt (population 7000) and Princeton (population 2687), where about 60% of the TSA's population reside. Smaller communities include Tulameen, Brookmere, Missezula Lake, Douglas Lake, Lower Nicola, Osprey Lake, and Allison Lake.

Lillooet

Lillooet is the largest community in the TSA. As of the 2006 census, the District of Lillooet had an estimated population estimate of 2,324 people. Including the surrounding communities that use Lillooet as their trading centre, the total is estimated at 5,000. Several smaller communities occur within the TSA including Seton Portage/Shalalth, Xaxli’p, Lytton, Pavilion, Spences Bridge, Bralorne, and Gold Bridge.

Employment and Income table from Statistics Canada ([link to access full report](#)):

Direct, indirect, and induced (non-basic) employment and after tax income estimates (excerpt from 2006 Economic Dependency Tables for Forest Districts report)

Cascades Forest District					Kamloops Forest District					Headwaters Forest District				
2006 Employment					2006 Employment					2006 Employment				
	DIRECT	INDIRECT	NON-BASIC	TOTAL		DIRECT	INDIRECT	NON-BASIC	TOTAL		DIRECT	INDIRECT	NON-BASIC	TOTAL
LOGGING	824	142	213	1,180	LOGGING	1,102	278	437	1,817	LOGGING	562	109	91	762
PULP AND PAPER	16	9	1	26	PULP AND PAPER	537	342	376	1,254	PULP AND PAPER	10	6	1	17
OTHER WOOD MFG	1,065	289	322	1,676	OTHER WOOD MFG	1,793	547	836	3,176	OTHER WOOD MFG	431	123	82	636
MINING (& PROC.)	407	132	126	665	MINING (& PROC.)	1,627	641	981	3,249	MINING (& PROC.)	20	7	1	28
OIL & GAS(& PROC)	0	0	0	0	OIL & GAS(& PROC)	51	137	42	229	OIL & GAS(& PROC)	10	10	1	21
HIGH TECH	31	7	1	39	HIGH TECH	309	26	106	441	HIGH TECH	0	0	0	0
FISHING & TRAPPING	13	7	1	20	FISHING & TRAPPING	10	9	2	21	FISHING & TRAPPING	0	0	0	0
AGRICULTURE & FOOD	862	99	89	1,051	AGRICULTURE & FOOD	1,272	208	248	1,727	AGRICULTURE & FOOD	268	32	10	310
TOURISM	1,505	96	131	1,732	TOURISM	6,154	443	1,059	7,656	TOURISM	769	50	43	862
PUBLIC SECTOR	2,871	374	551	3,795	PUBLIC SECTOR	12,417	1,688	4,281	18,385	PUBLIC SECTOR	815	95	107	1,017
CONSTRUCTION	889	225	187	1,301	CONSTRUCTION	3,843	1,175	1,361	6,379	CONSTRUCTION	226	59	23	308
FILM & SOUND PROD.	12	3	0	15	FILM & SOUND PROD.	100	34	23	158	FILM & SOUND PROD.	0	0	0	0
OTHER (UNALLOCATED)	369	69	54	492	OTHER (UNALLOCATED)	4,876	459	1,473	6,807	OTHER (UNALLOCATED)	87	15	11	113
NON-EMPLOYMENT	0	0	782	782	NON-EMPLOYMENT	0	0	5,288	5,288	NON-EMPLOYMENT	0	0	147	147
TOTAL	8,862	1,452	2,460	12,775	TOTAL	33,891	5,986	16,511	56,388	TOTAL	3,198	506	516	4,220
Cascades Forest District					Kamloops Forest District					Headwaters Forest District				
2006 After Tax Income (Millions)					2006 After Tax Income (Millions)					2006 After Tax Income (Millions)				
	DIRECT	INDIRECT	NON-BASIC	TOTAL		DIRECT	INDIRECT	NON-BASIC	TOTAL		DIRECT	INDIRECT	NON-BASIC	TOTAL
LOGGING	32.1	2.9	3.9	38.9	LOGGING	40.1	9.0	10.9	60.1	LOGGING	20.9	2.1	1.5	24.6
PULP AND PAPER	0.0	0.2	0.0	0.3	PULP AND PAPER	30.1	12.1	9.4	51.7	PULP AND PAPER	0.0	0.2	0.0	0.2
OTHER WOOD MFG	45.1	7.7	5.9	58.7	OTHER WOOD MFG	75.3	18.7	20.9	114.9	OTHER WOOD MFG	17.5	3.2	1.4	22.1
MINING (& PROC.)	17.6	3.2	2.3	23.1	MINING (& PROC.)	89.8	20.5	24.6	134.9	MINING (& PROC.)	0.0	0.1	0.0	0.2
OIL & GAS(& PROC)	0.0	0.0	0.0	0.0	OIL & GAS(& PROC)	0.7	4.0	1.0	5.7	OIL & GAS(& PROC)	0.0	0.2	0.0	0.2
HIGH TECH	0.0	0.2	0.0	0.2	HIGH TECH	11.1	0.9	2.7	14.6	HIGH TECH	0.0	0.0	0.0	0.0
FISHING & TRAPPING	0.0	0.2	0.0	0.2	FISHING & TRAPPING	0.0	0.3	0.1	0.3	FISHING & TRAPPING	0.0	0.0	0.0	0.0
AGRICULTURE & FOOD	12.1	2.5	1.6	16.3	AGRICULTURE & FOOD	21.1	6.8	6.2	34.1	AGRICULTURE & FOOD	1.7	0.8	0.2	2.6
TOURISM	19.4	2.1	2.4	24.0	TOURISM	105.0	14.1	26.5	145.6	TOURISM	10.1	0.9	0.7	11.7
PUBLIC SECTOR	81.4	9.0	10.2	100.5	PUBLIC SECTOR	430.6	50.7	107.3	588.6	PUBLIC SECTOR	25.4	1.7	1.8	28.9
CONSTRUCTION	25.5	5.3	3.5	34.2	CONSTRUCTION	114.9	38.2	34.1	187.1	CONSTRUCTION	4.3	1.5	0.4	6.1
FILM & SOUND PROD.	0.0	0.1	0.0	0.1	FILM & SOUND PROD.	1.6	1.1	0.6	3.2	FILM & SOUND PROD.	0.0	0.0	0.0	0.0
OTHER (UNALLOCATED)	7.3	1.6	1.0	9.9	OTHER (UNALLOCATED)	150.7	14.9	36.9	202.5	OTHER (UNALLOCATED)	2.5	0.4	0.2	3.0
NON-EMPLOYMENT	128.3	0.0	14.4	142.7	NON-EMPLOYMENT	594.6	0.0	132.5	727.1	NON-EMPLOYMENT	37.1	0.0	2.5	39.6
TOTAL	368.7	34.8	45.4	448.9	TOTAL	1,665.3	191.3	413.9	2,270.5	TOTAL	119.5	10.9	8.7	139.1

2.4 Mountain Pine Beetle

The Mountain Pine Beetle (MPB) is the most damaging insect that attacks lodgepole pine in B.C.. Beetles attack pine trees by laying eggs under the bark. When the eggs hatch, the larvae mine the phloem beneath the bark and eventually cut off the tree’s supply of nutrients.

Forests of mature lodgepole pine are prime habitat for the mountain pine beetle, and the beetle thrives under warm weather conditions. The Thompson Nicola Fraser Plan area had an abundance of mature lodgepole pine, and had experienced consecutive mild winters and drought-like summers. As a result, mountain pine beetle populations expanded to unprecedented levels in their recorded history.

2.0 – The Plan Area

Management strategies including an uplift in the allowable harvest level have been aggressive and successful in managing the infestation and salvaging infected and dead pine trees. The strategies have also assisted in securing the maximum value in pine forests that have been killed or threatened by the beetle. This aggressive strategy has led to large harvest areas within even larger areas of natural disturbance caused by the beetle. For the most part, the MPB has run its course within the NTF Plan area, infected and dead pine area continues to be salvaged before while it retains economic value.

Provincial information related to the current MPB situation can be found at the website:

<https://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/forest-health/forest-pests/bark-beetles/mountain-pine-beetle>.

Regional information related to the MPB situation can be found on the Thompson Rivers and Cascades Forest District's forest health web pages:

Thompson Rivers - http://www.for.gov.bc.ca/dka/Forest_Health/ForestHealth.htm

Cascades- http://www.for.gov.bc.ca/dcs/foresthealth/forest_health.htm

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.

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

- Participants must develop and achieve performance measures for on-the-ground forest management, monitored through an annual public review with the input of the public and First Nations (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).

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 involvement: Performance Requirements and Measures

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

1. Biological diversity,
2. Ecosystem condition and productivity,
3. Soil and water,
4. Role in global ecological cycles,
5. Economic and social benefits,
6. Society’s responsibility, and
7. Aboriginal relations

Each criterion has a number of “elements” that further define the intent. The criteria and associated elements are all defined under the CSA standards and must be addressed during development of the SFM Plan. The criteria are endorsed by the Canadian Council of Forest Ministers and are aligned with international criteria.

For each set of criteria and elements, forest managers, and the advisory group must identify local values and objectives. Indicators and targets are assigned to the values and objectives to measure performance.

Discussion Items identified in the CSA Z809 Standard for each of the six SFM criteria have been reviewed and discussed as needed by the public advisory group in conjunction with the development of this SFM Plan. Detailed information on the topics discussed can be found in the meeting summaries and reference material associated with the development of this Plan.

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 SFM Plan. 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 SFM Plan.

Targets are specific short-term (one or two year) commitments to achieve identified objectives. 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 “reduction in area of the timber harvesting land base”, a target might be “to have less than x percent of harvested areas in roads and landings.”

Values, objectives, indicators, and targets apply to socioeconomic and ecological criteria and may address process as well as on-the-ground forest management activities.

As part of the process of developing values, objectives, indicators and targets, the SFM Advisory Group also assisted in the development of forecasts of predicted results for indicators and targets. This information and interrelationship is further described in Section 5. **Forecasts** are a prediction of the expected future condition of an indicator. These have been incorporated into the SFM Plan targets as predicted results or outcomes for each objective. Forecasting is further described in Section 5.

3.1.2 Environmental Management System Components

The CSA SFM system includes a number of processes or systems-related requirements called “systems components” as follows:

- **Commitment:** A demonstrated commitment to developing and implementing the SFM Plan.
- **Public participation:** The CSA standards require informed, inclusive, and fair consultation with the Advisory Group during the development and implementation of the SFM Plan.
- **CSA-aligned management system:** The management system is an integral part of the implementation of the SFM Plan and is designed to meet CSA standards. The management system has four basic elements: 1) Planning; 2) Implementing; 3) Checking and Monitoring; and 4) Review and Improvement. Each of the Licensees management systems have the following base components:
 - Identify environmental commitments including those within the SFM Plan.
 - Identify standard operating procedures or develop performance measures to assess and achieve environmental commitments.
 - Develop emergency procedures in the event of an incident causing environmental impact.
 - Establish procedures for training. (Providing updated information and training ensures that forestry staff and contractors stay current with evolving forest management information and are trained to address environmental issues during forestry activities.)
 - If an incident does occur, conduct an investigation or incident review and develop an action plan to correct and prevent subsequent occurrences.
- **Continual improvement:** within the context of the management system, monitoring and reviewing the system and its components continually improve the effectiveness of the SFM Plan. This includes a review of ongoing planning, and public process to ensure that the management system is being implemented as effectively as possible. SFM Plan improvements generally occur on an annual basis. Changes are generally made as a result of annual plan performance reporting and changes in science and technology. The change can be initiated by the public (often those participating in the advisory group) or by licensees (for example as a result of internal discussions that occur during their management review).

Audits and Public Review

Each year the participating licensees compile a report that summarizes results for each of the performance measures (see Appendix 3: SFM Plan reporting format). This annual report is provided to the SFM Advisory Group for review and comment. Annual monitoring of the achievement of the Plan and comparison of the actual results to forecasts will enable the effectiveness of the SFM Plan to be continually improved, in keeping with CSA standards. Additionally, participating Licensees will provide summary information of their individual results, specific to their Defined Forest Area.

The achievement of performance measures (indicators and targets) will be assessed annually through surveillance audits carried out by a registered third party auditor. The audits will determine whether the registrant has successfully implemented the SFM Plan and continues to meet the CSA Standard. Audit summaries are available to the public.

3.2 Nicola Thompson Fraser SFM Planning Process

The SFM Plan was developed by Licensees based on advice and recommendations provided by the SFM Advisory Group. The Plan is a combination of three TSA SFM Plans (Kamloops, Lillooet and Merritt) and TFL 18 located west of Clearwater. It has been developed to be in compliance with all existing legislation and policy and consistent with the strategic direction and intent of the Kamloops and Lillooet LRMPs. The licensees participate in the maintenance and continual improvement of the plan.

3.2.1 Licensee Participation

Participating Licensees operating within the Nicola Thompson Fraser SFM Plan area worked with the SFM Advisory Group to develop performance measures (values, objectives, indicators, and targets) for this SFM Plan. Having all the majority of licensees represented during the development of a single SFM Plan helped to address the complexities of overlapping licences and volume-based harvesting tenures within the Plan area. It is the intent that all participating Licensees continue to remain committed to the achievement of the Plan and the annual reporting of their performance.

The following licensees are actively involved in performance reporting and the continual improvement of the Nicola Thompson Fraser Sustainable Forest Management Plan:

- Aspen Planers Ltd.
- Canadian Forest Products Ltd.
- Gilbert Smith Forest Products Ltd

Non-participating Licensees within the Plan area commit to reporting on the Plan as follows:

- Non-Replaceable Forest Licences (NRFLs)
Licensees holding NRFLs have a limited ability to influence achievement of Targets for some SFM Plan Indicators. These licensees are committed to reporting against Targets they do influence. These licensees report against Targets 2, 5, 6, 11-12, 14, 16, 18, 20-21, 23, 27, 30, and 36.
- Small Scale Salvage Program (SSSP)
The small scale salvage operations, managed by the BC Ministry of Forests, Lands and Natural Resource Operations (FLNRO), have concentrated their operations on the salvage trees killed by the Mountain Pine Beetle. The participating licensees support FLNRO's reporting of SFM performance targets they influence. FLNRO reporting would include reporting of the following Targets: 2, 5, 6, 12, 14, 16, 18, 20-21, 23, 27, 30, and 36.

A map of the Licensee's historical operating areas within the Plan area can be found in Appendix 1.

3.2.2 Public Participation

SFM Advisory Groups were established during the development of the three individual Kamloops, Merritt, and Lillooet SFM Plans that existed prior to the creation of the Nicola Thompson Fraser Plan. They were formed to assist the participating licensees in developing and maintaining their SFM Plans by identifying local values, objectives, indicators, and targets and evaluating the effectiveness of each Plan.

Members of these Groups represented a cross-section of local interests including environmental organizations, forest workers, fish and wildlife, agriculture, and research specialists. An open and inclusive process was used to establish each of the public advisory groups. Local First Nations, LRMP table members and other interested community members were formally invited to participate. Periodic reviews of the membership have been made with an objective of seeking participants from underrepresented sectors. The Ministry of Forests and Range and the Ministry of Environment provide technical support to the SFM planning process including information and advice on land and resource and policy issues.

In the development of the Nicola Thompson Fraser SFM Plan, all members of these three existing advisory groups were asked to be a part of one larger advisory group to develop this Plan. The Nicola Thompson Fraser SFM Advisory Group agreed upon and is guided by a Terms of Reference (ToR) consistent with the CSA standard. The Terms of Reference specifies that the process for developing/adjusting the SFM Plan will be open and transparent. A copy of the current ToR is included as Appendix 2 of this Plan.

The SFM Plan is an evolving document that will be reviewed and revised on an annual basis with the SFM Advisory Group to address changes in forest condition and local community values.

3.2.3 Government and First Nations Participation

Government agencies participate in the SFM planning process in two roles: 1) as a forest licensee, and 2) to provide technical support to the planning process (see section 3.2.1). The Ministry of Environment also participated in the development of the initial Plan in a resource/support capacity. First Nations have had varying levels of participation in the process within the three separate SFM Plans and this has continued with the Nicola Thompson Fraser SFM Plan. They continue to be kept advised throughout Plan development.

Section 35 of the *Constitution Act* 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. This SFM planning process is in no 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.

3.3 Strategy Guiding the SFM Plan

Resource use planning in British Columbia occurs at a variety of levels ranging from strategic land use plans (Land and Resource Management Plans or LRMPs) to Landscape Unit plans to site specific plans for small areas (e.g., silvicultural prescriptions for individual cutblocks).

Strategic land use plans provide broad direction for the sustainable management of land and resources through the establishment of resource management zones (e.g., protected areas, special management areas, and general resource management zones), management objectives, and strategies to guide land and resource management activities.

Landscape Unit Plans occur at a smaller scale than strategic land use plans and are intended to ensure that biodiversity objectives identified in provincial forest legislation are met. Landscape Unit Plans address Old Growth Management Areas and wildlife tree retention.

Operational and site plans address resource management at a site specific level and are guided and often regulated by objectives and strategies in strategic land use plans and Landscape Unit plans.

In the course of these strategic level planning processes plus additional analysis of sensitivities during the [TSA Timber Supply Review process](#), alternative management strategies were evaluated against a base case. A determined strategy was selected following opportunities for public review and comment. Because Timber Supply Reviews occur for each of the three TSAs as well as TFL 18 at reoccurring intervals, the SFM Plan area continually undergoes comparative analysis of the planned or expected outcome and the actual outcome of forest management strategies. The selected strategies that define the outcome of the Timber Supply Reviews become in essence, the management plan for the specific management unit (TSA or TFL). It is noteworthy that in the timber supply review process, the Chief Forester considers many factors when making an AAC determination such as riparian areas, wildlife habitat, protection against soil erosion, provisions for biodiversity and for recreation, and much more. Hence the AAC is not a calculation based on timber alone, but is a determination to ensure the long-term sustainability of the forest resource.

The Nicola Thompson Fraser SFM Plan is aligned with the strategic direction of the most current version of these management unit plans. The plans, in conjunction with Timber Supply Reviews, both guide and forecast sustainability. The NTF SFMP strategy recognizes the Goals and Objectives in these strategic plans, which support achievement of sustainable forest management. The over arching strategy for the NTF SFMP is further guided by the Plan’s vision statement to *foster forest management practices based on science, professional experience and local public and First Nations input that contribute to the long-term health and productivity of forest ecosystems, a strong economy and thriving communities throughout the Plan area.*

The Nicola Thompson Fraser public advisory group have chosen a continually improving

strategic direction, one that aligns with existing higher level plans and Timber Supply Reviews and that is periodically adjusted based on current practices, advances in science and public expectations for forest management. The SFMP framework has publicly determined Goals and Objectives that meet the intent of these higher-level plans. The SFMP utilizes core and non-core indicators and assigns targets that provide a measure of success against the desired strategy. These targets:

- reflect the key values and objectives for CSA sustainability Elements
- respect provincial laws and land use plans
- are within the purview of the forest industry to influence and manage

A set of individual strategies have been developed to achieve the SFMP objectives indicators and targets. These strategies document the relevance of the Indicator to the SFMP and sustainability, and summarize actions required to meet the target. Contrary to guidance found in the CSA Z809 Standard, the option of a do nothing or no-action strategy is often not a valid option, given the requirement to meet legal obligations. Applicable strategies are documented by indicator/target in Section 5 of the SFMP. More extensive information is provided in Section 6 for many of these strategies.

4.0 Values and Objectives

The SFM Advisory Group 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. SFM Plan indicators (core and local) and their targets are described in Section 5. A summary table showing all criteria and elements and associated local values, objectives, and indicators is provided in Appendix 4.

Criterion 1: Biological Diversity

Conserve biological diversity by maintaining integrity, function, and diversity of living organisms and the complexes of which they are part.

Element 1.1: Ecosystem Diversity

Conserve ecosystem diversity at the stand and landscape levels by maintaining the variety of communities and ecosystems that naturally occur in the DFA. Establish forest plantations only in afforestation projects.

Description of Local Values	Description of Objectives	Indicators
Healthy, functioning ecosystems that support natural processes. <i>It is noted that forest plantations as defined by CSA Z809 and this plan do not occur within the DFA.</i>	Healthy, connected ecosystems with a representation of natural attributes.	1.1.1, 1.1.2, 1.1.3, 1.1.4

Element 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.

Description of Local Values	Description of Objectives	Indicators
Abundance and distribution of habitat to conserve populations of native flora and fauna	Maintain a variety of habitats for naturally occurring species. Use practices to reduce the spread of invasive plant populations within forested ecosystems	1.2.1, 1.2.2, 1.2.2, 1.2.4

Element 1.3: Genetic Diversity

Conserve genetic diversity by maintaining the variation of genes within species and ensuring that reforestation programs are free of genetically engineered trees.

Description of Local Values	Description of Objectives	Indicators
Genetic diversity within all native tree species	Maintain genetic diversity of all tree species native to the DFA	1.1.2, 1.1.3, 1.2.3

Element 1.4: Protected Areas and Sites of Special Biological, Geological, Heritage or Cultural Significance

Respect protected areas identified through government processes. Co-operate in broader landscape management related to protected areas and sites of special biological and cultural significance.

Identify sites of special biological, geological, heritage or cultural significance within the DFA, and implement management strategies appropriate to their long-term maintenance.

Description of Local Values	Description of Objectives	Indicators
Appropriate management of protected areas and sites of special geological, biological, and/or cultural significance.	Protected areas and sites of special significance are identified and appropriately managed.	1.4.1, 1.4.2,

Criterion 2: Ecosystem Condition and Productivity

Conserve forest ecosystem condition and productivity by maintaining the health, vitality, and rates of biological production.

Element 2.1: Forest Ecosystem Condition and Productivity

Conserve forest 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.

Description of Local Values	Description of Objectives	Indicators
Productive, well functioning forest ecosystems	Well functioning connected ecosystems that are managed for timber and non timber forest values	2.1.1, 2.1.2 (1.2.3), 2.1.3, 2.1.4, 3.2.2

Criterion 3: Soil and Water

Conserve soil and water resources by maintaining their quantity and quality in forest ecosystems.

Element 3.1: Soil Quality and Quantity

Conserve soil resources by maintaining soil quality and quantity.

Description of Local Values	Description of Objectives	Indicators
Conservation of soil quality and quantity	Maintain productive capacity of forest soils. Minimize compaction and detrimental disturbance	3.1.1, 3.1.2

Element 3.2: Water Quality and Quantity

Conserve water resources by maintaining water quality and quantity.

Description of Local Values	Description of Objectives	Indicators
Conservation of water quality and quantity.	Water quality and quantity that maintains pre-existing conditions and supports communities (human and ecological) and aquatic life	3.2.1, 3.2.2, 3.2.3, 1.2.4

Criterion 4: Role in Global Ecological Cycles

Maintain forest conditions and management activities that contribute to the health of global ecological cycles.

Element 4.1: Carbon Uptake and Storage

Maintain the processes that take carbon from the atmosphere and store it in forest ecosystems.

Description of Local Values	Description of Objectives	Indicators
Healthy, functioning ecosystems that support natural processes	Conduct forest activities to maintain ecological processes that facilitate carbon uptake and storage <ul style="list-style-type: none"> • actively growing, healthy forests • maintain natural sources of nutrient cycling 	4.1.1, 2.1.1

Element 4.2: Forest Land Conversion

Protect forestlands from deforestation. Encourage afforestation where ecologically appropriate.

Description of Local Values	Description of Objectives	Indicators
Maintenance of the forest land-base	Minimal loss of forest land within the DFA	2.2.1

Criterion 5: Economic and Social Benefits

Sustain flows of forest benefits for current and future generations by providing multiple goods and services.

Element 5.1: Timber and Non-Timber Benefits

Manage the forest sustainably to produce a mix of both timber and non-timber benefits. Support a diversity of timber and non-timber forest products and forest-based services.

Description of Local Values	Description of Objectives	Indicators
A sustainable flow of timber and non-timber benefits that contribute to quality of life	Manage forests for timber values and prosperous forest-based industries while conserving or enhancing non-timber values	5.1.1

Element 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.

Description of Local Values	Description of Objectives	Indicators
Sustained social and economic stability and vitality of all local communities	A productive forest resource that maintains a continual and balanced flow of benefits	5.2.1, 5.2.2, 5.2.3

Criterion 6: Society's responsibility

for Sustainable forest management includes society's responsibility for worker and community safety and the requirement for fair, equitable, and effective forest management decisions.

Element 6.1: Fair and Effective Decision-Making

Demonstrate that the SFM public participation process is designed and functioning to the satisfaction of the participants and that there is general public awareness of the process and its progress.

Description of Local Values	Description of Objectives	Indicators
Recognition of advisory group values, shared knowledge, and informed decisions	Engaged, dynamic public participation process	6.1.1, 6.1.2, 6.1.3

Element 6.2: Safety

Demonstrate that the organization is providing and promoting safe working conditions for its employees and contractors.

Description of Local Values	Description of Objectives	Indicators
Safe working conditions	Employer and contractor safety records demonstrate continual improvement.	6.2.1, 6.2.2

Criterion 7: Aboriginal Relations

Recognize and respect the unique rights and values of Aboriginal Peoples.

Element 7.1: 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.

Description of Local Values	Description of Objectives	Indicators
Aboriginal title and rights and treaty rights	Recognition of Aboriginal title and rights and treaty rights as related to forest management	7.1.1, 7.1.2

Element 7.2: Respect for Aboriginal Forest Values, Knowledge, and Uses

Respect traditional Aboriginal forest values, knowledge and uses as identified through the Aboriginal input process.

Description of Local Values	Description of Objectives	Indicators
Aboriginal title and rights, treaty rights and traditional knowledge are respected	Manage and/or protect important archaeological sites (as interpreted by First Nations) <ul style="list-style-type: none"> a. Cultural, archaeological, and heritage sites and values, including spiritual. b. Use of traditional knowledge. c. Meaningful and informed participation of First Nations 	7.2.1, 7.2.2, 7.2.3

5.0 Indicators and Indicator Matrices

In an SFM Plan 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 SFM Plan for the Nicola Thompson Fraser area. Core indicators prescribed within the CSA standard (Z809-16) have been integrated into the Plan using the numbering system found within the standard. 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.

Licensees monitor the achievement of targets annually. Monitoring procedures for each target in the SFM Plan are described below. Management strategies provide further direction to the performance measures (indicators and targets) and serve as a guide for licensees in their annual monitoring activities. The format individual licensees use to complete annual reporting is shown in Appendix 3.

Provincial Forecasting Related to the SFM Plan

Provincial Level Timber Supply Analysis of regulatory requirements of the Forest Practices Code occurred in February, 1996. The analysis reviewed timber supply impacts of Code requirements related to: riparian management areas, biodiversity at the stand and landscape level, watershed assessment sensitivity, identified wildlife species at risk, soil conservation, and visual quality management.

The harvest level impact related to biodiversity and riparian management was based on analysis using the BC Forest Service Simulation Model (FSSIM). Impact assessments related to remaining Code requirements were based on professional estimates. Analysis was then completed at both the provincial and regional levels to determine the short-term effects of the FPC requirements.

Regional Forecasting Related to the SFM Plan

The land use planning process in Kamloops and Lillooet provided for multiple accounts analysis assessing the social, economic and environmental impacts of different scenarios depicting differing combinations of management alternatives. The analysis assisted LRMP table members in understanding impacts of different management alternatives in their goal to seek plan approval in principle. These predictions made in the multiple accounts analysis are incorporated into the indicator matrix where applicable.

In addition, forecasting of strategies occur on the Plan area once every 10 years as part of Timber Supply Reviews (separate reviews for each of the Kamloops, Lillooet, and Merritt Timber Supply Areas as well as for TFL 18). As noted earlier, the allowable cut determinations made by the Chief Forester include the consideration of many SFM values. By extension, the forecasting of timber supply also applies to non-timber values to ensure the long-term sustainability of forest resources.

Further information pertaining to assumptions and analysis of Timber Supply Reviews can be found within the Chief Foresters Rationale for AAC Determination for the Kamloops, Lillooet, and Merritt TSAs and TFL 18 can be found on the government's [Timber Supply Review website](#).

Some of the core indicators required by the CSA Z809 Standard and found in the NTF SFM Plan, do not lend themselves to analytical forecasting. Where opportunities exist, such as the case in a few of the Biodiversity related indicators, forecasting has generally occurred during Timber Supply Reviews. As referenced previously, the assumptions made in TSR reflect current practices (including SFM indicator/target performance) and are adjusted periodically with each subsequent review. The specific analytical methods used in TSR can also be found on the government's Timber Supply Review website (refer to Section 2.2 for website details).

Additional Guidance

The Licensees are guided by the regulations, laws and policies established by the federal, provincial, and municipal governments. Adherence to federal and provincial laws that are designed to meet government's objectives for sustainable forest management assists all forest licensees working within the SFM Plan area to demonstrate sustainable forestry. Compliance with legislation, together with conformance to the SFM Plan Indicators and Targets, leads to the achievement of the SFM Plan's vision statement. As well, within this Plan area, higher level plans guide forest management. The licensees strive to meet the intent of any approved land use plans, derived from extensive public input. Licensees are obligated to incorporate results and strategies into their Forest Stewardship Plans that meet the resource objectives set by government under the Forest and Range Practices Act.

Public participation and input into forest operations is a key component of the participating licensee's social Licence to operate on Crown land. The licensees have policies to help control and regulate their performance and guide its direction relative to environmental and forest management.

The direction in legislation and corporate policies (noted above) guide the licensee's strategies for managing its forest operations to provide high quality fibre over the long term. At the same time, legislation and licensee policies help to manage and balance the landscape for biological diversity, global cycles, soil, water and social responsibility. The Nicola Thompson Fraser Sustainable Forest Management Plan public participation process assists to further refine information and clarify concerns of the local public. Incorporating these concerns and ideas into the licensee's operations through the established performance measures and ongoing monitoring will help to ensure long-term sustainability of the forest resource. Section 6 describes the plans, policies and management strategies that support the achievement of the targets in the SFM Plan.

Indicators and Targets

The following matrices are used to provide linkages between SFM Elements, Indicators and Targets. They also provide detail for the indicators and targets, specifying strategies, forecasts, and monitoring of targets. In some cases, indicators (core and non-core) are used to demonstrate performance against different SFM Elements. Targets are often used repeatedly for different indicators— even when indicators/targets are not repeated, this does not imply any limitation of their applicability to other elements. In selecting targets, the NTF PAG has considered their applicability at the broader NTF SFM Plan area and /or Timber Supply Area as well as at the individual participating licensee level. Individual licensees will determine their staff's specific reporting responsibilities for the indicators/targets. In general, Canfor's TFL 18 area is not specifically identified in the indicators – for the purpose of defining the broad areas associated with indicators, references to Kamloops or the Kamloops TSA do include the TFL 18 area.

Base Line for Indicators

The primary source of base line information for indicators is the initial monitoring report subsequent to adoption of the indicator. In some instances, particularly in the case of newly developed indicators, a baseline might be difficult to establish and thus be absent in the SFM Plan. In those situations, baseline information will become available through subsequent monitoring reports.

Current Status

Current status of each indicator will be as reported and updated in annual SFM Plan performance reporting. To obtain current information please refer to the most recent monitoring report at the Nicola Thompson Fraser SFM website:

<http://thompsonokanaganustainableforestry.ca/documents.htm>

6.0 – Links to Other Planning Processes and Policies

Indicator	1.1.1 Ecosystem Area by Type
Element(s)	1.1 Ecosystem Diversity
Target	<p>1. Maintain the presence of Biogeoclimatic Zones to the subzone level within the Plan area.</p> <p>12. (Kamloops TSA and TFL 18 only). Prioritized Red-listed ecological communities will be protected with retained existing forest.</p> <p>a. Where the ecological community is “documented, mapped (GPS/UTM) and field verified” for the cutting permit or TSL area where operations are being planned and:</p> <p style="margin-left: 40px;">a. the ecological community represents less than 10% of the cutting permit or TSL area, then the majority of the identified occurrence is protected.</p> <p style="margin-left: 40px;">b. the ecological community is greater than 10% of the gross area of either tenure noted above, then WTP placement will be weighted towards those communities.</p> <p>b. Where the ecological community is not well documented (i.e. ecological mapping at the site series level is not available), the prioritized list of Red-listed ecological communities is used as a support tool to weight WTP placement, or other reserves, to the applicable site series in the block.</p> <p>13. (Lillooet TSA only). Harvesting not to exceed greater than 50% of the total of each identified rare landscape unit / BEC zone variants.</p> <p>26. (Merritt TSA only). Where operations are planned in areas that have been field verified as a rare ecosystem (refer to Appendix 7), the accompanying recommendations will be adhered to. Target is 100% adherence with a 10% variance.</p>
Background	<p>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) rather than by age and type of structures as derived from classic forest inventories. The biogeoclimatic ecosystem classification (BEC) used throughout BC is an integrated hierarchical classification scheme that combines climate, vegetation and site classifications. Within the Kamloops, Lillooet and Merritt TSAs and TFL 18, BEC mapping has occurred down to the subzone level (a combination of ecological features, primarily climate and physiography). The broad biogeoclimatic (zonal) units are used in such applications as:</p> <ul style="list-style-type: none"> • Seed zones • Protected area planning • Land management planning • Forest pest risk • Natural disturbance types • Wildlife habitat management <p>This broad classification is used in combination with detailed site information to derive site series classification—a level that provides operational guidance. Common interpretations for each site series include:</p> <p>a. Most suitable tree species for regeneration</p> <p>b. Stocking, stock type, and ‘free-to-grow’ standards for tree species</p> <p>c. Vegetation competition after harvesting</p> <p>d. Site limiting factors, harvest season and reforestation considerations</p> <p>e. Site index by tree species</p> <p>Additional targets for this indicator include sites identified primarily for their biological/ecological significance. Rare ecosystems are frequently identified as focal points for conservation concern. Provincially, ecosystems are listed based largely on frequency of occurrence or rarity.</p>

6.0 – Links to Other Planning Processes and Policies

<p>Strategy to meet target</p>	<p>BEC mapping has occurred throughout the three TSAs and TFL 18 to the subzone level. Slight changes to the area distribution of these subzones occurs when new data is collected in poorly sampled areas. Reporting at the TSA/TFL level not anticipated to be substantially different from that found at the Plan area level. Climate change may alter representation, particularly drier sites. Licensees ability to influence change is limited.</p> <p>The strategy is to monitor any changes in ecosystem area by type and to continue to utilize ecosystem mapping in strategic and operational plans.</p> <p>The strategy and target are relevant at the NTF Plan area. Forecasting assumptions have been made in the TSR process at the Timber Supply Area/Tree Farm Licence level (determination of timber supply analysis units). Reporting of the target to occur by TSA/TFL; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p> <p>For the rare ecosystem targets the strategy is to identify and manage sites having special biological significance. Licensee objectives are to manage the attributes of those ecosystems that are truly rare within their defined forest area..Because of the varying availability of rare ecosystem data sets, separate targets have been identified for the management units below.</p> <p><u>Kamloops TSA and TFL 18</u></p> <p>Ecological zones have been prioritized for rare ecosystem assessment based on the following;</p> <ol style="list-style-type: none"> number of CDC listed rare ecosystems (Red-listed ecological communities¹) within the variant, the proportion of the provincial extent of the BEC variant in the TSA, and the proportion of the BEC variant in the TSA that is in the Non-THLB. <p>For those prioritized BEC variants/site series with Red-listed ecological communities higher levels of WTPs and OGMA² will be planned (i.e. beyond legislation and policy targets). WTPs or other reserves will favor older seral stages.</p> <p>For the remaining BEC variants/site series lower levels of WTPs and OGMA² will be planned (i.e. below legislation and policy targets).</p> <p>Retention to protect rare ecosystems should be designed to complement the existing Non-THLB reserves wherever possible. If a licensee identifies a rare ecosystem at anytime, best efforts will be made to incorporate the ecosystem into planned operations.</p> <p><u>Lillooet TSA</u></p> <p>The target is refined by reporting by rare Landscape Unit / Biogeoclimatic Zones. Rare Landscape Unit / Biogeoclimatic Zones are areas that are uncommon on the landscape³. This indicator will provide information on the level of disturbance that occurs within the identified areas. This indicator also reports on the area of rare Landscape Unit / Biogeoclimatic Zones actually harvested both within the THLB and non-THLB areas.</p> <p><u>Merritt TSA</u></p> <p>Rare ecosystemd have been identified by a local biologist at the site series level. Each forested rare ecosystem includes management recommendations for operations (from no harvest to partial harvest). The target is centered on managing the key attributes within these identified rare ecosystems by following suggested recommendations.</p>
<p>Baseline target data (initial reporting results)</p>	<p>Target 1: Forest licensees will have access to and utilize BEC data to guide their strategic and operational plans. Licensee operations will not contribute to any change in the presence and representativeness of Biogeoclimatic Zones. The baseline data is as reported in the 2011 NTF Annual Report (see Appendix V).</p> <p><u>Target 12: Kamloops TSA and TFL 18:</u> Out of 280 cutblocks harvested (with original SPs signed after January 1st, 2007) there were two instances where documented Red-listed communities occurred and in both cases (100%) the substantial part of the identified occurrence was included in WTP's (2007 baseline data).</p> <p><u>Target 13: Lillooet TSA:</u> There has been no logging in rare landscape unit / biogeoclimatic variant combinations in the Lillooet TSA since the inception of this indicator (2004-2009 reporting).</p> <p>Target 26: Merritt TSA: Target is new for 2017. Refer to Appendix 7 for current inventory.</p> <p>See the latest monitoring report for trends and current status.</p>

² Refer to Appendix 7 for a list and description of prioritized red listed ecological communities

² Recognizing there is some potential to move OGMA²s to include red or blue listed ecosystems.

³ Suggested by a local Forest Ecologist with extensive field experience in the Lillooet TSA (Jones 2004).

6.0 – Links to Other Planning Processes and Policies

Forecast	<p>Healthy ecosystems with a diversity and abundance of native species and habitats while maintaining attributes for critical species. The greatest risk to changes in the presence and representativeness of Biogeoclimatic Zones is climate change.</p> <p>A detailed report on these risks - forecasting how ecological conditions may change over time with a warming climate was prepared for the Kamloops TSA in June, 2009 (Kamloops Future Forest Strategy – June 2009). The Kamloops Future Forest Strategy contains sensitivity predictions within groups of BEC zones based largely on climate change. The strategy does not make hard predictions on percent change; rather it predicts the likelihood of change. Impacts were deemed to be greatest in the drier pine and fir BEC subzones (MSxk, IDFdk, IDFxh, PPxh). In all BEC groups the KFSS recognizes that the ability to influence area shifts that are predicted to occur over time in each of the BEC Zones through management is very low. Similar findings would likely occur for the Lillooet and Merritt TSAs.</p> <p>Identified localized sites are maintained in an undisturbed state to ensure that the potential rare plants and/or plant communities found within them are not lost. Expected response(s) of the indicator to the strategy: Healthy ecosystems with a diversity and abundance of native species and habitats while maintaining attributes for critical species. The greatest risk to changes in the presence and representativeness of Biogeoclimatic Zones is climate change.</p> <p>Analytical forecasting will generally be based on be retrospective trends and consider change identified in previous reporting of BEC zone/subzone area during Timber Supply Reviews. Analytical forecasting of previously identified and protected rare ecosystems has not occurred, other than a review of the timber supply impacts of those areas managed or protected. No analytical forecasting is planned for any currently un-identified rare sites that become known at the time of field reconnaissance. An alternative no action or do nothing strategy could result in the loss of rare plants and/or plant communities.</p>
Basis for the Target	<p>The province’s ecological classification system is recognized as world class. Utilizing the BEC classification system and mapping was seen to be the best way to report on the indicator. While Licensees have little influence on the presence and representative area of these BEC subzones, the classification system provides tremendous support to both strategic and operational decision making. Proactive measure to identify and conserve Red-listed ecological communities.</p>
Legal Requirements	<p>Use of the BEC classification system is inherent in the Forest and Range Practices Act and the Forest Planning and Practices Regulation.</p>
Monitoring & Measurement Periodic	<p>1. Part of periodic Timber Supply Review (TSR) - used to define of Analysis Units for timber supply modeling. Licensees will report the area for all Biogeoclimatic subzones as updated for the most current TSR for each of the 3 applicable TSA’s and may further assess/analyse this data for the NTF Plan area. Reporting to occur periodically – in the year following completion of subsequent TSR’s and determination of the allowable annual cut.</p> <p>12. (Kamloops TSA and TFL 18).</p> <ol style="list-style-type: none"> a. Licensees report the number of cutblocks where occurrence of ecosystems identified as “prioritized Red-listed ecological communities” was “documented”, and the number of these cutblocks where the Target was met. b. Licensees report the number of cutblocks where non-documented ecosystems identified as “prioritized Red-listed ecological communities” occurred, and the number of these cutblocks where the Target was met. A rationale is provided for each cutblock where the Target is not met. <p>Reporting against targets 12a and 12b is limited to blocks harvested during the reporting year that had the original SP signed after January 1st, 2007.</p> <p>13. (Lillooet TSA). Licensees report the area harvested annually by Rare Landscape Unit and Biogeoclimatic Zone (separately for THLB and non-THLB) for the six identified sites – all in Aspens operating area. Report annual area harvested and the cumulative area harvested within each of the rare sites.</p> <p>26. (Merritt TSA). Licensees report the area where operations were conducted within rare ecosystems and the area where management recommendations for that rare ecosystem were followed.</p>
Annual	N/A
Variance	<p>12b. target to be met on at least 90% of cutblocks where ecosystems identified as “prioritized Red-listed ecological communities” occurred.</p> <p>For the remaining targets, there is no variance other than what is provided for within the legal framework and/or District policy and procedure.</p> <p>26. 10% of area impacted.</p>

6.0 – Links to Other Planning Processes and Policies

Indicator	1.1.2 Forest Area by type or species composition																																	
Element(s)	1.1 Ecosystem Diversity, 1.3 Genetic Diversity																																	
Target	<p>2. 70 percent of area (hectares) submitted as free growing will have three or more tree species, including conifer and deciduous comprising one percent or more in the free growing survey results (all biogeoclimatic Zones except ESSF and Zones with the “xh” variant). Also report on the percent of first, second and third leading species for each area, then averaged for all areas.</p> <p>70 percent of area (hectares) submitted as free growing will have two or more tree species, including conifer and deciduous comprising one percent or more in the free growing survey results (ESSF only).</p> <p><i>Note: Target excludes very dry hot (xh) biogeoclimatic subzones.</i></p>																																	
Background	<p>Forest area by type is a refinement of the previous indicator – ecosystem area. 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. Tree species will vary depending on the ecosystem, thus species selection for reforestation will change, depending on site characteristics. Considerable work has occurred in the province to identify preferred and acceptable tree species for all forested areas in the province. Licensees have used this work to guide their reforestation programs and stocking standard commitments in Forest Stewardship Plans. Ensuring a diversity of tree species at the stand level improves ecosystem resilience and productivity and positively influences forest health and genetic diversity. Exclusion of the very dry hot (“xh”) subzones recognizes the limitations that these sites have to inhabit multiple species. Stand level reporting of species and stocking in regenerated areas contributes to the data set and modeling assumptions in predicting future forest conditions. Reporting on this indicator provides information on stocking levels, forest succession and stand level management practices that might alter species composition. Provincial species monitoring reports are available by TSA at the website: http://www.for.gov.bc.ca/hfp/sof/species_monitoring_reports.htm.</p>																																	
Strategy to meet target	<p>The strategy is to maintain the diversity of native tree species utilizing ecologically based regeneration practices. The strategy is assisted by natural ingress and supported by target 5 with individual tree and patch retention in harvested areas. Licensee plans will incorporate strategies that promote multi species regeneration and consider the potential implications of climate change.</p> <p>The strategy and target are relevant at the NTF Plan area. Forecasting has occurred at the Timber Supply Area/Tree Farm Licence level. Reporting of the target to occur by TSA/TFL; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>																																	
Baseline target data (initial reporting results)	<p><u>Target 2</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;"></th> <th style="width: 20%;">Kamloops TSA (2011 NTF baseline)</th> <th style="width: 20%;">Lillooet TSA (2011 NTF baseline)</th> <th style="width: 20%;">Merritt TSA (2011 NTF baseline)</th> <th style="width: 20%;">TFL 18 (2012 NTF baseline)</th> </tr> </thead> <tbody> <tr> <td>% cutblocks with 3 or more spp.</td> <td style="text-align: center;">80%</td> <td style="text-align: center;">92%</td> <td style="text-align: center;">74%</td> <td style="text-align: center;">100%</td> </tr> <tr> <td>% cutblocks with 2 or more spp. (ESSF and BG zones)</td> <td style="text-align: center;">100%</td> <td style="text-align: center;">96.5%</td> <td style="text-align: center;">77%</td> <td style="text-align: center;">100%</td> </tr> <tr> <td>Percent 1st leading tree spp</td> <td style="text-align: center;">50%</td> <td style="text-align: center;">60%</td> <td style="text-align: center;">73%</td> <td style="text-align: center;">39%</td> </tr> <tr> <td>Percent 2nd leading tree spp</td> <td style="text-align: center;">24%</td> <td style="text-align: center;">24%</td> <td style="text-align: center;">17%</td> <td style="text-align: center;">28%</td> </tr> <tr> <td>Percent 3rd leading tree spp</td> <td style="text-align: center;">14%</td> <td style="text-align: center;">11%</td> <td style="text-align: center;">6%</td> <td style="text-align: center;">19%</td> </tr> </tbody> </table> <p>See the latest monitoring report for trends and current status.</p>					Kamloops TSA (2011 NTF baseline)	Lillooet TSA (2011 NTF baseline)	Merritt TSA (2011 NTF baseline)	TFL 18 (2012 NTF baseline)	% cutblocks with 3 or more spp.	80%	92%	74%	100%	% cutblocks with 2 or more spp. (ESSF and BG zones)	100%	96.5%	77%	100%	Percent 1 st leading tree spp	50%	60%	73%	39%	Percent 2nd leading tree spp	24%	24%	17%	28%	Percent 3rd leading tree spp	14%	11%	6%	19%
	Kamloops TSA (2011 NTF baseline)	Lillooet TSA (2011 NTF baseline)	Merritt TSA (2011 NTF baseline)	TFL 18 (2012 NTF baseline)																														
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6.0 – Links to Other Planning Processes and Policies

<p>Forecast</p>	<p>Expected response(s) of the indicator to the strategy: Healthy, genetically diverse ecosystems with a mix of native species.</p> <p>Analytical forecasting of species composition has occurred during Timber Supply Reviews based on ecologically based regeneration strategies assigned to each analysis unit (forests of similar characteristics and growth response): Kamloops TSA: Kamloops TSA Mountain Pine Beetle Horizontal Initiatives Project, figure 8.5 (see below)</p> <p>TFL 18: Management Plan #10, Timber Supply Analysis Report, figures 14, 53 (see below)</p> <p>Merritt TSA: Merritt TSR4 Analysis Report, figure 16 (see below)</p> <p>Lillooet TSA: Lillooet TSR3 Analysis Report Addendum, figure 5 (see below)</p> <p>Weblinks to access these figures/reports can be found at the end of Section 6 of this SFM Plan.</p>
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Kamloops TSA

Figure 8.5 shows the harvest by species across the planning horizon.

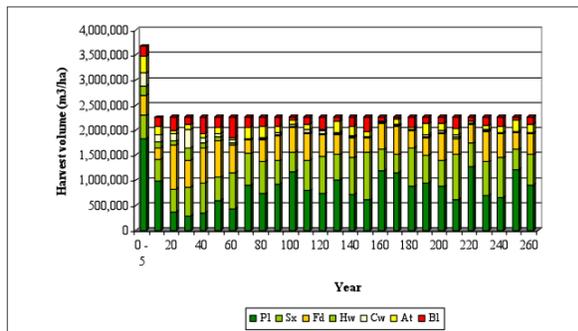


Figure 8.5 Enhanced Silviculture Scenario Harvest Volume by Species

TFL 18

7.1.3 Species composition of harvest

Species composition of harvest is similar to the Base Case, except that pine volume is less dominant during the short term, and never exceeds more than 50% in any period. This result is created by the inclusion in the short term of blocks designed to salvage stands affected by spruce bark beetle.

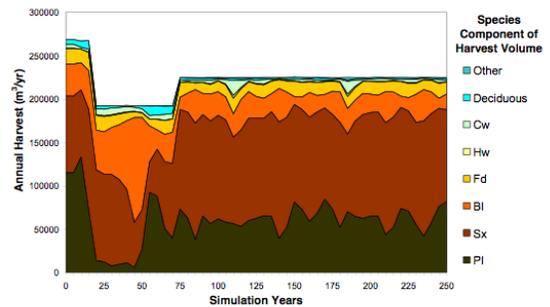


Figure 53: Canfor Preferred Scenario: Species component of harvest over the planning horizon.

Merritt TSA

Merritt TSA TSR4 Timber Supply Analysis Report

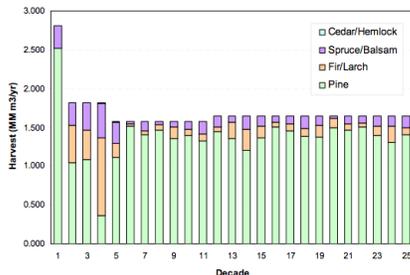


Figure 16 Base Case - Harvest volume by stand leading species

Lillooet TSA

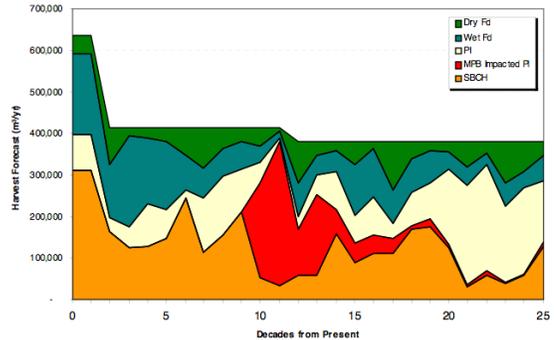


Figure 5. Contribution of species groups to the MPB Base scenario

6.0 – Links to Other Planning Processes and Policies

Basis for the Target	The need to maintain the biological diversity of forest ecosystems in managed second-growth and third-growth forests. Addresses diversity and abundance of naturally occurring tree species on the landscape.
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	
Annual	On area (i.e. standard unit area or cutblock area) declared free growing in the reporting year, licensees will use the free growing survey data collected and will consider all trees that occupy the site to determine areas having 3 or more species (non ESSF) or 2 or more species (ESSF). For those areas having 3 or more species (non ESSF), Licensees will also identify the percent of first, second and third leading species for each area, then average these for reporting on all areas. Additionally, report all the species that were planted to give public members a better idea of the diversity.
Variance	None

6.0 – Links to Other Planning Processes and Policies

Indicator	1.1.3 Forest area by seral stage or age class																									
Element(s)	1.1 Ecosystem Diversity, 1.3 Genetic Diversity																									
Target	<p>3. Progress towards a stable forest age class distribution on the timber harvesting land base where each age class to 80 years old [1 (1 to 20), 2 (21-40), 3 (41-60), and 4 (61 to 80)] occupies at least 8.5% of the timber harvesting land base in each of the 3 TSAs (Kamloops, Lillooet, Merritt) and for TFL 18. Three of the four age classes meet this target within 50 years for each TSA and TFL 18. Reporting to occur in conjunction with subsequent Timber Supply Reviews by TSA/TFL, then assessed/analyzed for the Plan Area.</p> <p>4. Maintain the existing old growth management area (no net loss).</p>																									
Background	<p>This strategy aligns with government direction for timber supply within Timber Supply Areas and Tree Farm Licences. A balanced age class distribution provides on going habitat opportunities for all forest dwellers, some which occupy forests only when specific habitat attributes are present. Often, these attributes are time sensitive. Balanced age classes also allow for a more even flow of timber values and benefits. A reduction of the current imbalance of mature to over mature stands also reduces forest health risks.</p> <p>Forecasted forest age class distribution over time provides an indication of sustainability. Balanced age classes will result in a larger proportion of hectares in younger faster growing stands with a net carbon intake.</p> <p>Biodiversity can be affected by the disruption of natural processes. Future maintenance of biodiversity, including genetic diversity, is in part dependent upon the maintenance and connectivity of representative habitats and seral stages at the landscape and watershed level. Retention of Old Growth Management Areas (OGMA's) throughout the DFA will assist in providing a supply of late seral habitat. As of April, 2012 there was a total of 389,443 ha of OGMA.</p>																									
Strategy to meet target	<p>Maintain current harvest priority:</p> <p style="padding-left: 40px;">Forest health management – harvesting attacked, fire damaged and susceptible stands (generally older stands) “Available” stands with the most years beyond culmination (maximum mean annual increment)</p> <p>The Licensees will be guided by commitments within their Forest Stewardship Plans pertaining to the retention of old forests and will look to find innovative solutions to manage for old forest attributes. There are provisions for Licensees to make changes to existing OGMA's with replacement area.</p> <p>The strategy and target are relevant for the NTF Plan area. Forecasting has occurred at the Timber Supply Area/Tree Farm Licence level. Reporting of the target to occur by TSA/TFL; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>																									
Baseline target data (initial reporting results)	<p>3. The age class distribution at the time of the last Timber Supply Review (TSR) where age class projections were made are as follows (Kamloops data from TSR2, Lillooet data from TSR3, Merritt data from TSR4, TFL 18 data from MP#10):</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>Kamloops TSA</th> <th>Lillooet TSA</th> <th>Merritt TSA</th> <th>TFL 18</th> </tr> </thead> <tbody> <tr> <td>Age class 1</td> <td>11.9%</td> <td>13.2%</td> <td>17.6%</td> <td>26%</td> </tr> <tr> <td>Age class 2</td> <td>4.6%</td> <td>6%</td> <td>6.4%</td> <td>8%</td> </tr> <tr> <td>Age class 3</td> <td>3.4%</td> <td>2.4%</td> <td>1.6%</td> <td>5%</td> </tr> <tr> <td>Age class 4</td> <td>9.7%</td> <td>5.2%</td> <td>12%</td> <td>5%</td> </tr> </tbody> </table> <p>Six of sixteen age classes currently meet the 8.5% target. Other age class targets will be achieved over time.</p> <p>4. Within the NTF Plan area there are 389,443 hectares of spatially located OGMA's (April 2012). The distribution by management area is as follows:</p> <p>Kamloops TSA: 192,325 ha Lillooet TSA: 74,878 ha Merritt TSA: 114,478 ha TFL 18: 7,762 ha</p> <p>See the latest monitoring report for trends and current status.</p>		Kamloops TSA	Lillooet TSA	Merritt TSA	TFL 18	Age class 1	11.9%	13.2%	17.6%	26%	Age class 2	4.6%	6%	6.4%	8%	Age class 3	3.4%	2.4%	1.6%	5%	Age class 4	9.7%	5.2%	12%	5%
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6.0 – Links to Other Planning Processes and Policies

Forecast	<p>Continuation of current harvest priorities will lead to balanced age classes on the available productive forest land. In general, all TSA's indicate a more even distribution of forests in age class to 100 years of age, with most of that area falling within the timber harvesting land base. Over time, the distribution of older forests becomes more concentrated on the non-timber harvesting land base. Protected Area, Old Growth Management Area (OGMA), and Wildlife Tree Patch Strategies, together with inaccessible areas, will continue to provide retention of old forest values for biodiversity and ecosystem objectives.</p> <p>Progress to age class target will be steady in all 3 timber supply areas: In 50 years three age classes will meet 8.5% target (per TSA – forecast based on TSR projections contained within the most current analysis). Retention of 389,443 ha of spatially located OGMA (current to April 2012).</p> <p>Expected response(s) of the indicator to the strategy: Continuation of current harvest priorities will lead to balanced age classes on the available productive forest land.</p> <p>Analytical forecasting of age class distribution has occurred during Timber Supply Reviews based on expected harvest rates and natural disturbance projections and can be found at the following locations:</p> <p>Kamloops TSA: Kamloops TSA Analysis Report, figure 14 Merritt TSA: Merritt TSR4 Analysis Report, figure 73 Lillooet TSA: Lillooet TSR3 Analysis Report Addendum, figure 6 TFL 18: Management Plan #10, Timber Supply Analysis Report, figures 13, 52</p> <p>Weblinks to access these reports can be found at the end of Section 6 of this SFM Plan.</p>
Basis for the Target	Relatively even flow of value to industry and the community
Legal Requirements	N/A
Monitoring & Measurement Periodic	<p>3. Licensee report the current age class distribution as last reported by Timber Supply Review documents. Reporting to occur periodically – in the year following completion of subsequent TSR for each TSA/TFL.</p>
Annual	<p>4. Licensees report the total area of OGMA's within their operating area and the area of net OGMA reduction as a result of their operations. Target has a no net loss concept, variance provides for situations where administrative procedures do not allow for replacement OGMA's. Administrative corrections that brought about changes to OGMA should not be considered in the net loss/net gain determination.</p>
Variance	<p>3. Two age classes meet this target within 50 years (attaining target sooner than 50 years seen as a benefit).</p> <p>4. One tenth of one percent (or 389 ha based on current area of 389,443 ha).</p>

6.0 – Links to Other Planning Processes and Policies

Indicator	1.1.4 Degree of within-stand structural retention							
Element(s)	1.1 Ecosystem Diversity							
Target	<p>5a. At least 80 percent of cutblocks greater than 10 hectares will have individual wildlife trees/stubs and/or wildlife tree patches within the block.</p> <p>5b. Of the blocks that have individual wildlife trees/stubs and/or wildlife tree patches; at least 50 percent of the time these blocks will have dispersed individual trees, stubs or small (<0.25 ha) patches retained.</p>							
Background	<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. It can be provided by the adoption of retention silvicultural systems, a practice broadly applied in interior BC (Lindenmayer and Franklin 2003, Bunnell et al. 1999).</p> <p>Wildlife tree patches (WTPs) 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 habitat features (i.e. 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 WTPs can be used with OGMAs to provide landscape structure to help keep landscape complexity more consistent with natural disturbance regimes.</p> <p>Operationally retention of wildlife trees/stubs in cutblocks is subject to worker safety considerations as specified in the WorkSafe BC requirements for wildlife and danger trees. Note that wildlife tree patches may be located outside of cutblocks, along their edge, and still be consistent with provincial policy on wildlife tree retention. Where wildlife tree stubs are left, they should form only one part of the stand level tree retention found on a cutblock.</p>							
Strategy to meet target	<p>The strategy is to manage stand level biodiversity by retaining mature green standing trees (single trees or groups of trees) on harvest areas.</p> <p>Companies will achieve targets through allocation of WTPs and dispersed retention (individual trees and stubs) during forest development planning. Company plans and practices support retention and protection of designated wildlife trees/stubs (e.g. use of no work zones, etc vs felling at the silviculture stage where appropriate).</p> <p>Harvest value and ecological value can be optimized by selecting the variety of tree types (e.g., species, size, live and dead, etc.) that have high ecological value and low economic value, and through the number of trees retained. An over reliance on stubs will be avoided. While suitable stubs provide some benefits, retention should be primarily WTs and WTPs.</p> <p>If a licensee identifies a unique feature (e.g. nesting site, rare habitat, unique landform, etc.) at anytime, best efforts will be made to incorporate the feature into planned operations.</p> <p>Objectives for location of WTPs include:</p> <ol style="list-style-type: none"> a. Inclusion of as broad a representation of site types as possible b. WTPs are anchored on any District listed wildlife habitat features where they occur c. WTPs are preferentially anchored on classified and unclassified riparian areas where they occur <p>Desirable characteristics for stub trees include:</p> <ol style="list-style-type: none"> a. Dead or defective trees (particularly if defects exist in the lower bole of the tree). b. Larger diameter trees that are more suitable for nesting <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>							
Baseline target data (initial reporting results)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 35%;">Percent blocks with tree retention</th> <th style="width: 35%;">Percent of retention blocks with trees dispersed in block</th> </tr> </thead> <tbody> <tr> <td>2011 NTF Baseline Data</td> <td style="text-align: center;">97%</td> <td style="text-align: center;">100%</td> </tr> </tbody> </table> <p>See the latest monitoring report for trends and current status.</p>			Percent blocks with tree retention	Percent of retention blocks with trees dispersed in block	2011 NTF Baseline Data	97%	100%
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2011 NTF Baseline Data	97%	100%						

6.0 – Links to Other Planning Processes and Policies

Forecast	<p>Expected response(s) of the indicator to the strategy: Healthy ecosystems with a diversity and abundance of native species and habitats. Majority of harvested areas (at least 4/5) will have habitat attributes that will help to sustain biodiversity and ecological processes.</p> <p>Preliminary analysis of stand level biodiversity outcomes related to harvesting and tree retention has occurred (FREP report #29). The report cautioned that a good understanding of landscape level retention is needed before making any conclusions at the stand level. It noted that 3 of 6 ecological zones had adequate levels of retention based on a 15% retention level deemed necessary to provide basic habitat needs for a select group of forest dwelling birds.</p> <p>Analytical forecasting of the contribution of individual/group tree retention and its influence on ecosystem diversity at the stand/landscape level has not occurred. An alternative no action or do nothing strategy would not be entertained given legal requirements to manage for stand and landscape level biodiversity.</p>
Basis for the Target	Recommended best practice. Target designed to offer diversity in approach (varying size, location, presence of Wildlife Tree Patches or Wildlife Trees)
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	N/A
Annual	<p>5a. Licensees will report, for cutblocks greater than 10 hectares, the number of cutblocks with wildlife tree patches and/or individual trees/stubs within the cutblock versus the total number of cutblocks greater than 10 ha in size upon completion of harvest, during the reporting year.</p> <p>5b. On the blocks that do have individual wildlife trees/stubs and/or associated wildlife tree patches, licensees will also report the percentage of blocks that had dispersed individual trees, stubs or small (<0.25 ha) patches.</p> <p>Reporting against target “5b” is limited to blocks harvested during the reporting year that had the original SP signed after January 1st, 2011.</p>
Variance	For Targets 5a and 5b: 10%

6.0 – Links to Other Planning Processes and Policies

Indicator	1.2.1 Degree of habitat protection for selected focal species, including species at risk⁴
Element(s)	1.2 Species Diversity
Target	<p>6. Proactive habitat protection targets established in accordance with non-legally binding guidelines and best practices:</p> <ol style="list-style-type: none"> On an annual basis, obtain from the Conservation Data Centre, the known locations/occurrences of Red-listed and Blue-listed species within the Plan area. Where there is a documented mapped (GPS/UTM) and field verified occurrence of a critical habitat feature (e.g. den, lick, nest) for a Red-listed or Blue-listed species, operations will achieve 100% consistency with SP measures deemed necessary by the participating licensee to prevent adverse harm. Based on the potential level of impact to any of the 3 TSAs or TFL 18, participate in the consultation process led by the Ministry of Environment and the Ministry of Forests and Range, in the identification of Ungulate Winter Range and Wildlife Habitat Areas and the development of General Wildlife Measures. Harvesting operations in areas designated as Ungulate Winter Range will be consistent with Plan commitments to manage for the specific ungulate species. <p>7. Affected licensees adhere to the current management strategies for mountain caribou.</p> <p>8. Affected licensees adhere to the current management strategies for northern spotted owl.</p>
Background	<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 the degree of habitat protection for selected focal species, including plant and animal species at risk, this indicator looks at short-term habitat needs, particularly for critical and core habitats.</p> <p>Licensees track critical species using the data base at the Conservation Data Centre. List (see Appendix 6) will include provincial “red and blue” listed species and species deemed at risk from both the provincial and federal list. Some of the proactive measures to manage at risk species are listed in the subsequent section.</p>
Strategy to meet target	<p>The strategy is to manage the current habitat needs for red and blue listed plant and animal species within the plan area. Licensees will achieve the strategy by fully supporting and implementing:</p> <p>Government’s policy and legally established framework for the protection of biodiversity values and species at risk under the Forest and Range Practices Act, the Land Act (Higher Level Plans), the Wildlife Act and Amendments, the Park Act, and the Integrated Pest Management Act. This government framework includes the establishment of parks and protected areas, the protection of biodiversity, riparian and aquatic habitats, ecological reserves, old-growth forests, ungulate winter range, specific wildlife features, and the habitat for plant and animal species at risk.</p> <p>Legal requirements the licensees adhere to include:</p> <ol style="list-style-type: none"> Section 7 (FPPR) notice requirements until such time that all required Wildlife Habitat Areas have been approved by government (see section 6.4 for weblink to Notices). Legally established Objectives and/or General Wildlife Measures (GWM) for approved Ungulate Winter Range (UWR) Wildlife Habitat Areas (WHAs), and species at risk. Objectives, strategies and practices for: a) riparian area management b) wildlife tree retention; c) coarse woody debris, and d) old growth management, as specified in approved Forest Stewardship Plans. Licensee obligations established under any higher level plans and the Government Action Regulations. <p>Additional voluntary actions that participating licensees adhere to include:</p> <ul style="list-style-type: none"> Consideration of decision support tools such as published guidelines and best management practices, use of available wildlife, fish and habitat inventories, ecological site/at risk species cross referencing, etc. Seeking expert advice from professional biologists. Training of staff and contractors on species at risk. Valuing advice and suggested actions brought forward by stakeholders and First Nations within the Plan area. Conformance to strategies in licensee plans to protect a Wildlife Habitat Feature. Achieve 100% conformance with interim agreements, as endorsed by the Province and participating licensees, respecting: a) Recovery Action Plan; b) revisions to the location of ungulate winter range and appropriate practices within these areas. These interim agreements will expire once the ungulate winter ranges and associated General Wildlife Measures are legally approved by government. When working in an area and a red/blue listed species is identified that was not previously known to be in the area, licensees will stop work that might adversely effect the species and their habitat and consult experts as necessary to provide management advice before continuing operations. <p>The strategy and target are relevant for the NTF Plan area. Indirect forecasting has occurred to the extent of identifying suitable habitat based on forest age class. Reporting of the target to occur by TSA/TFL; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>

⁴ List as provided by the Conservation Data Centre (see Appendix 6)

6.0 – Links to Other Planning Processes and Policies

Baseline target data (initial reporting results)	<p>There were 6 cutblocks harvested that had SP commitments for Red or Blue listed species. With each of these, 100% consistency with SP measures occurred (2011 NTF baseline data).</p> <p>All affected Licensees adhered to the management strategies for Mountain Caribou (2000 baseline data – applicable to Kamloops TSA only).</p> <p>All affected Licensees adhered to the management strategies for Northern Spotted Owl (2008 baseline data – applicable to Lillooet TSA only).</p> <p>See the latest monitoring report for trends and current status.</p>
Forecast	<p>Full compliance with all applicable laws governing forest planning and practices. Adoption and use of best available information and guidelines will provide an effective means for protecting biodiversity and species at risk.</p> <p>Within the current rotation, licensees face a number of significant challenges with respect to the protection of biodiversity and species at risk. The mountain pine beetle outbreak, for example, will certainly result in the loss of mature forested habitat for biodiversity in general, as well as habitat for species at risk.</p> <p>Expected response(s) of the indicator to the strategy: Licensees forest planning and practices promote a diversity of healthy ecosystems while maintaining attributes for critical species. Activities will also promote a diversity and abundance of naturally occurring wildlife and their habitats.</p> <p>Through proposed protected areas and management guidelines for modified harvest zones, critical habitat for Mountain Caribou and Northern Spotted Owl will receive a higher level of preservation.</p> <p>The data packages for Timber Supply Reviews have incorporated restrictions to the timber harvesting landbase for areas such as Wildlife Tree Patches, Wildlife Habitat Areas, Old Growth Management Areas and Riparian Management Areas. Analytical forecasting of habitat needs for red and blue listed species has occurred to the extent that old forest habitat requirements were included in Timber Supply Reviews (caribou and spotted owl). Other forecasting may occur as recovery plans are developed for these species. An alternative no action or do nothing strategy would not be entertained given legal requirements to manage for Schedule 1 Species at Risk and Identified Wildlife.</p>
Basis for the Target	<p>Legal obligations, use of best available information and application of resource stewardship principles.</p> <p>Strategies to assist in the protection of biodiversity and species at risk have been included as regulatory requirements. Under FRPA, the licensees are required to indicate results and strategies to manage objectives set by government for wildlife (including species at risk) and for biodiversity at the stand and landscape levels.</p>
Legal Requirements	Forest and Range Practices Act; Forest Planning and Practices Regulation; Government Actions Regulation; Wildlife Act.
Monitoring & Measurement Periodic	
Annual	<p>6a. Licensees report yes/no as to whether the spatial layers depicting known locations/occurrences of Red-listed and Blue-listed species <u>and ecological communities</u> has been updated at least once during the reporting year for the plan area to be used in planning and included on operational plan maps.</p> <p>6b. Licensees report the number of cutblocks where there is a documented, mapped (GPS/UTM) and field verified occurrence of a critical habitat feature (e.g. den, lick, nest) for a Red-listed or Blue-listed species and the number of these cutblocks where 100% consistency with SP measures, deemed necessary to prevent adverse harm, were achieved. Reporting against the target is limited to blocks harvested during the reporting year that had the original SP signed after January 1st, 2011.</p> <p>6c. Licensees summarize applicable WHA, UWR or GWM consultation processes they participated in.</p> <p>6d. Licensees report the number of cutblocks where harvesting occurred within designated UWR and the number of these where commitments to manage for the species were adhered to.</p> <p>7. Affected licensees will report the area (ha) harvested that is consistent with Government Action Regulation orders and/or higher level plan orders against all of the area harvested within the designated Mountain Caribou recovery strategy during the reporting year.</p> <p>8. Affected licensees will report the area (ha) harvested that is consistent with Government Action Regulation orders and/or the Spotted Owl Habitat Management Plan against all of the area harvested within designated Northern Spotted Owl habitat during the reporting year.</p>
Variance	None, other than what is provided for within the legal framework (statutory decision makers may approve variances from standard requirements provided adequate rationale is provided and long-term objectives continue to be met).

6.0 – Links to Other Planning Processes and Policies

Indicator	1.2.2 Degree of suitable habitat in the long term for selected focal species, including species at risk
Element(s)	1.2 Species Diversity
Target	<p>9. Conserve or manage within the Kamloops TSA and in the Cascades Forest District habitat for selected focal species (listed below) by retaining 100% of the amount of habitat (provided for in government’s FPPR Section 7 notice) in a condition suitable for the survival of the species.</p> <p><u>Kamloops TSA:</u> Flammulated Owl – 3300 ha, Interior Western Screech Owl – 60 ha, Lewis’s Woodpecker – 650 ha, Spotted Bat – 120 ha, Badger – 35 ha.</p> <p><u>Merritt and Lillooet TSA’s (Cascades Forest District):</u> Coastal Tailed Frog – 2793 ha, Great Basin Gopher Snake – 4000 ha, Flammulated Owl – 4050 ha, Interior Western Screech Owl – 44 ha, Spotted Owl – 5000 ha within Lillooet TSA, Spotted Bat – 16 ha, Grizzly Bear – 5211 ha (521ha impact to timber harvesting land base) in the Merritt TSA, unspecified large area having a THLB impact of 8000 ha in the Lillooet TSA.</p> <p>7. Affected licensees adhere to the current management strategies for mountain caribou.</p> <p>8. Affected licensees adhere to the current management strategies for northern spotted owl.</p>
Background	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 the degree of habitat protection for selected focal species, including species at risk, this indicator looks at more long term habitat needs, particularly for critical and core habitats.
Strategy to meet target	<p>The strategy is to manage the longer-term habitat requirements for selected focal species. Licensees will achieve the strategy by fully supporting and implementing:</p> <p>Government’s policy and legally established framework for the protection of biodiversity values and species at risk under the Forest and Range Practices Act and Regulations, the Wildlife Act and Amendments, and the Park Act. This government framework includes the establishment of parks and protected areas, 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. It also includes specific habitat commitments for Mountain Caribou with the goal of restoring the provincial population to 2500 animals within 20 years (2007).</p> <p>Focal species identified and managed for long term habitat requirements include Flammulated Owl, Interior Western Screech Owl, Lewis’s Woodpecker, Spotted Bat, Badger, Coastal Tailed Frog, Great Basin Gopher Snake, Spotted Owl and Grizzly Bear. These species and long term habitat requirements were identified in government’s FPPR Section 7 notices (see Section 6.4 for weblink to Notices). The conservation targets for these species have been allocated at the forest district or timber supply area level. The participating licensees’ responsibility will be to manage the proportionate area within the Plan area that has been identified having regard for the distribution of this unique habitat.</p> <p>Additionally, the Mountain Caribou Recovery Implementation Plan identified long term habitat protection within the Well Gray Thompson Planning Unit to be 429,004 ha. Orders to restrict harvesting on an additional 5,937 ha of area of forest within the Timber Harvesting Land Base (THLB) were issued in December, 2008 as well as requirements to locate 1800 ha of high suitability habitat within the modified harvest zone (Government Action Regulation Order u-3-004).</p> <p>The strategy and target are relevant for the NTF Plan area. Forecasting has occurred to the extent of identifying the amount of area, distribution of areas and attributes for the survival of the focal species. Reporting of the target to occur by TSA/TFL; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>

6.0 – Links to Other Planning Processes and Policies

Baseline target data (initial reporting results)	<p>Existing Wildlife Habitat Areas (as of November 2012) provide suitable habitat to accommodate some of the focal species as indicated in the following table:</p> <p>Kamloops TSA (Kamloops and Headwaters Forest Districts):</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Flammulated Owl</th> <th style="text-align: center;">Western Screech Owl</th> <th style="text-align: center;">Lewis's Woodpecker</th> <th style="text-align: center;">Spotted bat</th> <th style="text-align: center;">Badger</th> </tr> </thead> <tbody> <tr> <td>Desired Area (ha)</td> <td style="text-align: center;">3300</td> <td style="text-align: center;">60</td> <td style="text-align: center;">650</td> <td style="text-align: center;">120</td> <td style="text-align: center;">35</td> </tr> <tr> <td>Area in WHA</td> <td></td> <td style="text-align: center;">109.4</td> <td style="text-align: center;">616.9</td> <td style="text-align: center;">9.4</td> <td style="text-align: center;">42.2</td> </tr> <tr> <td>Area objective met by WHA (Y/N)</td> <td style="text-align: center;">N</td> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> <td style="text-align: center;">N</td> <td style="text-align: center;">Y</td> </tr> </tbody> </table> <p>Merritt and Lillooet TSA's (Cascades Forest District):</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Flammulated Owl</th> <th style="text-align: center;">W. Screech Owl</th> <th style="text-align: center;">Spotted Owl</th> <th style="text-align: center;">Grizzly Bear Merritt TSA</th> <th style="text-align: center;">Grizzly Bear Lillooet TSA</th> <th style="text-align: center;">Coastal Tailed Frog</th> <th style="text-align: center;">Great Basin Gopher Snake</th> </tr> </thead> <tbody> <tr> <td>Desired Area (ha)</td> <td style="text-align: center;">4050</td> <td style="text-align: center;">44</td> <td style="text-align: center;">5000</td> <td style="text-align: center;">5211</td> <td style="text-align: center;">8000</td> <td style="text-align: center;">2793</td> <td style="text-align: center;">4000</td> </tr> <tr> <td>Area in WHA</td> <td></td> <td style="text-align: center;">237</td> <td style="text-align: center;">20161</td> <td style="text-align: center;">3182</td> <td style="text-align: center;">1322</td> <td style="text-align: center;">385</td> <td></td> </tr> <tr> <td>Area objective met by WHA (Y/N)</td> <td style="text-align: center;">N</td> <td style="text-align: center;">Y</td> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> <td style="text-align: center;">N</td> <td style="text-align: center;">N</td> <td style="text-align: center;">N</td> </tr> </tbody> </table> <p>All affected Licensees adhered to the management strategies for Mountain Caribou (2000 baseline data – applicable to Kamloops TSA only).</p> <p>All affected Licensees adhered to the management strategies for Northern Spotted Owl (2008 baseline data – applicable to Lillooet TSA only).</p> <p>See the latest monitoring report for trends and current status.</p>		Flammulated Owl	Western Screech Owl	Lewis's Woodpecker	Spotted bat	Badger	Desired Area (ha)	3300	60	650	120	35	Area in WHA		109.4	616.9	9.4	42.2	Area objective met by WHA (Y/N)	N	Y	N	N	Y		Flammulated Owl	W. Screech Owl	Spotted Owl	Grizzly Bear Merritt TSA	Grizzly Bear Lillooet TSA	Coastal Tailed Frog	Great Basin Gopher Snake	Desired Area (ha)	4050	44	5000	5211	8000	2793	4000	Area in WHA		237	20161	3182	1322	385		Area objective met by WHA (Y/N)	N	Y	Y	N	N	N	N
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Desired Area (ha)	3300	60	650	120	35																																																				
Area in WHA		109.4	616.9	9.4	42.2																																																				
Area objective met by WHA (Y/N)	N	Y	N	N	Y																																																				
	Flammulated Owl	W. Screech Owl	Spotted Owl	Grizzly Bear Merritt TSA	Grizzly Bear Lillooet TSA	Coastal Tailed Frog	Great Basin Gopher Snake																																																		
Desired Area (ha)	4050	44	5000	5211	8000	2793	4000																																																		
Area in WHA		237	20161	3182	1322	385																																																			
Area objective met by WHA (Y/N)	N	Y	Y	N	N	N	N																																																		
Forecast	<p>Expected response(s) of the indicator to the strategy: Long term supply of critical habitat for all focal species (Flammulated Owl, Interior Western Screech Owl, Lewis's Woodpecker, Spotted Bat, Badger, Coastal Tailed Frog, Great Basin Gopher Snake, Spotted Owl, Grizzly Bear and Mountain Caribou) resulting in stable populations.</p> <p>Through proposed protected areas and management guidelines for modified harvest zones, critical habitat for Mountain Caribou and Northern Spotted Owl will receive a higher level of preservation.</p> <p>Analytical forecasting of habitat needs for focal species has occurred to the extent that forest habitat requirements were initially identified and incorporated into Timber Supply Reviews. For example, TSR's have incorporated restrictions to the timber harvesting landbase for areas such as Wildlife Tree Patches, Wildlife Habitat Areas, Old Growth Management Areas and Riparian Management Areas. In time, government will be designating spatially located habitat areas to manage for the focal species. An alternative no action or do nothing strategy would not be entertained given legal requirements to manage for Schedule 1 Species at Risk and Identified Wildlife.</p>																																																								
Basis for the Target	Habitat supply modeling done at the provincial/regional level for each of the focal species. More detail provided within the specific GAR orders and determinations.																																																								
Legal Requirements	Forest and Range Practices Act; Forest Planning and Practices Regulation; Government Actions Regulation; Wildlife Act.																																																								
Monitoring & Measurement Periodic																																																									
Annual	<p>9. For areas harvested, Licensees will report on the number of locations where the presence of the species or an occurrence site for each of the focal species was identified and the number of locations where the focal species habitat was conserved or managed. At the Kamloops TSA and Cascades District level, hectares of Wildlife Habitat Areas by focal species will be provided.</p> <p>7. Affected licensees will report the area (ha) harvested that is consistent with Government Action Regulation orders and/or higher level plan orders against all of the area harvested within the designated Mountain Caribou recovery strategy during the reporting year.</p> <p>8. Affected licensees will report the area (ha) harvested that is consistent with Government Action Regulation orders and/or the Spotted Owl Habitat Management Plan against all of the area harvested within designated Northern Spotted Owl habitat during the reporting year.</p>																																																								
Variance	None, other than what is provided for within the legal framework (statutory decision makers may approve variances from standard requirements provided adequate rationale is provided and long-term objectives continue to be met).																																																								

6.0 – Links to Other Planning Processes and Policies

Indicator	1.2.3 (2.1.2) Proportion of regeneration comprised of native species.																			
Element(s)	1.2 Species Diversity, 1.3 Genetic Diversity, 2.1 Forest Ecosystem Condition and Productivity																			
Target	10. 100% of trees planted will conform to plan commitments related to the species requirements within approved stocking standards (requires reforestation with commercially valuable and ecologically suitable tree species).																			
Background	<p>One of the primary management objectives for sustainability is to conserve the diversity and abundance of native species and their habitats. This objective aligns very well with the SFM Plan objectives to maintain a variety of habitats for naturally occurring species and to maintain genetic diversity of native tree species. Silviculture practices that promote regeneration of native species, either through planting or other natural programs assist in meeting these objectives.</p> <p>Tree seed production in B.C. happens on both private and government seed orchards. The goal of seed production is to produce high-quality, genetically improved seed through the planning, administration and management of seed orchards in a Crown land stewardship framework. BC Government's Tree Improvement Branch is not involved in any genetic engineering, gene insertion, gene splicing or biotechnology that results in genetically modified organisms. In keeping with the Government's broad stewardship responsibilities for Crown land, Tree Improvement Branch has ensured that no genetically modified tree seed has been registered or used in operational forest planting on Crown land in British Columbia.</p> <p>Considerable effort has been made within the province to map biogeoclimatic zones, subzones and variants. Management interpretations including the preferred and acceptable commercial tree species have been developed for all zones. The mapped zones and interpretations are periodically reviewed and updated with new information such as that developed by the Kamloops Future Forest Strategy (incorporating climate change forecasts into changing future ecological conditions).</p>																			
Strategy to meet target	<p>The strategy is to maintain the diversity of native tree species utilizing ecologically based regeneration practices. Licensee plans will contain reforestation prescriptions that ensure that naturally occurring species are planted. This information is contained within the stocking standards of their Forest Stewardship Plans.</p> <p>The strategy and target are relevant for the NTF Plan area. Forecasting has occurred at the Timber Supply Area/Tree Farm Licence level. Reporting of the target to occur by TSA/TFL; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>																			
Baseline target data (initial reporting results)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 15%;">Kamloops TSA</th> <th style="width: 15%;">Lillooet TSA</th> <th style="width: 15%;">Merritt TSA</th> <th style="width: 15%;">TFL 18</th> </tr> </thead> <tbody> <tr> <td>Percent Area Planted with correct species (2011 NTF Baseline Data)</td> <td>100% (6,288 ha)</td> <td>100% (665 ha)</td> <td>100% (6582 ha)</td> <td></td> </tr> <tr> <td>Percent Area Planted with correct species (2013 NTF Baseline Data)</td> <td></td> <td></td> <td></td> <td>100% (1,869 ha)</td> </tr> </tbody> </table> <p>See the latest monitoring report for trends and current status.</p>						Kamloops TSA	Lillooet TSA	Merritt TSA	TFL 18	Percent Area Planted with correct species (2011 NTF Baseline Data)	100% (6,288 ha)	100% (665 ha)	100% (6582 ha)		Percent Area Planted with correct species (2013 NTF Baseline Data)				100% (1,869 ha)
	Kamloops TSA	Lillooet TSA	Merritt TSA	TFL 18																
Percent Area Planted with correct species (2011 NTF Baseline Data)	100% (6,288 ha)	100% (665 ha)	100% (6582 ha)																	
Percent Area Planted with correct species (2013 NTF Baseline Data)				100% (1,869 ha)																
Forecast	<p>By following the target strategy it is anticipated that healthy, productive and genetically diverse forests that are ecologically suited to the site, will be maintained. Only in exceptional circumstances would regeneration NOT be comprised of native tree species.</p> <p>Analytical forecasting of species composition over time has occurred during Timber Supply Reviews based on ecologically based regeneration strategies assigned to each analysis unit (forests of similar characteristics and growth response).</p>																			
Basis for the Target	Demonstrate that reforestation performance meets government objectives and that of the NTF SFM Plan.																			
Legal Requirements	Forest and Range Practices Act; Forest Planning and Practices Regulation.																			
Monitoring & Measurement Periodic																				
Annual	Licensees will report the number of hectares where trees were planted with species appropriate to the site as outlined in the stocking standards of their Forest Stewardship Plan. Additionally, Licensees will report the total number of hectares where planting occurred.																			
Variance	None, other than what is provided for within the legal framework (statutory decision makers may approve variances from standard requirements provided adequate rationale is provided and long-term objectives continue to be met).																			

6.0 – Links to Other Planning Processes and Policies

Indicator	1.2.4 Grass seeding application on newly constructed roads (non-core indicator).
Element(s)	1.2 Species Diversity, 3.2 Water Quality and Quantity
Target	11. Road cut and fill slope seeding application will be carried out using certified seed and within 12 months of completed new road construction on disturbed sites suitable for germination.
Background	Prompt revegetation of road cuts and fill slopes will minimize potential for soil movement and sedimentation. This will contribute to maintenance of water quality and long-term productivity of the land and help to control the spread of invasive plants – the second SFM Plan objective under Species Diversity. Certified seed has a higher assurance of pure seed without contaminants.
Strategy to meet target	The strategy is to implement practices that reduce soil erosion potential and help control the spread of invasive plant species. Licensees will attain the target with timely revegetation of exposed soils on newly constructed road cut and fill slopes as per plan commitments. The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur for the entire Plan area.
Baseline target data (initial reporting results)	Road cuts and fill slopes were seeded or planted on average within 7.1 months of disturbance, compared to a target of 12 months. All seed was certified. (2011 NTF baseline data). See the latest monitoring report for trends and current status.
Forecast	Expected response(s) of the indicator to the strategy: Timely revegetation of exposed soils on newly constructed road cut and fill slopes will reduce the potential for soil movement and sedimentation thereby contributing to the maintenance of water quality. Application of certified grass seed will reduce invasive plant establishment. Analytical forecasting of the contribution of grass seeding has not occurred. An alternative no action or do nothing strategy would not be entertained given legal requirements to manage for water quality and invasive plants – although planned actions clearly exceed legal requirements.
Basis for the Target	Legal Requirements. Reduce soil erosion and sedimentation delivery into streams, and reduce invasive plant establishment.
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	
Annual	Licensees will report the use of certified seed. Licensees will also report the average time for road cut and fill slope seeding application during the reporting year (applies to areas of new road construction only).
Variance	3 months

6.0 – Links to Other Planning Processes and Policies

Indicator	1.4.1 Protection of identified sites of special significance
Element(s)	1.4 Protected Areas and Sites of Special Biological and Cultural Significance.
Target	14. 100 % protection of culturally important, sacred and spiritual sites that have been identified and mapped and 100% conformance to all plan commitments specifically designed to manage for culturally important, sacred and spiritual sites that have been identified and mapped.
Background	This indicator recognizes the importance of managing and protecting culturally important, sacred and spiritual sites, during forestry operations. First Nations, 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 the indicator is to manage and/or protect those truly important sites, thus there is a degree of reasonableness in identifying the sites.
Strategy to meet target	<p>The strategy is to ensure that sites identified by First Nations as sacred or culturally important are managed or protected. Efforts have been made to understand which First Nation traditional territories fall within the Plan area and company Defined Forest Areas. Information sharing agreements are made with willing First Nation communities to promote the use and protection of sensitive information.</p> <p>Open communication with First Nations that includes a sharing of information that enables forest Licensees to understand and incorporate traditional knowledge into forest management options. Written requests for communication are responded to. With open lines of communication, licensees become aware of culturally important, sacred and spiritual sites leading to appropriate management or and protection.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur by TSA/TFL; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>
Baseline target data (initial reporting results)	<p>There were 45 sites identified and mapped in the plan area, and 100% were managed or protected in accordance with forest plans (2011 NTF Baseline data).</p> <p>See the latest monitoring report for trends and current status.</p>
Forecast	<p>Expected response(s) of the indicator to the strategy: Open and meaningful relationships with local First Nations leading to a trust in sharing sensitive information. Forest plans contain information on how these sites will be managed or protected. Forest operations that properly execute the forest plans. In combination, these responses will result in protection of sacred or culturally important sites.</p> <p>Analytical forecasting the outcome of protecting sacred and culturally sites has not specifically occurred although area netdowns would be brought forward in subsequent timber analysis. An alternative no action or do nothing strategy would not be entertained given legal requirements to manage for cultural heritage resources.</p>
Basis for the Target	Developed by Licensees with First Nations input.
Legal Requirements	Heritage Conservation Act, Forest and Range Practices Act, Forest Planning and Practices Regulation, Constitution Act (and subsequent Supreme Court decisions).
Monitoring & Measurement Periodic	
Annual	<p>Licensees will report:</p> <ul style="list-style-type: none"> • Number of roads constructed or cutblocks harvested where culturally important, sacred or spiritual sites had been identified, mapped. • Number of roads constructed or cutblocks harvested where the identified sites were managed or protected in accordance with forest plans.
Variance	None

6.0 – Links to Other Planning Processes and Policies

Indicator	1.4.2 Proportion of identified sites with implemented management strategies
Element(s)	1.4 Protected Areas and Sites of Special Biological and Cultural Significance.
Target	<p>12 (Kamloops TSA and TFL 18 only). Prioritized Red-listed ecological communities will be protected with retained existing forest.</p> <p>a. Where the ecological community is “documented, mapped (GPS/UTM) and field verified” for the cutting permit or TSL area where operations are being planned and:</p> <p style="margin-left: 40px;">a. the ecological community represents less than 10% of the cutting permit or TSL area, then the majority of the identified occurrence is protected.</p> <p style="margin-left: 40px;">b. the ecological community is greater than 10% of the gross area of either tenure noted above, then WTP placement will be weighted towards those communities.</p> <p>b. Where the ecological community is not well documented (i.e. ecological mapping at the site series level is not available), the prioritized list of Red-listed ecological communities is used as a support tool to weight WTP placement, or other reserves, to the applicable site series in the block.</p> <p>13 (Lillooet TSA only). Harvesting not to exceed greater than 50% of the total of each identified rare landscape unit / BEC zone variants.</p> <p>26 (Merritt TSA only). Where operations are planned in areas that have been field verified as a rare ecosystem (refer to Appendix 7), the accompanying recommendations will be adhered to. Target is 100% adherence with a 10% variance.</p> <p>a.</p>
Background	<p>The forest licensees participated in higher level and strategic planning that delineated a series of protected areas and spatially located old growth management areas with the three TSAs. This achieved the geographic and ecological goals of the provincial Protected Areas Strategy, providing representation of the cross-section of ecosystems and of old forest attributes. Logging, mining and hydroelectric development are generally 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.</p> <p>Targets for this indicator include sites identified primarily for their biological/ecological significance.</p> <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:</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 (OGMAs), Ecological Reserves, or Wildlife Tree Patches (WTPs). <p>Location of potentially rare ecosystems is guided by Terrestrial Ecosystem Mapping or Predictive Ecosystem Mapping, utilized by field crews to assist in their detection of rare site series.</p>

6.0 – Links to Other Planning Processes and Policies

<p>Strategy to meet target</p>	<p>The strategy is to identify and manage sites having special biological significance. Licensee objectives are to manage the attributes of those ecosystems that are truly rare within their defined forest area. This requires analysis beyond the broad information that can be located at the B.C. Conservation Data Centre. The work has been completed for the Kamloops TSA and more recently the Merritt TSA. In the Lillooet area a local forest ecologist identified rare landscape units within the TSA. The strategy will be applied at the stand level through identification of rare sites or rare habitat in the SP process and through the application of retention (see Indicator 1.1.4). Site plans will be written to help ensure that operational activities do not impact the potential contribution that these rare site provide. Because of the varying availability of rare ecosystem data sets, separate targets have been identified for each of the three management units below.</p> <p><u>Kamloops TSA and TFL 18</u></p> <p>Ecological zones have been prioritized for rare ecosystem assessment based on the following:</p> <ol style="list-style-type: none"> number of CDC listed rare ecosystems (Red-listed ecological communities⁵) within the variant, the proportion of the provincial extent of the BEC variant in the TSA, and the proportion of the BEC variant in the TSA that is in the Non-THLB. <p>For those prioritized BEC variants/site series with Red-listed ecological communities higher levels of WTPs and OGMA⁶ will be planned (i.e. beyond legislation and policy targets). WTPs or other reserves will favor older seral stages.</p> <p>For the remaining BEC variants/site series lower levels of WTPs and OGMA⁶ will be planned (i.e. below legislation and policy targets).</p> <p>Retention to protect rare ecosystems should be designed to complement the existing Non-THLB reserves wherever possible.</p> <p>If a licensee identifies a rare ecosystem at anytime, best efforts will be made to incorporate the ecosystem into planned operations.</p> <p><u>Lillooet TSA</u></p> <p>The target is refined by reporting by rare Landscape Unit / Biogeoclimatic Zones. Rare Landscape Unit / Biogeoclimatic Zones are areas that are uncommon on the landscape⁷. This indicator will provide information on the level of disturbance that occurs within the identified areas. This indicator also reports on the area of rare Landscape Unit / Biogeoclimatic Zones actually harvested both within the THLB and non-THLB areas.</p> <p><u>Merritt TSA</u></p> <p>Rare ecosystemd have been identified by a local biologist at the site series level. Each forested rare ecosystem includes management recommendations for operations (from no harvest to partial harvest). The target is centered on managing the key attributes within these identified rare ecosystems by following suggested recommendations.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur by TSA/TFL; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>
<p>Baseline target data (initial reporting results)</p>	<p><u>Kamloops TSA and TFL 18:</u> Out of 280 cutblocks harvested (with original SPs signed after January 1st, 2007) there were two instances where documented Red-listed communities occurred and in both cases (100%) the substantial part of the identified occurrence was included in WTP's (2007 baseline data).</p> <p><u>Lillooet TSA:</u> There has been no logging in rare landscape unit / biogeoclimatic variant combinations in the Lillooet TSA since the inception of this indicator (2004-2009 reporting).</p> <p><u>Merritt TSA:</u> Target is new for 2017. Refer to Appendix 7 for current inventory.</p> <p>See the latest monitoring report for trends and current status.</p>
<p>Forecast</p>	<p>Expected response(s) of the indicator to the strategy: Through proposed protected areas and management guidelines for low intensity zones rare habitats receive a higher level of preservation.</p> <p>Licensees forest planning and practices promote a diversity of healthy ecosystems while maintaining attributes for critical species. Activities will also promote a diversity and abundance of naturally occurring wildlife and their habitats.</p> <p>Identified localized sites are maintained in an undisturbed state to ensure that the potential rare plants and/or plant communities found within them are not lost.</p> <p>Analytical forecasting of previously identified and protected rare ecosystems has not occurred, other than a review of the timber supply impacts of those areas managed or protected. No analytical forecasting is planned for any currently unidentified rare sites that become known at the time of field reconnaissance. An alternative no action or do nothing strategy could result in the loss of rare plants and/or plant communities.</p>

² Refer to Appendix 7 for a list and description of prioritized red listed ecological communities

⁶ Recognizing there is some potential to move OGMA⁶ to include red or blue listed ecosystems.

⁷ Suggested by a local Forest Ecologist with extensive field experience in the Lillooet TSA (Jones 2004).

6.0 – Links to Other Planning Processes and Policies

Basis for the Target	Legal obligations, use of best available information and application of resource stewardship principles. Proactive measure to identify and conserve Red-listed ecological communities.
Legal Requirements	Forest and Range Practices Act, Operational Planning and Practices Regulation
Monitoring & Measurement Periodic	
Annual	<p>12 (Kamloops TSA and TFL 18).</p> <ul style="list-style-type: none"> a. Licensees report the number of cutblocks where occurrence of ecosystems identified as “prioritized Red-listed ecological communities” was “documented”, and the number of these cutblocks where the Target was met. b. Licensees report the number of cutblocks where non-documented ecosystems identified as “prioritized Red-listed ecological communities” occurred, and the number of these cutblocks where the Target was met. A rationale is provided for each cutblock where the Target is not met. <p>Reporting against targets 12a and 12b is limited to blocks harvested during the reporting year that had the original SP signed after January 1st, 2007.</p> <p>13 (Lillooet TSA). Licensees report the area harvested annually by Rare Landscape Unit and Biogeoclimatic Zone (separately for THLB and non-THLB) for the six identified sites – all in Aspens operating area. Report annual area harvested and the cumulative area harvested within each of the rare sites.</p> <p>26 (Merritt TSA). Licensees report the area where operations were conducted within rare ecosystems and the area where management recommendations for that rare ecosystem were followed.</p>
Variance	<p>12b target to be met on at least 90% of cutblocks where ecosystems identified as “prioritized Red-listed ecological communities” occurred.</p> <p>For remaining targets there is no variance other than what is provided for within the legal framework (statutory decision makers may approve variances from standard requirements provided adequate rationale is provided and long-term objectives continue to be met).</p> <p>26 10% of area impacted.</p>

6.0 – Links to Other Planning Processes and Policies

Indicator	1.4.3 Management and or protection of special geological features (non-core indicator).			
Element(s)	1.4 Protected Areas and Sites of Special Biological and Cultural Significance.			
Target	15. Report the special geological features that were identified and managed. Additionally, Licensees will report the management activities that they undertook for each special geological feature.			
Background	<p>This indicator recognizes the importance of identifying and managing for special geological features that are discovered in the course of fieldwork. Features such as caves, waterfalls, or other geology felt to be particularly unique by a Licensee are generally detected during fieldwork, as they are not often included in any established spatial databases like other features that can be identified at the planning stage.</p> <p>The emphasis of the indicator is to manage for those features that are truly unique and where operations may impact the feature. For example, waterfalls are relatively abundant in certain areas of the DFA, and it was not the intent to report on all waterfalls.</p>			
Strategy to meet target	<p>The strategy is to ensure that special geological features are adequately managed. Licensees conduct fieldwork on all areas planned for harvesting including how the sites will be accessed. Any unique features picked up in the course of the fieldwork will be managed for either by relocating the road or cutblock to avoid the feature or to design the road or harvest unit so that the integrity of the feature is retained.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>			
Baseline target data (initial reporting results)	Where forest operations occur, unique geological features are managed or protected. During the development phase of a block in the Cicero area (NW of Kamloops) a Karst cave feature was identified. The feature was removed from the block, and buffered as per the Karst Feature Management Guidebook for BC. The area was set as a WTP to add further protection (2011 NTF baseline data).			
		2011	2012	2013
	Number of geological features managed or protected	1	0	0
Forecast	<p>Expected response(s) of the indicator to the strategy: Diligent fieldwork and management prescriptions that retain the integrity of unique geological features. Forest operations that properly execute the forest plans. In combination, these responses will result in the identification and management of these features.</p> <p>Analytical forecasting of the outcome of geological features has not occurred. An alternative no action or do nothing strategy could result in the loss of unique geological features.</p>			
Basis for the Target	Developed by Licensees with public input.			
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation			
Monitoring & Measurement Periodic				
Annual	<p>Licensees will report in situations where these features fell within a new road r/w or cutblock area and were managed for or where the road or block were specifically relocated to manage for the feature.</p> <p>Report:</p> <ol style="list-style-type: none"> Number and type of special geological features (include karst formations/caves, inactive volcano cones and waterfalls) that were identified and managed. For waterfalls, only include S1, S2, S3, and S5 streams having a vertical drop greater than 5 metres. Specific management activities that were taken for each special geological feature. 			
Variance	None			

6.0 – Links to Other Planning Processes and Policies

Indicator	2.1.1 (4.1.2) Reforestation Success
Element(s)	2.1 Forest Ecosystem Condition and Productivity, 4.1 Carbon Uptake and Storage
Target	<p>16. 90% of area prescribed for planting is completed within the third growing season from start date of harvest.</p> <p>17. All cutblocks declared free growing in the reporting period will reach free growing requirements on or before the latest date. Also report area on those cutblocks that outperformed late free growing requirements and average time by which requirements were exceeded.</p>
Background	Ensuring a diversity of tree species is maintained improves ecosystem resilience and productivity and positively influences forest health. Prompt reforestation ensures that the productive capacity of forest land base to grow trees is maintained. Forests in British Columbia are classified according to the Biogeoclimatic Ecosystem Classification System, which identifies the tree species that are most suited ecologically for regeneration on any particular site. This not only helps to maintain the natural forest composition in an area, but it also lends itself to long term forest health and productive forests that uptake carbon.
Strategy to meet target	<p>The strategy is to implement reforestation strategies that support prompt regeneration and adequate stocking and growth of preferred or acceptable trees. Licensees will specify tree species that are ecologically suited to the site in a timely manner. The desired silviculture regime and forward plan for an area will schedule activities consistent with established key dates.</p> <p>The strategy and target are relevant for the NTF Plan area. Forecasting has occurred to the extent that indicator/target results are used in predicting timber supply. Reporting of the target to occur by TSA/TFL; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>
Baseline target data (initial reporting results)	<p>Overall, 89.8% of areas were planted within the 3rd growing season from harvest, thus the target was within the 10% variance for the collective NTF Plan area (2011 NTF baseline data).</p> <p>In each of the TSA's and TFL 18, all area (11,382.5 ha) that had a late free growing date of 2011 had met the free growing requirements.</p> <p>See the latest monitoring report for trends and current status.</p>
Forecast	<p>Prompt reforestation ensures that the productive capacity of forest land base to grow trees is maintained. Promptness also aids in providing young trees a head start against competing vegetation, helping to reduce the need for manual or chemical brushing treatments. Achievement of the earliest free growing date will help ensure that the productive capacity of the forest land base to grow trees is maintained. The Ministry of Forests and Range conducts research and provides guidance on key dates such as free growing, based on specific biogeoclimatic information for each site.</p> <p>Expected response(s) of the indicator to the strategy: Healthy, diverse and productive ecosystems with an abundance of naturally occurring tree species.</p> <p>Analytical forecasting of reforestation strategies has occurred to the extent that indicator/target results are used in predicting timber supply. Sensitivity analysis options in predicting timber supply outcomes could include changes to regeneration delay or strategies assigned to each analysis unit but are generally not considered necessary in assessing risk. There is a direct correlation between the time taken to reforest a harvested area and long term timber supply – a longer delay places downward pressure on allowable annual cut. An alternative no action or do nothing strategy would not be entertained given legal reforestation requirements.</p>
Basis for the Target	<p>Prompt reforestation target exceeds legal requirements. Early establishment of a viable crop of trees reduces the need for subsequent interventions (re-planting, brushing).</p> <p>Achievement of the free growing date will help ensure that the productive capacity of the forest land base to grow trees is maintained with species ecologically suited to the site.</p>
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	
Annual	<p>16. Licensees will report the area planted prior or within the third growing season as compared to the total area planted during the reporting year</p> <p>17. Licensees will report on the cutblock area (hectares) that achieved free growing status on or before their late free growing date and the average time (years) that the cutblock outperformed its late free growing date (weighted average). <i>Note: Report only on those areas where the late free growing date falls within the reporting year.</i></p>
Variance	<p>16. +/- 10%</p> <p>17. None, other than what is provided for within the legal framework (statutory decision makers may approve variances from standard requirements provided adequate rationale is provided and long-term objectives continue to be met).</p>

6.0 – Links to Other Planning Processes and Policies

Indicator	2.1.3 Additions and deletions to the forest area																		
Element(s)	2.1 Forest Ecosystem Condition and Productivity 4.2 Forest Land Conversion																		
Target	18. Less than 6 percent (7% for the Lillooet TSA), on average, of harvested areas will be in permanent roads and landings.																		
Background	Given the Crown tenure situation in BC forest companies generally have little influence on any additions or deletions to 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 access structures such as roads and landings. These access structures compact soil, making regeneration difficult, and disrupt the natural connectivity within forest stands.																		
Strategy to meet target	<p>The strategy is to reduce the impacts of operational activities on the productive forest land base by managing the amount of permanent access, particularly as it applies to the Timber Harvesting landbase (THLB). Permanent access that is built between harvest areas will eventually be reported in the sequence of harvesting the THLB. Timber supply analysis makes assumptions on permanent access netdowns based on past performance. The forest inventory is updated prior to the analysis and includes any other additions or deletions to forest area (such as reclaimed areas, forest ingress, private land removals, highway/hydro right-of ways, etc). Loss of the land base to access structures can be minimized with</p> <ul style="list-style-type: none"> • careful access planning to minimize the length of permanent road and landings required for harvesting • and use of proper road construction, maintenance and deactivation procedures <p>The strategy and target are relevant for the NTF Plan area. Forecasting has occurred to the extent that indicator/target result is used in predicting timber supply. Reporting of the target to occur by TSA/TFL; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>																		
Baseline target data (initial reporting results)	<table border="1"> <thead> <tr> <th></th> <th>Kamloops TSA</th> <th>Lillooet TSA</th> <th>Merritt TSA</th> <th>TFL 18</th> </tr> </thead> <tbody> <tr> <td>Baseline Year</td> <td>2000</td> <td>2006</td> <td>2001</td> <td>2012</td> </tr> <tr> <td>Percent harvest area in permanent access</td> <td>4.2%</td> <td>3.8%</td> <td>4.7%</td> <td>4.3%</td> </tr> </tbody> </table> <p>See the latest monitoring report for trends and current status.</p>					Kamloops TSA	Lillooet TSA	Merritt TSA	TFL 18	Baseline Year	2000	2006	2001	2012	Percent harvest area in permanent access	4.2%	3.8%	4.7%	4.3%
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Baseline Year	2000	2006	2001	2012															
Percent harvest area in permanent access	4.2%	3.8%	4.7%	4.3%															
Forecast	<p>Expected response(s) of the indicator to the strategy: Productive forest soils with minimized losses to forest development. Analytical forecasting occurs in long term timber supply modelling and based current state/practices and updated during each Timber Supply Review. The calculation includes the most up to date inventory data and includes non-forest and non-productive forest netdowns for permanent disturbance land allocation and land use. The results of the most current timber supply analysis revealed the following netdowns for non-commercial, non-forest and non-productive forest (weblinks for these reports can be found in Section 6.4 of this SFM Plan):</p> <p>Kamloops TSA: TSR 4 Information package (Section 6.1-6.5); netdown of 356,420 ha. Lillooet TSA: TSR 3 Data Package (Section 4.1); netdown of 546,904 ha. Merritt TSA: TSR 4 Data Package (Section 5.5); netdown of 90,882 ha. TFL 18: TFL 18 MP #10 Info Package (Section 6.1.16); netdown of 3,215 ha.</p> <p>There is a direct correlation between the percent reduction used and long term timber supply – additional area in permanent access places downward pressure on allowable annual cut. An alternative no action or do nothing strategy would not be entertained given legal requirements related to permanent access limits.</p>																		
Basis for the Target	<p>Meets or exceeds legal requirements. Reflective of current performance level. Continued success with results at less than original 7% target for Kamloops and Merritt resulted in a reduced maximum target to 6%.</p> <p>The percent target refers specifically to loss to the timber harvesting land base due to access structures within harvested areas. It does not include land area lost to roads connecting harvested areas.</p>																		
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation																		
Monitoring & Measurement																			
Periodic																			
Annual	Licensees will report the area (ha) of permanent roads and landings identified in operational plans over gross block area (ha) for cutblocks harvested during the reporting year, using information contained within Licensee plans.																		
Variance	None																		

6.0 – Links to Other Planning Processes and Policies

Indicator	2.1.4 Proportion of the calculated long-term sustainable harvest level that is actually harvested																							
Element(s)	2.1 Forest Ecosystem Condition and Productivity 4.2 Forest Land Conversion																							
Target	19. Harvest the annual cut allocation for the year consistent with the Cut Control Regulation and Policy.																							
Background	<p>For many, sustainability involves limiting actual timber harvest to levels within the long-term capability of the forest to grow wood. 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 2.1.3 (additions and deletions to the forest area by cause) and 2.1.1 (reforestation success).</p> <p>Sustainable harvest levels for forest management units in BC are determined by the province’s Chief Forester after considering social, economic and biological criteria. More information on this rigorous process to determine allowable annual cut (AAC) levels can be found at the website: https://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/timber-supply-review-and-allowable-annual-cut</p>																							
Strategy to meet target	<p>The strategy is to harvest timber at allocated levels. Licensees contribute to the sustainable harvest level by adhering to their apportioned harvest volume within a given TSA. Cut control regulations dictate short-term harvest flexibility. Essentially, licensees have flexibility on harvest levels from year to year but must balance every five years or less if desired by the licensee.</p> <p>The strategy and target are relevant for the NTF Plan area. Forecasting has occurred at the Timber Supply Area/Tree Farm Licence level. Reporting of the target to occur by TSA/TFL.</p>																							
Baseline target data (initial reporting results)	<p>Existing harvest level and volume harvested:</p> <table border="1"> <thead> <tr> <th></th> <th>Kamloops TSA</th> <th>Lillooet TSA</th> <th>Merritt TSA</th> <th>TFL 18</th> </tr> </thead> <tbody> <tr> <td>Baseline year</td> <td>2000</td> <td>2002</td> <td>2002</td> <td>2000</td> </tr> <tr> <td>AAC (m3)</td> <td>2,393,180</td> <td>635,900</td> <td>1,454,250</td> <td>177,650</td> </tr> <tr> <td>Harvest (m3)</td> <td>2,999,147</td> <td>330,083</td> <td>1,430,081</td> <td>174,763</td> </tr> </tbody> </table> <p>See the latest monitoring report for trends and current status.</p>					Kamloops TSA	Lillooet TSA	Merritt TSA	TFL 18	Baseline year	2000	2002	2002	2000	AAC (m3)	2,393,180	635,900	1,454,250	177,650	Harvest (m3)	2,999,147	330,083	1,430,081	174,763
	Kamloops TSA	Lillooet TSA	Merritt TSA	TFL 18																				
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Harvest (m3)	2,999,147	330,083	1,430,081	174,763																				
Forecast	<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 forecasts that then rely on the Chief Forester to provide a determination. Public input is provided throughout the process.</p> <p><u>Kamloops TSA</u> Effective May 5, 2016, the AAC for the Kamloops TSA is 2.3 million cubic metres. This effectively reduced the former AAC by 43 percent.</p> <p><u>TFL 18</u> Effective July 13, 2017, the AAC for TFL 18 is 175,000 cubic metres.</p> <p><u>Lillooet TSA</u> Effective May 1, 2009, the new AAC for the Lillooet TSA is 570 000 cubic metres, of which 400 000 cubic metres are specified as harvestable from species other than pine.</p> <p><u>Merritt TSA</u> Effective March 30, 2016, the AAC for the Merritt TSA is 1.5 million cubic metres. This effectively reduced the former AAC by 38 percent.</p>																							
Basis for the Target	Legal requirements. Harvesting the allowable cut over the cut control period maintains short and long term harvest flows that reflect forest conditions, forest practices, and the socio-economic objectives of the Crown.																							
Legal Requirements	Forest Act, Cut Control Regulation																							
Monitoring & Measurement Periodic	The Chief Forester determines the schedule for subsequent timber supply reviews.																							
Annual	Licensees will report the harvest level allocated for each licence and harvest level cut (cut control volume) for the past reporting year. The existing scaling system in place (monitored by MoFLNRO) tracks volume delivered.																							
Variance	None, other than what is provided for within the legal framework.																							

6.0 – Links to Other Planning Processes and Policies

Indicator	3.1.1 Level of soil disturbance																		
Element(s)	3.1 Soil Quality and Quantity																		
Target	<p>18. Less than 6 percent (7% for the Lillooet TSA), on average, of harvested areas will be in permanent roads and landings.</p> <p>21. 100 percent conformance to soil conservation measures contained within operational plans.</p> <p>22. No operationally caused slides resulting from a failure to perform a terrain stability field assessment or from a failure to follow the recommendations within a completed assessment.</p>																		
Background	<p>Reducing the area in permanent roads and landings is an effective way that licensees can influence the productive capacity of the forest land base. 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. Permanent access that is built between harvest areas will eventually be reported in the sequence of harvesting the THLB. Timber supply analysis makes assumptions on permanent access netdowns based on past performance. The forest inventory is updated prior to the analysis and includes any other additions or deletions to forest area (such as reclaimed areas, forest ingress, private land removals, highway/hydro right-of ways, etc). Soil compaction, displacement and erosion are components of potentially detrimental soil disturbance. Prevention of man caused landslides will help to avoid sediment delivery to streams, possible damage to fish and invertebrate habitat, loss of forest site productivity, unsightly scars and damage to roads, culverts and bridges. These targets seek to manage soil disturbance levels caused by permanent roads as well as disturbance levels caused by harvest operations. They also serve to report on landslides, when caused by operations.</p>																		
Strategy to meet target	<p>The strategy is to manage soil properties such that impacts to forest productivity are at acceptable levels.</p> <p>Loss of the land base to access structures can be minimized with careful access planning to minimize the length of permanent road required for harvesting and the number of landings and by using proper road construction, maintenance and deactivation techniques.</p> <p>Maximum planned levels of soil disturbance are assigned to all cutblocks based on related field data. Expedious re-establishment of new stands can assist in preventing erosion and other forms of soil displacement. Licensee plans specify acceptable levels of disturbance.</p> <p>Licensees exercise due diligence in assessing sensitive terrain prior to road construction or harvesting, using specialists as required to provide recommendations, completing inspections of drainage ditches and culverts regularly, and taking preventative measures to minimize the potential for debris flow initiation and soil movement.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>																		
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Baseline Year	2000	2006	2001	2012															
Percent harvest area in permanent access	4.2%	3.8%	4.7%	4.3%															

6.0 – Links to Other Planning Processes and Policies

Forecast	<p>Expected response(s) of the indicator to the strategy: Productive forest soils with minimized losses to forest development. Permanent access structures (percent non-productive unnatural) are utilized in Provincial Timber Supply Review. Minimizing soil disturbance will reduce the potential for soil movement and sedimentation thereby contributing to the maintenance of water quality.</p> <p>Decreased forest soil exposure from slides will reduce the potential for sedimentation thereby contributing to the maintenance of water quality and provide land base for facilitating timber production.</p> <p>Analytical forecasting occurs in long term timber supply modelling and based current state/practices and updated during each Timber Supply Review. The calculation includes the most up to date inventory data and includes non-forest and non-productive forest netdowns for permanent disturbance land allocation and land use. The results of the most current timber supply analysis revealed the following netdowns for non-commercial, non-forest and non-productive forest (weblinks for these reports can be found in Section 6.4 of this SFM Plan):</p> <p>Kamloops TSA: TSR 4 Information package (Section 6.1-6.5); netdown of 356,420 ha.</p> <p>Lillooet TSA: TSR 3 Data Package (Section 4.1); netdown of 546,904 ha.</p> <p>Merritt TSA: TSR 4 Data Package (Section 5.5); netdown of 90,882 ha.</p> <p>TFL 18:TFL 18 MP #10 Info Package (Section 6.1.16); netdown of 3,215 ha.</p> <p>Alternative no action or do nothing strategies would not be entertained given legal requirements to manage for soil conservation – although planned actions clearly exceed legal requirements.</p>
Basis for the Target	<p>Meets or exceeds legal requirements. Reflective of current performance level. Continued success with results at less than original 7% target for Kamloops and Merritt resulted in a reduced maximum target to 6%.</p> <p>Minimizing the negative impacts of soil disturbance results in productive forest soils with minimized losses to forest development. It also reduces the potential for sedimentation thereby contributing to the maintenance of water quality.</p>
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	
Annual	<p>18. Licensees will report the area (ha) of permanent roads and landings identified in operational plans over gross block area (ha) for cutblocks harvested during the reporting year, using information contained within Licensee plans.</p> <p>21. Licensees will report the area (hectares) where soil disturbance commitments were achieved as compared to the total net area of cutblocks that were harvested during the reporting year.</p> <p>22. Licensees will report the number of slides >0.1 hectare or those having a significant environmental impact if less than 0.1 hectare as a result of their forest management activities (where either a terrain stability assessment was not completed, or where a terrain stability assessment was completed but the recommendations were not followed). <i>Also agreed to report the total number of operationally caused slides that occurred (or that were first discovered) in the reporting period – regardless of cause or due diligence.</i></p>
Variance	None

6.0 – Links to Other Planning Processes and Policies

Indicator	3.1.2 Level of downed woody material
Element(s)	3.1 Soil Quality and Quantity
Target	23. 100 percent of cutblocks will manage coarse woody debris (CWD) consistent with commitments in operational plans.
Background	<p>This indicator and target addresses the need to maintain structural features of forest ecosystems at the stand level. Strategies include direction for basic levels of coarse woody debris (CWD), creation of stubs, and guidelines for enhanced levels of CWD in landscape units with high biodiversity emphasis options. The indicator is complimented by Indicator 1.1.4: Degree of within-stand structural retention or age class.</p> <p>Coarse woody debris (i.e., downed wood) plays an important role in forest ecosystems including provision of food and shelter for invertebrates and smaller wildlife, growing sites for trees, nutrients for soils, and structure in streams to maintain channel stability.</p> <p>Large CWD (pieces ≥ 20 cm in diameter and ≥ 10 m in length) play an important role in the overall strategy for CWD. These larger pieces last longer before decomposition, retain more moisture and contribute more organic material to the soil. Additionally, they provide habitat for a greater number of species. The chief forester's guidance on CWD management is considered by forest professionals in developing their operational plans for a given site.</p> <p>Excessive removal of coarse woody debris (CWD) may affect habitat needs for some wildlife species (e.g., pine marten, fisher, grizzly bear, small mammals, snakes, some amphibians and numerous invertebrates).</p> <p>The main ecological principles guiding a CWD management strategy are:</p> <ul style="list-style-type: none"> • CWD immediately after harvest is rarely a concern in the DFA (except in some uniform second-growth sites, or with intensive site preparation). The predicted shortfall in managed stands is low CWD levels 50-80 years after harvest, particularly larger pieces. • Leaving more downed wood at harvest does not help CWD levels later in the rotation. Retained snags and live trees, and mortality of regenerating trees are required. • Distribution of CWD across managed stands is important, particularly maintaining some CWD through time in the harvested areas (outside of retention patches). • Variability in CWD levels and types among stands is high and important ecologically. • Landscape context matters: cutblocks with low CWD levels are of less concern where most stands in the Non-THLB have natural CWD levels, and occurrence of Non-THLB is significant. <p>Government has set an objective for soils – to conserve its productivity and hydrologic function, meaning that companies will have results and strategies in their Forest Stewardship Plan to meet those objectives. Additionally, there are forest practices requirements to retain wildlife trees and for coarse woody debris.</p>
Strategy to meet target	<p>The strategy is to retain coarse woody debris on recently harvested areas. Companies will achieve targets through a combination of stand-level actions including salvage guidelines, dispersed and group retention, modifying piling practices and adhering to minimum post-harvest limits of coarse woody debris.</p> <p>CWD is managed on a rotation bases. Salvage of current wildlife trees, wildlife tree patches or future mortality within reserves is by exception. Live, dead and dying trees are left on site for CWD recruitment. As part of an overall strategy for CWD, licensees will consider the retention of small piles of CWD as future habitat for small mammals.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>
Baseline target data (initial reporting results)	<p>A total of 956 cutblocks were harvested during the reporting period. 941 cutblocks or 98.4 percent of the harvested cutblocks were consistent with the commitments in the operational plans.</p> <p>See the latest monitoring report for trends and current status.</p>
Forecast	<p>Expected response(s) of the indicator to the strategy: Healthy ecosystems with a diversity and abundance of native species and habitats. Retention of large organic debris on harvested sites and utilization as habitat for wildlife.</p> <p>Analytical forecasting for coarse woody debris retention has not occurred. An alternative no action or do nothing strategy would not be entertained given legal requirements to manage for coarse woody debris.</p>
Basis for the Target	Operational plan commitments and legal requirements. Retention of standing and downed woody debris provides habitat for many living organisms and soil organic matter as it decomposes.
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation, Wildfire Act and Regulation
Monitoring & Measurement	
Periodic	
Annual	Licensees will report operational plan conformance to the target (cutblocks harvested where planned targets met compared to all cutblocks harvested). Reporting may also utilize supplemental information collected as part of post harvest waste assessments including ocular estimates. Early winter harvest blocks that are not field reviewed for CWD (snow) should not be part of that year's data pool but part of the following years.
Variance	5 %. Variance to accommodate non-conformance to plans that have coarse woody debris retention requirements that exceed legal requirements. Any non-compliance would not be considered in the variance. .

6.0 – Links to Other Planning Processes and Policies

Indicator	3.2.1 Proportion of watershed or water management areas with recent stand-replacing disturbance																		
Element(s)	3.2 Water Quality and Quantity																		
Target	24. Equivalent clear cut area (ECA) not to exceed 35% (at the sub-basin level) without doing further hydrological assessments prior to harvesting. For Kamloops, the target applies only to the highest risk rated watersheds (ratings as of May 24, 2012) as identified in Appendix 8.																		
Background	<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 affect water values varies according to topography, soil properties, vegetation types, and climate. Roads and stream crossings can have a large impact on water quality and prompt revegetation of road fill and cut slopes help reduce the risk of sedimentation.</p> <p>Equivalent clearcut area (ECA) describes a second-growth block in terms of its hydrological equivalent as a clearcut. As second growth develops, the hydrological impact on a site is reduced. The rate of reduction is expressed in proportion to the height of the second growth. New snow recovery curves (MoFLNRO Extension Note 116) suggest that as new pine forests grow from 5m to 15m tall, snow recovery increases from approximately 10% to more than 80%.</p> <p>This target has a focus in the planning and assessment in watersheds that have been identified as high risk and with a significant disturbance history, prior to implementing additional operations. Water quality, quantity and timing are influenced to varying degrees by road construction and harvesting. As the level of recent disturbance (measured as ECA) increases, the more likely there is to be a negative influence.</p> <p>Further hydrological assessments would include hazard assessments related to peak flow, surface erosion, riparian buffers, and mass wasting. Depending on those hazard ratings further work may be required such as a stream channel assessment.</p>																		
Strategy to meet target	<p>The strategy is to manage the potential impacts of forest operations on water quality and quantity in higher risk watersheds.</p> <p><u>Kamloops TSA and TFL 18</u></p> <p>Licenses carry out necessary hydrological assessments prior to implementing operations in the top 25 highest risk watershed (report updated May 24, 2012)⁸ where there has been a significant history of forest harvesting and road construction (equivalent clearcut areas approaching or exceeding 35%). Any forest management recommendations developed as part of the hydrological assessment are referenced in Licensee plans.</p> <p><u>Lillooet and Merritt TSA's</u></p> <p>Licenses carry out necessary hydrological assessments prior to implementing operations where there has been a significant history of forest harvesting and road construction (equivalent clearcut areas approaching or exceeding 35%). Any forest management recommendations developed as part of the hydrological assessment are referenced in Licensee plans.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur by TSA/TFL; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>																		
Baseline target data (initial reporting results)	<p>2011 NTF Baseline Data:</p> <table border="1"> <thead> <tr> <th></th> <th>Kamloops TSA</th> <th>Lillooet TSA</th> <th>Merritt TSA</th> <th>TFL 18</th> </tr> </thead> <tbody> <tr> <td>Blocks harvested where ECA >35%</td> <td>6</td> <td>0</td> <td>10</td> <td>0</td> </tr> <tr> <td>Blocks having further hydrological assessment</td> <td>5</td> <td>0</td> <td>7</td> <td>0</td> </tr> </tbody> </table> <p>See the latest monitoring report for trends and current status.</p>					Kamloops TSA	Lillooet TSA	Merritt TSA	TFL 18	Blocks harvested where ECA >35%	6	0	10	0	Blocks having further hydrological assessment	5	0	7	0
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Blocks harvested where ECA >35%	6	0	10	0															
Blocks having further hydrological assessment	5	0	7	0															
Forecast	<p>Expected response(s) of the indicator to the strategy: Acceptable levels of water quality (clean water) and quantity (maintain stream-flow regimes within natural variation). Riparian systems will maintain existing uses and support human and ecological communities and aquatic life. Introduction of sedimentation into streams is minimized.</p> <p>Analytical forecasting for the indicator is not practicable. An alternative no action or do nothing strategy would likely result in forest operations having a greater impact to water quality and quantity.</p>																		
Basis for the Target	<p>Expert opinion that adverse affects from harvesting/road construction typically become apparent around the 30-35% level. Ensures focused assessment of watershed conditions prior to additional operations in watersheds determined to be at risk and having an ECA at the “warning flag” level.</p>																		
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation																		

⁸ See Appendix 8

6.0 – Links to Other Planning Processes and Policies

Monitoring & Measurement Periodic	
Annual	Licensees will report the number of cutblocks harvested where the watershed ECA exceeded 35% and no further hydrological assessments were completed compared to the total number of cutblocks harvested where the watershed ECA exceeded 35%. Licensees will also report which watershed(s) the cutblocks with ECA's exceeding 35% (and no further assessments completed) were within. <i>For Kamloops, reporting is restricted to those watersheds that were identified as one of the 25 high risk watersheds (as indicated in Appendix 8).</i>
Variance	5% of cutblocks harvested areas requiring further hydrological assessment had no further assessments completed.

6.0 – Links to Other Planning Processes and Policies

Indicator	3.2.2 Proportion of forest management activities, consistent with prescriptions to protect identified water features.
Element(s)	2.1 Forest Ecosystem Condition and Productivity, 3.2 Water Quality and Quantity
Target	20. 100 percent conformance to riparian and lakeshore commitments made within plans.
Background	<p>This indicator forms part of the overall strategy to manage forest ecosystems at the landscape and stand levels. Riparian management areas (RMA's), as prescribed in legislation, provide connectivity of forested cover along waterways, which are generally areas with high value for wildlife habitat and movement. Water quality and fish habitat are managed by retaining natural vegetation along stream banks. District lakeshore guidelines provide additional management direction, as required, to meet social and ecological objectives for specified lakes and waterways.</p> <p>FREP report #27 – State of Stream Channels, Fish Habitats, and their Adjacent Riparian Areas - revealed that more than 90% of streams assessed within BC's southern interior (sample size >500) were in one of 3 categories of properly functioning. The primary cause for those streams categorized as not properly functioning was found to be road crossings, with logging, cattle and other upstream impacts also contributing. The large majority of impact was noted to occur on S6 streams that have no specific retention requirements within the RMA.</p>
Strategy to meet target	<p>The strategy is to manage ecosystem productivity and water quality in part by managing riparian values. Licensees will identify and classify riparian areas. Management of riparian and lakeshore zones will be included in operational plans.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>
Baseline target data (initial reporting results)	<p>No riparian infractions occurred as a result of forest operations (2000/2001 baseline data).</p> <p>See the latest monitoring report for trends and current status.</p>
Forecast	<p>Well functioning connected ecosystems that are managed for timber and non-timber forest values. Properly functioning riparian systems and conservation of water values and fish habitat. Riparian and lakeshore commitments in site plans will meet legal requirements of the results based Forest and Range Practices Act. Adherence to these commitments and their effectiveness in meeting objectives related to ecosystem productivity and water quality have been evaluated at the provincial level by the Forest and Range Evaluation Program (FREP).</p> <p>The stated goals within the FREP evaluation (Report 27) were to assess if forest and range practices were effective in maintaining the structural integrity and ecological functions of stream reaches and associated riparian areas. Their assessment concluded that in more than 90% of cases, adherence to riparian commitments contained within Forest Stewardship Plans and Site Plans resulted in streams being assessed as properly functioning.</p> <p>Expected response(s) of the indicator to the strategy: Well functioning connected ecosystems that are managed for timber and non-timber forest values. Properly functioning riparian systems and conservation of water values and fish habitat.</p> <p>Analytical forecasting of the contribution riparian area management makes to ecosystem productivity and water quality has not occurred. Forecasting has occurred to the extent that riparian area net downs have been used to predict timber supply. An alternative no action or do nothing strategy would not be entertained given legal requirements to manage for water quality and invasive plants – although planned actions clearly exceed legal requirements.</p>
Basis for the Target	<p>Recognition that riparian areas are “focus areas” for successfully meeting biodiversity and ecosystem objectives. Commitments may, and often do, exceed legal requirements.</p>
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement	
Periodic	
Annual	Licensees will report the number of riparian and lakeshore related non-conformances to plans occurring during the reporting year as compared to the number of cutblocks that were harvested that had riparian management areas within or adjacent to them.
Variance	5 %. Variance to accommodate non-conformance to plans that have little or no impact to the environment and/or to the social and ecological objectives of lakeshore areas or completed for safety purposes. This variance does not apply to non-conformances that are also non-compliances -- any instance where legislative requirements related to this target were not met will be reported and will result in the target not being met.

6.0 – Links to Other Planning Processes and Policies

Indicator	3.2.3 Managing water quality through road inspections (non-core indicator).														
Element(s)	3.2 Water Quality and Quantity														
Target	25. All permanent status roads and associated structures will have inspections and related maintenance completed as scheduled.														
Background	<p>Water is recognized as a primary and fundamental resource in the Nicola Thompson Fraser SFM Plan area. Lakeshore ecosystems, rivers and riparian areas provide critical habitat for many plant, fish and wildlife species. Water is also an important resource for human consumption. As a finite resource it needs to be protected and managed in order to sustain human populations and natural ecosystems.</p> <p>Roads have often been identified as one of the greatest potential causes of unintended sediment delivery into watercourses. Active management of road systems helps to reduce this risk.</p>														
Strategy to meet target	<p>The strategy is to manage the potential impacts that existing forest roads have on water quality. Companies will schedule and complete inspections at a frequency based on road risk – often categorized as high, medium and low risk roads. Maintenance items identified during inspections will be attended to.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>														
Baseline target data (initial reporting results)	<p>2011 NTF Baseline Data:</p> <table border="1"> <thead> <tr> <th></th> <th>Planned</th> <th>Completed</th> <th>Percent</th> </tr> </thead> <tbody> <tr> <td>Road Inspection Inspections</td> <td>6076 km</td> <td>5594 km</td> <td>92%</td> </tr> <tr> <td>Road Maintenance Items</td> <td>725</td> <td>715</td> <td>98.6%</td> </tr> </tbody> </table> <p>See the latest monitoring report for trends and current status.</p>				Planned	Completed	Percent	Road Inspection Inspections	6076 km	5594 km	92%	Road Maintenance Items	725	715	98.6%
	Planned	Completed	Percent												
Road Inspection Inspections	6076 km	5594 km	92%												
Road Maintenance Items	725	715	98.6%												
Forecast	<p>Expected response(s) of the indicator to the strategy: Active road maintenance and deactivation programs, particularly during the spring snowmelt, will assist in the prevention of soil movement and sedimentation; thereby, contributing to the maintenance of water quality and soil productivity.</p> <p>Analytical forecasting for the indicator is not practicable. An alternative no action or do nothing strategy would likely result in forest roads having a greater impact to water quality.</p>														
Basis for the Target	Due diligence and legal requirements to maintain roads. Recognition that roads not inspected and maintained can present a very high risk to soil erosion and water quality.														
Legal Requirements	Forest And Range Practices Act, Forest Planning And Practices Regulation														
Monitoring & Measurement															
Periodic															
Annual	<p>Licenses will determine inspection frequency based on the permanent road's risk. For the reporting period, list kilometers of permanent roads scheduled for inspection vs. kilometers completed.</p> <p>Licenses will also report the number of maintenance action items related to water management and soil movement that required completion during the reporting year as compared to the total number of maintenance action items that were planned for completion.</p>														
Variance	5% for both inspections and maintenance														

6.0 – Links to Other Planning Processes and Policies

Indicator	4.1.1 Net Carbon Uptake
Element(s)	4.1 Carbon Uptake and Storage
Target	<p>3. Progress towards a stable forest age class distribution on the timber harvesting land base where each age class to 80 years old [1 (1 to 20), 2 (21-40), 3 (41-60), and 4 (61 to 80)] occupies at least 8.5% of the timber harvesting land base in each of the 3 TSAs (Kamloops, Lillooet, Merritt) and for TFL 18. Three of the four age classes meet this target within 50 years for each TSA and TFL 18. Reporting to occur in conjunction with subsequent Timber Supply Reviews by TSA/TFL, then assessed/analyzed for the Plan Area.</p> <p>16. 90% of area prescribed for planting is completed within the third growing season from start date of harvest.</p> <p>18. Less than 6 percent (7% for the Lillooet TSA), on average, of harvested areas will be in permanent roads and landings.</p>
Background	<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 often means understanding any age class imbalances and strategies for correction. It also includes ensuring prompt tree regeneration following disturbances such as timber harvests and converting the smallest possible amount of forest land to non-forest land during forest operations (e.g., minimizing roads and landings).</p> <p>Forest carbon has recently become a key SFM value, especially in light of Canada’s 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. In their 2009 summary of carbon management in BC’s forests⁹ Mike Greig and Gary Bull report a need for additional guidance for forest managers and practitioners. The level of carbon budget analysis in British Columbia relies largely on the forest inventory (species and growth rates) and underlying assumptions the forest management regime and what makes up the timber harvesting land base. Because of some of the uncertainty surrounding the data inputs, it can be difficult to tease out changes in carbon sequestration modeling that are strictly as a result of changes to a particular management regime. This creates difficulties for forest managers who are trying to understand the carbon balance implications of various management regimes.</p> <p>Recent timber supply reviews in the province have included carbon sequestration in the analysis such as that for the Lillooet TSA (May 2009). This trend is expected to continue. In his rationale for the Allowable Annual Cut determination for the Lillooet TSA, the Chief Forester reported “as government and society address the important considerations related to carbon management and climate change mitigation, and reach decisions on how all of the potential uses of forest land should be balanced with carbon management, those decisions will be reflected in future AAC determinations.” Also in his rationale, the Chief Forester recognizes the need for government to take an active role in understanding carbon budgets: “No doubt governments will be called on to analyze and prioritize the many alternative potential uses of the forest, from which to derive and provide a range of socially acceptable management objectives. Analysis of the carbon implications of forest management alternatives will be important information for consideration in the making of such decisions on society’s behalf by our elected representatives.”</p> <p>Actively growing, healthy forests uptake carbon dioxide and through chemical processes convert it to stored carbon in the tree. The world’s expert authority on climate change, the Intergovernmental Panel on Climate Change (IPCC) concluded that in the long-term a sustainable forest management strategy aimed at maintaining or increasing forest carbon stocks, while producing an annual sustained yield of timber, would generate the largest sustained mitigation benefit (IPCC 4th Assessment Report, November, 2007).</p> <p>More recent work on carbon balance of forests in B.C. by Metsaranta, Dumond, Kurz and Spittlehouse was published in May, 2011¹⁰. The report indicates that there is great uncertainty with predicting carbon balance - depending on climate warming outcome scenarios: tree productivity increases (or not), decay of CWD (or not), forest fire trends increasing (or not). In the end, forest managers know there are things that can be done that would help to mitigate the impacts of carbon being a source - and the targets reflect that.</p>

⁹ Carbon Management in British Columbia’s Forests: Opportunities and Challenges. Forrex Series 24. 2009

¹⁰ Uncertainty of 21st century growing stocks and GHG balance of forests in British Columbia, Canada resulting from potential climate change impacts on ecosystem processes. Forest Ecology and Management. May, 2011

6.0 – Links to Other Planning Processes and Policies

<p>Strategy to meet target</p>	<p>The strategy within the SFM Plan will be to continue to report on the targets within this indicator (forest age class distribution, prompt reforestation and forest land conversion) as a means of demonstrating commitment to maintain or increase carbon stocks within the DFA.</p> <p>Licensees will continue to monitor developments in carbon sequestration modeling both at the provincial and regional level and will utilize this information as it becomes available within the SFM Plan.</p> <p>Contribute positively to carbon uptake and storage by:</p> <ol style="list-style-type: none"> 1. Maintain current harvest priority: <ul style="list-style-type: none"> • Forest health management – harvesting attacked and susceptible stands (generally older stands) • Concentrate harvest on stands with the most years beyond culmination (maximum mean annual increment) 2. Promptly reforesting areas following harvest with tree species ecologically suited to the site. 3. Minimize loss of the land base to access structures by: <ol style="list-style-type: none"> 1. careful access planning to minimize the area of permanent access 2. proper road construction, maintenance and deactivation procedures <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur by TSA/TFL; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>																									
<p>Baseline target data (initial reporting results)</p>	<p>3. The age class distribution at the time of the last Timber Supply Review (TSR) where age class projections were made are as follows (Kamloops data from TSR2, Lillooet data from TSR3, Merritt data from TSR4, TFL 18 data from MP#10):</p> <table border="1" data-bbox="459 709 1507 919"> <thead> <tr> <th></th> <th>Kamloops TSA</th> <th>Lillooet TSA</th> <th>Merritt TSA</th> <th>TFL 18</th> </tr> </thead> <tbody> <tr> <td>Age class 1</td> <td>11.9%</td> <td>13.2%</td> <td>17.6%</td> <td>26%</td> </tr> <tr> <td>Age class 2</td> <td>4.6%</td> <td>6%</td> <td>6.4%</td> <td>8%</td> </tr> <tr> <td>Age class 3</td> <td>3.4%</td> <td>2.4%</td> <td>1.6%</td> <td>5%</td> </tr> <tr> <td>Age class 4</td> <td>9.7%</td> <td>5.2%</td> <td>12%</td> <td>5%</td> </tr> </tbody> </table> <p>Six of sixteen age classes currently meet the 8.5% target. Other age class targets will be achieved over time.</p> <p>16. Overall, 89.8% of areas were planted within the 3rd growing season from harvest, thus the target was within the 10% variance for the collective NTF Plan area (2011 NTF baseline data).</p> <p>18. The percentage area of harvested roads and landings within the total harvested area averaged 4.2% (2000 Kamloops baseline data), 4.7% (2001 Merritt baseline data) and 3.8% (2006 Lillooet baseline data).</p> <p>See the latest monitoring report for trends and current status.</p>		Kamloops TSA	Lillooet TSA	Merritt TSA	TFL 18	Age class 1	11.9%	13.2%	17.6%	26%	Age class 2	4.6%	6%	6.4%	8%	Age class 3	3.4%	2.4%	1.6%	5%	Age class 4	9.7%	5.2%	12%	5%
	Kamloops TSA	Lillooet TSA	Merritt TSA	TFL 18																						
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Age class 4	9.7%	5.2%	12%	5%																						
<p>Forecast</p>	<p>Analytical forecasting of age class distribution has occurred during Timber Supply Reviews based on expected harvest rates and natural disturbance projections and can be found at the following locations:</p> <p>Kamloops TSA: Kamloops TSA Analysis Report, figure 14 Merritt TSA: Merritt TSR4 Analysis Report, figure 73 Lillooet TSA: Lillooet TSR3 Analysis Report Addendum , figure 6 TFL 18: Management Plan #10, Timber Supply Analysis Report, figures 13, 52</p> <p>Analytical forecasting of netdowns to the THLB has also occurred during Timber Supply Review. The calculation includes the most up to date inventory data, non-forest and non-productive forest netdowns for permanent disturbance, land allocation and land use projections. The most current timber supply analysis revealed the following netdowns for non-commercial, non-forest and non-productive forest (weblinks for these reports can be found in Section 6.4 of this SFM Plan):</p> <p>Kamloops TSA: TSR 4 Information package (Section 6.1-6.5); netdown of 356,420 ha. Lillooet TSA: TSR 3 Data Package (Section 4.1); netdown of 546,904 ha. Merritt TSA: TSR 4 Data Package (Section 5.5); netdown of 90,882 ha. TFL 18: TFL 18 MP #10 Info Package (Section 6.1.16); netdown of 3,215 ha.</p> <p>Weblinks to access these reports can be found at the end of Section 6 of this SFM Plan. Expected response(s) of the indicator to the strategy: Targeted activities will lead to forests within the NTF Plan area having a positive carbon balance (carbon sink).</p> <p>Analytical forecasting for carbon uptake and storage has occurred as described in the Strategy section above.</p>																									
<p>Basis for the Target</p>	<p>A more even distribution of age classes will provide a relatively even flow of value to industry and the community, and a more stable carbon balance.</p> <p>Early establishment of a viable crop of trees reduces the need for subsequent interventions (re-planting, brushing) and positively contributes to carbon uptake.</p> <p>Managing the area lost to permanent roads has a direct impact on retaining the productive capacity of the land base.</p>																									

6.0 – Links to Other Planning Processes and Policies

Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	
Annual	<p>16. Licensees will report the area planted prior or within the third growing season as compared to the total area planted during the reporting year. <i>Note: Report only on those areas where the late free growing date falls within the reporting year.</i></p> <p>18. Licensees will report the area (ha) of permanent roads and landings identified in operational plans over gross block area (ha) for cutblocks harvested during the reporting year, using information contained within Licensee plans.</p>
Variance	<p>3. Two age classes meet this target within 50 years (attaining age class sooner than 50 years seen as a benefit).</p> <p>16. +/- 10%</p> <p>18. None.</p>

6.0 – Links to Other Planning Processes and Policies

Indicator	5.1.1 Documentation of the diversity of timber and non-timber resources, including products and services produced in the DFA
Element(s)	5.1 Timber and Non-Timber Benefits
Target	<p>19. Harvest the annual cut allocation for the year consistent with the Cut Control Regulation and Policy.</p> <p>27.</p> <p>a. Open communications (track meetings and other meaningful communication) with local First Nations will include an understanding of traditional territories and other aboriginal rights including cultural and spiritual values.</p> <p>b. Participating Licensees respond to all written requests for communication/information from First Nations</p> <p>28. Licensees will demonstrate efforts by participating in public multi-stakeholder meetings at both the strategic and at the local level. Licensees will report on the number of community meetings held or attended. Licensees will also report on the number of communications with concerned and engaged recreational users.</p> <ul style="list-style-type: none"> • Participating licensees respond to all written requests from the public for communication within 30 days of their receipt. <p>29. 100% conformance to strategies in plans designed to achieve preservation, retention and partial retention visual quality objectives.</p> <p>30. 100% of known pre-existing recreational trails (from LRDW) retained for continued recreational use on areas harvested in the reporting period.</p> <p>31. Report business initiatives and partnerships.</p>
Background	<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. While there is limited information on the ecological services and non-timber benefits produced in the DFA, it is important to consider the costs and benefits of a variety of goods and services. Communication goes beyond an email or leaving a voice mail message, it's about having conversation.</p> <p><u>Timber benefits</u> can be measured by looking at sustainable harvest levels in relation to the allocated supply levels determined by the Chief Forester. The harvest level for the TSAs, and TFL 18, is set only after considering social, economic and biological criteria. More information on this rigorous process to determine allowable annual cut (AAC) levels can be found at the website: http://www.for.gov.bc.ca/hts/pubs/tsr/tsrbkg.htm.</p> <p><u>Non-timber benefits</u> can be assessed using a variety of measures including communication with local communities. Managing for the retention of visual quality and existing recreational trails helps to ensure the interests and/or values of other forest users and stakeholders are attained. Reporting on business initiatives and partnerships provides an indication of licensees contribution towards the diversification and sustainability of local economies.</p>
Strategy to meet target	<p>The strategy is to demonstrate the value of timber and non-timber benefits within the Plan area.</p> <p>Licensees contribute to the sustainable harvest level by adhering to their apportioned harvest volume within the respective TSA. Cut control regulations dictate the short-term harvest flexibility.</p> <p>Communication to occur with First Nation communities and the broader public to discuss forest values and interests. Also to respond to any written request as a result of those communications.</p> <p>Completion of visual quality assessments where operations are planned within scenic areas. Utilize existing recreational trail data (from Land and Resources Data Warehouse – LRDW) in operational planning to maintain the network of recreational trails.</p> <p>Licensees seek and maintain active, mutually beneficial business relationships with other forest products businesses in the Plan area.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>

6.0 – Links to Other Planning Processes and Policies

<p>Baseline target data (initial reporting results)</p>	<p>19. Existing harvest level and volume harvested:</p> <table border="1" data-bbox="459 233 1507 401"> <thead> <tr> <th></th> <th>Kamloops TSA</th> <th>Lillooet TSA</th> <th>Merritt TSA</th> <th>TFL 18</th> </tr> </thead> <tbody> <tr> <td>Baseline year</td> <td>2000</td> <td>2002</td> <td>2002</td> <td>2000</td> </tr> <tr> <td>AAC (m3)</td> <td>2,393,180</td> <td>635,900</td> <td>1,454,250</td> <td>177,650</td> </tr> <tr> <td>Harvest (m3)</td> <td>2,999,147</td> <td>330,083</td> <td>1,430,081</td> <td>174,763</td> </tr> </tbody> </table> <p>27. There were 232 meetings and meaningful communications with local First nations. Licensees had 53 written requests for communication and responded to all (2011 NTF baseline data).</p> <p>28. Licensees indicated that their interests were represented at strategic and local area meetings with other stakeholders and the broader public. There were 24 community meetings attended and 30 communications with recreation users. There were 12 written requests from the public and all were responded to, in an average of less than eight days (2011 NTF baseline data).</p> <p>29. There were 170 blocks harvested with preservation, retention or partial retention visual quality objectives (VQO). All blocks achieved the visual intent. A total of 53 blocks met the visual intent by way of exemption (2011 NTF baseline data).</p> <p>30. All 31 recreation trails within or influenced by harvest area were successfully managed and retained (2011 NTF baseline data).</p> <p>31. Licensees were involved in 140 annual value-added business initiatives and partnerships (Kamloops TSA -106, Lillooet TSA – 6, Merritt TSA – 28). 2011 NTF baseline data.</p> <p>See the latest monitoring report for trends and current status.</p>		Kamloops TSA	Lillooet TSA	Merritt TSA	TFL 18	Baseline year	2000	2002	2002	2000	AAC (m3)	2,393,180	635,900	1,454,250	177,650	Harvest (m3)	2,999,147	330,083	1,430,081	174,763
	Kamloops TSA	Lillooet TSA	Merritt TSA	TFL 18																	
Baseline year	2000	2002	2002	2000																	
AAC (m3)	2,393,180	635,900	1,454,250	177,650																	
Harvest (m3)	2,999,147	330,083	1,430,081	174,763																	
<p>Forecast</p>	<p>Expected response(s) of the indicator to the strategy: Sustainable harvest levels in relation to the allocated supply levels. The interests and/or values of other forest users and stakeholders are attained. Business initiatives and partnerships contribute towards the diversification and sustainability of local economies.</p> <p>Analytical forecasting for timber supply occurs as referenced in the strategy section for indicator for 2.1.4. Forecasting for the non-timber indicators has not occurred. An alternative no action or do nothing strategy would likely result local communities and the broader public not supporting harvesting on public lands within the Plan area.</p>																				
<p>Basis for the Target</p>	<p>Developed by licensees in conjunction with the public or First Nations. Essential that holders of varying land use tenures on the same land base communicate regularly. Business initiatives and partnerships, built on “win win” principles, are not only beneficial to the partners, but also to the economy and vitality of the DFA.</p>																				
<p>Legal Requirements</p>	<p>Forest Act, Cut Control Regulation, Heritage Conservation Act, Forest and Range Practices Act, Forest Planning and Practices Regulation</p>																				
<p>Periodic Monitoring & Measurement</p>	<p>The schedule for subsequent Timber Supply Reviews for the TSAs and TFL can be found at: http://www.for.gov.bc.ca/hts/schedule.htm.</p>																				
<p>Annual Monitoring & Measurement</p>	<p>19. Licensees will report the harvest level allocated for each licence and harvest level cut (cut control volume) for the past reporting year. The existing scaling system in place (monitored by MoFLNRO) tracks volume delivered.</p> <p>27. Licensees will report:</p> <ol style="list-style-type: none"> Number of meetings and meaningful communications with First Nations that included management and protection of traditional knowledge, non-timber resources, and cultural and spiritual values. Number of written requests for communication/information from First Nations versus the number of responses made to First Nations. Reporting is on a one to one ratio (one response for each request). <p>28. Licensees will report:</p> <ol style="list-style-type: none"> A yes/no answer as to whether their interests were represented at strategic and local area meetings with other stakeholders and/or the broader public. The number of community meetings held or attended during the reporting period. The number of communications with concerned and engaged recreational users. Number of responses sent out by licensees compared to the number of written requests for communication. Report the average timeline for response. <p>29. Licensees will report on the number of harvested blocks that achieve the visual intent as described in plans versus the number of blocks harvested within the past year that had preservation, retention or partial retention visual quality objectives. Also indicate the number of these areas that met the objectives by way of exemption for other management concerns.</p> <p>30. Licensees will report the number of known pre-existing recreational trails (from Land and Resource Data Warehouse) within or influenced by areas harvested in the reporting period and the number of those that were successfully managed and retained.</p> <p>31. Licensees will report and provide detail regarding local business initiatives and partnerships. Report separately for each TSA.</p>																				
<p>Variance</p>	<p>19. None, other than what is provided for within the legal framework.</p>																				

6.0 – Links to Other Planning Processes and Policies

Indicator	5.2.1 Level of participation and support in initiatives that contribute to community stability.
Element(s)	5.2 Communities and Sustainability
Target	<p>19. Harvest the annual cut allocation for the year consistent with the Cut Control Regulation and Policy.</p> <p>31. Report business initiatives and partnerships.</p> <p>32. Report the board feet and chip volume produced by sawmills.</p> <p>33. Report number of timber processing facility operating days, the total number of man hours worked and the number of mill employees on payroll.</p>
Background	<p>Investments that contribute to community stability are largely predicated by looking at the harvest level for an organization. As the majority of forest workers are hired locally, communities benefit by forest planning and operations. Additional investments that occur in manufacturing facilities are also dependant upon a secure and stable harvest level.</p> <p>The amount of local spending related to delivered log costs and Licence obligations is estimated by Licensees within the DFA to be 65-70% ignoring stumpage paid to government. With stumpage removed local spending is 85-90% of all delivered log costs. The average breakdown of expenditures by phase of log deliveries and local spending is approximated at:</p> <ul style="list-style-type: none"> Logging – 33% of expenditure (all local – within the DFA) Hauling – 17% of expenditure (all local – within the DFA) Road construction and maintenance – 9% of expenditure (all local – within the DFA) Reforestation – 7% of expenditure (1/2 local – within the DFA) Indirect costs – 11% of expenditure (1/2 local – within the DFA) Stumpage 23% of expenditure <p>Using a conservative figure of \$40.00/m³ expenditure for log deliveries and associated Licence obligations, spending by participating licensees within the DFA would be over 150 million dollars annually if their AAC allocation was harvested.</p> <p>Thus the forest sector’s contribution to community stability can be measured by looking at sustainable harvest levels in relation to the allocated supply levels determined by the Chief Forester. Local manufacturing of the logs harvested further adds to community stability. Reporting on the volume of products produced and the operating levels of the timber manufacturing facilities provides insight into these community benefits.</p> <p>Reporting on business initiatives and partnerships provides an indication of licensees contribution towards the diversification and sustainability of local economies.</p>
Strategy to meet target	<p>The strategy is to demonstrate the participating licensees investment initiatives within the Plan area.</p> <p>Licensees contribute to the community stability and to sustainable harvesting by adhering to their apportioned harvest volume within the respective TSA. Cut control regulations dictate the short-term harvest flexibility.</p> <p>Licensees seek and maintain active, mutually beneficial business relationships with other forest products businesses in the Plan area.</p> <p>Participating licensees with manufacturing facilities record statistics related to products produced and facility operating levels.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur by TSA/TFL; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>

6.0 – Links to Other Planning Processes and Policies

Baseline target data (initial reporting results)	19. Existing harvest level and volume harvested:				
		Kamloops TSA	Lillooet TSA	Merritt TSA	TFL 18
	Baseline year	2000	2002	2002	2000
	AAC (m3)	2,393,180	635,900	1,454,250	177,650
	Harvest (m3)	2,999,147	330,083	1,430,081	174,763
	<p>31. Licensees were involved in 140 annual value-added business initiatives and partnerships (Kamloops TSA -106, Lillooet TSA – 6, Merritt TSA – 28). 2011 NTF baseline data</p> <p>32. Licensees with sawmills in the Kamloops TSA reported 369,651 mbf or thousand board feet of lumber output and 24,332 bdt or bone dry tones of chip output. 2011 NTF baseline data.</p> <p>Neither major licensee in the Lillooet TSA operates sawmills, so there was no lumber output to report; however there was 5,877 bdt of chip output. 2011 NTF baseline data.</p> <p>Licensees with sawmills in the Merritt TSA reported 583,219 mbf of lumber output and 362,122 bdt of chip output. 2011 NTF baseline data.</p> <p>33. Kamloops TSA: 1,081 days; 682,563 man hours worked; 405 employees. 2011 NTF baseline data.</p> <p>Lillooet TSA: 125 days; 34,377 man hours worked; 28 employees. 2011 NTF baseline data.</p> <p>Merritt TSA: 783 days; 762,991 man hours worked; 433 employees. 2011 NTF baseline data.</p> <p>See the latest monitoring report for trends and current status.</p>				
Forecast	<p>Expected response(s) of the indicator to the strategy: Sustainable harvest levels in relation to the allocated supply levels. Business initiatives and partnerships contribute towards the diversification and sustainability of local economies.</p> <p>Analytical forecasting for timber supply occurs as referenced in the strategy section indicator for 2.1.4. Forecasting for the business/manufacturing indicators has not occurred. An alternative no action or do nothing strategy would likely result in economic hardship at the local community level.</p>				
Basis for the Target	Key economic statistics monitored. Business initiatives and partnerships, built on “win win” principles, are not only beneficial to the partners, but also to the economy and vitality of the respective TSA.				
Legal Requirements	Forest Act, Cut Control Regulation				
Monitoring & Measurement Periodic	The schedule for subsequent Timber Supply Reviews for the TSAs and TFL can be found at: http://www.for.gov.bc.ca/hts/schedule.htm .				
Annual	<p>19. Licensees will report the harvest level allocated for each licence and harvest level cut (cut control volume) for the past reporting year. The existing scaling system in place (monitored by MoFLNRO) tracks volume delivered.</p> <p>31. Licensees will report and provide detail regarding local business initiatives and partnerships. Report separately for each TSA.</p> <p>32. Licensees with manufacturing facilities will report the board feet and chip volume produced by sawmills within the TSA. Report separately for each TSA.</p> <p>33. Licensees with manufacturing facilities will report number of days the manufacturing facility was operating, the total number of man hours worked and the number of mill employees on payroll for the reporting period. Report separately for each TSA.</p>				
Variance	19. None, other than what is provided for within the legal framework.				

6.0 – Links to Other Planning Processes and Policies

Indicator	5.2.2 Level of participation and support in training and skills development.
Element(s)	5.2 Communities and Sustainability
Target	<p>34.</p> <p>a. 100% of DFA forest contractors will have both environmental and safety training.</p> <p>b. 100% of woodlands employees are trained in accordance with training plans.</p>
Background	<p>Sustainable forest management provides 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.</p> <p>The Ministry's Forests For Tomorrow program also requires SAFE certification for its agreement holders.</p>
Strategy to meet target	<p>The strategy is to demonstrate the participating licensees commitment to training. Licensees invest in skills development by ensuring forest contractors have adequate safety and environmental training and for woodland employees (staff) by ensuring training occurs in accordance with their plans.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>
Baseline target data (initial reporting results)	<p>100% (413 of 413) of DFA forest contractors had both environmental and safety training. There were a total of 204 forestland employees reported and they all received training in accordance with their training plan.</p> <p>See the latest monitoring report for trends and current status.</p>
Forecast	<p>Expected response(s) of the indicator to the strategy: 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, performing well even under upset conditions.</p> <p>Analytical forecasting for training has not occurred. An alternative no action or do nothing strategy would not be entertained given organizational commitments related to training.</p>
Basis for the Target	<p>Trained workforce critical to safe and proper execution of plans. Target and variance allows for some discretion with respect to contractors or employees whose work is insulated from forest operations (for example administrative or clerical work).</p>
Legal Requirements	<p>Voluntary certification commitments, Workers Compensation Act.</p>
Monitoring & Measurement	
Periodic	
Annual	<p>a. Licensees will report the total number of forest contractors and identify the number that had received both environmental and safety training.</p> <p>b. Licensees will report the total number of forestland employees (staff) and identify the number that had received training in accordance with their training plan.</p>
Variance	10%

6.0 – Links to Other Planning Processes and Policies

Indicator	5.2.3 Level of direct and indirect employment																							
Element(s)	5.2 Communities and Sustainability																							
Target	<p>19. Harvest the annual cut allocation for the year consistent with the Cut Control Regulation and Policy.</p> <p>32. Report the board feet (lumber and veneer), chip volume and hog fuel produced by manufacturing facilities.</p> <p>33. Report number of timber processing facility operating days, the total number of man hours worked and the number of mill employees on payroll.</p>																							
Background	<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>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. The 2013 State of Forests Report from the Natural Resources Canada website (http://www.nrcan.gc.ca/forests) indicates the multiplier is approximately 4 direct and indirect jobs per 1000 m3 of harvest.</p> <p>Licenses that harvest at sustainable harvest levels in relation to the allocated supply levels determined by the Chief Forester continue to provide direct and indirect employment opportunities. The harvest level for the TSAs and TFL 18, is set only after considering social, economic and biological criteria. More information on this rigorous process to determine allowable annual cut (AAC) levels can be found at the website: http://www.for.gov.bc.ca/hts/pubs/tsr/tsrbkg.htm</p> <p>Local manufacturing of the logs harvested further adds to community stability. Reporting on the volume of products produced and the operating levels of the timber manufacturing facilities provides insight into these community benefits.</p>																							
Strategy to meet target	<p>The strategy is to demonstrate the participating licensees contribution to employment within the Plan area.</p> <p>Licenses contribute to direct and indirect employment within the region and to sustainable harvesting by adhering to their apportioned harvest volume within each respective TSA. Cut control regulations dictate the short-term harvest flexibility. Participating licensees with manufacturing facilities record statistics related to products produced and facility operating levels.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur by TSA/TFL; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>																							
Baseline target data (initial reporting results)	<p>19. Existing harvest level and volume harvested:</p> <table border="1"> <thead> <tr> <th></th> <th>Kamloops TSA</th> <th>Lillooet TSA</th> <th>Merritt TSA</th> <th>TFL 18</th> </tr> </thead> <tbody> <tr> <td>Baseline year</td> <td>2000</td> <td>2002</td> <td>2002</td> <td>2000</td> </tr> <tr> <td>AAC (m3)</td> <td>2,393,180</td> <td>635,900</td> <td>1,454,250</td> <td>177,650</td> </tr> <tr> <td>Harvest (m3)</td> <td>2,999,147</td> <td>330,083</td> <td>1,430,081</td> <td>174,763</td> </tr> </tbody> </table> <p>32. Licensees with sawmills in the Kamloops TSA reported 369,651 mbf or thousand board feet of lumber output and 24,332 bdt or bone dry tones of chip output. 2011 NTF baseline data.</p> <p>Neither major licensee in the Lillooet TSA operates sawmills, so there was no lumber output to report; however there was 5,877 bdt of chip output. 2011 NTF baseline data.</p> <p>Licenses with sawmills in the Merritt TSA reported 583,219 mbf of lumber output and 362,122 bdt of chip output. 2011 NTF baseline data.</p> <p>33. Kamloops TSA: 1,081 days; 682,563 man hours worked; 405 employees. 2011 NTF baseline data.</p> <p>Lillooet TSA: 125 days; 34,377 man hours worked; 28 employees. 2011 NTF baseline data.</p> <p>Merritt TSA: 783 days; 762,991 man hours worked; 433 employees. 2011 NTF baseline data.</p> <p>See the latest monitoring report for trends and current status.</p>					Kamloops TSA	Lillooet TSA	Merritt TSA	TFL 18	Baseline year	2000	2002	2002	2000	AAC (m3)	2,393,180	635,900	1,454,250	177,650	Harvest (m3)	2,999,147	330,083	1,430,081	174,763
	Kamloops TSA	Lillooet TSA	Merritt TSA	TFL 18																				
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Harvest (m3)	2,999,147	330,083	1,430,081	174,763																				
Forecast	<p>Expected response(s) of the indicator to the strategy: Sustainable harvest levels in relation to the allocated supply levels. Business initiatives and partnerships contribute towards the diversification and sustainability of local economies.</p> <p>Analytical forecasting for timber supply occurs as referenced in the strategy section for indicator 2.1.4. Forecasting for the manufacturing indicators has not occurred. An alternative no action or do nothing strategy would likely result in reduced employment and economic hardship at the local community level.</p>																							
Basis for the Target	Key economic statistics monitored.																							
Legal Requirements	Forest Act, Cut Control Regulation																							
Monitoring & Measurement Periodic	The schedule for subsequent Timber Supply Reviews for the TSAs and TFL can be found at: http://www.for.gov.bc.ca/hts/schedule.htm .																							

6.0 – Links to Other Planning Processes and Policies

Annual	<p>19. Licensees will report the harvest level allocated for each licence and harvest level cut (cut control volume) for the past reporting year. The existing scaling system in place (monitored by MoFLNRO) tracks volume delivered.</p> <p>32. Licensees with manufacturing facilities will report the board feet (for veneer board foot measure is based per thousand on a 3/8" measure) and chip volume produced by sawmills. Report separately for each TSA.</p> <p>33. Licensees with manufacturing facilities will report number of days the manufacturing facility was operating, the total number of man hours worked and the number of mill employees on payroll for the reporting period. Report separately for each TSA.</p>
Variance	19. According to the Cut Control Regulation and Policy

6.0 – Links to Other Planning Processes and Policies

Indicator	6.1.1 Level of participant satisfaction with the public participation process
Element(s)	6.1 Fair and Effective Decision Making
Target	<p>40.</p> <ul style="list-style-type: none"> a) 80% of survey responses “3” or better b) All written comments are reviewed and considered, and all line responses averaging less than 3 become action items
Background	<p>The SFM Advisory Group was formed to assist the participating licensees in developing the SFM Plan by identifying local values, objectives, indicators and targets and evaluating the effectiveness of the Plan. The SFM Plan is an evolving document that will be reviewed and revised on an annual basis with the SFM Advisory Group to address changes in forest condition and local community values.</p> <p>Ensuring the continuing interest and participation of this important Group is a Licensee priority. The ability of people to share information, discuss and solve problems, and set and meet objectives is key to achieving and maintaining meaningful participation.</p>
Strategy to meet target	<p>The strategy is to have an effective public participation process. Licensees provide all Advisory Group members, and interested public who have shown notable interest (written comments or SFM Plan meeting attendance) during the year, a feedback form (survey) to assess their satisfaction with the process. All survey questions will have a 1-5 scoring assessment (1 being poor or ineffective and 5 being excellent or highly effective).</p> <p>The strategy and target is relevant at the NTF Plan area level. Reporting of the target to occur for the entire Plan area.</p>
Baseline target data (initial reporting results)	<p>Satisfied advisory group (2004 baseline data)</p> <ul style="list-style-type: none"> a) Survey response was an average of 3.9 out of five 5 for both Kamloops and Merritt. There were 26 respondents to the survey. b) Results of the feedback form were compiled and are reported as part of the annual monitoring program in the Monitoring Report. <p>See the latest monitoring report for trends and current status.</p>
Forecast	<p>Expected response(s) of the indicator to the strategy: Active, engaged Public Advisory Group.</p> <p>Analytical forecasting for the indicator has not occurred. An alternative no action or do nothing strategy would likely result in a dysfunctional advisory group that could jeopardize CSA certification.</p>
Basis for the Target	Ensure issues are identified discussed and where possible, resolved. Advisory Group process is being continuously improved.
Legal Requirements	N/A
Monitoring & Measurement	
Periodic	
Annual	<p>Survey to be sent out only to those public members that attended one of the meetings in the previous year.</p> <ul style="list-style-type: none"> a) Survey responses coded 1 (poor), 2, 3 (satisfactory), 4, 5 (well done) b) Results of feedback form compiled and reported as part of annual monitoring program.
Variance	None

6.0 – Links to Other Planning Processes and Policies

Indicator	6.1.2 Evidence of efforts to promote capacity development and meaningful participation in general
Element(s)	6.1 Fair and Effective Decision Making
Target	<p>28. Public Communications</p> <p>a. Licensees will demonstrate efforts by participating in public multi-stakeholder meetings at both the strategic and at the local level. Licensees will report on the number of community meetings held or attended. Licensees will also report on the number of communications with concerned and engaged recreational users.</p> <p>b. Participating licensees respond to all written requests from the public for communication within 30 days of their receipt.</p> <p>41. Participating licensees will maintain educational support that leads to a balanced and broad-based understanding of forestry. Educational actions would include visits to schools, presentations to resource clubs, community meetings, public tours of operations and other similar events, Target 10 actions per year in the Kamloops TSA, 5 actions per year in the Merritt TSA, and 5 actions per year in Lillooet TSA.</p>
Background	<p>The ability of people to share information, discuss and solve problems, and set and meet objectives is key to achieving and maintaining meaningful participation. Many types of initiatives (e.g., two-way information exchanges, educational opportunities) can be used to help promote meaningful participation.</p> <p>This indicator and target recognizes the importance of providing opportunities for members of the public, as well as First Nations, to provide input into forestry planning. Members of the public and First Nations provide local knowledge that contributes to socially and environmentally responsible forest management. Open lines of communication allow forest licensees to maintain an awareness of social values and concerns and to respond accordingly. The sharing of learnings and opinions contributes to balanced decisions and plans acceptable to the majority of public.</p>
Strategy to meet target	<p>The strategy is to engage with public members on different levels and to effectively communicate and listen to ideas and concerns. Licensees are committed to work with members of the public on forest management issues and to improve the effectiveness of public processes. Licensees will provide opportunities/avenues for public participation in decision-making processes through participation in committees, meetings, and plan discussions. Licensees respond to all written requests from the public for communication.</p> <p>Licensees will be involved with educational support to ensure the importance of resource management is conveyed. In addition to direct actions by licensees and their employees, additional outside resources including the sharing of information on the website http://thompsonokanaganustainableforestry.ca/kamloops/default.htm?RD=1 may be used to achieve the target.</p> <p>Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>
Baseline target data (initial reporting results)	<p>28. Licensees indicated that their interests were represented at strategic and local area meetings with other stakeholders and the broader public. There were 24 community meetings attended and 30 communications with recreation users. There were 12 written requests from the public and all were responded to, in an average of less than eight days (2011 NTF baseline data).</p> <p>41. Kamloops TSA licensees conducted 42 field trips and presentations (original target is 40). These included a community meeting at Logan Lake, tree planting and presentations to the Kamloops Regional Corrections Center and numerous school classes, an ecosystem talk with Girl Guides, forest tours to Isobel Lake, and a mill tour. There were no presentations that were specific to First Nations. 2011 NTF baseline data.</p> <p>Lillooet TSA licensees conducted six field trips and presentations (original target is 10), of which three were targeted specifically to First Nations. These included Seton River Corridor Restoration Committee meetings, a forest tour with local First Nation, rancher and government representatives, and participation in Xaxli'p (Fountain) Community Forest Open House. 2011 NTF baseline data.</p> <p>Merritt TSA licensees participated in 30 field trips, presentations and educational support (original target is 40). Ten of those were targeted specifically to First Nations. Participation included tree planting exercises with schools, presentations at local meetings or open houses, school presentations, helping organize events such as baseball tourney and golf tourney as awareness builders / fundraisers; the committee also sponsors events such as the poster contest with great prizes for elementary students, a scholarship for post-secondary students, and presentations to college students (NVIT and BCIT). 2011 NTF baseline data.</p> <p>See the latest monitoring report for trends and current status.</p>
Forecast	<p>Expected response(s) of the indicator to the strategy: Public participation in forest planning and operations that is open, inclusive and responsive to public concerns.</p> <p>Analytical forecasting for the indicator has not occurred. An alternative no action or do nothing strategy would likely result local communities and the broader public not supporting harvesting on public lands within the Plan area.</p>
Basis for the Target	Developed by Licensees with the Public Advisory Group with a goal of an informed, educated public.
Legal Requirements	N/A

6.0 – Links to Other Planning Processes and Policies

Monitoring & Measurement Periodic	
Annual	<p>28. Licensees will report:</p> <ul style="list-style-type: none"> a. A yes/no answer as to whether their interests were represented at strategic and local area meetings with other stakeholders and/or the broader public. The number of community meetings held or attended during the reporting period. The number of communications with concerned and engaged recreational users. b. Number of responses sent out by licensees compared to the number of written requests for communication. Report the average timeline for response. <p>41. Licensees will report on the number of educational actions such as school visits, tours, presentations to resource clubs and participation at community meetings during the reporting year. <i>Separate reporting for First Nations, where visit or activity is targeting them specifically.</i></p>
Variance	None

6.0 – Links to Other Planning Processes and Policies

Indicator	6.1.3 Availability of summary information on issues of concern to the public
Element(s)	6.1 Fair and effective decision making
Target	<p>42. Licensees will keep members of the public informed of DFA issues by:</p> <ul style="list-style-type: none"> a) Maintaining a website b) Posting SFM Plans, Annual Reports and advisory group meeting minutes onto the website.
Background	This target recognizes the importance of keeping members of the public informed of forestry strategies being developed and planning occurring in their area. Open lines of communication facilitate public awareness and understanding of the SFMP and other current forestry topics, and provide an open opportunity for the public to respond. Members of the public can provide local knowledge that contributes to socially and environmentally responsible forest management.
Strategy to meet target	<p>The strategy is to engage with public members on different levels and to effectively communicate and listen to ideas and concerns.</p> <p>Licensees cooperatively manage a web site dedicated to providing the latest SFM Plan information, providing topical forestry information and links to other sources.</p> <p>Licensees develop and distribute the SFM Plan and performance results to the public annually, including a summary of research and extension initiatives.</p> <p>Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>
Baseline target data (initial reporting results)	<p>Licensees report that the web site is being maintained and the SFM Plan and other related information was made publicly available in the last year. The total number of visits combined for the Kamloops and Okanagan website was 1187 (Canada-1073, Brazil – 29, USA-23, India -15, and various other countries - 47). There were 689 unique visitors from 32 countries.</p> <p>Licensees also reported that company-maintained websites have an open invitation to the public to get involved with the PAG and a link to the SFM website, as well as company audit information. In addition, during regular meetings with First Nations or the public, licensees educate and invite people to participate in the PAG. The PAG brochure developed by the CSA User group was posted to the NTF website and shared at public meetings (2011 NTF baseline data).</p> <p>See the latest monitoring report for trends and current status.</p>
Forecast	<p>Expected response(s) of the indicator to the strategy: Public awareness and understanding of the SFM Plan. A continuously improving SFM Plan that has openly informed, included and responded to the public – one that is supported by ongoing monitoring and research.</p> <p>Analytical forecasting for the indicator has not occurred. An alternative no action or do nothing strategy would likely result local communities and the broader public not supporting harvesting on public lands within the Plan area.</p>
Basis for the Target	Developed by Licensees in consultation with the Public Advisory Group. Provides topical information to local public as well as a world wide audience. Has instant feedback mechanism for those looking for additional information.
Legal Requirements	N/A
Monitoring & Measurement	
Periodic	
Annual	Licensees will report a yes/no answer as to whether web sites or other tools to disseminate information are being maintained. Licensees also report on the tools used to bring awareness to the SFMP and any other related information to the public in the last year.
Variance	None

6.0 – Links to Other Planning Processes and Policies

Indicator	6.2.1 Evidence of co-operation with DFA-related workers to improve and enhance safety standards, procedures, and outcomes in all DFA-related workplaces and affected communities
Element(s)	6.2 Safety
Target	38. A minimum of 80% of contractors conducting on the ground work that are SAFE Company or equivalent registered and/or certified.
Background	<p>The BC Forest Safety Council was created in September 2004 after the release eight months earlier of a unanimous report from the provincial government’s Forest Safety Task Force. The mandate of the task force had been to set out a comprehensive strategy to reduce high levels of injuries and fatalities in the forest sector. Its membership consisted of representatives of companies, unions, independent contractors, forestry associations and the Workers’ Compensation Board of B.C. (since renamed WorkSafe BC).</p> <p>SAFE Companies is the flagship program of the BC Forest Safety Council, certifying B.C. forestry operations that show a commitment to safety and demonstrate, through audits, that their safety programs meet industry standards. This earns SAFE-certification status for companies of all sizes, from individual owner operators to the largest firms. More information is available at: http://www.bcforestsafesafe.org/index.html</p> <p>The Ministry’s Forests For Tomorrow program also requires SAFE certification for its agreement holders.</p>
Strategy to meet target	<p>The strategy is to demonstrate the participating licensees commitment to a safe workplace. Licensees require those who conduct forest operations be SAFE Company or equivalent registered and/or certified.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>
Baseline target data (initial reporting results)	<p>Ninety-three percent (380 of 408) of on the ground contractors were SAFE Company registered and/or certified. 2011 NTF baseline data.</p> <p>See the latest monitoring report for trends and current status.</p>
Forecast	<p>Expected response(s) of the indicator to the strategy: Forest planning and operations are conducted with a genuine focus on worker safety. Forest contractors and employees have the adequate knowledge and tools to conduct their jobs, performing well even under upset conditions.</p> <p>Analytical forecasting for training has not occurred. Retrospective analysis is used to mark progress. 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. While this 35-per-cent reduction is a step in the right direction, no fatality is acceptable. An alternative no action or do nothing strategy would not be entertained.</p>
Basis for the Target	Continuously improve forest worker safety record.
Legal Requirements	Workers Compensation Act
Monitoring & Measurement	
Periodic	
Annual	Licensees will report number of on the ground contractors in total working in the DFA and the number of those that are SAFE Company registered and/or certified.
Variance	None

6.0 – Links to Other Planning Processes and Policies

Indicator	6.2.2 Evidence that a worker safety program has been implemented and is periodically reviewed and improved
Element(s)	6.2 Safety
Target	39. All forest companies/organizations subscribing to the SFM Plan are SAFE Company certified or have a worker safety program that has been implemented and is periodically reviewed and improved.
Background	<p>The BC Forest Safety Council was created in September 2004 after the release eight months earlier of a unanimous report from the provincial government's Forest Safety Task Force. The mandate of the task force had been to set out a comprehensive strategy to reduce high levels of injuries and fatalities in the forest sector. Its membership consisted of representatives of companies, unions, independent contractors, forestry associations and the Workers' Compensation Board of B.C. (since renamed WorkSafe BC).</p> <p>SAFE Companies is the flagship program of the BC Forest Safety Council, certifying B.C. forestry operations that show a commitment to safety and demonstrate, through audits, that their safety programs meet industry standards. This earns SAFE-certification status for companies of all sizes, from individual owner operators to the largest firms. More information is available at: http://www.bcforestsafes.org/index.html</p> <p>The Ministry's Forests For Tomorrow program also requires SAFE certification for its agreement holders.</p>
Strategy to meet target	<p>The strategy is to demonstrate the participating licensees commitment to a safe workplace. Licensees subscribe to the SAFE Company program or an alternative valid program</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>
Baseline target data (initial reporting results)	<p>Five out of six forest companies reported that they are SAFE Company or equivalent certified and/or registered. One forest company reported they are not because of the small size of their organization. 2011 NTF baseline data.</p> <p>See the latest monitoring report for trends and current status.</p>
Forecast	<p>Expected response(s) of the indicator to the strategy: Forest planning and operations are conducted with a genuine focus on worker safety. Forest contractors and employees have the adequate knowledge and tools to conduct their jobs, performing well even under upset conditions.</p> <p>Analytical forecasting for training has not occurred. Retrospective analysis is used to mark progress. 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. While this 35-per-cent reduction is a step in the right direction, no fatality is acceptable. An alternative no action or do nothing strategy would not be entertained.</p>
Basis for the Target	Continuously improve forest worker safety record.
Legal Requirements	Workers Compensation Act
Monitoring & Measurement	
Periodic	
Annual	Licensees will report a yes/no answer as to whether they are SAFE Company certified or have a worker safety program that has been implemented and is periodically reviewed and improved.
Variance	None

6.0 – Links to Other Planning Processes and Policies

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 (Z809-08)
Element(s)	6.3 Forest Community well-being and resilience (Z809-08)
Target	<p>28. Public Communications</p> <p>a. Licensees will demonstrate efforts by participating in public multi-stakeholder meetings at both the strategic and at the local level. Licensees will report on the number of community meetings held or attended. Licensees will also report on the number of communications with concerned and engaged recreational users.</p> <p>b. Participating licensees respond to all written requests from the public for communication within 30 days of their receipt.</p> <p>29. 100% conformance to strategies in plans designed to achieve preservation, retention and partial retention visual quality objectives.</p> <p>31. Licensees will report and provide detail regarding local business initiatives and partnerships.</p> <p>36. Where forest operations are planned within range units, the forest licensee will communicate with the rancher in advance of those operations to minimize impacts to affected ranchers.</p> <p>37. Communication of forest operations to occur with trappers 100% of the time in advance of operations (see annual reporting requirements on how this indicator is applied).</p>
Background	<p>An economically and socially diverse community is often more sustainable in the long term. 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>While there is limited information on the ecological services and non-timber benefits produced in the DFA, it is important to consider their contribution to community well being and resilience. Some of these goods and services include the ranching and trapping industries. Open communication with stakeholders and the public aid in ensuring all values and businesses are not adversely impacted.</p> <p>Support for local communities through business relationships provides employment diversification and increased local revenue.</p>
Strategy to meet target	<p>The strategy is for participating licensees to demonstrate their co-operation in strengthening and diversification of the local economy.</p> <p>Communication to occur with ranchers and trappers to discuss forest plans and operations.</p> <p>Completion of visual quality assessments where operations are planned within scenic areas.</p> <p>Licensees seek and maintain active, mutually beneficial business relationships with other forest products businesses in the DFA and vicinity.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>
Baseline target data (initial reporting results)	<p>28. Licensees indicated that their interests were represented at strategic and local area meetings with other stakeholders and the broader public. There were 24 community meetings attended and 30 communications with recreation users. There were 12 written requests from the public and all were responded to, in an average of less than eight days (2011 NTF baseline data).</p> <p>29. There were 170 blocks harvested with preservation, retention or partial retention visual quality objectives (VQO). All blocks achieved the visual intent. A total of 53 blocks met the visual intent by way of exemption (2011 NTF baseline data).</p> <p>31. Licensees were involved in 140 annual value-added business initiatives and partnerships (Kamloops TSA -106, Lillooet TSA – 6, Merritt TSA – 28). 2011 NTF baseline data.</p> <p>36. All 270 ranchers possibly affected by planned operations were communicated with during the reporting period; however, there was a lack of documentation for 21 of the 270. 2011 NTF baseline data.</p> <p>37. Thirty trappers indicated that they wished to be communicated with; licensees reported that they communicated with 50 trappers. There was one instance where a trapper had a concern and the SP was subsequently amended to address his concerns (addition of debris piles for wildlife). 2011 NTF baseline data.</p> <p>See the latest monitoring report for trends and current status.</p>
Forecast	<p>Expected response(s) of the indicator to the strategy: Public participation in forest planning and operations that is open, inclusive and responsive to public concerns. The interests and/or values of other forest users and stakeholders are attained. Business initiatives and partnerships contribute towards the diversification and sustainability of local economies.</p> <p>Analytical forecasting for the indicator has not occurred. An alternative no action or do nothing strategy would likely result in local communities and the broader public not supporting harvesting on public lands within the Plan area and the possibility of economic hardship at the local community level should forest product markets cycle downward.</p>

6.0 – Links to Other Planning Processes and Policies

Basis for the Target	Essential that holders of varying land use tenures on the same land base communicate regularly. Legal requirements. Business initiatives and partnerships, built on sound business principles, are not only beneficial to the partners, but also to the economy and vitality of the TSA.
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	
Annual	<p>28. Licensees will report:</p> <ul style="list-style-type: none"> a. A yes/no answer as to whether their interests were represented at strategic and local area meetings with other stakeholders and/or the broader public. The number of community meetings held or attended during the reporting period. The number of communications with concerned and engaged recreational users. b. Number of responses sent out by licensees compared to the number of written requests for communication. Report the average timeline for response. <p>29. Licensees will report on the number of harvested blocks that achieve the visual intent as described in plans versus the number of blocks harvested within the past year that had preservation, retention or partial retention visual quality objectives. Also indicate the number of these areas that met the objectives by way of exemption for other management concerns.</p> <p>31. Licensees will report and provide detail regarding local business initiatives and partnerships. Report separately for each TSA.</p> <p>36. Licensees will report percent of ranchers affected by planned operations that were communicated with during the reporting period.</p> <p>37. Where trappers holding a registered trap line advise forest Licensees of the areas that they will be active in a given year and seek to understand what forest operations might be occurring for that year, Licensees will report if they communicated with that trapper their planned forest operations. Should a forest Licensee's plans change during that year such that operations will be conducted in areas not originally discussed (excluding areas discussed in general and identified as not being of concern to the trapper regardless of any operations taking place), companies will report if they made a concerted effort to contact that trapper and inform him/her of those operations.</p>
Variance	<p>36. 10%</p> <p>37. 5%</p>

6.0 – Links to Other Planning Processes and Policies

Indicator	6.5.1 Number of people reached through educational outreach (Z809-08)
Element(s)	6.5 Information for Decision-Making (Z809-08)
Target	41. Participating licensees will maintain educational support that leads to a balanced and broad-based understanding of forestry. Educational actions would include visits to schools, presentations to resource clubs, community meetings, public tours of operations and other similar events, Target 10 actions per year in the Kamloops TSA, 5 actions per year in the Merritt TSA, and 5 actions per year in Lillooet TSA.
Background	Organizations and the public provide and receive information through interactions with each other. The sharing of learnings and opinions contributes to balanced decisions and plans acceptable to the majority of public.
Strategy to meet target	The strategy is to engage with public members on different levels and to effectively communicate and listen to ideas and concerns. Licensees will be involved with educational support to ensure the importance of resource management is conveyed. In addition to direct actions by licensees and their employees, additional outside resources including the sharing of information on the website http://thompsonokanaganustainableforestry.ca/kamloops/default.htm?RD=1 may be used to achieve the target. Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.
Baseline target data (initial reporting results)	41. Kamloops TSA licensees conducted 42 field trips and presentations (original target is 40). These included a community meeting at Logan Lake, tree planting and presentations to the Kamloops Regional Corrections Center and numerous school classes, an ecosystem talk with Girl Guides, forest tours to Isobel Lake, and a mill tour. There were no presentations that were specific to First Nations. 2011 NTF baseline data. Lillooet TSA licensees conducted six field trips and presentations (original target is 10), of which three were targeted specifically to First Nations. These included Seton River Corridor Restoration Committee meetings, a forest tour with local First Nation, rancher and government representatives, and participation in Xaxli'p (Fountain) Community Forest Open House. 2011 NTF baseline data. Merritt TSA licensees participated in 30 field trips, presentations and educational support (original target is 40). Ten of those were targeted specifically to First Nations. Participation included tree planting exercises with schools, presentations at local meetings or open houses, school presentations, helping organize events such as baseball tourney and golf tourney as awareness builders / fundraisers; the committee also sponsors events such as the poster contest with great prizes for elementary students, a scholarship for post-secondary students, and presentations to college students (NVIT and BCIT). 2011 NTF baseline data. See the latest monitoring report for trends and current status.
Forecast	Expected response(s) of the indicator to the strategy: An educated and informed public with a broad understanding of forestry that can provide local input into forest planning and operations. Analytical forecasting for the indicator has not occurred. An alternative no action or do nothing strategy would likely result local communities and the broader public not supporting harvesting on public lands within the Plan area.
Basis for the Target	Adaptive forest management should be based on facts and data, and supported by ongoing monitoring and research. An educated and informed public with a broad based understanding of forestry can provide local input into forest planning and operations.
Legal Requirements	N/A
Monitoring & Measurement	
Periodic	
Annual	Licensees will report on the number of educational actions such as school visits, tours, presentations to resource clubs and participation at community meetings during the reporting year. <i>Separate reporting for First Nations, where visit or activity is targeting them specifically.</i>
Variance	None

6.0 – Links to Other Planning Processes and Policies

Indicator	7.1.1 Evidence of a good understanding of the nature of Aboriginal title and rights
Element(s)	7.1 Aboriginal and Treaty Rights
Target	<p>27. Open communications (track meetings and other meaningful communication) with local First Nations during Operational Plan reviews will include an understanding of traditional territories and other aboriginal rights including cultural and spiritual values.</p> <ul style="list-style-type: none"> Participating licensees respond to all written requests for communication from First Nations.
Background	<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 and therefore it is important to identify these legal requirements as a starting point. It is important for the organization to have an understanding of applicable Aboriginal title and rights, and treaty rights, as well as the Aboriginal interests that relate to the DFA.</p> <p>Both the desire of Licensees to comply with laws and open communication with local First Nations ensures that there is a good understanding of Aboriginal title and rights. Communication between parties will help in the development and maintenance of a working relationship that is built on trust.</p>
Strategy to meet target	<p>The strategy is for participating licensees to have open communications with local First Nations. Written requests for communication from First Nations are responded to.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>
Baseline target data (initial reporting results)	<p>27. There were 232 meetings and meaningful communications with local First nations. Licensees had 53 written requests for communication and responded to all (2011 NTF baseline data). See the latest monitoring report for trends and current status.</p>
Forecast	<p>Expected response(s) of the indicator to the strategy: Participating licensees and affected First Nations build relationships based on trust and mutual respect that advance sustainable forest management within the Plan area. Forest operations that respect Aboriginal title and rights and reflect the timber and non-timber interests of local First Nations.</p> <p>Analytical forecasting for the indicator has not occurred. An alternative no action or do nothing strategy would result in strained relationships that may affect access to timber supply.</p>
Basis for the Target	Legal obligations, communication process developed by Licensees with First Nations
Legal Requirements	Constitution Act, Forest and Range Practices Act
Monitoring & Measurement Periodic	
Annual	<p>Licensees will report:</p> <ol style="list-style-type: none"> Number of meetings and meaningful communications with First Nations that included management and protection of traditional knowledge, non-timber resources, and cultural and spiritual values. Number of written requests for communication from First Nations versus the number of responses made to First Nations. Reporting is on a one to one ratio (one response for each request).
Variance	None

6.0 – Links to Other Planning Processes and Polices

Indicator	7.1.2 Evidence of ongoing and respectful communications with Aboriginal communities to foster meaningful engagement, and consideration of the information gained about their Aboriginal title and rights through this process. Where there is communicated disagreement regarding the organization's forest management activities, this evidence would include documentation of efforts towards conflict resolution
Element(s)	7.1 Aboriginal and Treaty Rights
Target	<p>27. Open communications (track meetings and other meaningful communication) with local First Nations during Operational Plan reviews will include an understanding of traditional territories and other aboriginal rights including cultural and spiritual values.</p> <ul style="list-style-type: none"> ○ Participating licensees respond to all written requests for communication from First Nations.
Background	<p>Open communication with local First Nations includes not only the organization understanding the First Nations rights and interests but for First Nations to understand the forest management plans of organizations. With this open dialogue, the two parties can then best work towards plans and operations that are mutually agreeable. The communication is not just an email or voice message, it is having a conversation.</p> <p>Consultation is completed by government, the licensees responsibilities in this are to:</p> <ul style="list-style-type: none"> ○ Communicate with potentially affected FN communities ○ Make efforts to identify and resolve any items of concern ○ Document efforts and incorporate these into an information package that is submitted to Government with the cutting permit application ○ Government to review and determine if efforts and proposed resolution is adequate or of further consultation is needed ○ Gov't ultimately determines if cutting authority is approved.
Strategy to meet target	<p>The strategy is for participating licensees to have open communications with local First Nations. Written requests for communication from First Nations are responded to.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>
Baseline target data (initial reporting results)	<p>27. There were 232 meetings and meaningful communications with local First nations. Licensees had 53 written requests for communication and responded to all (2011 NTF baseline data).</p> <p>See the latest monitoring report for trends and current status.</p>
Forecast	<p>Expected response(s) of the indicator to the strategy: Forest operations that respect Aboriginal title and rights and reflect the timber and non-timber interests of local First Nations.</p> <p>Analytical forecasting for the indicator has not occurred. An alternative no action or do nothing strategy would result in strained relationships that may affect access to timber supply.</p>
Basis for the Target	Legal obligations, communication process developed by Licensees with First Nations
Legal Requirements	Constitution Act, Forest and Range Practices Act
Monitoring & Measurement Periodic	
Annual	<p>Licensees will report:</p> <ol style="list-style-type: none"> a. Number of meetings and meaningful communications with First Nations that included management and protection of traditional knowledge, non-timber resources, and cultural and spiritual values. b. Number of written requests for communication from First Nations versus the number of responses made to First Nations. Reporting is on a one to one ratio (one response for each request).
Variance	None

6.0 – Links to Other Planning Processes and Policies

Indicator	7.2.1 Evidence of efforts to promote capacity development and meaningful participation for Aboriginal individuals, communities and forest based companies
Element(s)	7.2 Respect for Aboriginal Forest Values, Knowledge, and Uses
Target	<p>27. Open communications (track meetings and other meaningful communication) with local First Nations during Operational Plan reviews will include an understanding of traditional territories and other aboriginal rights including cultural and spiritual values.</p> <ul style="list-style-type: none"> ○ Participating licensees respond to all written requests for communication from First Nations. <p>35. Maintain and/or increase the number of working relationships (partnerships, joint ventures, cooperative agreements, memorandum of understanding, or business contracts) with First Nations. Additionally, report annually the percent of the three TSA's committed volume that has been allocated to first Nations ventures.</p> <p>41. Participating licensees will maintain educational support that leads to a balanced and broad-based understanding of forestry. Educational actions would include visits to schools, presentations to resource clubs, community meetings, public tours of operations and other similar events, Target 10 actions per year in the Kamloops TSA, 5 actions per year in the Merritt TSA, and 5 actions per year in Lillooet TSA.</p>
Background	<p>The ability of people to share information, discuss and solve problems, and set and meet objectives is key to achieving and maintaining meaningful participation. Many types of initiatives (e.g., two-way information exchanges, educational opportunities) can be used to help promote meaningful participation.</p> <p>Open lines of communication allow forest licensees to maintain an awareness of social values and concerns and to respond accordingly. First Nations members can also provide local knowledge that contributes to socially and environmentally responsible forest management.</p> <p>This indicator and related targets look specifically at First Nation participation in the forest economy: to look at open communications, Licensees' efforts to build capacity within First Nations on matters related to the forest industry, educational efforts aimed directly at First Nations and to look at the percentage of the allocated harvest level in each TSA that has been awarded to First Nations.</p>
Strategy to meet target	<p>The strategy is to engage with Aboriginal communities on different levels and to effectively communicate and listen to ideas and concerns. Licensees engage in building mutually beneficial relationships with Aboriginal peoples and participate in government discussions on any redistribution of tenure within each of the three TSAs. Licensees will be involved with educational support to ensure the importance of resource management is conveyed.</p> <p>Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>
Baseline target data (initial reporting results)	<p>27. There were 232 meetings and meaningful communications with local First nations. Licensees had 53 written requests for communication and responded to all (2011 NTF baseline data).</p> <p>35. Licensees in the Kamloops TSA reported 29 working relationships with First Nations. Approximately 12% of the TSA AAC was allocated to First Nations. 2011 NTF baseline data.</p> <p>Licensees in the Lillooet TSA reported five working relationships with First Nations. Approximately 45% of the TSA AAC was allocated to First Nations. 2011 NTF baseline data.</p> <p>Licensees in the Merritt TSA reported 23 working relationships with First Nations. Approximately 36% of the TSA AAC was allocated to First Nations. 2011 NTF baseline data.</p> <p>41. Kamloops TSA licensees conducted 42 field trips and presentations (original target is 40). These included a community meeting at Logan Lake, tree planting and presentations to the Kamloops Regional Corrections Center and numerous school classes, an ecosystem talk with Girl Guides, forest tours to Isobel Lake, and a mill tour. There were no presentations that were specific to First Nations. 2011 NTF baseline data.</p> <p>Lillooet TSA licensees conducted six field trips and presentations (original target is 10), of which three were targeted specifically to First Nations. These included Seton River Corridor Restoration Committee meetings, a forest tour with local First Nation, rancher and government representatives, and participation in Xaxli'p (Fountain) Community Forest Open House. 2011 NTF baseline data.</p> <p>Merritt TSA licensees participated in 30 field trips, presentations and educational support (original target is 40). Ten of those were targeted specifically to First Nations. Participation included tree planting exercises with schools, presentations at local meetings or open houses, school presentations, helping organize events such as baseball tourney and golf tourney as awareness builders / fundraisers; the committee also sponsors events such as the poster contest with great prizes for elementary students, a scholarship for post-secondary students, and presentations to college students (NVIT and BCIT). 2011 NTF baseline data.</p> <p>See the latest monitoring report for trends and current status.</p>
Forecast	<p>Expected response(s) of the indicator to the strategy: Economic opportunities and benefits to local First Nation communities resulting from a secure source of forest tenure, open communication and broad support in capacity building.</p> <p>Analytical forecasting for the indicator has not occurred. An alternative no action or do nothing strategy would likely result in communities not supporting harvesting on public lands within the Plan area.</p>

6.0 – Links to Other Planning Processes and Policies

Basis for the Target	Developed by Licensees with First Nations with a goal of informed, educated communities. Licensees engage in building mutually beneficial relationships with Aboriginal peoples. Access to forest tenure provides First Nations with direct control on how forests are sustainably managed and marketed.
Legal Requirements	Forest Act, Forest and Range Practices Act
Monitoring & Measurement Periodic	
Annual	<p>27.</p> <ul style="list-style-type: none"> a. Report the number of meetings and meaningful communications with First Nations that included management and protection of traditional knowledge, non-timber resources, and cultural and spiritual values. b. Also report the number of written requests for communication from First Nations versus the number of responses made to First Nations. Reporting is on a one to one ratio (one response for each request). <p>35. Licensees will report on the number of working relationships with applicable First Nations (partnerships, joint ventures, co-operative agreements, memorandums of understanding, or business contracts over \$5,000 or over 500 cubic meters in volume) during the reporting year.</p> <p>Performance is based on a three year rolling average. 2016 performance target is achieved if the 14/15/16 average is \geq to the 13/14/15 average.</p> <p><i>Examples of a business contract include a work agreement or a direct timber sale with a First Nation Band or First Nation Contractor¹¹. For consistency in reporting, count multiple work agreements with one band or contractor or direct sales with one band or contractor as a single business contract. For example, multiple work agreements or multiple direct sales would count as a single business contract if they occurred with the same band or contractor. Licensees will report this figure as a rolling three year average. For annual reporting, the information for the current year will be combined with the previous two years reporting, then averaged for the three years. Examples of working relationships will be provided to indicate possible trends in the types of these relationships.</i></p> <p>Licensees will also report the total AAC of any tenure issued under Section 12 of the Forest Act (forms of agreement) where First Nations are the Licence holder. This volume will be looked at as a percentage of the total AAC.</p> <p>41. Licensees will report on the number of educational actions such as school visits, tours, presentations to resource clubs and participation at community meetings during the reporting year. <i>Separate reporting for First Nations, where visit or activity is targeting them specifically.</i></p>
Variance	None

¹¹ First Nation Contractor is a company where one or more of the principles are of First Nations descent.

6.0 – Links to Other Planning Processes and Policies

Indicator	7.2.2 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
Element(s)	7.2 Respect for Aboriginal Forest Values, Knowledge, and Uses
Target	<p>14. 100 % protection of culturally important, sacred and spiritual sites that have been identified and mapped and 100% conformance to all plan commitments specifically designed to manage for culturally important, sacred and spiritual sites that have been identified and mapped.</p> <p>27. Open communications (track meetings and other meaningful communication) with local First Nations during Operational Plan reviews will include an understanding of traditional territories and other aboriginal rights including cultural and spiritual values.</p> <ul style="list-style-type: none"> ○ Participating licensees respond to all written requests for communication from First Nations.
Background	<p>Meaningful relationships that forest organizations have with willing Aboriginal Peoples contribute to an understanding of traditional knowledge and values. Proper use of this information in forest plans and operations leads to their being managed and protected to the satisfaction of those communities.</p> <p>Open communication with local First Nations helps to ensure that areas of cultural importance are managed in a way that retains their traditions and values. First Nations, 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.</p>
Strategy to meet target	<p>The strategy is for participating licensees to communicate with local First Nations and to manage areas of cultural importance. Efforts have been made to understand which First Nation traditional territories fall within the Plan area and company Defined Forest Areas. Information sharing agreements are made with willing First Nation communities to promote the use and protection of sensitive information.</p> <p>Open communication with First Nations that includes a sharing of information that enables forest Licensees to understand and incorporate traditional knowledge into forest management options. Written requests for communication are responded to.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>
Baseline target data (initial reporting results)	<p>14. There were 45 sites identified and mapped in the plan area, and 100% were managed or protected in accordance with forest plans (2011 NTF Baseline data).</p> <p>27. There were 232 meetings and meaningful communications with local First nations. Licensees had 53 written requests for communication and responded to all (2011 NTF baseline data).</p> <p>See the latest monitoring report for trends and current status.</p>
Forecast	<p>Expected response(s) of the indicator to the strategy: Forest operations that respect Aboriginal title and rights and reflect the timber and non-timber interests of local First Nations. Open and meaningful relationships with local First Nations leading to a trust in sharing sensitive information. Forest plans contain information on how these sites will be managed or protected. Forest operations that properly execute the forest plans.</p> <p>Analytical forecasting for the indicator has not occurred. An alternative no action or do nothing strategy would result in strained relationships that may affect access to timber supply.</p>
Basis for the Target	Legal obligations, communication process developed by Licensees with First Nations
Legal Requirements	Heritage Conservation Act, Forest and Range Practices Act, Forest Planning and Practices Regulation, Constitution Act (and subsequent Supreme Court decisions).

6.0 – Links to Other Planning Processes and Policies

Monitoring & Measurement Periodic	
Annual	<p>14. Number of roads constructed or cutblocks harvested where culturally important, sacred or spiritual sites had been identified, mapped. Number of roads constructed or cutblocks harvested where the identified sites were managed or protected in accordance with forest plans.</p> <p>27.</p> <ul style="list-style-type: none"> a) Report the number of meetings and meaningful communications with First Nations that included management and protection of traditional knowledge, non-timber resources, and cultural and spiritual values. b) Also report the number of written requests for communication from First Nations versus the number of responses made to First Nations. Reporting is on a one to one ratio (one response for each request).
Variance	None

6.0 – Links to Other Planning Processes and Policies

Indicator	7.2.3 Level of management and/or protection of areas where culturally important practices and activities occur
Element(s)	7.2 Respect for Aboriginal forest values, knowledge, and uses
Target	<p>14. 100 % protection of culturally important, sacred and spiritual sites that have been identified and mapped and 100% conformance to all plan commitments specifically designed to manage for culturally important, sacred and spiritual sites that have been identified and mapped.</p> <p>27. Open communications (track meetings and other meaningful communication) with local First Nations during Operational Plan reviews will include an understanding of traditional territories and other aboriginal rights including cultural and spiritual values.</p> <ul style="list-style-type: none"> ○ Participating licensees respond to all written requests for communication from First Nations.
Background	<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 and therefore it is important to identify these legal requirements as a starting point. It is important for the organization to have an understanding of applicable Aboriginal title and rights, and treaty rights, as well as the Aboriginal interests that relate to the DFA.</p> <p>Open communication with local First Nations helps to ensure that areas of cultural importance are managed in a way that retains their traditions and values. First Nations, 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 the indicator is to manage and/or protect those truly important sites, thus there is a degree of reasonableness in identifying the sites.</p>
Strategy to meet target	<p>The strategy is for participating licensees to communicate with local First Nations and to manage and protect areas of cultural importance. Efforts have been made to understand which First Nation traditional territories fall within the Plan area and company Defined Forest Areas. Information sharing agreements are made with willing First Nation communities to promote the use and protection of sensitive information.</p> <p>Open communication with First Nations that includes a sharing of information that enables forest Licensees to understand and incorporate traditional knowledge into forest management options. Written requests for communication are responded to.</p> <p>The strategy and target are relevant for the NTF Plan area. Reporting of the target to occur either by TSA/TFL or for the entire Plan area; further assessment/analysis of the reporting data may occur at the overall NTF SFM Plan area level.</p>
Baseline target data (initial reporting results)	<p>14. There were 45 sites identified and mapped in the plan area, and 100% were managed or protected in accordance with forest plans (2011 NTF Baseline data).</p> <p>27. There were 232 meetings and meaningful communications with local First nations. Licensees had 53 written requests for communication and responded to all (2011 NTF baseline data).</p> <p>See the latest monitoring report for trends and current status.</p>
Forecast	<p>Expected response(s) of the indicator to the strategy: Forest operations that respect Aboriginal title and rights and reflect the timber and non-timber interests of local First Nations. Open and meaningful relationships with local First Nations leading to a trust in sharing sensitive information. Forest plans contain information on how these sites will be managed or protected. Forest operations that properly execute the forest plans.</p> <p>Analytical forecasting for the indicator has not occurred. An alternative no action or do nothing strategy would result in strained relationships that may affect access to timber supply.</p>
Basis for the Target	Legal obligations, communication process developed by Licensees with First Nations
Legal Requirements	Heritage Conservation Act, Forest and Range Practices Act, Forest Planning and Practices Regulation, Constitution Act (and subsequent Supreme Court decisions).

6.0 – Links to Other Planning Processes and Policies

Monitoring & Measurement Periodic	
Annual	<p>14. Number of roads constructed or cutblocks harvested where culturally important, sacred or spiritual sites had been identified, mapped. Number of roads constructed or cutblocks harvested where the identified sites were managed or protected in accordance with forest plans.</p> <p>27.</p> <ul style="list-style-type: none"> a) Report the number of meetings and meaningful communications with First Nations that included management and protection of traditional knowledge, non-timber resources, and cultural and spiritual values. b) Also report the number of written requests for communication from First Nations versus the number of responses made to First Nations. Reporting is on a one to one ratio (one response for each request).
Variance	None

6.0 Links to Other Planning Processes and Policies

Resource use planning in British Columbia occurs at a variety of levels ranging from strategic land use plans (LRMPs) to site specific plans for small areas (e.g., site plans for individual cutblocks). Strategic land use plans provide broad direction for the sustainable management of land and resources through the establishment of resource management zones (e.g., protected areas, special management areas and general resource management zones), management objectives and strategies to guide land and resource management activities.

Forest Stewardship Plans (FSP's) address resource management at various scales and are often regulated by government objectives. These objectives come from a variety of sources including the Forest and Planning Practices Regulation, orders made under the Land Act, the Land Use Objectives Regulation, the Government Actions Regulation, and strategic land use plans such as the Kamloops and Lillooet Land and Resource Management Plans (LRMP's). The Forest Stewardship Plans contain results and strategies to manage for these objectives set by government. There is little contradiction between these Plans and that of the SFMP for the Plan area. In fact, the indicators and targets found in the SFMP are often complimentary to those found in a Licensee's FSP.

Figure 1 on Page 89 illustrates the links between various levels of provincial resource use plans and related policies and procedures.

6.1 Strategies and Processes Guiding the SFM Plan

The Land and Resource Management Plans (LRMPs) developed in the Kamloops and Lillooet Timber Supply Areas reflect a balance of social, economic and environmental values. They incorporate the principles of sustainability and integrated resource management into a long term, strategic vision for Crown land and resource development for the plan area and will assist statutory decision-makers in making determinations about land and resource use. They also serve to assist in building cooperation and partnerships among government agencies, First Nations, Licenced tenure holders and other interested stakeholders in the plan area.

A strategic land use plan (Land and Resource Management Plan (LRMP)) has yet to be initiated in the Merritt TSA. Should a strategic land use plan be completed, provisions that pertain to forest resource uses and management practices may be implemented as legally enforceable provisions by being formally established as “higher level plans” under provincial forest legislation. Some of the land use objectives have been defined in the Merritt TSA without going through a formal LRMP process and here again these objectives are then managed with their incorporation into Forest Stewardship Plans. Licensees in the Merritt TSA are also guided by their Innovative Forest Practices Agreement (IFPA). The Vision Statement for the Nicola Similkameen Innovative Forestry Society, the organization that implements the IFPA is as follows:

Nicola Similkameen Innovative Forestry Society uses innovative forest management practices that incorporate Aboriginal knowledge and values and public involvement in order to increase the productivity of a healthy and resilient working forest. These local forests provide increased forest values, additional investment and enhanced employment opportunities while assuring environmental, economic and social sustainability for communities in the Nicola – Similkameen region.

More information on the Nicola Similkameen Innovative Forestry Society can be found at their website: <http://www.nsifs.bc.ca/>.

In addition, a number of provincial and local policies also relate to the objectives, indicators, and targets in the SFM Plan. Collectively on the Nicola Thompson Fraser SFM Plan area the following influence Plan objectives:

Protected Areas

The Protected Areas Strategy was established by the provincial government in 1992 with the objective of protecting 12 percent of the province's land base by the year 2000. Protected areas are established based on their representation of natural diversity, wildlife, wilderness, recreation and cultural and heritage values.

Protected areas are located across the land base to provide representation of the cross-section of ecosystems. Logging, mining and hydroelectric development are 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.

Forest Ecosystem Management

The Nicola Thompson Fraser SFM Plan area contains a wide variety of forest ecosystems – grasslands, open grown ponderosa pine and Douglas-fir forests are predominant in the very dry lower elevation of the main valleys with lodgepole pine dominating in the mid-elevation and spruce/balsam at upper elevations. These forest ecosystems have historically been influenced by the presence or absence of fire as a dominant form of natural disturbance. Wetter ecosystems are characterized by the presence of western hemlock and western red cedar. Ecosystems are categorized into natural disturbance types (NDTs) based on fire return intervals and disturbance sizes and patterns. NDTs are used to provide guidance for maintaining biodiversity.

Biological diversity (biodiversity) is the diversity of plants, animals and other living organisms in all their forms and levels of organization. It includes the diversity of genes, species, and ecosystems and the functional and evolutionary processes that link them. The great diversity of physical features and prevailing climatic conditions in the Plan area has resulted in a great diversity of habitats and species. Biodiversity can be affected by the disruption of natural processes. Future maintenance of biodiversity is dependent upon:

- the protection and connectedness of representative ecosystems as ecological benchmarks at the provincial and regional level
- the maintenance and connectivity of representative habitats and seral stages at the landscape and watershed level
- management for important attributes at the stand (site) level
- protection of rare and endangered species and ecosystems.

The intent of forest ecosystem management is to maintain a representation of the biological and physical diversity native to the plan area, and maintain forested ecosystem functions and conditions. Ecosystem classification and mapping has been completed throughout the province and assists forest managers with decision making related to:

- ⇒ stand level biodiversity (retain wildlife tree patches and individual wildlife trees)
- ⇒ rare features and species at risk
- ⇒ representation of old growth forests throughout the plan area
- ⇒ functional connectivity (movement of plants and animals) at the regional, landscape and stand level
- ⇒ coarse woody debris retention requirements.

Range

Rangeland includes natural grasslands, forests, alpine communities, parklands and cutblocks. Two key issues related to range management include the loss of grassland communities from forest in-growth (due largely to fire suppression) and invasion by noxious weeds that out competes native vegetation and threaten the biodiversity and long-term viability of susceptible grassland ecosystems. The CSA standard recognizes both of these threats in the content of the standard and provides guidance to promote activities that fall within their range of natural variation.

Significant forest use by grazing tenure holders occurs within the Nicola Thompson Fraser SFM Plan area. Given the overlap between grazing tenures and forest Licences within the Plan area, recognizing resource values associated with range use of forest land is necessary in any forest management plan and decision. Government representatives assist in communication between forest and range stakeholders.

Wildlife

The Nicola Thompson Fraser SFM Plan area has a great diversity of wildlife including several species that are considered rare at the provincial level. A key management requirement for sustaining wildlife populations is the protection, maintenance and enhancement of wildlife habitat. To address the needs of wildlife habitat, resource managers take a coarse filter ecosystem approach that addresses the needs of many species at a landscape level. However, in following this approach, the habitat needs of certain key species may not be addressed and additional specific actions may be required to deal with these needs (e.g., *mountain caribou*, *northern spotted owl*).

The Identified Wildlife Management Strategy (IWMS) helps to provide a fine filter approach towards management of rare species. Indicators 1.2.1, 1.2.2 and 1.3.2 of this SFM Plan include performance measures related to Species at Risk habitats.

Water and Riparian Habitat

Water is a primary and fundamental resource of the Plan area. Numerous rivers, lakes and streams support many species of fish. Human population growth, urban development, land and resource development, and water use have all had a cumulative impact on fish populations and fish habitat. A combination of low summer flows, high water temperatures, fines in the gravel and shortage of pools has seriously diminished the quality of fish habitat in many watersheds.

Impacts include changes in flow rates, loss of riparian vegetation, destabilization of stream channel, erosion and sedimentation. The Interior Watershed Assessment Procedure (IWAP) is a program for assessing the cumulative impacts of disturbance to a watershed. IWAPs identify impacts that affect fish habitat and water quality and quantity and include recommendations for mitigating impacts and preventing further impacts from occurring.

Strategies for aquatic and riparian ecosystems in the Plan area are complemented by provincial forest legislation or local area policies.

Forest Industry/Economy

The forest industry in the Nicola Thompson Fraser SFM Plan area plays an important role in the regional and provincial economies and accounts for approximately 6 percent of the provincial allowable annual cut (AAC). Within the Plan area approximately 67 percent of the 5.1 million hectare land base is considered productive Crown forest and 39 percent of the land base is deemed suitable for harvesting. The difference between the productive forest land base and the timber harvesting land base is largely attributable to unmerchantable forest types, roads and landings, and inoperable areas.

Key land and resource issues for the forest industry in the plan area include security of timber supply and increased costs associated with managing other resource values (e.g., forage for livestock, wildlife habitat, visual quality, etc.). Cost increases are a major concern to the forest industry as they may affect its international competitiveness.

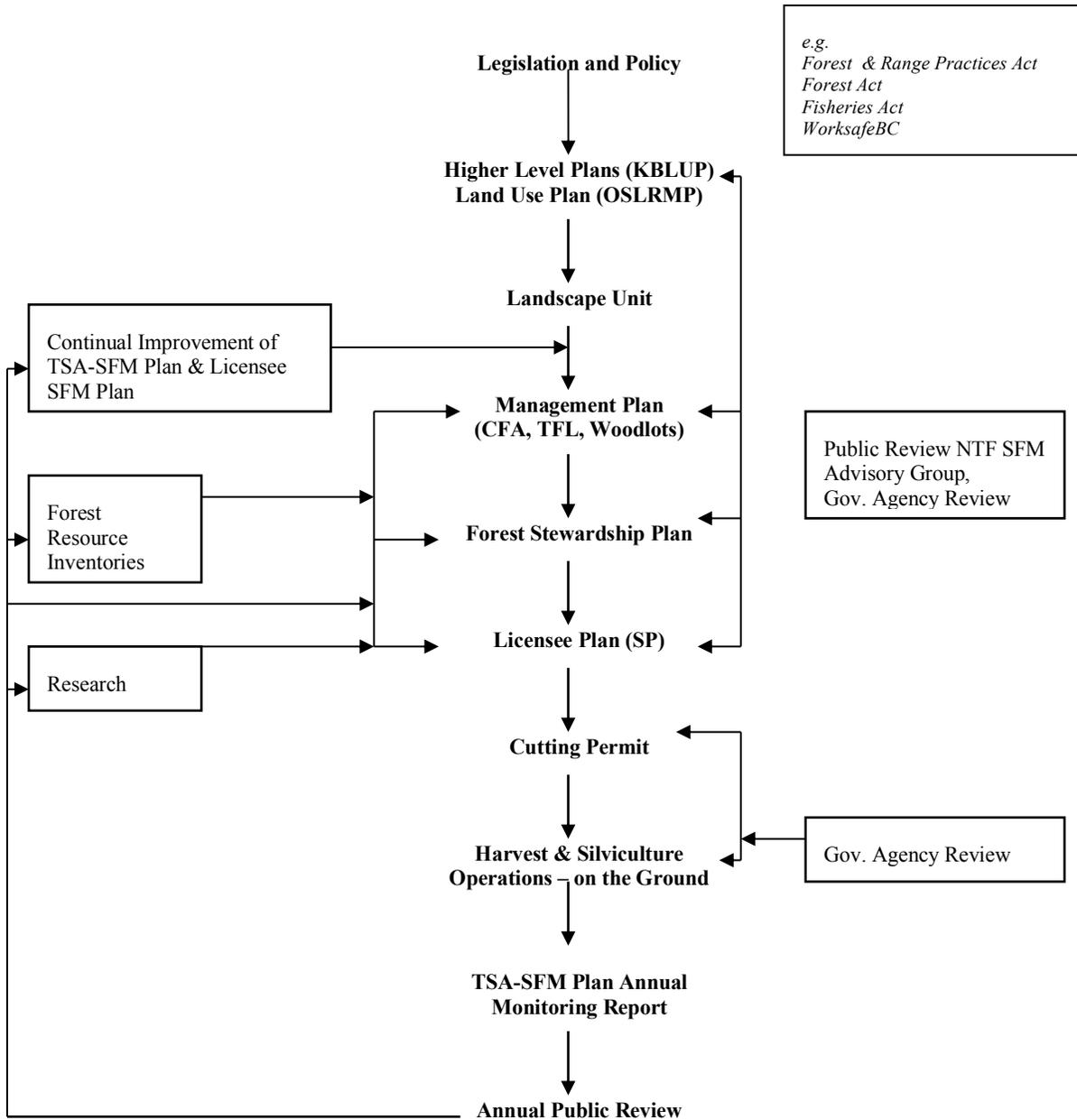
The forest sector supports numerous other jobs in the area through companies and employees purchasing goods and services from local businesses. Employment associated with the forest industry is estimated to be 1.41 jobs per year per 1000 cubic metres of timber harvested. The personal incomes average \$75,350 per 1000 cubic metres harvested while government revenues are \$36,250 per 1000 cubic metres harvested (source: Natural Resources Canada, 2006-2008 data). The potential contribution of the Plan area by participating licensees could be estimated using their 3.8 million cubic meter volume allocation.

6.2 Links to Operational Planning

The SFM Plan is a complementary plan that demands field level performance of commitments made within this plan. Figure 1 shows how these commitments are incorporated into site level operational plans. These operational plans also include other regulated plan commitments to ensure compliance with the law – one of the CSA standards expectations. It also shows the feedback loops of research, monitoring and adaptive management that occur from operations to the SFM plan, higher-level plans and Licensee plans.

The intent is, over the long term, to rigorously apply the management direction provided through the hierarchy of planning shown in Figure 1, combined with regular monitoring and assessment. Through this process, the SFM plan will continue to be updated and improved to incorporate new information and best management practices based on the most current understanding of effective resource management practices.

Figure 1. Links Between Plans



6.3 Related Programs and Guidance

Existing legislation and policy contributes to sustainable forest management. For example, as previously referenced, current legislation requires the identification of old growth management areas and wildlife/leave tree retention areas. There are also numerous policies and guidelines in place at the regional and district levels that contribute to the principles of sustainable forest management. These include the following:

- **Public Involvement:** Provincial direction for forest management on publicly owned lands includes a requirement to maintain a mix of opportunities that reflect changing resources and social values over time. Public involvement in Forest Stewardship Plan (FSP) reviews is intended to facilitate the exchange of information between developers and people interested in, or affected by, forest operations.

FSP (thus harvest) approval is contingent on a proponents ability to demonstrate that they solicited public review and comment and that any comments were earnestly responded to. This formal process ensures public concerns pertaining to items such as recreation features, access, identified trails or other items of significance are identified. Early identification of issues enables the forest licensee to adapt plans accordingly.

Licensees within the Nicola Thompson Fraser SFM Plan area have a long-standing commitment to work with members of the public on forest management issues, and there is a well-established history of licensee participation in community meetings, including local planning processes and strategic plans. In addition, licensees are committed to providing topical education updates on forest management issues during meetings. This ensures the public and local First Nation tribal councils and bands have up-to-date information. Members of the public continue to support strategic and local planning processes and actively participate in meetings on forest management issues. Licensees are committed to improving the effectiveness of public processes within the Plan area.

- **Access Management:** Access plans are co-coordinated by government with input from the public and forest resource stakeholders. Forest licensees and proponents from other resource industries follow the advice and direction set by the government agencies through these planning processes. Presently, access management is discussed at localized meetings with affected stakeholders and Licensees implement them through commitments made in their Forest Stewardship Plan. Access plans consider the condition of roads, road maintenance and deactivation, and the need for access restrictions based on long term objectives for an area. Access planning includes identifying potential impacts on resources such as wildlife, tourism, recreation, or other values due to open public access. Public access controls are implemented where required.

- **Terrain stability:** The Plan area has significant climatic variations from wet conditions in the north to drier conditions in the south. Steep slopes and certain terrain conditions have the potential for landslides and surface soil erosion. Landslides are a natural and inevitable phenomenon that contributes to the evolution of the landscape. Although landslides occur in both logged and unlogged terrain, logging and road building can increase their frequency. Impacts of landslides include acceleration of sediment delivery to streams, possible damage to fish and invertebrate habitat and productivity, loss of forest site productivity, unsightly scars and damage to roads, culverts and bridges. The Forest and Range Practices Act (FRPA) stipulates that forest harvesting and road construction must not cause landslides (FPPR 37). The following are examples of the process undertaken to minimize landslides:
 - Assess all steep/sensitive terrain prior to road construction or harvesting to evaluate terrain stability and provide recommendations on:
 - whether or not development should proceed;
 - best road and cutting boundary locations or changes to proposed layout or road alignment;
 - riparian management areas;
 - possible mitigative actions and criteria; and
 - road construction and harvesting constraints or special techniques.
 - Inspections of drainage ditches and culverts regularly and take preventative measures to minimize the potential for debris flow initiation and soil erosion.
- **Road construction and maintenance procedures:** Certain soil types are sensitive to disturbance especially from road construction and harvesting activities involving mobile equipment such as excavators and skidders. These sensitive soils are identified in advance to help prevent/minimize soil compaction, poor drainage, puddling and soil displacement that result in loss of productive forest sites. With respect to forest roads, the soil and water information collected during the planning phase and future expected use of the road are used to determine the type of road constructed and level of maintenance, deactivation or rehabilitation to be prescribed. Deactivation and rehabilitation provides a distinction between the varying construction standards and duration of roads as follows:
 - **Deactivation:** The intent is to control water and maintain natural drainage patterns based on the risks associated. Activity includes: cross ditches, waterbars, backup drainage control or removing culverts, bridges, seeding and revegetation and pulling back of material (recontouring or returning material).
 - **Rehabilitation:** some of the same prescriptions above may be completed to control water and maintain natural drainage; however, the intent is to have the site capable of growing a productive crop of trees. Potential strategies may include pulling back of material (recontouring or returning material), seeding and revegetation and decompaction.

There are two administrative categories of road types: status and non-status.

- Status roads are ones held under road permit or road use permit by licensees. These permits give the licensees responsibility for maintaining the roads. There are two types of status roads:
 - *permanent roads* are long term roads that may be deactivated for control of water
 - *temporary roads* are short-term roads that will be rehabilitated – including water management – to return the area into a productive growing site.

Commitments related to the amount of permanent access structures (i.e. roads, gravel pits) are included in site-specific plans. Temporary access structures included in plans are part of the net area that requires reforestation and must be suitably treated to enable tree survival and growth.

- Non-status roads have no assigned permit holder and responsibility is that of the Crown (usually old trails and roads)

Forest Stewardship Plans contain several results and strategies where road construction and deactivation are referenced, and these commitments must be attained. Communication and input by the public, other resource users and resource agencies are important to ensure access meets necessary requirements.

- **Invasive Plants:** Invasive plants are non-native plant species that can be difficult to control. They can have a significant impact on agriculture and timber production, reducing forage production for livestock and wildlife and threatening forest regeneration. They may also alter the structure of natural plant communities, threatening biodiversity.

The most effective strategy for controlling invasive plants is to prevent their establishment. Once established, the cost and difficulty of controlling invasive plants increases significantly. The licensees have committed to promptly re-vegetate exposed soil on certain roads in order to reduce the spread of invasive plants..

- **Quality of seed for revegetation of rights-of-way:** Grass seeding is carried out for three reasons: 1) invasive plant control; 2) erosion prevention; and 3) to provide forage. The seed used for revegetation is graded by Agriculture Canada to protect against the presence of invasive plants and other unwanted species. Measures used to ensure seed quality in the production cycle include sowing seeds with clean equipment, crop inspection, crop certificate permitting seed from inspected crop to be sold as certified seed, seed crop harvested with clean equipment, seed inspected, graded and sealed to Canada Seeds Act requirements by Agriculture Canada.
- **Forest Health:** The licensees are required under their Crown Licences to address forest pest/health at the operational level. Managing for health must take into account the natural variability and cyclical variations that occur on the landscape. Management for forest health includes both preventive action and proactive response measures. Examples include participation in overview flights, focused reconnaissance action resulting from overview flights, strategies and coinciding action plans, communication, implementation and review. See also Section 2.4 of the SFM Plan for information related to the Mountain Pine Beetle.

- **Forest Industry-Caused Wildfires:** The forest industry has numerous legal requirements to minimize the potential for wildfires being started by forest operations. Licensee employees and contractors are trained and knowledgeable in preventing and actioning wildfires. During fire season, the licensees monitor fire weather indices, which help determine the level of risk in terms of forest operations. Fire prevention activities such as maintaining fire watch and moving to early shift help reduce the risk of fires starting and spreading as a result of industrial operations. Wildfires are a natural part of ecosystem rejuvenation. However, human safety and potential loss of resources plays a role in strategies to control loss.
- **Free to Grow Silviculture Practices:** A free growing stand is defined in the legislation as a healthy stand of trees of a commercially valuable species, the growth of which is not impeded by competition from plants, shrubs or other trees.

Prior to 1987, the Ministry of Forests and Range funded all stand establishments to the free to grow stage on Crown lands. With a change to the Forest Act that year, stand establishment (basic silviculture) became the financial responsibility of the licensee.

The regeneration date is the date by which at least the minimum number of healthy well-spaced trees of the preferred and acceptable species per hectare must be established and subsequently maintained until the stand is declared free growing. The free growing assessment period is the time within which a free growing stand must be established as required in the Licensee Plan. A survey must be conducted on or before the latest free growing date to determine whether the number of free growing trees per hectare meets the number set in the Licensee Plan. Periodic monitoring and/or assessments are completed between the harvest and free growing dates.

- **Genetic diversity:** The Ministry of Forests and Range Tree Improvement Branch (TIB) oversees the development and implementation of regulations, guidelines, policies and standards to ensure that tree seed used for Crown land reforestation is locally adapted and contains sufficient genetic diversity.

To conserve the genetic diversity of the province's forests, tree breeders collect hundreds of samples of tree species. Collections range from places where the species are found in large quantities to isolated populations at the edge of where they grow naturally. Breeders ensure that enough trees are selected to provide a level of diversity that will buffer future forests from environmental extremes and insect and disease attacks. In addition to breeding protocols, the genetic diversity of British Columbia's trees is protected in parks, protected areas and in special reserves that are established by making "duplicates" of parent trees.

All trees planted on Crown lands must have originated from seed registered by the BC Tree Seed Centre. The Centre has strict requirements for tree seed acceptability, selection and storage. More information on the Tree Improvement Branch and the Seed Centre can be found at the website: <http://www.for.gov.bc.ca/HTI/>.

- **Seed and Vegetative Material Transfer Guidelines:** Seed and vegetative material transfer guidelines are intended to minimize the risks of maladaptation or growth loss associated with regenerating trees (planted from seed or vegetative material) in a different location from their source. Transferring seeds or vegetative materials beyond the limits specified in the guidelines may decrease productivity or increase susceptibility to frost, insects or disease. With respect to genetic diversity, these guidelines geographically limit the amount of natural change and spread of seed or vegetative material over the landscape. The transfer guidelines must be adhered to when prescribing reforestation measures in Licensee plans. The government has implemented its Future Forest Strategy that recognizes the impact that climate change may have on future forests and how seed transfer guidelines may need to be modified.
- **Wildlife Tree Retention:** During forest development planning, licensees incorporate a number of strategies for maintaining diversity of structure and function within cutblocks. These include wildlife/leave tree retention, either in single trees or patches, as described in the [Wildlife Tree Retention Guidance, May 2006 document](#). During operational activities, tree species of merchantable size will be retained, where this is in keeping with safety standards of Worksafe BC. Included are green trees that will develop into wildlife trees. Characteristics that make broad leaf trees and conifers suitable as future wildlife/leave trees include large diameter and height, and structural features such as cavities, loose bark, dead tops, and signs of damage or rot. Also retained are trees of suitable quality and productivity that can act as seed trees to aid in the natural regeneration of harvested areas. Locating wildlife/leave trees in unique microsites, in known habitat areas, and along riparian areas can contribute to long-term forest function and biodiversity.

The intent is to provide wildlife tree patches that are windfirm and that will provide standing live and dead trees for habitat within or on the edge of harvested areas for the course of the rotation. Where merchantable trees in adjacent areas are not threatened, natural processes will be allowed to take their course within wildlife tree patches. Trees that burn, are attacked by insects, or are blown down contribute to biodiversity objectives.

Other strategies for managing a diversity of vertical structure within cutblocks include regenerating a diversity of tree species and maintaining understory vegetation.

Other aspects of maintaining structural diversity within cutblocks include providing a diversity of tree species, maintaining understory vegetation, and retaining coarse woody debris on sites after logging.

- **Visual management:** Visually sensitive areas are viewsheds or viewscapes visible from communities, public use areas and travel corridors, or viewpoints identified through a variety of referral or planning processes where the maintenance of visual quality is important. The Plan area has identified and mapped the priority scenic areas for visual management. Planned harvesting within this priority area requires a visual impact assessment and operations must be conducted to maintain visual quality. Measures to maintain visual quality are included in Licensee plans. Exemptions to attaining the visual quality objectives may occur for such things as salvage harvesting.

- **Archaeology:** During plan development, cutblock and road proposals are provided to trained assessors to determine if there is potential significance through an archaeological overview assessment. If yes, then additional fieldwork is scheduled as an archaeological impact assessment and any necessary changes are incorporated into the appropriate Licensee plan.
- **Carbon Balance:** 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 often means understanding any age class imbalances and strategies for correction. It also includes ensuring prompt tree regeneration following disturbances such as timber harvests and converting the smallest possible amount of forest land to non-forest land during forest operations (e.g., minimizing roads and landings).

Forest carbon has recently become a key SFM value, especially in light of Canada's 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.

A retrospective analysis of the forest carbon budget for BC (1920-1989) revealed that forest ecosystem carbon storage has increased from 14.2 Pg C in 1920 to 18.1 Pg C 1990 (Pg stands for petagram = one billion metric tonnes or 1000 x one billion kg). The increase in ecosystem C storage is attributed to an increase in the average age of forests and to the associated accumulation of C in biomass and soil and detritus pools. The average annual increase in ecosystem C storage over the 70-year period was 55.2 Tg C yr⁻¹ (Tg stands for teragram = one million metric tonnes or 1000 x one million kg. One teragram is also equivalent to one megatonne or Mt).

In Figure 2 following, the Interior Cordilleran (lower left) graph provides an indication of how this applies to the Nicola Thompson Fraser SFM Plan area.

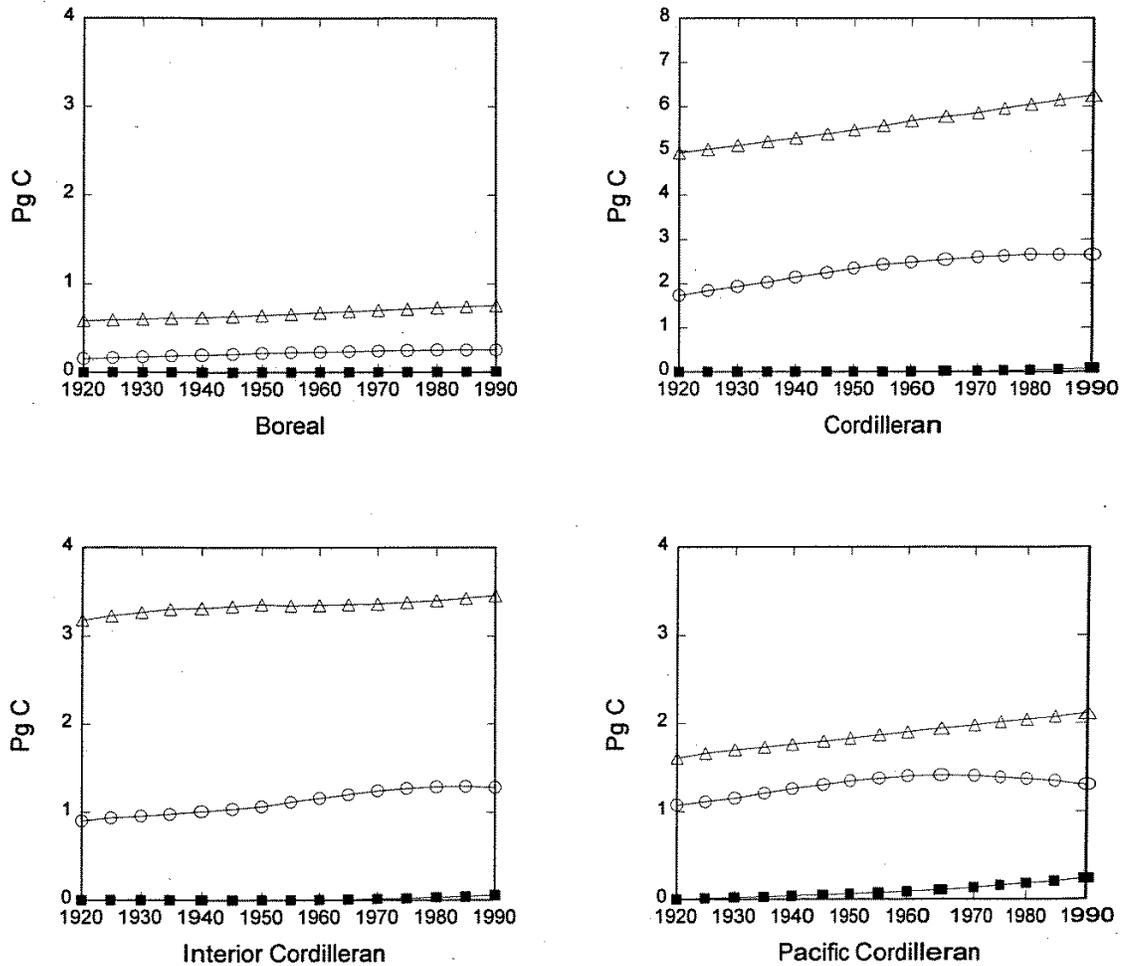


Figure 2. Changes to the total above ground and below ground biomass C (o), soil (Δ) and forest product sector (◆) by ecoclimatic provinces from 1920 to 1989.

The steady increase to carbon stored can be attributed to large scale natural disturbances of the previous century (where large amounts of carbon were released). Since these disturbances, forests have been in a rigorously growing phase sequestering large amounts of carbon. As time progresses, these forests will lose their ability to take up large amounts of carbon. They will also become more susceptible to large scale natural disturbances such as that occurring presently with Mountain Pine Beetle.

The following graph (fig. 3) provides an illustration of the overall carbon cycle within Canada:

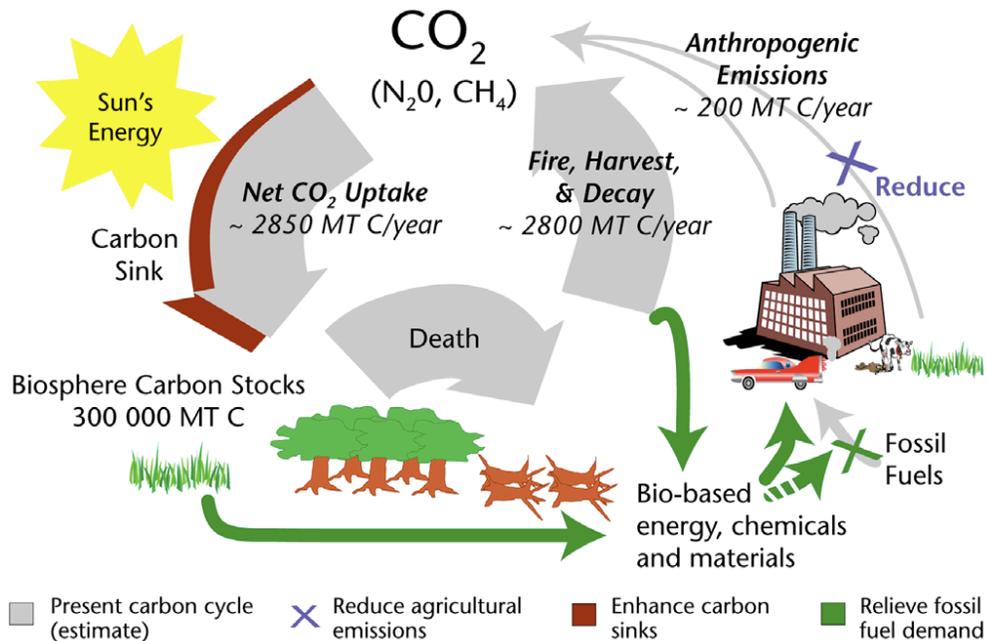


Figure 3. Carbon cycle within Canada.

In a 2009 Report - Carbon Management in British Columbia's Forests: Opportunities and Challenges, authors Mike Greig and Gary Bull consolidated forest carbon management information currently available for British Columbia in the policy, research, and operational communities. They summarized the forest carbon cycle as:

“Net changes in forest carbon stocks determine whether a forest ecosystem is a net source of atmospheric carbon or a net sink of atmospheric carbon. Overall, it is the forest’s net carbon balance that must be accounted for by adding up the ever-changing contributions of all the stands. For example, when a tree is harvested, carbon is removed in the logs, but 40–60% of the tree biomass (branches, roots, leaves) remains in the forest where it decomposes slowly and gradually releases nutrients and CO₂. The harvested areas also regenerate so that over time a substantial new pool of carbon is created. Harvested logs are sent to mills for conversion into forest products, such as lumber, panels, or paper. Depending on the use and disposal of these products, the carbon may be stored for a very long time, or it may be released into the atmosphere relatively quickly. About 45–50% of the carbon harvested and removed from the forest is stored in long-lasting structures such as houses. This carbon is not released back into the atmosphere until, for instance, a house is torn down many decades later and the wood is burnt or sent to landfills. About 25–30% of the carbon goes into less durable products such as wooden pallets, or quickly disposed of newspapers and other paper goods. Strategies prolonging the storage of carbon in wood products and landfills can help to reduce green house gas emissions. The remaining carbon (about 25%) is in the bark and leftover wood pieces, which are often used to fuel pulp and paper mills, thus providing a renewable energy substitute for fossil fuels (Natural Resources Canada 2007). In most Canadian forests, however, more carbon exists in soils and dead organic matter than in the living biomass”.

The report notes 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 (Kranabetter and Macadam 2006), and undertaking carbon accounting projects. However, no published handbooks or policies exist to guide forest managers, practitioners, or the public”.

The report includes example of carbon offsetting projects such as:

- a. Afforestation/Reforestation: Creating a forest where none has existed in recent history (e.g., planting trees on agricultural land, urban landscapes, riparian areas and parks, and on previously degraded forest sites such as old roads and landings).
- b. Avoided/reduced deforestation: Avoiding or reducing the permanent loss of forest (e.g., narrowing of cleared rights-of-way on utilities and roadways, reducing road density, and reducing site degrading processes).
- c. Forest Management: Managing activities or changing the level of an existing activity within forest areas to increase carbon sequestration and to reduce or avoid emissions (e.g., fire and pest management; intensive silviculture involving fertilization and the use of faster-growing tree species; prompt reforestation of sites that might not regenerate quickly; extension of harvest rotations; reclamation of slash piles; use of differing tree retention levels in harvest areas; and rehabilitation of skids trails and roads).

Finally the report concludes by recognizing the uncertainty that exists in managing forests for carbon.

“But who are the forest managers that will be compensated for managing forests for carbon stock? And who owns the carbon credits? A carbon credit is generated on the amount of carbon sequestered above the normal business practice for an area, or “in addition to” what would have occurred had no change in management strategy taken place. On private land, the landowner is generally considered to be the forest manager and owns carbon credits the land generates.

British Columbia, however, comprises almost 48 million ha productive Crown forest land. Who owns the carbon credits generated on Crown forest land? Companies that wish to establish carbon sequestration projects or simply alter forest management practices to increase carbon storage or uptake on Crown land will require some level of certainty to the ownership before investing in these projects. This remains one of the province’s key challenges. Given the province’s vast forested area, its advanced levels of forest management, and the presence of knowledgeable forest managers and communities in all parts of British Columbia, Crown land offers great opportunities for forest carbon stock management. Logically, the forest manager should reap the benefits, although implications exist for those who do not presently have Crown tenure.

This leads to the need for incentives that encourage innovative approaches or practices leading to carbon sequestration/storage or reduction of impacts on sequestration/storage.”

In British Columbia, two models have generally been used to calculate carbon stock. The first, developed by the Canadian Forest Service (CFS), is a net volume-to-biomass conversion model that estimates the gross biomass quantity based on the net merchantable volume (an attribute readily available in our forest inventory) (Boudewyn et al. 2007). This carbon-stock calculator is used in conjunction with the CFS carbon accounting model, Carbon Budget Model of the Canadian Forest Sector 3 (cbm-cfs3). The second model (forecast), developed at the University of British Columbia, uses a different technique whereby biomass accumulation (live and dead) is modeled directly for the various components of forest ecosystems (a bottom-up approach). Volume is calculated as a function of stemwood biomass and tree height, if needed.

The level of carbon budget analysis in British Columbia relies largely on the forest inventory (species and growth rates) and underlying assumptions the forest management regime and what makes up the timber harvesting land base. Because of some of the uncertainty surrounding the data inputs, it can be difficult to tease out changes in carbon sequestration modeling that are strictly as a result of changes to a particular management regime. This creates difficulties for forest managers who are trying to understand the carbon balance implications of various management regimes.

Licensees will continue to monitor the evolving field of carbon budgets and offsets and look for opportunities to positively contribute to the carbon cycle.

- **Allowable Annual Cut (AAC) determination:** The AAC is the allowable rate of timber harvesting in a management unit such as timber supply area (TSA) or a tree farm licence (TFL). The Chief Forester sets the AAC for each of the province's Timber Supply Areas and Tree Farm Licences. The Regional Executive Director sets the AAC for Community Forest Licences and Woodlot Licences.

Timber supply is the rate at which timber could be made available for harvesting. It is a measure of the potential flow of logs out of the forest. It is not the same as the inventory or amount of wood in the forest. The size and productivity of a given area of land available for timber harvesting (timber harvesting land base) are factors used to determine the amount of timber that can be produced over time. Economic, environmental and social factors affect the rate of timber harvesting and the methods used. Economic factors may include prices for wood products, location and quality of timber, and costs of production. Environmental considerations include wildlife habitat, riparian buffers and environmentally sensitive areas. Examples of social factors are visual appearance of the landscape and drinking water quality and supply.

Timber supply analysis is a process that explores the effects on timber supply of existing or possible future forest management strategies and alternative timber harvesting levels. The analysis makes it possible to compare how alternative management strategies affect forest structure and timber production over time. The steps in timber supply analysis to support AAC determination include:

- i. *Categorize the land base* – define the timber harvesting land base by separating lands suitable for timber production from lands unavailable or inappropriate for timber production (e.g., protected areas or inaccessible terrain). Lands outside of the timber harvesting land base are still part of the provincial forest and contribute to and are managed for other values (e.g., wildlife habitat, old growth).

- ii. *Project growth and yield* – growth and timber yield are projected for each stand based on current management. These projections show the characteristics of a stand (e.g., timber volume per hectare, average stem diameter) at different ages.
- iii. *Identify management activities and requirements* – current management practices – including those that enhance timber production (e.g., planting) and those that maintain or enhance other values (e.g., wildlife habitat, visual quality) – are identified and the amount and timing of each activity is specified. It is often necessary to restrict some activities in some areas to achieve multiple objectives.
- iv. *Model timber supply based on current management* – a computer model is used to simulate the way a stand grows and is harvested over time. Forecasting occurs out for the next 250 years.
- v. *Run sensitivity analyses* – sources of uncertainty in the data and management assumptions are analyzed to determine which factors most affect analysis results (e.g., where small changes in a management objective can cause large changes in timber supply). This knowledge helps to establish priorities for collecting new information and indicates where caution is required in interpreting results.

In setting an AAC, the Chief Forester and Regional Executive Director consider information such as biodiversity, wildlife, and the social impacts of changes to timber supply including:

- a. the rate of timber production that may be sustained from the area;
- b. the short- and long-term implications to the province of alternative rates of timber harvesting from the area;
- c. constraints on the amount of timber produced from the area due to use of the forest for purposes other than timber production;
- d. the nature, production capabilities and timber requirements of established and proposed processing facilities;
- e. the economic and social objectives of the Crown, for the area, the region and the province, as expressed by the Minister of Forests and Range; and,
- f. abnormal insect or disease infestations and major salvage programs.

Ultimately the AAC determination is based on independent professional judgment.

6.4 Website links to other resources supporting the SFM Plan

Information on Timber Supply Reviews (TSR's) for each of the management units can be found at the following websites:

Kamloops <http://www.for.gov.bc.ca/hts/tsa/tsa11/>
Lillooet <http://www.for.gov.bc.ca/hts/tsa/tsa15/>
Merritt <http://www.for.gov.bc.ca/hts/tsa/tsa18/>
TFL 18 <https://www.for.gov.bc.ca/hts/tfls.htm>

Forest and Range Evaluation Program (FREP) Reports and Extension Notes

Weblink: <http://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/integrated-resource-monitoring/forest-range-evaluation-program/frep-reports-extension-notes>

Section 7 Notices and Supporting Information for Species at Risk

Weblink: <http://www.env.gov.bc.ca/wld/frpa/notices/sar.html>

Chief foresters guidance on coarse woody debris retention

Weblink: <http://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/conservation-habitat-management/wildlife-tree-committee/wildlife-tree-guidance-policies>

Future Forest Ecosystems (projects including Kamloops TSA Vulnerability Assessment)

Weblink:

[https://www.for.gov.bc.ca/hfp/future_forests/council/4b_App_Kamloops_Case_Study_\(August27\)final.pdf](https://www.for.gov.bc.ca/hfp/future_forests/council/4b_App_Kamloops_Case_Study_(August27)final.pdf)

Glossary of Terms

Abbreviations/Acronyms

Acronym	Meaning	Acronym	Meaning
AAC	Allowable Annual Cut	MOE	Ministry of Environment
AOA	Archaeological Overview Assessment	MoFLNR	Ministry of Forests, Range and Natural Resource Operations
BCTS	British Columbia Timber Sales	O	Natural Resource Operations
BEC	Biogeoclimatic Ecosystem Classification	NAR	Net Area to Reforest
CCFM	Canadian Council of Forest Ministers	NDT	Natural Disturbance Type
CSA	Canadian Standards Association	NP	Non-Productive
CWD	Coarse Woody Debris	NTHLB	Non Timber Harvesting Land Base
DFA	Defined Forest Area	OGMA	Old Growth Management Area
DFO	Department of Fisheries and Oceans	RMZ	Resource Management Zone
EMS	Environmental Management System	SARA	Species at Risk Act
ESA	Environmentally Sensitive Area	SFM(P)	Sustainable Forest Management (Plan)
FERIC	Forest Engineering Research Institute of Canada	SP	Site Plan
FL	Forest Licence	SU	Standards Unit
FPC	Forest Practices Code of BC Act	TDG	Transportation of Dangerous Goods
FPPR	Forest Planning and Practices Regulation	TFL	Tree Farm Licence
FRPA	Forest and Range Practices Act	THLB	Timber Harvesting Land Base
FSP	Forest Stewardship Plan	TOR	Terms of Reference
FSSIM	Forest Service Simulation Model	TSA	Timber Supply Area
GAR	Government Actions Regulation	TSL	Timber Sale Licence
GWM	General Wildlife Measure	TSR	Timber Supply Review
HLP	Higher Level Plan	UWR	Ungulate Winter Range
IWMS	Identified Wildlife Management Strategy	VQO	Visual Quality Objective
LRMP	Land and Resource Management Plan	WHA	Wildlife Habitat Area
LU	Landscape Unit	WT	Wildlife Tree
LUP	Land Use Plan	WTP	Wildlife Tree Patch

Definitions

The following definitions were taken from various sources (generally with reference to source).

Afforestation: the conversion of land that has not been forested for a period of at least 50 years to forest through planting, seeding or natural regeneration.

Aboriginal Rights: are recognized and affirmed by *Sec. 35(1) of the Constitution Act, 1982*. Aboriginal rights involve practices that were integral to the aboriginal society before contact. For example, Aboriginal rights may include (but are not limited to) fishing, hunting, gathering, trapping, and the use of land and resources for social, medicinal, spiritual and ceremonial purposes (*Sparrow Decision, Guerin Decision, Calder Decision, Jack Decision*). Generally the priority set in the Courts is conservation first, aboriginal rights to carry on an activity and/or practice next. (SFM Advisory Group)

Aboriginal Title: (*Delgamuukw Decision*): is an Aboriginal right recognized and affirmed in Section 35(1) of the *Constitution Act, 1982*. Aboriginal title is right to the land itself and encompasses the right to exclusive use and occupation of the land held pursuant to that title for a variety of purposes, which need not be aspects of those aboriginal practices, customs and traditions that are integral to distinctive aboriginal cultures (Para 177). Aboriginal title also encompasses within it a right to choose to what ends a piece of land can be put (Para 168). (SFM Advisory Group)

Adaptive management – a learning approach to management that recognizes substantial uncertainties in managing forests and incorporates into decisions experience gained from the results of previous actions. (CAN/CSA Z809)

Biodiversity (or biological diversity) – the diversity of plants, animals, and other living organisms in all their forms and levels of organization, including genes, species, ecosystems, and the evolutionary and functional processes that link them. (Glossary of Resource Planning Terms)

Blue listed species – includes any ecological community, and indigenous species and subspecies considered to be of special concern (formerly vulnerable) in British Columbia. Elements are of special concern because of characteristics that make them particularly sensitive to human activities or natural events. Blue-listed elements are at risk, but are not Extirpated, Endangered or Threatened.

Cultural heritage resource – means an object, a site or the location of a traditional societal practice that is of historical, cultural or archaeological significance to British Columbia, a community or an aboriginal people. (*Forest Act*)

Defined Forest Area (DFA) – a specified area of forest, including land and water (regardless of ownership or tenure) to which the requirements of this Standard apply. The DFA may or may not consist of one or more contiguous blocks or parcels. (CAN/CSA Z809)

Forest operations: includes timber harvesting, road construction, site preparation and road deactivation.

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. (*Forest and Range Practices Act*)

Forest plantation - tree stands established by planting or seeding often with one or few species, intensively managed exclusively for wood production, and which lack most of the key characteristics of natural forests.

Indicator – a variable that measures or describes the state or condition of a value. (CAN/CSA Z809)

Information System – A system to manage harvesting, road activities and reforestation obligations and commitments. (The licensees)

Invasive Plant – means a plant listed in the *Invasive Plants Regulation* (B.C. Reg. 18/2004). (*Forest and Range Practices Act*)

Landslide – for the purpose of reporting on the target for operationally caused landslides, these will be those slides with a size limit of 0.1 ha or as one having a significant environmental impact (could be less than 0.1 ha in those cases). (SFM Advisory Group)

Licensee – includes Aspen Planers Ltd., Canadian Forest Products Ltd., Gilbert Smith Forest Products Ltd., and subsidiaries of these companies.

Licensee plans – detail the logistics for forest and range development in particular locations. Methods, schedules and responsibilities for accessing, harvesting, renewing, and protecting the resources are set out to enable site-specific operations to proceed. Licensee plans include Forest Stewardship Plans, harvest plans, range use plans, fuel management prescriptions, and site plans.

Natural Disturbance Type: A natural disturbance regime (categorized as 1-5) recognized in BC under which ecosystems have evolved. These disturbance regimes can be either stand initiating disturbances where the existing forest is terminated through agents such as fire, wind, insects or landslides or stand maintaining disturbances where the existing forest structure is adjusted (such as an understory fire in a fir-yellow pine forest). (SFM Advisory Group)

Objective – a broad statement describing a desired future state or condition of a value. (CAN/CSA Z809)

Old growth management area – means an area that is subject to old growth management objectives established under section 3 [*resource management zones and objectives*] or 4 [*landscape units and objectives*] of the Forest Practices Code of British Columbia Act. (*Forest Planning and Practices Regulation*)

Permanent access structure – means an access structure in a cutblock that a) at the time of its construction, is reasonably expected to provide access for timber harvesting and other activities that are not wholly contained in the cutblock, or b) is constructed on or through, or contains, materials unsuitable for the establishment of a commercial crop of trees and is not an excavated or bladed trail. (*Forest Planning and Practices Regulation*)

Pest – means an injurious, noxious or troublesome living organism but does not include a virus, bacteria, fungus or internal parasite that exists on humans or animals. (*Provincial Pesticide Control Act*)

Range development – means (a)) a structure, (b) an excavation, (c) a livestock trail indicated in a range use plan or a range stewardship plan as a range development, or (d) an improvement to forage quality or quantity on an area that results from (i) the application of seed, fertilizer or prescribed fire to the area, or (ii) the cultivation of the area (*Forest and Range Practices Act*)

Red listed species – Includes any ecological community, and indigenous species and subspecies that is extirpated, endangered, or threatened in British Columbia. Extirpated elements no longer exist in the wild in British Columbia, but do occur elsewhere. Endangered elements are facing imminent extirpation or extinction. Threatened elements are likely to become endangered if limiting factors are not reversed. Red-listed species and sub-species may be legally designated as, or may be considered candidates for legal designation as Extirpated, Endangered or Threatened under the *Wildlife Act* (see <http://www.env.gov.bc.ca/wld/faq.htm#2>). Not all Red-listed taxa will necessarily become formally designated. Placing taxa on these lists flags them as being at risk and requiring investigation.

Regeneration Delay – is the maximum period permitted to achieve the minimum stocking levels using the preferred and acceptable species of acceptable size, age and vigour. The regeneration delay period begins when harvesting begins. (*Guide to Site Identification and Interpretation for the Kamloops Forest Region*)

Recreation feature – means a biological, physical, cultural or historic feature that has recreational significance or value. (*Forest and Range Practices Act*)

Resource feature – includes all of the following: (a) a surface or subsurface element of a karst system; (b) a cultural heritage resource; (c) a recreation feature; and (d) a range development that is a structure, excavation or constructed livestock trail. (*Government Actions Regulation*)

Riparian reserve zones – means an area described under Division 3 [*Riparian areas*] of Part 4 [*Practice requirements*], that (a) is a portion of a riparian management area, and (b) is established to protect fish, wildlife habitat, biodiversity and the water values of the riparian reserve zone (*Forest and Range Practices Act - Forest Planning and Practices Regulation*)

Seral stage distribution – 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 become altered over time. (*Glossary of Resource Planning Terms*)

Stubs – Merchantable residual tree cut by a mechanical harvester and retained during harvest with an approximate height of 3-5 meters. (The licensees)

Sustainable forest management – management to maintain and enhance the long-term health of forest ecosystems, while providing ecological, economic, social, and cultural opportunities for the benefit of present and future generations. (CAN/CSA Z809)

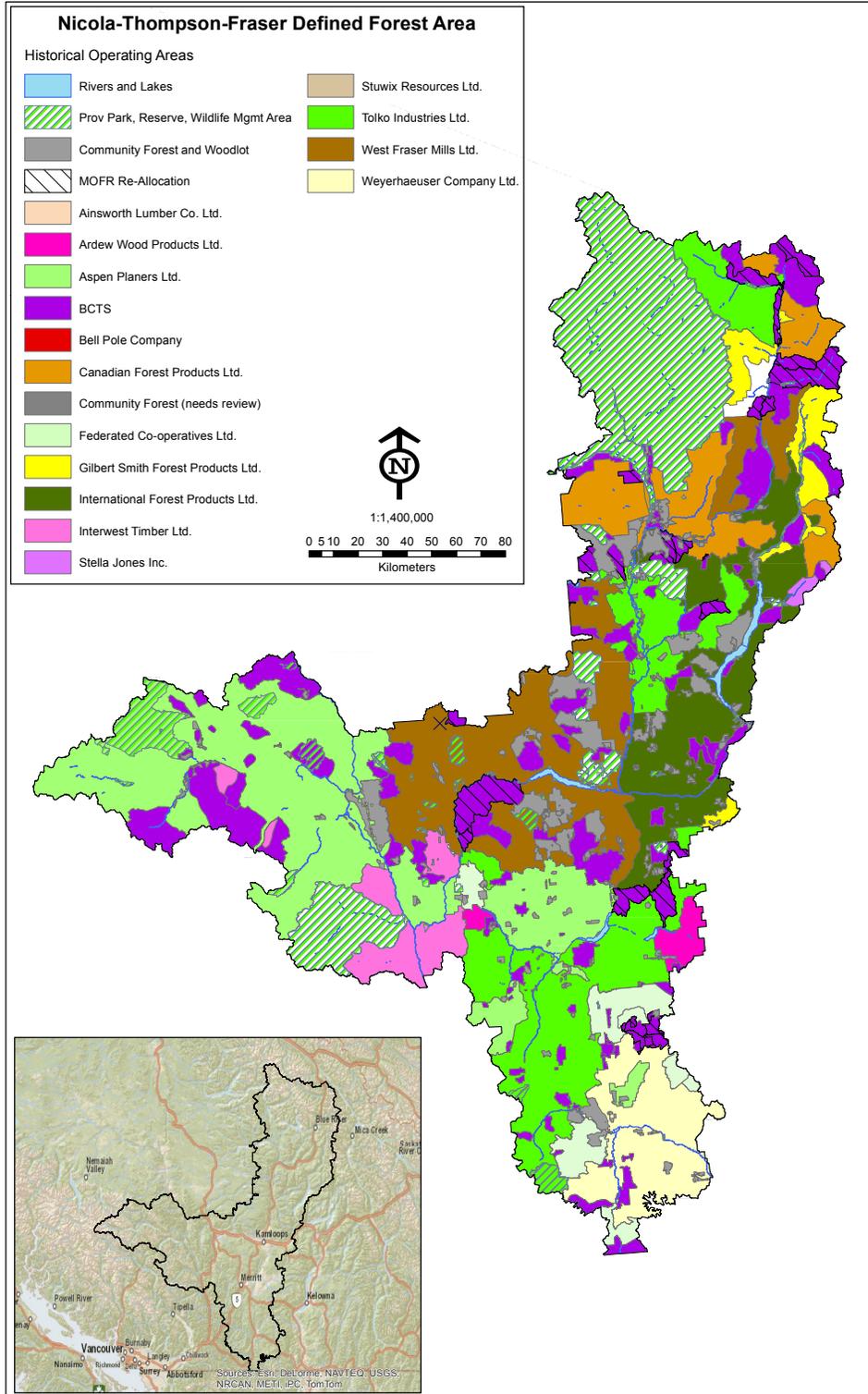
Sustainable forest management system – the structure, responsibilities, practices, procedures, processes, and timeframes set by a registration applicant for implementing, maintaining, and improving sustainable forest management. (CAN/CSA Z809)

Target – a specific statement describing a desired future state or condition of an indicator. Targets should be clearly defined, time-limited, and quantified, if possible. (CAN/CSA Z809)

Timber Harvesting Land Base – used in the context of timber supply calculations. It is the size and productivity of the area available for commercial timber production.

Appendix 1: Nicola Thompson Fraser DFA Map

Appendix 1 – Nicola Thompson Fraser DFA Map



Appendix 2: Advisory Group Terms of Reference

Nicola Thompson Fraser Sustainable Forest Management Plan SFM Advisory Group Terms of Reference and Procedures

November 3, 2016

Introduction

The purpose of the Terms of Reference and Procedures is to define the goals, tasks, roles and procedures that will guide the development of Nicola Thompson Fraser Sustainable Forest Management (SFM) Plan. The SFM Plan will be developed based on the Canadian Standards Association (CSA) Standard CAN/CSA-Z809, and will be complimentary to previous work, ongoing and future initiatives.

The Terms of Reference and Procedures include the following sections:

- Goals
- Operating guidelines
- Timelines
- Conflict of Interest
- Roles and responsibilities
- Resources
- Decision-making process
- Information
- Communication
- Changes to the process
- Evaluation of the public participation process

Goals

The goals of the process are to:

- Develop and maintain a SFM plan in accordance with the CSA guidelines
- Develop and maintain procedures for the Advisory Group to monitor the effectiveness of the SFM Plan.
- Provide ongoing public input into the implementation, monitoring and continual improvement of the SFM Plan.
- Maintain an active and open public participation process.

Operating Guidelines

The participating Nicola Thompson Fraser DFA Licensees, based on advice and recommendations provided by the SFM Advisory Group, will develop and maintain the SFM Plan. Efforts will be made to ensure that the SFM Advisory Group includes a cross-section of participants with varying interests and backgrounds. Participants in the process will:

- contribute to the development of the SFM Plan
- attend meetings on a regular basis (estimated at a minimum of 2 meetings and one field trip per year)
- consider the views of others in developing recommendations
- work with the facilitator and group members to achieve meeting objectives and conclusion of agenda items within agreed to time frames (active, succinct participation)
- while actively participating, allow other members sufficient time and opportunity to participate (share the floor).
- act in “good faith” in all aspects of the process
- aim to reach decisions on the basis of consensus
- support an open and transparent process in both the development and implementation of the SFM Plan.

Participation in the SFM Advisory Group is open to all interested members of the public. New members will be accepted provided the size of the group is not becoming too large and that they agree to:

- abide by the Terms of Reference and Procedures and
- become familiar with the past work completed by the SFM Advisory Group (to assist with this, Licensees agree to provide adequate orientation of the SFM Plan and Advisory Group process to new members).

The SFM Plan for the Nicola Thompson Fraser DFA will comply with all existing legislation and regulations and will be amended as required to be consistent with the strategic direction and intent of any future initiatives.

Sustainable ecosystem management will be characterized by resource management practices that are ecologically sound, scientifically based, socially and culturally responsible, and recognize and respect First Nations interests and values.

Conflict of Interest

Advisory group members will declare any possible or perceived conflict of interest pertaining to a specific discussion topic, should the situation arise. In such cases, the advisory group will decide on the members’ level of involvement relative to the specific topic matter.

Timelines

The SFM Advisory Group will meet periodically each year to review annual progress on performance measures with a goal of continual improvement.

Roles and Responsibilities

Participation in the SFM Advisory Group is open to all interested members of the public. Licensees will seek to include a cross-section of participants with varying interests and background. First Nation participation in the advisory group is valued and will be encouraged. Government participation and support is valued, particularly in the capacity of technical advisor on how the SFM Plan aligns with legislation, policy and government direction. Public members agree to participate in the advisory group as an individual member of the public (bringing with them their background and experience) and not as a representative of any interest group. A record of attendance will be included as part of each meeting summary. Technical experts brought in from time to time to make a presentation, are not considered to be part of the advisory group and decision making process.

The roles and responsibilities of participants in the process are to assist the DFA licensees in developing and maintaining the SFM Plan by:

- expressing local values and objectives that relate to the Canadian Council of Forest Ministers (CCFM) SFM criteria and critical elements
- developing local indicators to be used to assess progress in meeting objectives
- identifying the expected response of the indicator in relation to the target
- determining and setting targets related to each indicator including strategies to meet those targets
- monitoring the effectiveness of the SFM plan including annual meetings of the SFM Advisory Group to review results of performance measures.
- Discussing issues relevant to sustainable forest management within the SFM Plan area.

The long-standing rights and interests of First Nations will be considered in the development of the SFM Plan. Participation in the Public Advisory Group by First Nations is without prejudice to Aboriginal title and rights and treaty rights.

Nicola Thompson Fraser DFA Licensees will engage a facilitator who is knowledgeable about the CSA certification process to assist the SFM Advisory Group in its work. The role of the facilitator will be to:

- facilitate advisory group meetings
- prepare agendas and summaries for meetings
- prepare a work plan and time table for the process
- assist participants in developing recommendations for the SFM Plan
- develop the SFM Plan based on recommendations provided.

Active Members of the Public Advisory Group (PAG)

Active members of the PAG commit to regular attendance to, and participation in, Advisory Group meetings and field trips. Active members receive all PAG information and communication including the most recent SFM Plan and Monitoring Report, draft agendas, meeting summaries, information of interest, and invitations for additional participation (audits, special non PAG meetings and information sessions). A list of active members will be maintained.

Interested Parties

Interested parties are those that are interested in the SFM Plan process but have decided they cannot fully commit the time and effort to be an active member of the Advisory Group. Interested parties receive notification when updates are made to the SFM Plan or Monitoring Report. Included with this correspondence is an invitation, and encouragement, to more fully participate as an active member of the Advisory Group. Any additional Advisory Group communication is available to interested parties on request. A list of interested parties, including contact information, is maintained.

Resources

Public participants who incur traveling expenses to attend meetings will be reimbursed at a rate equivalent to the provincial government Group I rate.

Expenses incurred in the development of this Plan will be the responsibility of participating Nicola Thompson Fraser DFA Licensees.

Decision-making/Dispute-resolution Process

Participants of the Public Advisory Group will aim to reach decisions on the basis of consensus. Consensus is defined as “substantial agreement not unanimity by participants on a recommendation related to the SFM Plan process or on the final SFM Plan”.

In negotiating to reach consensus, participants agree to:

- negotiate in good faith
- state concerns openly and directly and as interests rather than positions
- listen carefully, ask questions and educate themselves regarding the interests of others
- share relevant information.

When consensus is reached, a written record of the agreement will be recorded in the meeting summary. If consensus is not achieved, the facilitator will assist the participants in resolving their differences through the application of interest-based negotiation procedures. If consensus is still not achieved, participants will agree to disagree and the options defined in the negotiation process will be recorded in the meeting summary. Nicola Thompson Fraser DFA Licensees will consider all options in development of the final SFM plan and will provide a written explanation for decisions taken where consensus was not achieved.

Nicola Thompson Fraser DFA Licensees will consider consensus recommendations of the SFM Advisory Group as advice to guide the development of the SFM Plan. In the event that Licensees decide not to accept a consensus recommendation of the SFM Advisory Group, a written explanation for this decision will be included in the SFM Plan process documents.

Consensus will not be required for housekeeping items such as scheduling meeting dates and locations.

Information

The SFM Plan process will be supported by relevant information including the CSA SFM guidelines and supporting reference documents, examples of other British Columbia-based SFM Plans, and other technical information as required. Where desired by the advisory group, Licensees will seek to provide internal or external experts to gain a better understanding of a particular issue.

Communication

Agendas and meeting summaries will be prepared for each meeting. These materials will be distributed to members of the SFM Advisory Group and as requested, to other interested members of the public. Revised SFM Plans and Annual Monitoring Reports will be shared with advisory group members and with a wider audience of individuals who have expressed some level of interest in the public process. The Plans and Reports will also be shared with First Nation communities in the DFA.

A website offering general information on the SFM process and information specific to the Nicola Thompson Fraser SFM Plan will be maintained.

Changes to the Process

The Terms of Reference and Procedures for the SFM Plan process may be changed at any time during the process in accordance with the decision-making process described above.

Evaluation of the Public Participation Process

Active public members satisfaction with the advisory group process will be measured through the completion of an annual survey. Survey results will be included in annual SFM performance reporting.

Appendix 3: SFM Plan Reporting Format

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The following table is the reporting form that licensees will use when reporting the results of monitoring the SFM Plan. The Plan will be monitored annually and the information will contribute to an annual review to confirm that performance measures are being met. The SFM Advisory Group will review and comment on the annual report.

Nicola Thompson Fraser Sustainable Forest Management Plan Annual Report

Licensee Name and Reporting Year: _____

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
1	1.1.1	<p>Target: Maintain the presence and representative area of Biogeoclimatic Zones to the subzone level within the Plan area.</p> <p>Reporting: Part of periodic Timber Supply Review (TSR) - used to define of Analysis Units for timber supply modeling. Licensees will report the area for all Biogeoclimatic subzones as updated for the most current TSR for <i>each of the 3 applicable TSA's and may further assess/analyse this data for the NTF Plan area</i>. Reporting to occur periodically – in the year following completion of subsequent TSR's and determination of the allowable annual cut.</p>	<p>Periodic reporting following TSR or known updates by the MoFLNROR.</p> <p><i>Reporting by TSA/TFL.</i></p>
2	1.1.2	<p>Target:</p> <p>70 percent of area (hectares) submitted as free growing will have three or more tree species, including conifer and deciduous comprising one percent or more in the free growing survey results (all biogeoclimatic Zones except ESSF and Zones with the “xh” variant). Also report on the percent of first, second and third leading species for each area, then averaged for all areas.</p> <p>70 percent of area (hectares) submitted as free growing will have two or more tree species, including conifer and deciduous comprising one percent or more in the free growing survey results (ESSF only).</p> <p>Reporting: On area (i.e. standard unit area or cutblock area) declared free growing in the reporting year, licensees will use the free growing survey data collected and will consider all trees that occupy the site to determine areas having 3 or more species (non ESSF) or 2 or more species (ESSF). For those areas having 3 or more species (non ESSF), Licensees will also identify the percent of first, second and third leading species for each area and average these for reporting on all areas.</p> <p>Additionally, report all the species that were planted to give public members a better idea of the diversity.</p> <p><i>Note: exclude all reporting where the BEC variant was very dry hot (xh).</i></p>	<p>Hectares of non ESSF area submitted as free growing: _____</p> <p>Hectares of non ESSF area submitted with at least three species present: _____</p> <p>% area with three or more species: _____</p> <p>Hectares of ESSF area submitted as free growing: _____</p> <p>Hectares of ESSF area submitted with at least two species present: _____</p> <p>% area with two or more species: _____</p> <p>For non ESSF areas with three or more tree species:</p> <p>% of trees that are 1st leading species: _____</p> <p>% of trees that are 2nd leading species: _____</p> <p>% of trees that are 3rd leading species: _____</p> <p>Provide a list all species planted.</p> <p><i>Reporting by TSA/TFL.</i></p>

Appendix 3 – SFM Plan Reporting Format

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
3	1.1.3, 4.1.1	<p>Target: Progress towards a stable forest age class distribution on the timber harvesting land base where each age class to 80 years old [1 (1 to 20), 2 (21-40), 3 (41-60), and 4 (61 to 80)] occupies at least 8.5% of the timber harvesting land base in each of the 3 TSAs (Kamloops, Lillooet, Merritt) and for TFL 18. Three of the four age classes meet this target within 50 years for each TSA and TFL 18. Reporting to occur in conjunction with subsequent Timber Supply Reviews by TSA/TFL, then assessed/analyzed for the Plan Area.</p> <p>Reporting: Licensee report the current age class distribution as last reported in the Timber Supply Review (for the TSAs). Reporting to occur periodically – in the year following completion of subsequent TSR's.</p>	<p>Periodic reporting in the year following completion of subsequent TSR for each TSA and TFL 18.</p> <p>Age class 1 (1 -20): THLB Area (ha) _____</p> <p>Age class 2 (21-40): THLB Area (ha) _____</p> <p>Age class 3 (41-60): THLB Area (ha) _____</p> <p>Age class 4 (61 -80): THLB Area (ha) _____</p> <p>Total THLB Area (ha) _____</p> <p><i>Reporting by TSA/TFL.</i></p>
4	1.1.3	<p>Target: Licensee operations will maintain the existing old growth management area (no net loss).</p> <p>Reporting: Licensees report the total area of OGMA's within their operating area and the area of net OGMA reduction (or increase) as a result of their operations. Target has a no net loss concept, reporting provides for replacement OGMA's where operations planned within existing OGMA's. Administrative corrections that brought about changes to OGMA should not be considered in the net loss/net gain determination.</p>	<p>Total OGMA area (ha) _____</p> <p>Deletions to OGMA area in the Kamloops TSA and TFL 18 _____ (<i>track cumulative losses over time and compare to variance</i>).</p> <p>Net change (+/-) in OGMA area for Merritt and Lillooet TSA's (ha)</p> <p>_____</p> <p><i>NB: performance is to be reviewed against the no net loss target, report any situations where the variance applies.</i></p> <p><i>Reporting by TSA/TFL.</i></p>

Appendix 3 – SFM Plan Reporting Format

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
5	1.1.4	<p>Target:</p> <p>5a. At least 80 percent of cutblocks greater than 10 hectares will have individual wildlife trees/stubs and/or wildlife tree patches within the block.</p> <p>5b. Of the blocks that have individual wildlife trees/stubs and/or wildlife tree patches; at least 50 percent of the time these blocks will have dispersed individual trees, stubs or small (<0.25 ha) patches retained.</p> <p>Reporting:</p> <p>5a. Licensees will report, for cutblocks greater than 10 hectares, the number of cutblocks with wildlife tree patches and/or individual trees/stubs within the cutblock versus the total number of cutblocks greater than 10 ha in size upon completion of harvest, during the reporting year.</p> <p>5b. On the blocks that do have individual wildlife trees/stubs and/or associated wildlife tree patches, licensees will also report the percentage of blocks that had dispersed individual trees, stubs or small (<0.25 ha) patches.</p> <p>Reporting against target “5b” is limited to blocks harvested during the reporting year that had the original SP signed after January 1st, 2011.</p>	<p>5a. Total number of cutblocks harvested > 10 ha _____</p> <p>Number of cutblocks > 10 ha with WTP/WT/Stub _____</p> <p>5b. Of blocks with WTP/WT/Stubs (listed above), number with dispersed individual trees, stubs or small (<0.25 ha) patches _____</p> <p>Percent of blocks _____</p> <p><i>NB: performance is to be reviewed against the Targets, the variance will be noted if the Targets are not met</i></p> <p><i>Reporting can be either by TSA or for the entire Plan area. Report will roll up results.</i></p>

Appendix 3 – SFM Plan Reporting Format

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
6	1.2.1	<p>Target: Proactive habitat protection targets established in accordance with non-legally binding guidelines and best practices:</p> <ul style="list-style-type: none"> a. On an annual basis, obtain from the Conservation Data Centre, the known locations/occurrences of Red-listed and Blue-listed species within the Plan area. b. Where there is a documented mapped (GPS/UTM) and field verified occurrence of a critical habitat feature (e.g. den, lick, nest) for a Red-listed or Blue-listed species, operations will achieve 100% consistency with SP measures deemed necessary by the participating licensee to prevent adverse harm. c. Based on the potential level of impact to any of the 3 TSAs, participate in the consultation process led by the Ministry of Environment and the Ministry of Forests and Range, in the identification of Ungulate Winter Range and Wildlife Habitat Areas and the development of General Wildlife Measures. d. Harvesting operations in areas designated as Ungulate Winter Range will be consistent with Plan commitments to manage for the specific ungulate species. <p>Reporting:</p> <ul style="list-style-type: none"> a. Licensees report yes/no as to whether the spatial layers depicting known locations/occurrences of Red-listed and Blue-listed species <u>and ecological communities</u> has been updated at least once during the reporting year for the plan area to be used in planning and included on operational plan maps. b. Licensees report the number of cutblocks where there is a documented, mapped (GPS/UTM) and field verified occurrence of a critical habitat feature (e.g. den, lick, nest) for a Red-listed or Blue-listed species and the number of these cutblocks where 100% consistency with SP measures, deemed necessary to prevent adverse harm, were achieved. Reporting against the target is limited to blocks harvested during the reporting year that had the original SP signed after January 1st, 2011. c. Licensees summarize applicable WHA, UWR or GWM consultation processes they participated in. d. Licensees report the number of cutblocks where harvesting occurred within designated UWR and the number of these where commitments to manage for the species were adhered to. 	<ul style="list-style-type: none"> a. (Y/N) _____ b. Number of cutblocks where there was a documented critical habitat feature for a Red-listed or Blue-listed species _____; Number of these cutblocks where 100% consistency with SP measures was achieved _____ c. Summarize applicable consultation processes _____ _____ _____ _____ d. Number of blocks harvested within UWR _____; number of these blocks that followed plan commitments to manage for UWR species _____ <p><i>Reporting by TSA/TFL.</i></p>
7	1.2.1, 1.2.2	<p>Target: Affected licensees (Kamloops TSA only) adhere to the current management strategies for mountain caribou.</p> <p>Reporting: Affected licensees will report the area (ha) harvested that is consistent with Government Action Regulation orders and/or higher level plan orders against all of the area harvested within the designated Mountain Caribou recovery strategy during the reporting year.</p>	<p>Reporting by Kamloops licensees only</p> <p>Area harvested within Mountain Caribou strategy area _____</p> <p>Number of hectares harvested meeting Mountain Caribou strategy _____</p> <p><i>Reporting by TSA (Kamloops)</i></p>

Appendix 3 – SFM Plan Reporting Format

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results																																										
8	1.2.1, 1.2.2	<p>Target: Affected licensees (Lillooet TSA only) adhere to the current management strategies for northern spotted owl.</p> <p>Reporting: Affected licensees will report the area (ha) harvested that is consistent with Government Action Regulation orders and/or the Spotted Owl Habitat Management Plan orders against all of the area harvested within designated Northern Spotted Owl habitat during the reporting year.</p>	<p>Reporting by Lillooet licensees only</p> <p>Area harvested within designated Northern Spotted Owl habitat area _____</p> <p>Number of hectares harvested meeting Spotted Owl strategy _____</p> <p><i>Reporting by TSA (Lillooet)</i></p>																																										
9	1.2.2	<p>Target: Conserve or manage within the Kamloops TSA and in the Cascades Forest District habitat for selected focal species (listed below) by retaining 100% of the amount of habitat (provided for in government’s FPPR Section 7 notice) in a condition suitable for the survival of the species.</p> <p><u>Kamloops TSA:</u> Flammulated Owl – 3300 ha, Interior Western Screech Owl – 60 ha, Lewis’s Woodpecker – 650 ha, Spotted Bat – 120 ha, Badger – 35 ha.</p> <p><u>Cascades Forest District:</u> Coastal Tailed Frog – 2793 ha, Great Basin Gopher Snake – 4000 ha, Flammulated Owl – 4050 ha, Interior Western Screech Owl – 44 ha, Spotted Owl – 5000 ha within Lillooet TSA, Spotted Bat – 16 ha, Grizzly Bear – 5211 ha (521ha impact to timber harvesting land base) in the Merritt TSA, unspecified large area having a THLB impact of 8000 ha in the Lillooet TSA.</p> <p>Reporting: For areas harvested, Licensees will report on the number of locations where the presence of the species or an occurrence site for each of the focal species was identified and the number of locations where the habitat for that focal species was conserved or managed. Also report current status of WHA in the table format below:</p>	<p>Report number locations where the focal species was identified and number of locations where the habitat was conserved or managed:</p> <p>Kamloops TSA species:</p> <table border="1" data-bbox="1480 732 1997 954"> <thead> <tr> <th>Species</th> <th>Identified</th> <th>Managed</th> </tr> </thead> <tbody> <tr> <td>Flam. Owl</td> <td></td> <td></td> </tr> <tr> <td>Screech Owl</td> <td></td> <td></td> </tr> <tr> <td>Lewis’s Woodpecker</td> <td></td> <td></td> </tr> <tr> <td>Spotted Bat</td> <td></td> <td></td> </tr> <tr> <td>Badger</td> <td></td> <td></td> </tr> </tbody> </table> <p>Cascades District species:</p> <table border="1" data-bbox="1480 1024 1997 1344"> <thead> <tr> <th>Species</th> <th>Identified</th> <th>Managed</th> </tr> </thead> <tbody> <tr> <td>Coastal Tailed Frog</td> <td></td> <td></td> </tr> <tr> <td>Gopher Snake</td> <td></td> <td></td> </tr> <tr> <td>Flam. Owl</td> <td></td> <td></td> </tr> <tr> <td>Screech Owl</td> <td></td> <td></td> </tr> <tr> <td>Spotted Owl</td> <td></td> <td></td> </tr> <tr> <td>Spotted Bat</td> <td></td> <td></td> </tr> <tr> <td>Grizzly Bear</td> <td></td> <td></td> </tr> </tbody> </table> <p><i>Reporting by TSA/TFL</i></p>	Species	Identified	Managed	Flam. Owl			Screech Owl			Lewis’s Woodpecker			Spotted Bat			Badger			Species	Identified	Managed	Coastal Tailed Frog			Gopher Snake			Flam. Owl			Screech Owl			Spotted Owl			Spotted Bat			Grizzly Bear		
Species	Identified	Managed																																											
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Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results																																																								
9	1.2.2	<p>Kamloops TSA:</p> <table border="1" data-bbox="520 363 1654 487"> <tr> <td></td> <td>Flammulated Owl</td> <td>Western Screech Owl</td> <td>Lewis's Woodpecker</td> <td>Spotted bat</td> <td>Badger</td> </tr> <tr> <td>Desired Area (ha)</td> <td>3300</td> <td>60</td> <td>650</td> <td>120</td> <td>35</td> </tr> <tr> <td>Area in WHA</td> <td></td> <td>109.4</td> <td>616.9</td> <td>9.4</td> <td>42.1</td> </tr> <tr> <td>Target met (Y/N)</td> <td>N</td> <td>Y</td> <td>N</td> <td>N</td> <td>Y</td> </tr> </table> <p>Cascades Forest District:</p> <table border="1" data-bbox="520 558 1976 704"> <tr> <td></td> <td>Flammulated Owl</td> <td>Western Screech Owl</td> <td>Spotted Owl</td> <td>Grizzly Bear Merritt TSA</td> <td>Grizzly Bear Lillooet TSA</td> <td>Coastal Tailed Frog</td> <td>Great Basin Gopher Snake</td> </tr> <tr> <td>Desired Area (ha)</td> <td>4050</td> <td>44</td> <td>5000</td> <td>5211</td> <td>8000</td> <td>2793</td> <td>4000</td> </tr> <tr> <td>Area in WHA</td> <td></td> <td>237</td> <td>20161</td> <td>3182</td> <td>1322</td> <td>385</td> <td></td> </tr> <tr> <td>Target met (Y/N)</td> <td>N</td> <td>Y</td> <td>Y</td> <td>N</td> <td>N</td> <td>N</td> <td>N</td> </tr> </table>		Flammulated Owl	Western Screech Owl	Lewis's Woodpecker	Spotted bat	Badger	Desired Area (ha)	3300	60	650	120	35	Area in WHA		109.4	616.9	9.4	42.1	Target met (Y/N)	N	Y	N	N	Y		Flammulated Owl	Western Screech Owl	Spotted Owl	Grizzly Bear Merritt TSA	Grizzly Bear Lillooet TSA	Coastal Tailed Frog	Great Basin Gopher Snake	Desired Area (ha)	4050	44	5000	5211	8000	2793	4000	Area in WHA		237	20161	3182	1322	385		Target met (Y/N)	N	Y	Y	N	N	N	N	
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10	1.2.3 (2.1.2)	<p>Target: 100% of trees planted will conform to plan commitments related to the species requirements within approved stocking standards (requires reforestation with commercially valuable and ecologically suitable tree species).</p> <p>Reporting: Licensees will report the number of hectares where trees were planted with species appropriate to the site as outlined in the stocking standards of their Forest Stewardship Plan. Also report the total number of hectares where planting occurred.</p>	<p>Total area planted (ha) _____</p> <p>Area planted (ha) with species appropriate for the site _____</p> <p><i>(note: reporting on species requirements only, includes all trees planted in the reporting period)</i></p> <p><i>Reporting by TSA.</i></p>																																																								
11	1.2.4	<p>Target: Road cut and fill slope seeding application will be carried out using certified seed and within 12 months of completed new road construction on disturbed sites suitable for germination.</p> <p>Reporting: Licensees will report the use of certified seed and the average time for road cut and fill slope seeding application on areas of new road construction during the reporting year.</p>	<p>Average time for seeding application (months) _____</p> <p>Seed applied that was certified (percent) _____</p> <p><i>Reporting can be either by TSA or for the entire Plan area. Report will roll up results.</i></p>																																																								

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Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
12	1.1.1 and 1.4.2 (Kamloops TSA only)	<p>Target: Prioritized Red-listed ecological communities will be protected with retained existing forest.</p> <p>a. Where the ecological community is “documented, mapped (GPS/UTM) and field verified” for the cutting permit or TSL area where operations are being planned and:</p> <ul style="list-style-type: none"> i. the ecological community represents less than 10% of the cutting permit or TSL area, then the majority of the identified occurrence is protected. ii. the ecological community is greater than 10% of the gross area of either tenure noted above, then WTP placement will be weighted towards those communities. <p>b. Where the ecological community is not well documented (i.e. ecological mapping at the site series level is not available), the prioritized list of Red-listed ecological communities is used as a support tool to weight WTP placement, or other reserves, to the applicable site series in the block</p> <p>Reporting:</p> <p>a. Licensees report the number of cutblocks where occurrence of ecosystems identified as “prioritized Red-listed ecological communities” was “documented”, and the number of these cutblocks where the Target was met.</p> <p>b. Licensees report the number of cutblocks where non-documented ecosystems identified as “prioritized Red-listed ecological communities” occurred, and the number of these cutblocks where the Target was met. A rationale is provided for each cutblock where the Target is not met.</p> <p><i>Reporting against targets 12a and 12b is limited to blocks harvested during the reporting year that had the original SP signed after January 1st, 2007.</i></p>	<p>Reporting by Kamloops licensees only</p> <p>a.</p> <p>Number of cutblocks where documented Red-listed ecological communities occurred</p> <p>_____</p> <ul style="list-style-type: none"> i. Number of cutblocks where the ecological community represents less than 10% of the area and the majority of the identified occurrence was protected ii. Number of cutblocks where the ecological community is greater than 10% of the area and the majority of the identified occurrence was included in WTP(s) protected <p>_____</p> <p>b.</p> <p>Number of cutblocks where non-documented ecosystems identified as “prioritized Red-listed ecological communities” occurred</p> <p>_____</p> <p>Number of these cutblocks where WTP placement, or other reserves, were weighted to the applicable site series _____</p> <p>Rationale if target not met</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p><i>Reporting by TSA (Kamloops).</i></p>

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Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
13	1.1.1 and 1.4.2 (Lillooet TSA only)	<p>Target: Harvesting not to exceed greater than 50% of the total of each identified rare landscape unit / BEC zone variants.</p> <p>Reporting: Report by Rare Landscape Unit and Biogeoclimatic Zone (separately for THLB and non-THLB) for the six identified sites – all in Aspens operating area. Report annual area harvested and the cumulative area harvested within each of the rare sites (see table below).</p> <p><i>Note: target and reporting applies to plan participants within the Lillooet TSA only.</i></p>	<p>Reporting by Lillooet licensees only</p> <p>Report within table below (complete last two columns).</p> <p><i>Reporting by TSA (Lillooet).</i></p>

Licensee	Landscape Unit	BEC	THLB / non-THLB	Total Productive (ha)	Target (ha)	Area Harvested (current year in ha)	Cumulative Area Harvested (ha)	
Aspen Planers Ltd	Duffey Lake	CWHms1	THLB	89	<=50%			
			Non- THLB	20	<=50%			
	Pavilion	IDFdk3	THLB	147	<=50%			
			Non- THLB	18	<=50%			
			MSxk3	THLB	764	<=50%		
				Non- THLB	195	<=50%		
	Watson Bar		IDFdk3	THLB	168	<=50%		
				Non- THLB	62	<=50%		
		IDFdxw	THLB	177	<=50%			
			Non- THLB	77	<=50%			
		MSxk3	THLB	785	<=50%			
			Non- THLB	234	<=50%			

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Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
14	1.4.1, 7.2.2, 7.2.3	<p>Target:</p> <p>100 % protection of culturally important, sacred and spiritual sites that have been identified and mapped and</p> <p>100% conformance to all plan commitments specifically designed to manage for culturally important, sacred and spiritual sites that have been identified and mapped.</p> <p>Reporting:</p> <ul style="list-style-type: none"> • Number of roads constructed or cutblocks harvested where culturally important, sacred or spiritual sites had been identified, mapped. • Number of roads constructed or cutblocks harvested where the identified sites were managed or protected in accordance with forest plans. 	<p>Number of roads constructed or cutblocks harvested where culturally important, sacred or spiritual sites had been identified, mapped.</p> <p>_____</p> <p>Number of roads constructed or cutblocks harvested where the identified sites were managed or protected in accordance with forest plans.</p> <p>_____</p> <p><i>Reporting by TSA/TFL. Report may roll up results for the entire Plan area.</i></p>
15	1.4.1	<p>Target: Report the special geological features that were identified and managed. Additionally, Licensees will report the management activities that they undertook for each special geological feature.</p> <p>Reporting: Licensees will report in situations where these features fell within a new road r/w or harvest area and were managed for or where the road or block were specifically relocated to manage for the feature.</p> <p>Report:</p> <ol style="list-style-type: none"> 1. Number and type of special geological features (include karst formations/caves, inactive volcano cones and waterfalls) that were identified and managed. For waterfalls, only include S1, S2, S3, and S5 streams having a vertical drop greater than 5 metres. 2. Specific management activities that were taken for each special geological feature. 	<p>List specific features and management activities:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p><i>Reporting can be either by TSA or for the entire Plan area. Report will roll up results.</i></p>

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Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
16	2.1.1, 4.1.1	<p>Target: 90% of area prescribed for planting is completed within the third growing season from start date of harvest.</p> <p>Reporting: Licensees will report the area planted prior or within the third growing season as compared to the total area planted during the reporting year.</p>	<p>Area planted prior to or within the third growing season _____</p> <p>Total area planted _____</p> <p><i>Note: Report initial plant of harvest areas only, does not include fill plants, replants or rehabbed roads.</i></p> <p><i>Reporting by TSA/TFL.</i></p>
17	2.1.1	<p>Target: All cutblocks declared free growing in the reporting period will reach free growing requirements on or before the latest date. Also report area on those cutblocks that outperformed late free growing requirements and average time by which requirements were exceeded.</p> <p>Reporting: Licensees will report on the cutblock area (hectares) that achieved free growing status on or before their late free growing date and the average time (years) that the cutblock outperformed it's late free growing date (weighted average).</p>	<p>Area (ha) where late free-growing date is due in the reporting period _____</p> <p>Area (ha) of cutblocks (above) that achieved free growing status _____</p> <p>Average time (years) that cut blocks (above) outperformed late date _____</p> <p><i>Reporting by TSA/TFL.</i></p>
18	2.1.3, 3.1.1, 4.1.1	<p>Target: Less than 6 percent (7% for the Lillooet TSA), on average, of harvested areas will be in permanent roads and landings.</p> <p>Reporting: Licensees will report the area (ha) of permanent roads and landings identified in operational plans over gross block area (ha) for cutblocks harvested during the reporting year, using information contained within Licensee plans.</p>	<p>Gross cutblock area (ha) harvested _____</p> <p>Area (ha) in permanent roads and landings _____</p> <p><i>Reporting by TSA/TFL.</i></p>
19	2.1.4, 5.1.1, 5.2.1, 5.2.3	<p>Target: Harvest the annual cut allocation for the year consistent with the Cut Control Regulation and Policy.</p> <p>Reporting: Licensees will report the harvest level allocated for each licence and harvest level cut (cut control volume) for the past reporting year.</p>	<p>Licence _____ Annual harvest (m3) _____</p> <p><i>Reporting by TSA/TFL.</i></p>

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Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
20	3.2.2	<p>Target: 100 percent conformance to riparian and lakeshore commitments made within plans</p> <p>Reporting: Licensees will report the number of riparian and lakeshore related non conformances to plans occurring during the reporting year as compared to the number of cutblocks that were harvested that had riparian management areas within or adjacent to them.</p>	<p>Number of riparian and lakeshore non conformances to plans _____</p> <p>Number of cutblocks harvested having RMAs within/adjacent _____</p> <p>PAG request: Describe any non-conformances _____ _____</p> <p><i>Reporting can be either by TSA or for the entire Plan area. Report will roll up results.</i></p>
21	3.1.1	<p>Target: 100 percent conformance to soil conservation measures contained within plans.</p> <p>Reporting: Licensees will report the area (hectares) where soil disturbance commitments were achieved as compared to the total net area of cutblocks that were harvested during the reporting year</p>	<p>Number of hectares where soil disturbance commitments were achieved _____</p> <p>Total net area of cutblocks harvested during the reporting year (ha) _____</p> <p><i>Reporting can be either by TSA or for the entire Plan area. Report will roll up results.</i></p>
22	3.1.1	<p>Target: No operationally caused slides resulting from a failure to perform a terrain stability field assessment or from a failure to follow the recommendations within a completed assessment.</p> <p>Reporting: Licensees will report the number of slides >0.1 hectare or those having a significant environmental impact if less than 0.1 hectare as a result of their forest management activities (where either a terrain stability assessment was not completed, or where a terrain stability assessment was completed but the recommendations were not followed). <i>Also agreed to report the total number of operationally caused slides that occurred (or that were first discovered) in the reporting period – regardless of cause or due diligence.</i></p>	<p>Total slides resulting from operations _____</p> <p>Slides where TSFA not done or recommendations not followed _____</p> <p><i>Reporting can be either by TSA or for the entire Plan area. Report will roll up results.</i></p>

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Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
23	3.1.2	<p>Target: 100 percent of cutblocks will manage coarse woody debris (CWD) consistent with commitments in operational plans.</p> <p>Reporting: Licensees will report operational plan conformance to the target (cutblocks harvested where planned targets met compared to all cutblocks harvested). Reporting may also utilize supplemental information collected as part of post harvest waste assessments including ocular estimates. Early winter harvest blocks that are not field reviewed for CWD (snow) should not be part of that year’s data pool but part of the following years.</p>	<p>Total cutblocks harvested _____</p> <p>Cutblocks harvested where planned CWD commitments achieved _____</p> <p><i>Reporting can be either by TSA or for the entire Plan area. Report will roll up results.</i></p>
24	3.2.1	<p>Target: Equivalent clear cut area (ECA) not to exceed 35% (at the sub-basin level) without doing further hydrological assessments prior to harvesting. For Kamloops, the target applies only to the highest risk rated watersheds (post MPB) as identified in Appendix 8.</p> <p>Reporting: Licensees will report the number of cutblocks harvested where the watershed ECA exceeded 35% and no further hydrological assessments were completed compared to the total number of cutblocks harvested where the watershed ECA exceeded 35%. Licensees will also report which watershed(s) the cutblocks with ECA's exceeding 35% (and no further assessments completed) were within.</p> <p><i>For Kamloops, reporting is restricted to those watersheds that were identified as one of the 25 high risk watersheds (as indicated in Appendix 8).</i></p>	<p>Total number of cutblocks harvested where the watershed ECA exceeded 35%. _____</p> <p>Number of cutblocks harvested where the watershed ECA exceeded 35% and no further hydrological assessments were completed _____</p> <p>List any watersheds where ECA >35% and no further assessments completed</p> <p>_____</p> <p>_____</p> <p>_____</p> <p><i>Reporting by TSA/TFL.</i></p>

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Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
25	3.2.3	<p>Target: All permanent status roads and associated structures will have inspections and related maintenance completed as scheduled.</p> <p>Reporting: Licensees will determine inspection frequency based on the permanent roads risk. For the reporting period, list kilometers of permanent roads scheduled for inspection vs. kilometers completed.</p> <p>Licensees will also report the number of maintenance action items related to water management and soil movement that required completion during the reporting year as compared to the total number of maintenance action items that were planned for completion.</p>	<p>Km perm roads requiring inspection _____</p> <p>Km perm roads with inspections completed as required _____</p> <p>Number of maintenance action items identified _____</p> <p>Number of maintenance action items completed _____</p> <p><i>Reporting can be either by TSA or for the entire Plan area. Report will roll up results.</i></p>
26	1.1.1, 1.4.2	<p>Target: Where operations are planned in areas field verified as a rare ecosystem (refer to Appendix 7), the accompanying recommendations will be adhered to. Target is 100% adherence with a 10% variance.</p>	<p>Area (ha) where operations were conducted within rare ecosystems _____</p> <p>Area (ha) where management recommendations for that rare ecosystem were followed _____</p>
27	5.1.1, 7.1.1, 7.1.2, 7.2.2, 7.2.3	<p>Target: First Nation communications</p> <p>a. Open communications (meetings and other meaningful communication) with local First Nations will include an understanding of traditional territories and other aboriginal rights including cultural and spiritual values.</p> <p>b. Participating licensees respond to all written requests for communication from First Nations.</p> <p>Reporting: Licensees will report</p> <p>a. Number of meetings and meaningful communications with First Nations that included management and protection of traditional knowledge, non-timber resources, and cultural and spiritual values.</p> <p>b. Number of written requests for communication from First Nations versus the number of responses made to First Nations. Reporting should be on a one to one ratio (one response for each request).</p>	<p>Number of meetings and other meaningful communications _____</p> <p>Number of written requests for communication _____</p> <p>Number of written requests responded to _____</p> <p><i>Reporting can be either by TSA or for the entire Plan area. Report will roll up results.</i></p>

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Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
28	5.1.1, 6.3.1, 6.4.2	<p>Target: Public communications</p> <p>a. Licensees will demonstrate efforts by participating in public multi-stakeholder meetings at both the strategic and at the local level. Licensees will report on the number of community meetings held or attended. Licensees will also report on the number of communications with concerned and engaged recreational users.</p> <p>b. Participating licensees respond to all written requests from the public for communication within 30 days of their receipt.</p> <p>Reporting: Licensees will report:</p> <p>a. A yes/no answer as to whether their interests were represented at strategic and local area meetings with other stakeholders and/or the broader public. The number of community meetings held or attended during the reporting period. The number of communications with concerned and engaged recreational users.</p> <p>b. Number of responses sent out by licensees compared to the number of written requests for communication. Report the average timeline for response.</p>	<p>Interests represented at meetings? (Y/N)</p> <p>Number of community meetings attended ____</p> <p>Number of communications with recreational users _____</p> <p>Number of written requests from public _____</p> <p>Number of responses from Licensee that occurred within 30 days _____</p> <p>Average response time (in days) _____</p> <p>Examples of significant information communicated or significant issues/topics</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p><i>Reporting can be either by TSA or for the entire Plan area. Report will roll up results.</i></p>
29	5.1.1, 6.3.1	<p>Target: 100% conformance to strategies in plans designed to achieve preservation, retention and partial retention visual quality objectives.</p> <p>Reporting: Licensees will report on the number of harvested blocks that achieve the visual intent as described in plans versus the number of blocks harvested within the past year that had preservation, retention or partial retention visual quality objectives. Also indicate the number of these areas that met the objectives by way of exemption for other management concerns.</p>	<p>Number of blocks harvested with preservation, retention or partial retention VQO's: _____</p> <p>Number of blocks with preservation, retention or partial retention VQO that achieved visual intent _____</p> <p>Number of blocks meeting visual intent (above) by way of exemption _____</p> <p><i>Reporting can be either by TSA or for the entire Plan area. Report will roll up results.</i></p>

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Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
30	5.1.1	<p>Target: 100% of known pre-existing recreational trails (from LRDW) retained for continued recreational use on areas harvested in the reporting period.</p> <p>Reporting: Licensees will report the number of known pre-existing recreational trails (from Land and Resource Data Warehouse) within or influenced by areas harvested in the reporting period and the number of those that were successfully managed and retained.</p>	<p>Number of recreation trails within or influenced by harvest area _____</p> <p>Number of recreational trails successfully managed _____</p> <p><i>Reporting can be either by TSA or for the entire Plan area. Report will roll up results.</i></p>
31	5.1.1, 5.2.1, 6.3.1	<p>Target: Report business initiatives and partnerships.</p> <p>Reporting: Licensees will report and provide detail regarding local business initiatives and partnerships. Report separately for each TSA.</p>	<p>List and provide detail regarding local business initiatives and partnerships</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p><i>Reporting by TSA.</i></p>
32	5.2.1, 5.2.3	<p>Target: Report the board feet and chip volume produced by sawmills.</p> <p>Reporting: Licensees with manufacturing facilities will report the board feet (mbfm on 3/8” basis for veneer) and chip volume produced by sawmills within the TSA. Report separately for each TSA.</p>	<p>Total lumber output _____ mbfm</p> <p>Total veneer output _____ mbfm</p> <p>Total chip output _____ bdt</p> <p><i>Reporting by TSA.</i></p>
33	5.2.1, 5.2.3	<p>Target: Report number of timber processing facility operating days, the total number of man hours worked and the number of mill employees on payroll.</p> <p>Reporting: Licensees with manufacturing facilities will report for each manufacturing facility the number of days it was operating, the total number of man hours worked and the number of mill employees on payroll for the reporting period. Report separately for each TSA.</p>	<p>Report for each manufacturing facility <i>and by TSA:</i></p> <p>Days in operation _____</p> <p>Number of man hours worked _____</p>

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Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
		Report also to include an estimate of total forest industry employment based on the volume harvested (Target 19) and the job multipliers identified in the strategy section of Indicator 5.2.3	Number of manufacturing employees on payroll _____ Direct and indirect employment estimate for the plan area _____
34	5.2.2	<p>Target: Safety training</p> <ul style="list-style-type: none"> a. 100% of DFA forest contractors will have both environmental and safety training. b. 100% of woodlands employees are trained in accordance with training plans. <p>Reporting:</p> <ul style="list-style-type: none"> a. Licensees will report the total number of forest contractors and identify the number that had received both environmental and safety training. b. Licensees will report the total number of forestland employees (staff) and identify the number that had received training in accordance with their training plan. 	<p>Total contractors _____</p> <p>Trained contractors _____</p> <p>Total forestlands employees _____</p> <p>Trained forestland employees _____</p> <p><i>Reporting can be either by TSA or for the entire Plan area. Report will roll up results.</i></p>

Appendix 3 – SFM Plan Reporting Format

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
35	7.2.1	<p>Target: Maintain and/or increase the number of working relationships (partnerships, joint ventures, cooperative agreements, memorandum of understanding, or business contracts) with First Nations. Additionally, report annually the percent of the three TSA’s committed volume that has been allocated to first Nations ventures.</p> <p>Reporting: Licensees will report on the number of working relationships with applicable First Nations (partnerships, joint ventures, co-operative agreements, memorandums of understanding, or business contracts over \$5,000 or over 500 cubic meters in volume) during the reporting year.</p> <p>Performance is based on a three year rolling average. 2016 performance target is achieved if the 14/15/16 average is \geq to the 13/14/15 average.</p> <p><i>Examples of a business contract include a work agreement or a direct timber sale with a First Nation Band or First Nation Contractor¹². For consistency in reporting, count multiple work agreements with one band or contractor or direct sales with one band or contractor as a single business contract. For example, multiple work agreements or multiple direct sales would count as a single business contract if they occurred with the same band or contractor. Licensees will report this figure as a rolling three year average. For annual reporting, the information for the current year will be combined with the previous two years reporting, then averaged for the three years. Examples of working relationships will be provided to indicate possible trends in the types of these relationships.</i></p> <p>Licensees will also report the total TSA committed volume of any tenure issued under Section 12 of the Forest Act (forms of agreement) where First Nations are the Licence holder. This volume will be looked at as a percentage of the total committed volume.</p>	<p>Number of working relationships _____</p> <p>Examples of relationships:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Committed volume allocated to First Nations _____</p> <p><i>Reporting by TSA.</i></p>
36	6.3.1	<p>Target: Where forest operations are planned within range units, the forest licensee will communicate with the rancher in advance of those operations to minimize impacts to affected ranchers.</p> <p>Reporting: Licensees will report percent of ranchers affected by planned operations that were communicated with during the reporting period.</p>	<p>Number of ranchers possibly affected by operations _____</p> <p>Number of affected ranchers communicated with during reporting period _____</p> <p><i>Reporting can be either by TSA or for the entire Plan area. Report will roll up results.</i></p>

¹² First Nation Contractor is a company where one or more of the principles are of First Nations decent.

Appendix 3 – SFM Plan Reporting Format

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
37	6.3.1	<p>Target: Communication of forest operations to occur with trappers 100% of the time in advance of operations (see annual reporting requirements on how this indicator is applied).</p> <p>Reporting: Where trappers holding a registered trap line advise forest Licensees of the areas that they will be active in a given year and seek to understand what forest operations might be occurring for that year, Licensees will report if they communicated with that trapper their planned forest operations.</p> <p>Should a forest Licensee’s plans change during that year such that operations will be conducted in areas not originally discussed (excluding areas discussed in general and identified as not being of concern to the trapper regardless of any operations taking place), companies will report if they made a concerted effort to contact that trapper and inform him/her of those operations.</p>	<p>Number of trappers desiring communication _____</p> <p>Number of trappers communicated with during reporting period _____</p> <p>Number of instances where plans changed possibly impacting trapper(s). _____</p> <p>Number of those instances where effort made to discuss changes with trapper(s). _____</p> <p><i>Reporting can be either by TSA or for the entire Plan area. Report will roll up results.</i></p>
38	6.2.1	<p>Target: A minimum of 80% of contractors conducting on the ground work that are SAFE Company or equivalent registered and/or certified.</p> <p>Reporting: Number of on the ground contractors in total working in the DFA and the number of those that are SAFE Company registered and/or certified.</p>	<p>Number of on the ground contractors _____</p> <p>Number SAFE Company registered and/or certified _____</p> <p><i>Reporting can be either by TSA or for the entire Plan area. Report will roll up results.</i></p>
39	6.2.2	<p>Target: All forest companies/organizations subscribing to the SFM Plan are SAFE Company certified or have a worker safety program that has been implemented and is periodically reviewed and improved.</p> <p>Reporting: A yes/no answer as to whether they are SAFE Company certified or otherwise have a worker safety program.</p>	<p>Licensee SAFE Company certified or have a safety program that is reviewed and improved (Y/N)</p>

Appendix 3 – SFM Plan Reporting Format

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
40	6.1.1	<p>Target: Active, engaged public advisory group</p> <ul style="list-style-type: none"> ▪ 80% of survey responses “3” or better ▪ All written comments are reviewed and considered, and all line responses averaging less than 3 become action items <p>Reporting: Survey to be sent out only to those public members that attended one of the meetings in the previous year.</p> <ol style="list-style-type: none"> a. Survey responses coded 1 (poor), 2, 3 (satisfactory), 4, 5 (well done) b. Results of survey compiled and reported as part of annual monitoring program. 	See survey form and public member comments.
41	6.1.2, 7.2.1, 6.5.1	<p>Target: Participating licensees will maintain educational support that leads to a balanced and broad-based understanding of forestry. Educational actions would include visits to schools, presentations to resource clubs, community meetings, public tours of operations and other similar events. Target 30 actions per year in the Kamloops TSA, 20 actions per year in the Merritt TSA, and 10 actions per year in Lillooet TSA.</p> <p>Reporting: Licensees will report on the number of educational actions such as school visits, tours, presentations to resource clubs and participation at community meetings during the reporting year. <i>Separate reporting for First Nations, where visit or activity is targeting them specifically.</i></p>	<p>Number of educational actions provided _____</p> <p>Number of educational actions provided specifically to First Nations _____</p> <p>Examples of educational actions provided</p> <p>_____</p> <p>_____</p> <p>_____</p> <p><i>Reporting by TSA</i></p>
42	6.1.3	<p>Target: Licensees will keep members of the public informed of TSA strategies being developed, and planning occurring by:</p> <ol style="list-style-type: none"> a. Maintaining a website b. Circulating SFM Plan and other information to the public at least annually (announcements/news releases/ open house/Local Resource Use Planning etc.) <p>Reporting: Licensees will report a yes/no answer as to whether web sites or other tools to disseminate information are being maintained. Licensees also report on the tools used to bring awareness to the SFMP and any other related information to the public in the last year.</p>	<p>Web site is being maintained? Yes ___ No ___</p> <p>SFM Plan and other information was made publicly available in the last year? Yes ___ No ___</p> <p>List other awareness tools used:</p> <p>_____</p> <p>_____</p> <p>_____</p>

Appendix 4: Summary of Publicly Developed Values, Objectives and Targets

Appendix 4 – Summary of Public Values, Objectives and Targets

CCFM CRITERION: 1) Biological Diversity

ELEMENT	VALUE	OBJECTIVE	INDICATOR	TARGET
<p>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.</p>	<p>Abundance and distribution of habitat to conserve populations of native flora and fauna</p>	<p>Maintain a variety of habitats for naturally occurring species. Use practices to reduce the spread of invasive plant populations within forested ecosystems</p>	<p>1.2.1 Degree of habitat protection for selected focal species, including species at risk.</p> <p>1.2.2 Degree of suitable habitat in the long term for selected focal species, including species at risk</p> <p>1.2.3 Proportion of regeneration comprised of native species</p> <p>1.2.4 Timing of grass seed application (non-core indicator)</p>	<p>6. Proactive habitat protection targets established in accordance with non-legally binding guidelines and best practices:</p> <ul style="list-style-type: none"> a. On an annual basis, obtain from the Conservation Data Centre, the location of known Red-listed or Blue-listed species within the Plan area b. Where there is a documented mapped (GPS/UTM) and field verified occurrence of a critical habitat feature (e.g. den, lick, nest) for a Red-listed or Blue-listed species operations achieve 100% consistency with SP measures deemed necessary by the participating licensee to prevent adverse harm. c. Based on the potential level of impact to any of the 3 TSAs, participate in the consultation process led by the Ministry of Environment and the Ministry of Forests and Range, in the identification of Ungulate Winter Range and Wildlife Habitat Areas and the development of General Wildlife Measures. d. Harvesting operations in areas designated as Ungulate Winter Range will be consistent with Plan commitments to manage for the specific ungulate species. <p>7. Affected licensees adhere to the current management strategies for mountain caribou.</p> <p>8. Affected licensees adhere to the current management strategies for northern spotted owl.</p> <p>9. Conserve or manage within the Kamloops TSA and in the Cascades Forest District habitat for selected focal species (listed within the text of the indicator) by retaining 100% of the amount of habitat (provided for in government’s FPPR Section 7 notice) in a condition suitable for the survival of the species.</p> <p>7. Affected licensees adhere to the current management strategies for mountain caribou.</p> <p>8. Affected licensees adhere to the current management strategies for northern spotted owl.</p> <p>10. 100% of trees planted will conform to plan commitments related to the species requirements within approved stocking standard (requires reforestation with commercially valuable and ecologically suitable tree species).</p> <p>11. All planned road cut and fill slope seeding application carried out using certified seed and within 12 months of completed road construction on suitable sites.</p>

Appendix 4 – Summary of Public Values, Objectives and Targets

CCFM CRITERION: 1) Biological Diversity

ELEMENT	VALUE	OBJECTIVE	INDICATOR	TARGET
<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 engineered trees.</p>	<p>Genetic diversity within all native tree species</p>	<p>Maintain genetic diversity of all tree species native to the DFA</p>	<p>1.1.2 Forest area by type or species composition</p> <p>1.2.3 Proportion of regeneration comprised of native species</p> <p>1.1.3 Forest area by seral stage or age class (No mandatory CSA indicators for this element)</p>	<p>2. 70 percent of areas submitted as free growing will have three or more tree species, including conifer and deciduous comprising one percent or more in the inventory label (all biogeoclimatic Zones except ESSF). Also report on the percent of first, second and third leading species for each area, then averaged for all areas.</p> <p>70 percent of areas submitted as free growing will have two or more tree species, including conifer and deciduous comprising one percent or more in the inventory label (ESSF only). Also report on the percent of first, second and third leading species (where 3rd species is present) for each area, then averaged for all areas.</p> <p>10. 100% of trees planted will conform to plan commitments related to the species requirements within approved stocking standard (requires reforestation with commercially valuable and ecologically suitable tree species).</p> <p>3. Progress towards a stable forest age class distribution on the timber harvesting land base where each age class to 80 years old [1 (1 to 20), 2 (21-40), 3 (41-60), and 4 (61 to 80)] occupies at least 8.5% of the timber harvesting land base in each of the 3 TSAs (Kamloops, Lillooet, Merritt) and for TFL 18. Three of the four age classes meet this target within 50 years for each TSA and TFL 18. Reporting to occur in conjunction with subsequent Timber Supply Reviews by TSA/TFL, then assessed/analyzed for the Plan Area.</p> <p>4. Maintain the existing old growth management area (no net loss).</p>

Appendix 4 – Summary of Public Values, Objectives and Targets

CCFM CRITERION: 1) Biological Diversity

ELEMENT	VALUE	OBJECTIVE	INDICATOR	TARGET
<p>1.4 Protected Areas and Sites of Special Biological, Geographical or Cultural Significance</p> <p>Respect protected areas identified through government processes. Co-operate in broader landscape management related to protected areas and sites of special biological and cultural significance.</p> <p>Identify sites of special biological, geological, , heritage or cultural significance within the DFA, and implement management strategies appropriate to their long-term maintenance.</p>	<p>Appropriate management of protected areas and sites of special geological, biological, and/or cultural significance.</p>	<p>Protected areas and sites of special significance are identified and appropriately managed.</p>	<p>1.4.1 Protection of sites of special significance.</p> <p>1.4.2 Proportion of identified sites with implemented management strategies</p>	<p>14. 100% protection of culturally important, sacred and spiritual sites that have been identified and mapped <u>and</u></p> <p>100% conformance to all plan commitments specifically designed to manage for culturally important, sacred, and spiritual sites that have been identified and mapped.</p> <p>15. Report the special geological features that were identified and managed. Additionally, Licensees will report the management activities that they undertook for each special geological feature.</p> <p><u>Kamloops</u></p> <p>12. Prioritized Red-listed ecological communities will be protected by retaining existing forest.</p> <p>Where the ecological community is “documented, mapped (GPS/UTM) and field verified” for the cutting permit or TSL area where operations are being planned and:</p> <ul style="list-style-type: none"> <input type="checkbox"/> the ecological community represents less than 10% of the cutting permit or TSL area, then the majority of the identified occurrence is protected. <input type="checkbox"/> the ecological community is greater than 10% of the gross area of either tenure noted above, then WTP placement will be weighted towards those communities. <p>Where the ecological community is not well documented (i.e. ecological mapping at the site series level is not available), the prioritized list of Red-listed ecological communities is used as a support tool to weight WTP placement, or other reserves, to the applicable site series in the block.</p> <p><u>Lillooet</u></p> <p>13. Harvesting not to exceed greater than 50% of the total of each identified rare landscape unit / BEC zone variants.</p> <p><u>Merritt</u></p> <p>26. Where operations are planned in areas field verified as a rare ecosystem (refer to Appendix 7), the accompanying recommendations will be adhered to. Target is 100% adherence with a 10% variance.</p>

Appendix 4 – Summary of Public Values, Objectives, and Targets

CCFM CRITERION: 2) Forest Ecosystem Condition and Productivity

ELEMENT	VALUE	OBJECTIVE	INDICATOR	TARGET
<p>2.1) Forest Ecosystem Condition and Productivity</p> <p>Conserve forest 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.</p>	<p>Productive, well functioning forest ecosystems</p>	<p>Well functioning connected ecosystems that are managed for timber and non timber forest values</p>	<p>2.1.1 Reforestation success</p> <p>2.1.2 (1.2.3) Proportion of regeneration comprised of native species.</p> <p>2.1.3 Additions and deletions to the forest area</p> <p>2.1.4 Proportion of the calculated long-term sustainable harvest level that is actually harvested</p> <p>3.2.2 Proportion of forest management activities, consistent with prescriptions to protect identified water features.</p>	<p>16. 90% of area prescribed for planting is completed within the third growing season from start date of harvest.</p> <p>17. All cutblocks will reach free growing requirements on or before the latest date. Report area of cutblocks that outperformed late free growing requirements and average time by which requirements were exceeded.</p> <p>10. 100% of trees planted will conform to plan commitments related to the species requirements within approved stocking standard (requires reforestation with commercially valuable and ecologically suitable tree species).</p> <p>18. Less than 6%, (7% within the Lillooet TSA), on average, of harvested areas will be in permanent roads and landings.</p> <p>19. Harvest the cut allocation for the year consistent with the cut control regulation and policy.</p> <p>20. 100% conformance to riparian and lakeshore commitments made within plans.</p>

Appendix 4 – Summary of Public Values, Objectives, and Targets

CCFM CRITERION: 3) Soil and Water

ELEMENT	VALUE	OBJECTIVE	INDICATOR	TARGET
<p>3.2 Water Quality and Quantity Conserve water resources by maintaining water quality and quantity.</p>	<p>Conservation of water quality and quantity.</p>	<p>Water quality and quantity that maintains pre-existing conditions and supports communities (human and ecological) and aquatic life</p>	<p>3.2.1 Proportion of watershed or water management areas with recent stand-replacing disturbance</p> <p>3.2.2 Proportion of forest management activities, consistent with prescriptions to protect identified water features.</p> <p>3.2.3 Managing water quality through road inspections (non-core indicator).</p> <p>1.2.4 Grass seeding application on newly constructed roads (non-core indicator).</p>	<p><u>Kamloops reporting only</u> 24. Equivalent clear cut area (ECA) not to exceed 35% without doing further hydrological assessments prior to harvesting. Target applies to the highest risk rated watersheds (post MPB) as identified in SFM Plan Appendix.</p> <p><u>Lillooet and Merritt reporting only</u> 24. Equivalent clear cut area (ECA) not to exceed 35% (at the sub-basin level) without doing further hydrological assessments prior to harvesting.</p> <p>20. 100% conformance to riparian and lakeshore commitments made within plans.</p> <p>25. All permanent status roads and associated structures will have inspections and related maintenance completed as scheduled.</p> <p>11. All planned road cut and fill slope seeding application carried out using certified seed and within 12 months of completed road construction on suitable sites.</p>

Appendix 4 – Summary of Public Values, Objectives, and Targets

CCFM CRITERION: 5) Economic and Social Benefits

ELEMENT	VALUE	OBJECTIVE	INDICATOR	TARGET
<p>5.1 Timber and Non-Timber Benefits</p> <p>Manage the forest sustainably to produce a mix of timber and non-timber benefits. Support a diversity of timber and non-timber forest products and forest based services.</p>	<p>A sustainable flow of timber and non-timber benefits that contribute to quality of life</p>	<p>Conserve or enhance non-timber values while managing forests for timber values and prosperous forest-based industries</p>	<p>5.1.1 Documentation of the diversity of timber and non-timber resources, including products and services produced in the DFA</p> <p>5.1.2 Evidence of open and respectful communications with forest dependant businesses, forest users and local communities to integrate non-timber resources into forest management planning. When significant disagreement occurs, efforts towards conflict resolution are documented</p>	<p>19. Harvest the cut allocation for the year consistent with the cut control regulation and policy.</p> <p>27. Open communication with local First Nations will include an understanding of traditional territories and other aboriginal rights including cultural and spiritual values Participating Licensees respond to all written requests for communication/information from First Nations.</p> <p>28. Licensees will demonstrate efforts by participating in public multi-stakeholder meetings at both the strategic and at the local level. Licensees will report on the number of community meetings held or attended. Licensees will also report on the number of communications with concerned and engaged recreational users. Participating licensees respond to all written requests from the public for communication within 30 days of their receipt.</p> <p>29. 100% conformance to strategies in plans designed to achieve preservation, retention and partial retention visual quality objectives.</p> <p>30. 100% of known pre-existing recreational trails (from LRDW) retained for continued recreational use on areas harvested in the reporting period.</p> <p>31. Report business initiatives and partnerships.</p> <p>27. Open communication with local First Nations will include an understanding of traditional territories and other aboriginal rights including cultural and spiritual values</p> <p>28. Licensees will demonstrate efforts by participating in public multi-stakeholder meetings at both the strategic and at the local level. Licensees will report on the number of community meetings held or attended. Licensees will also report on the number of communications with concerned and engaged recreational users.</p> <p>31. Report business initiatives and partnerships.</p>

Appendix 4 – Summary of Public Values, Objectives, and Targets

CCFM CRITERION: 5) Economic and Social Benefits

ELEMENT	VALUE	OBJECTIVE	INDICATOR	TARGET
<p>5.2 Communities and Sustainability</p> <p>Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and by supporting local community economies.</p>	<p>Sustained social and economic stability and vitality of all local communities</p>	<p>A productive forest resource that maintains a continual and balanced flow of benefits</p>	<p>5.2.1 Level of participation and support in initiatives that contribute to community sustainability</p> <p>5.2.2 Level of participation and support in training and skills development</p> <p>5.2.3 Level of direct and indirect employment</p>	<p>19. Harvest the cut allocation for the year consistent with the cut control regulation and policy.</p> <p>32. Report the board feet and chip volume produced by sawmills within the TSA.</p> <p>33. Report number of timber processing facility operating days, the total number of man hours worked and the number of mill employees on payroll. Report separately for each TSA.</p> <p>31. Report business initiatives and partnerships.</p> <p>34. 100% of DFA forest contractors will have both environmental and safety training (10% variance).</p> <p>100% of woodlands employees are trained in accordance with training plans (10% variance)</p> <p>19. Harvest the cut allocation for the year consistent with the cut control regulation and policy.</p> <p>32. Report the board feet and chip volume produced by sawmills within the TSA.</p> <p>33. Report number of timber processing facility operating days, the total number of man hours worked and the number of mill employees on payroll. Report separately for each TSA.</p>

Appendix 4 – Summary of Public Values, Objectives, and Targets

CCFM CRITERION: 6) Society’s Responsibilities

ELEMENT	VALUE	OBJECTIVE	INDICATOR	TARGET
<p>6.1 Fair and effective decision making</p> <p>Demonstrate that the SFM public participation process is designed and functioning to the satisfaction of the participants and that there is general public awareness of the process and its progress.</p>	<p>Recognition of advisory group values, shared knowledge, and informed decisions</p>	<p>Engaged, dynamic public participation process</p>	<p>6.1.1 Level of participant satisfaction with the public participation process</p> <p>6.1.2 Evidence of efforts to promote capacity development and meaningful participation in general</p> <p>6.1.3 Availability of summary information on issues of concern to the public.</p>	<p>40. Completion of annual PAG survey: 80% of survey responses “3” or better. All written comments are reviewed and considered, and all line responses averaging less than 3 become action items.</p> <p>41. Licensees will report on the number of educational actions such as school visits, tours, presentations to resource clubs and participation at community meetings during the reporting year. Target 30 actions per year in the Kamloops TSA, 20 actions per year in the Merritt TSA and 10 actions per year in Lillooet TSA. <i>Note: separate reporting for First Nations, where visit or activity is targeting FN’s specifically.</i></p> <p>28. Licensees will demonstrate efforts by participating in public multi-stakeholder meetings at both the strategic and at the local level. Licensees will report on the number of community meetings held or attended. Licensees will also report on the number of communications with concerned and engaged recreational users.</p> <p>42. Licensees will keep members of the public informed of TSA strategies being developed, and planning occurring by:</p> <ul style="list-style-type: none"> Maintaining a website. Circulating the SFM plan and other information to the public at least annually (announcements/news releases/ open house/Local Resource Use Planning etc.) Discuss other issues of concern raised by advisory group members at ongoing meetings.

Appendix 4 – Summary of Public Values, Objectives, and Targets

CCFM CRITERION: 6) Society’s Responsibilities

ELEMENT	VALUE	OBJECTIVE	INDICATOR	TARGET
<p>6.2 Safety</p> <p>Demonstrate that the organization is providing and promoting safe working conditions for its employees and contractors.</p>	<p>Economic benefits to society</p>	<p>A prosperous forest based economy with a sustainable supply of forest resources</p>	<p>6.2.1 Evidence of co-operation with DFA-related workers to improve and enhance safety standards, procedures, and outcomes in all DFA-related workplaces and affected communities</p> <p>6.2.2 Evidence that a worker safety program has been implemented and is periodically reviewed and improved</p>	<p>38. A minimum of 80% of contractors conducting on-the-ground work are SAFE Company, or equivalent, registered and/or certified.</p> <p>39. All forest companies/organizations subscribing to the SFM Plan are SAFE Company certified or have a worker safety program that has been implemented and is periodically reviewed and improved.</p>

Appendix 4 – Summary of Public Values, Objectives, and Targets

CCFM CRITERION: 6) Society’s Responsibilities

ELEMENT	VALUE	OBJECTIVE	INDICATOR	TARGET
<p>6.3 Forest Community well-being and resilience (Z809-08)</p>	<p>Refer to 2016 SFM Plan</p>	<p>Refer to 2016 SFM Plan</p>	<p>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 (Z809-08)</p>	<p>28. Public Communications</p> <p>a. Licensees will demonstrate efforts by participating in public multi-stakeholder meetings at both the strategic and at the local level. Licensees will report on the number of community meetings held or attended. Licensees will also report on the number of communications with concerned and engaged recreational users.</p> <p>b. Participating licensees respond to all written requests from the public for communication within 30 days of their receipt.</p> <p>29. 100% conformance to strategies in plans designed to achieve preservation, retention and partial retention visual quality objectives.</p> <p>31. Licensees will report and provide detail regarding local business initiatives and partnerships.</p> <p>36. Where forest operations are planned within range units, the forest licensee will communicate with the rancher in advance of those operations to minimize impacts to affected ranchers.</p> <p>37. Communication of forest operations to occur with trappers 100% of the time in advance of operations (see annual reporting requirements on how this indicator is applied).</p>
<p>6.5 Information for Decision-Making (Z809-08)</p>			<p>6.5.1 Number of people reached through educational outreach (Z809-08)</p>	<p>41. Participating licensees will maintain educational support that leads to a balanced and broad-based understanding of forestry. Educational actions would include visits to schools, presentations to resource clubs, community meetings, public tours of operations and other similar events, Target 30 actions per year in the Kamloops TSA, 20 actions per year in the Merritt TSA, and 10 actions per year in Lillooet TSA.</p>

Appendix 4 – Summary of Public Values, Objectives, and Targets

CCFM CRITERION: 7) Aboriginal Relations

ELEMENT	VALUE	OBJECTIVE	INDICATOR	TARGET
<p>7.1 Aboriginal and Treaty Rights</p> <p>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.</p>	<p>Aboriginal title and rights and treaty rights</p>	<p>Recognition of Aboriginal title and rights and treaty rights as related to forest management</p>	<p>7.1.1 Evidence of a good understanding of the nature of Aboriginal title and rights</p> <p>7.1.2 Evidence of ongoing and respectful communications with Aboriginal communities to foster meaningful engagement, and consideration of the information gained about their Aboriginal title and rights through this process. Where there is communicated disagreement regarding the organization’s forest management activities, this evidence would include documentation of efforts towards conflict resolution</p>	<p>27. Open communication with local First Nations will include an understanding of traditional territories and other aboriginal rights including cultural and spiritual values</p> <p>Participating Licensees respond to all written requests for communication/information from First Nations.</p> <p>27. Open communication with local First Nations will include an understanding of traditional territories and other aboriginal rights including cultural and spiritual values</p> <p>Participating Licensees respond to all written requests for communication/information from First Nations.</p>

Appendix 4 – Summary of Public Values, Objectives, and Targets

CCFM CRITERION: 7) Aboriginal Relations

ELEMENT	VALUE	OBJECTIVE	INDICATOR	TARGET
<p>7.2 Respect for Aboriginal Forest Values, Knowledge, and Uses</p> <p>Respect traditional Aboriginal forest values, knowledge and uses as identified through the Aboriginal input process.</p>	<p>Aboriginal title and rights, treaty rights and traditional knowledge are respected</p>	<p>Manage and/or protect important archaeological sites (as interpreted by First Nations)</p> <ul style="list-style-type: none"> • Cultural, archaeological, and heritage sites and values, including spiritual. • Use of traditional knowledge. • Meaningful and informed participation of First Nations 	<p>7.2.1 Evidence of efforts to promote capacity development and meaningful participation for Aboriginal individuals, communities and forest-based companies.</p> <p>7.2.2 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> <p>7.2.3 Level of management and/or protection of areas where culturally important practices and activities occur</p>	<p>35. Maintain and/or increase the number of working relationships (partnerships, joint ventures, co-operative agreements, business contracts) with First Nations.</p> <p>Report annually the percent of the TSA’s committed volume that has been allocated to first Nations ventures.</p> <p>41. Participating licensees will maintain educational support that leads to a balanced and broad-based understanding of forestry. Educational actions would include visits to schools, presentations to resource clubs, community meetings, public tours of operations and other similar events, Target 10 actions per year in the Kamloops TSA, 5 actions per year in the Merritt TSA, and 5 actions per year in Lillooet TSA.</p> <p>27. Open communication with local First Nations will include an understanding of traditional territories and other aboriginal rights including cultural and spiritual values</p> <p>Participating Licensees respond to all written requests for communication/information from First Nations.</p> <p>14. 100% protection of culturally important, sacred and spiritual sites that have been identified and mapped and</p> <p>100% conformance to all plan commitments specifically designed to manage for culturally important, sacred, and spiritual sites that have been identified and mapped.</p> <p>27. Open communication with local First Nations will include an understanding of traditional territories and other aboriginal rights including cultural and spiritual values</p> <p>Participating Licensees respond to all written requests for communication/information from First Nations.</p> <p>14. 100% protection of culturally important, sacred and spiritual sites that have been identified and mapped and</p> <p>100% conformance to all plan commitments specifically designed to manage for culturally important, sacred, and spiritual sites that have been identified and mapped.</p>

Appendix 5: Parking Lot

Introduction

This Appendix, referred to as a Parking Lot, is included in the SFMP to retain improvement ideas. The Parking lot is used to retain and track ideas that time, resources or other constraints precluded immediate attention to. Parking lot items will be reviewed periodically for potential follow-up. Options might include doing nothing (and either retain in parking lot or remove) or setting out a course of action to address the item.

Parking Lot Content

The former Merritt TSA SFM Plan retained a parking lot but had no improvement ideas/opportunities. The Lillooet TSA SFM Plan did not have a parking lot or other mechanism to retain improvement ideas. The Kamloops TSA SFM Plan had two items that were initially carried forward into the combined Plan. The current list of items is as follows:

1.	Review/update Information for Future Consideration (listed below)
2.	Merritt licensees to look into a rare ecosystem target for the Merritt TSA (indicator 1.4.1). Refer to May 19, 2010 PAG meeting and Nov 20, 2014 meeting update.

Information for Future Consideration

Planning for and improving sustainable forest management requires flexibility and the ability to incorporate new information and methods as they become available. Licensees are committed to increasing their knowledge and understanding of forest ecosystems and sustainable forest management practices. They support various types of research and monitoring both directly and indirectly and are committed to using new information as it becomes available.

Licensees recognize that, in order to allow for improved management decisions, there is a need for better inventories of key forest resources. In general, the gathering of inventories on resource features on Crown Forest Land outside of Tree Farm Licences are the responsibility of provincial government agencies. The responsibilities associated with a forest licence are limited to operational reporting and are primarily related to monitoring and tracking of obligations associated with activities performed under the licence. Licensees support government-led initiatives to improve, or add to, existing forest resource inventories and research projects.

The following research and information needs were previously recommended by the Kamloops TSA SFM Advisory Group members:

Integrating sustainable forest management with First Nations values:

- a. Traditional use and cultural heritage studies. This information is needed to protect and manage for cultural and socio-economic First Nations interests in operational and forest development planning and for the timber supply review process, including any and all referral processes.
- b. Methodologies need to be developed to advance the integration of traditional knowledge into sustainable forest management.

Biodiversity/flora and fauna:

- a. There is a need for developing and monitoring biological indicators of actual biodiversity values to verify the surrogate indicators, such as age class distribution or riparian reserves, identified in the SFM Plan (includes an assessment of monitoring tools and their effectiveness).
- b. Identifying gaps in species population and critical habitat data, especially rare and endangered species and working towards filling those gaps. Identifying ways to implement the information.
- c. Gain a better understanding of the rare trees and ecosystems in the DFA (ie. larch)

Water Management:

- a. The effectiveness of “green up” criterion for maintaining satisfactory hydrological recovery and to curtail runoff into streams.
- b. Stream temperature and specific suitable range to maintain healthy aquatic ecosystems.
- c. Monitoring of variables of water quality and quantity in selected streams, comparing developed and undeveloped watersheds of equivalent biogeoclimatic characteristics e.g., dry ecosystems and wetter ecosystems. Variables include: stream flow, climatic indices, snowpack, suspended sediment, turbidity, chemistry (could include nitrogen, pesticides, petroleum residues), aquatic invertebrates (as an indicator of water quality and the health of aquatic habitat) and channel stability (through periodic aerial surveys).
- d. The adequacy of current methods and schedules to assess water quality, quantity, stream flow, and temperature regimes.

Forest Management:

- a. Improve understanding of forest-grassland encroachment (historical harvesting, wildlife and livestock grazing, fires and fire suppression and climate change).
- b. How to minimize disruption of soil horizons and maintain productive mycorrhizal populations.
- c. Timber supply – further refine temporal and spatial analysis of timber supply information (including age class distribution).
- d. Large aggregate cutblock management strategies for salvage harvest of large scale natural disturbances.

Appendix 6: Wildlife Species at Risk

Appendix 6 – Wildlife Species at Risk

English Name	BC List	Identified Wildlife	SARA
American Badger	Red	Y (May 2004)	Y
Band-tailed Pigeon	Blue		Y
Bighorn Sheep	Blue	Y (Jun 2006)	
Brewer's Sparrow, <i>breweri</i> subspecies	Red	Y (Jun 2006)	
Bull Trout	Blue	Y (Jun 2006)	
Burrowing Owl	Red	Y (May 2004)	Y
Caribou (southern mountain population)	Red	Y (May 2004)	Y
Coastal Tailed Frog	Blue	Y (May 2004)	Y
Columbia Sculpin	Blue		Y
Dun Skipper	Red		Y
Fisher	Blue	Y (Jun 2006)	
Flammulated Owl	Blue	Y (May 2004)	Y
Fringed Myotis	Blue	Y (May 2004)	Y
Gopher Snake, <i>deserticola</i> subspecies	Blue	Y (May 2004)	
Great Basin Spadefoot	Blue	Y (May 2004)	Y
Great Blue Heron, <i>herodias</i> subspecies	Blue	Y (Jun 2006)	
Grizzly Bear	Blue	Y (May 2004)	
Half-moon Hairstreak	Red	Y (Jun 2006)	Y
Lewis's Woodpecker	Red	Y (May 2004)	Y
Long-billed Curlew	Blue	Y (May 2004)	Y
Monarch	Blue		Y
Olive-sided Flycatcher	Blue		Y
Peregrine Falcon, <i>anatum</i> subspecies	Red		Y
Prairie Falcon	Red	Y (Jun 2006)	
Racer	Blue	Y (Jun 2006)	Y
Rusty Blackbird	Blue		Y
Sage Thrasher	Red	Y (May 2004)	Y
Sharp-tailed Grouse, <i>columbianus</i> subspecies	Blue	Y (Jun 2006)	
Short-eared Owl	Blue	Y (May 2004)	Y
Sonora Skipper	Red	Y (Jun 2006)	Y
Speckled Dace	Red		Y
Spotted Bat	Blue	Y (May 2004)	Y
Spotted Owl	Red	Y (May 2004)	Y
Western Painted Turtle - Intermountain - Rocky Mountain Population	Blue		Y
Western Rattlesnake	Blue	Y (Jun 2006)	Y
Western Screech-Owl, <i>kennicottii</i> subspecies	Blue		Y
Western Screech-Owl, <i>macfarlanei</i> subspecies	Red	Y (May 2004)	Y
Western Skink	Blue		Y
Western Toad	Blue		
White-headed Woodpecker	Red	Y (May 2004)	Y
Williamson's Sapsucker, <i>thyroideus</i> subspecies	Red	Y (Jun 2006)	Y
Wolverine, <i>luscus</i> subspecies	Blue	Y (May 2004)	
Yellow-breasted Chat	Red	Y (May 2004)	Y

Data from BC Ecosystems Explorer: <http://a100.gov.bc.ca/pub/eswp/> Current as of July, 2014.

Includes wildlife species with provincial conservation status of Red and Blue, plus provincially and federally listed species (indicated above with “Y”). Species within the Cascades, Headwaters and Kamloops Forest Districts.

Appendix 7: Red-listed Ecological Communities

(Biogeoclimatic ecosystem variants that have been identified as having for rare ecosystem elements and additional management consideration)

Prioritized Red-listed Ecological Communities¹³

Kamloops TSA

Common Name	Biogeoclimatic classification
Douglas-fir / western snowberry / bluebunch wheatgrass	IDF _{xw} /03
Douglas-fir - ponderosa pine / bluebunch wheatgrass	IDF _{xw} /04
hybrid white spruce - water birch / northern gooseberry	IDF _{xw} /06
hybrid white spruce / prickly rose / palmate coltsfoot	IDF _{xw} /07
western hemlock / velvet-leaved blueberry - falsebox	ICH _{wk1} /03
western red cedar - hybrid white spruce / black twinberry / soft-leaved sedge	IDF _{dk2} /07
Douglas-fir - ponderosa pine / bluebunch wheatgrass	IDF _{xh2} /02 & IDF _{xh2} /03
lodgepole pine / falsebox / pinegrass	SBS _{mm} /03 & SBS _{mm} /04
Douglas-fir - Rocky Mountain juniper / kinnikinnick	IDF _{dk3} /02
Douglas-fir / common snowberry - saskatoon	PP _{xh2} /06
black cottonwood - water birch	PP _{xh2} /07

Lillooet TSA

Licensee	Landscape Unit	BEC	THLB / non-THLB	Total Productive Area (ha) 2005-16	Total Productive Area (ha) 2017 ¹⁴	Target (ha)	Area Harvested (current year in ha)	Cumulative Area Harvested (ha)
Aspen Planers Ltd	Duffey Lake	CWH _{ms} 1	THLB	89	872	<=50%	0	
			Non- THLB	20	309	<=50%	0	
	Pavilion	IDF _{dk3}	THLB	147	1353	<=50%	0	
			Non- THLB	18	1266	<=50%	0	
		MS _{xk3}	THLB	764	3164	<=50%	0	14
			Non- THLB	195	7438	<=50%	0	
	Watson Bar	IDF _{dk3}	THLB	168	1296	<=50%	0	
			Non- THLB	62	1075	<=50%	0	
		IDF _{xw}	THLB	177	889	<=50%	0	
			Non- THLB	77	2334	<=50%	0	
		MS _{xk3}	THLB	785	7380	<=50%	0	
			Non- THLB	234	3268	<=50%	0	

¹³ Refer to Indicator 1.4.1

¹⁴ Area figures based on Foresite analysis November, 2016

Appendix 7 – Red-Listed Ecological Species

Merritt TSA

BEC variant and Natural Disturbance Type (NDT)	PEM Code / CDC	Site Series	Area (ha) according to PEM report	Forested conifers	Forested Buffer Recommended	Comments / Ecosystem Description (Brief)	Allowable Variance to target	Forest Management Permitted within Target (excludes roads)
CWHms1 NDT2	02	02	309.4	Fd, PI	Windfirm	Fd-PI / kinnikinnick	10	Retain Fd vets and trees >60cm DBH, largest PI, snags, CWD, and trees >50cm DBH with deformities (cavities, broken tops, mistletoe); partial harvest: single tree selection or patch cuts (up to 0.5ha, >100m buffer between) retaining >59% crown closure, multi canopy layers, Fd dom
	03	03	693	Fd, Hw	Windfirm	Fd-Hw-Falsbox	10	Retain Fd vets and trees >60cm DBH, largest PI, snags, CWD, and trees >50cm DBH with deformities (cavities, broken tops, mistletoe); partial harvest: single tree selection or patch cuts (up to 0.5ha, >100m buffer between) retaining >59% crown closure, multi canopy layers, Fd dom
ESSFdc2 NDT3	103	03	2938.4	Fd, PI	Windfirm	only where Fd-PI and on South aspects	10	Retain Fd vets > 60 cm dbh & largest PI stems. Partial harvest maintaining Fd dominance: patch or single tree selection with removal up to 50% of 30-59cm DBH, up to 90% smaller trees. On south aspects, retain up to 70% Fd, all FD >50cm DBH
	1024	02	1550.3	PI	Windfirm	shallow soils	10	Retain and recruit largest PI in stand, maintaining dominant canopy layer; partial harvest removal up to 80% sub-dominant canopy / smaller PI ; winter harvest if practicable
MSdm2 NDT3	102	02	1156.8	Fd, PI	Windfirm	Fd-PI / Juniper, Kinninnick	10	Retain largest Fd on site and only largest PI in the stand. Partial cut: remove sub-dominant canopy PI and up to 50% sub-dominant canopy Fd. Winter harvest if practicable.
	1112	06	455.3	Sx	Windfirm or FRPA Regs	Sxw-Devil's club	10	Retain old stands with >60cm DBH, >70% canopy closure. Partial cut (single tree removal) in mature and younger stands to retain and recruit large diameter and veteran Sx for understory shading to encourage Devil's Club: up to 50% stem removal in non-dominant canopy layers.

Appendix 8: Risk-Based Watersheds for the Kamloops Timber Supply Area

**Based on the May, 2012
Watershed Risk Analysis**

Prepared For:

BC Ministry of Forests, Lands and Natural Resource Operations

Prepared By:

Forsite Consulting Ltd.

M.J. Milne & Associates Ltd.

List of Highest Risk-Based Watersheds – Kamloops TSA

Top 25 watershed units based on social risk scores: May 24, 2012 Report (Table 1).

Participating Licensees retain the current digital file for this map.

Rank	Watershed	Risk Score
1	Louis Creek	10
2	Barriere River	9.8
3	Barriere River residual	9.7
4	Lower Bonaparte River residual	9.1
5	Barriere-Badger residual	8.1
6	Monte-Peterson (2) residual	8
7	Jamieson-Kamloops residual	7.9
8	North Kamloops residual	7.9
9	West Blackpool residual	7.8
10	Barnes-Pukaist residual	7.6
11	Peterson Creek 1	7.3
12	South Kamloops residual	7.3
13	Heffley-Paul residual	7.2
14	Peterson Creek (1) residual	7.1
15	Battle-Bonaparte residual	7
16	McGregor-Kamloops residual	7
17	Bonaparte River	6.7
18	Heffley Creek	6.7
19	Russell-Hascheak Creek	6.2
20	Clearwater residual	6.2
21	Lindquist Creek	6.2
22	East Blackpool residual	6.1
23	Gulch-McGregor residual	6
24	Leonie Creek	5.9
25	Lemeiux Creek	5.8