2016 Annual Report
Sustainable Forest Management Plan
Canfor Kootenay Operations

Canadian Forest Products Ltd.
Kootenay Operations

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Executive Summary

Canfor's East Kootenay Operations is certified with two Sustainable Forest Management Certification schemes. The Radium Forest License is currently certified under the CSA Standard (Z8098-08). The rest of Canfor's East Kootenay Operating Area is certified under the Forest Stewardship Council (FSC) BC 2005 Standard. A project to amalgamate the two SFMP's was completed in 2016.

This is the third Annual Report of the NEW 2016 Sustainable Forest Management Plan (SFMP) for the Canfor's East Kootenay Region. This report summarizes the progress and performance made by Canfor to achieve the results within the East Kootenay DFA Sustainable Forest Management Plan (SFMP). In last year's report, several indicators were listed as "Variable" when they could have been listed as "Achieved", "Pending" or "Not met". The results in this report follow the three categories. These results do not include the Wyndell license.

Each of the four main value areas – ecological, economic, social, and First Nations – has a suite of associated measures and targets. The following table summarizes Canfor's overall achievements of meeting the assigned targets. This report provides information that demonstrates Canfor's performance relative to the indicators.

Classification	Ecological	Economic Social	First Nations
Number of Targets Achieved	*31*	*14*	*7*
Number of Targets Pending	*4*	*0*	*0*
No Change from Current Condition in SFMP	*4*	*0*	*0*
Number of Targets Not Met	*2*	*0*	*0*
Total	*41*	*14*	*7*

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1.0 Introduction

Canfor's Sustainable Forest Management is based upon a set of local criteria, indicators, measures and targets; initially developed in 2003 from a review of national and internationally recognized frameworks of sustainable forest management and updated periodically. A corresponding set of strategies in the company's Sustainable Forest Management Plan (SFMP) specify how Canfor will achieve those goals throughout their Kootenay Defined Forest Area (DFA, please refer to Section 3.0 of the SFMP for a detailed description). The Criteria[1], Indicators[2] and strategies described in the SFMP are consistent with the company's environmental program and are intended to satisfy many aspects of the Canfor's Forest Stewardship Council (FSC) forest management certification to the BC Regional Standard and Canadian Standards Association (CSA) Sustainable Forest Management Requirements and Guidance. The Wyndell license (FL A20214) is not included in these results.

Canfor's Annual Report (AR) is a companion document to the current SFMP and is an important aspect of the long-term evaluation, assessment and monitoring of the SFMP's effectiveness. As part of the continuous improvement and Adaptive Management principle, it is a critical part of the feedback loop in the Sustainable Forest Management Framework and process. The Annual Report presents information about Canfor's Forest Management Group (FMG) operations in the Kootenay Region in four broad categories – First Nations, environmental, economic and social. The statistical information and commentary is intended to report on the status of the goals in the SFMP.

Many of the larger wood products customers require that a forest company have Sustainable Forestry Initiative (SFI), Canadian Standards Association (CSA) or Forest Stewardship Council (FSC) third party certification for their woodlands operations. Canfor in the East Kootenay maintains CSA, SFI and FSC.

SFM Framework

Canfor's Sustainable Forest Management Framework uses a *Criteria and Indicator* approach to achieve its forest management objectives. Initially Criteria are established for *Ecological, Social, and Economic* values, and several key Indicators identified for each criterion. For each indictor a measurable target is also established. Assuming suitable indicators have been chosen for each criterion, and an appropriate cost-effective means to measure the value has been established - planned measurements can be made and compiled for analysis. The *Sustainable Forest Management Plan: Canfor Kootenay Operations* (October 2016) contains the full set of local Criteria, Indicators, Measures and Targets. The current SFMP outlines the strategies that will be implemented, and an approach for monitoring each target. Minor modifications have been made to the Local Criteria and Indicators over the years and the current version is available upon request.

Often in forestry the measurements and frequency of information collected will vary depending upon what is being collected, and why. As Canfor implements, and reports on the targets set out it will be possible to evaluate the suitability of each measure toward meeting the desired outcome. From this information, Canfor will be able to determine appropriate and necessary changes to the SFMP, and applicable operational practices. In a practicable sense, it is Canfor's intention to establish longer-term (five year) trends/data and information with regard to the established indicators and strategies. This will

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[1] Criteria – are broad management statements that can be demonstrated through the repeated, long-term measurement of associated indicators.

[2] Indicators – are used to help assess the success of meeting the sustainable forest management criteria and are periodically monitored to assess their suitability to represent the intent of the criteria.

provide useful guidance for periodic plan revisions and, where necessary, changes to the criteria, indicators and measures of sustainability.

Focused and Public Review

An important goal of the Annual Report is to document and inform our managers and resource staff on our progress toward meeting the sustainable forest management goals. On-going improvements to Canfor's forest management practices also rely upon informed advice and participation from a wide range of interests, as well as directly affected parties with regard to our forest activities. As such our FMG staff seeks input on an on-going basis, both formally and informally through numerous processes. Each year this report is made available for comments and stakeholder input, through our various advisory and consultation process including being posted to the Canfor corporate website.

Kootenay Forest Management Units

In March 2012, Canfor acquired Tembec's major forest licenses in the Kootenay Region. Canfor completed the acquisition of Wyndell Box and Lumber in April 2016. Canfor's primary forest tenures in the East Kootenay were FSC certified beginning in the fall of 2004. Canfor's Radium license, FL A18979, is CSA certified (Table 1). Wyndell holds SFI certification. In addition, over the past several years, an assortment of additional non-renewable, renewable and minor licences have been issued to Canfor by the province. In some cases Canfor manages these tenures on behalf of their owner, such as a First Nation business or organization (Table 2). Often these minor tenures are not included in the SFMP nor are they within the scope of Canfor's Forest Management certifications. The 'management unit' (MU[3]) descriptions in this report are based on the provincial government licenses and tenures. Using this approach allows for Annual reporting of the results for all Canfor's forest management units/tenures, regardless of being 'certified' or not.

Table 1: Forest Management Group (FMG) Administrative Organization (since 2016)

Timber Supply Area (TSA)	Major Tenures Licences	Certified
Tree Farm Licence 14	**TFL 14**	**FSC**
Invermere TSA	**FL A18978**	**FSC**
Invermere TSA	**FL A18979**	**CSA**
Kootenay Lake TSA	**FL A20212**	**FSC**
Cranbrook TSA	**FL A19040**	**FSC**
Kootenay Lake TSA	**FL A20214**	**SFI**

Table 2: Forest Management Units (Tenures /Licences) for Kootenay FMG (2016)

Minor Tenures		Timber Supply Area (TSA)	Certified
NRFL A86246	Lower Kootenay Band	Kootenay Lake TSA	FSC
NRFL A86450	Skookumchuk Pasture	Invermere TSA	No
NRFL A84741	Rouse Pasture	Cranbrook TSA	No
NRFL A81369	Nupqu Inv	Invermere TSA	FSC
NRFL A81368	Kinbasket Dev Corp	Cranbrook TSA	FSC
NRFL A82929	NUPQU	Cranbrook TSA	FSC
NRFL A88226	Tobacco Plains	Cranbrook TSA	FSC
NRFL A82928	Tobacco Plains	Cranbrook TSA	FSC
RFL A91306	?Aq'am	Cranbrook TSA	FSC

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[3] Management Unit is the term used by FSC to describe the area of the forest that is certified.

Minor Tenures		Timber Supply Area (TSA)	Certified
RFL A91309	Lower Kootenay Band	Kootenay Lake TSA	FSC
RFL A91310	Shuswap Indian Band	Invermere TSA	CSA
K1W	Ktunaxa Nation Council	Federal Dominion Coal – Block Lands	No

2.0 Strategic Level

The strategic level for SFM establishes broad management objectives or sustainability criteria over as large an area as possible over a long time frame (from 100 to 300 years). At this level, the overall strategy for the DFA is defined.

The Canadian Council of Forest Ministers (CCFM) Criteria and Indicators (C&I) and the Forest Stewardship Council FSC-BC Standards guided the development of the SFM Criteria and Indicators that were used as a starting point for the original SFM Plan (2004). The current SFMP aligns with CSA Z809-08 standard, Canfor core indicators and FSC-BC Standard, October 2005. Even though the C&I numbering structure follows the CSA Standard, many of the locally developed Indicators address the specific requirements of the FSC Standard.

The establishment of Criteria, Elements, Indicators and Targets is undertaken at the strategic level. They can be used both to gauge the sustainability of strategic alternatives and assess broad trade-offs. Elicitation and consideration of stakeholder and public views on the indicators and targets, and the priorities amongst them, are an important component of this level. The information and strategies developed at the strategic level are used to guide the tactical and operational level activities.

A summary listing of locally important Criteria, Elements, and Indicators for the Ecological (Table 3), Economic and Social (Table 4) Values are provided below.

Table 3: Kootenay DFA Criteria, Element & Indicators – Ecological Values

C1. Biological Diversity
1.1 Ecosystem Diversity
1.1.1a – Ecosystem Representation
1.1.1b (1.4.1a) – Protected Reserves
1.1.1c – Patch Size Distribution by Natural Disturbance Type
1.1.2 – Distribution of Forest Type
1.1.3a (4.1.1) – Old and Mature Forest Retention
1.1.3b – Seral and Structural Stages Relative to RNV
1.1.3c – Interior Forest Habitat
1.1.4.a – Green Tree and Snag Retention
1.1.4b – Landscape Unit Wildlife Tree Patch Retention
1.1.4c – High Value Snags
1.1.5 – Riparian Management
1.2 & 1.3 Species & Genetic Diversity
1.2.1 – Species of Management Concern – Habitat Protection
1.2.2 – Species of Management Concern – Habitat Suitability
1.2.3a/1.3.1a (4.1.3) – Tree Seed
1.2.3b/1.3.1b – Natural Regeneration
1.2.3c/1.3.1c (2.1.3, 4.1.4) – Mix of Species Planted
1.2.4 – Managing for Species Diversity during Tree Thinning
1.4 Protected Areas & Sites
1.4.1a (1.1.1b) – Protected Reserves
1.4.1b – Sites of Biological Significance
1.4.1c – High Conservation Value Forests

1.4.2 (6.1.3) – Protection Of Identified Sacred And Culturally Important Sites
C2. Ecosystem Condition & Productivity
2.1 Forest Ecosystem Resilience
2.1.1 (4.1.2) – Reforestation Success
2.1.2 – Invasive Plants
2.1.3 (1.2.3c/1.3.1c, 4.1.4) – Mix of Species Planted
2.2 Forest Ecosystem Productivity
2.2.1a (4.2.1) – Permanent Access Structures
2.2.1b – Landslides
2.2.1c (4.2.1)– Land Conversion
2.2.2 (5.1.1a) – Volume Harvested Vs. Allocated
C3.Soil & Water
3.1 Soil Quality & Quantity
3.1.1 – Detrimental Soil Disturbance
3.1.2 – Coarse Woody Debris
3.2 Water Quality & Quantity
3.2.1a – Sensitive Watersheds
3.2.1b – Stream Crossing Sedimentation Control
C4. Role of Global Ecological Cycles
4.1 Carbon Uptake and Storage
4.1.1 (1.1.3a)– Retention of Existing Old Forest
4.1.2 (2.1.1) – Reforestation Success
4.1.3 (1.2.3a/1.3.1a) – Tree Seed
4.1.4 – Climate Change Adaptation
4.2 Forest Land Conversion
4.2.1 (2.2.1a) – Permanent Access Structures
4.2.2 (2.2.1c) – Land Conversion

Table 4: Kootenay DFA Criteria, Element & Indicators – Economic & Social Values

C5. Economic & Social Benefits
5.1 Timber & Non-Timber Benefits
5.1.1a (2.2.2) – Volume Harvested Vs. Allocated
5.1.1b – Non-Timber Benefits
5.1.1c – Overlapping Tenures
5.2 Communities & Sustainability
5.2.1a – Investment In Local Communities – Local Procurement
5.2.1b – Investment In Local Communities – Sponsorships, Donations and Scholarships
5.2.2 – Environmental & Safety Training
5.2.3 – Direct & Indirect Employment
5.2.4 – Level of Aboriginal Participation in the Forest Economy
C6. Society's Responsibility
6.1 Aboriginal & Treaty Rights
6.1.1 – Aboriginal Awareness Training
6.1.2 (6.4.3) – Aboriginal Understanding of the Plans
6.1.3 (1.4.2) – Level of Management &/or Protection – Aboriginal Culturally Important Sites, Practices & Activities
6.2 Aboriginal Forest Values, Knowledge & Uses
6.2.1 – Evidence of Understanding and Use of Aboriginal Knowledge
6.3 Forest Community Well-Being & Resilience
6.3.1 – Primary And By-Products
6.3.2 & 6.3.3 – Certified Safety Program

6.4 Fair & Effective Decision-Making	
6.4.1 – PAG Satisfaction	
6.4.2 – Educational Opportunities – Information/Training	
6.4.3 (6.1.2) – Aboriginal Understanding of the Plans	
6.5 Information for Decision-Making	
6.5.1 – Educational Opportunity	
6.5.2 – SFM Monitoring Report Public	

Criterion 1 – Biological Diversity

Element 1.1 – Ecosystem Diversity

Indicator 1.1.1a – Ecosystem Representation

Indicator Statement	Target (Variance)	Results
Representation of ecosystem groups across the DFA	• Rare Ecosystems – Reserve (0 ha with harvest or roads)	Achieved
	• Uncommon ecosystems – Reserve and/or retain high levels of structural retention for those ecosystems below target levels	Achieved
	• Common ecosystems – Maintain at least 25% of each ecosystem in the NHLB (Non-Harvestable Land base) or under an ecosystem restoration or High Conservation Value Forest management regime.	Achieved – Five of eight ecosystems have >25% in NHLB; the two of the three below 25% have HCVFs designated within them up to target levels. Group 4 will be re-assessed against targets after representation analysis re-done.

The results for this indicator for rare and uncommon ecosystems are based on data from cutblocks harvested (Harvest Complete) between 1 January 2016 and 31 December 2016. GIS overlay analysis indicated that no blocks contained rare ecosystems within their net area (the area of the block that is harvested, not including reserves), thus achieving the target for rare ecosystems. A list of rare ecosystems can be found in Table 32 in the SFMP, under the Ecosystem Representation Indicator (1.1.1a).

No uncommon ecosystems with representation below target levels were harvested, thus achieving the target for uncommon ecosystems.

Two of the three common ecosystems that are below the NHLB target of 25% include the BEC variants which have been identified as those being the furthest from historic conditions, and which require ecosystem restoration to restore their conservation value and habitat for threatened and endangered species. Simply identifying areas to protect from logging as part of a protected reserves network will not achieve the ecological goals for these ecosystems, because, on most sites, trees have encroached and ingrown onto the grasslands and Open Forest within them and must be removed to restore the ecological function of the site. There are several HCVFs that overlap with these common ecosystems, and have

ecosystem restoration as their management strategy. The amount of overlap between these common ecosystem types and HCVFs has been calculated and compared against the amounts to be added to NHLB, harvested under Ecosystem Management, or HCVF Management to meet targets as listed in Table 37 of the SFMP. The area of HCVFs in common ecosystem types was much greater than the target amount; details of this analysis are found in Appendix I.

In addition, one common ecosystem group (Group 4, Circum-mesic ICHdw/dm) requires an additional 730 ha to be added to NHLB, harvested under Ecosystem Management, or HCVF Management to meet targets as listed in Table 37 of the SFMP. Estimates for actual vs. target areas for this group will be calculated after the new BECs are finalized and the representation analysis has been redone.

Indicator 1.1.1b (1.4.1a) – Protected Reserves

Indicator Statement	Target (Variance)	Results
Percent of area in protected reserves, by BGC variant and management unit, within the DFA	12 – 24%	Achieved, with consideration of HCVFs in the IDFdm2 and PPdh

The specific targets for each BGC/ecological unit within each Licence unit are shown in Tables 39-42 of the SFMP, together with the surpluses and deficits relative to the targets. Table 5 and Table 6 below provide a summary of the results and the actions taken to address any deficits that exist. This indicator is only specific to the FSC Standard.

Deficits relative to targets were primarily found within the lowest elevation BGC variants; the PPdh2 and IDFdm2. In these ecosystems, restoration, rather than protection, is often required in order to maintain native species and ecological processes. This is because of the change in fire regimes since European settlement, and the resultant increase in tree ingrowth and encroachment onto grasslands and open forests (See SFMP Section 4.3 The Range of Natural Variability) for more detail). Thus, a key strategy for meeting protected area targets in these variants is the application of ecosystem restoration logging (following the Best Management Practices for Ecosystem Restoration), followed by prescribed burning, rather than setting areas aside as protected reserves. Since there are many HCVFs in these BEC variants that have ecosystem restoration as their management strategy, in 2016 the deficits were examined relative to HCVF amounts. The area of HCVFs in these BEC variants was much greater than the deficit area; details are found in Appendix II.

Table 5: Summary of results of Protected Areas Analysis and Actions

Management Unit (MU)	Total BEC Variants/ Ecological units in MU	No. BEC variants where target not achieved by reserves alone	BEC variants below target	Actions taken to address deficits
TFL 14	9	2	ICHwm1, ICHmk1	Additional reserves established to meet target levels
A18978	8	2	IDFdm2, PPdh2	HCVFs designated in these BECs to meet target levels
A18979	22	2	IDFdm2, MSdk2	IDFdm2 – HCVFs designated to target level, MSdk – additional reserves established to meet target
A19040/ A20212	18	2	IDFdm2,	HCVFs designated to meet

Management Unit (MU)	Total BEC Variants/ Ecological units in MU	No. BEC variants where target not achieved by reserves alone	BEC variants below target	Actions taken to address deficits
			PPdh2	target levels

Changes in this indicator occur gradually in most BEC variants, due to the large area of the unit relative to the small amount harvested each year in that unit. Thus, this analysis is re-done every 10 years, or within 2 years of a new TSR being completed. Until the new analysis is completed, the amount of harvesting in the inoperable area is being tracked. Since the inoperable is treated as a reserve in the analysis, harvesting within it depletes the area of reserves and could cause some BEC units to fall below target. For further explanation, see Indicator 1.1.1b in the SFMP.

In 2016, GIS overlay analysis indicated 42 blocks had some amount of harvesting above the operability line, ranging from 0.02 ha to 28.9 ha. All variants in which harvesting occurred above the operability line had large surpluses of protected reserves (Table 6), meaning that the small amount of activity that occurred did not create any deficits with respect to targets. In addition, no harvesting or road building above the operability line occurred on any unique or ecologically sensitive sites, including rare and uncommon ecosystem groups, caribou habitat, and whitebark pine leading stands (Impact on special values, Table 6).

The protected reserves analysis will be run within two years of the legal adoption of new mapping of BE variants.

Table 6: Harvesting Above Operability Line or on Unique/Ecologically Sensitive Sites

License Management Unit	BEC variant[1]	Surplus Reserves[2] (ha)	Area (ha) impacted by harvesting		Current Reserves (Surplus minus harvest-to-date)	Impact 2007-2016 on special values?
			2016	2007-2015		
TFL 14	ESSFdk	1,822	0	16	1,805	No
	ESSFwm	5,033	0	2	5,031	No
A18978 (includes MF72, A81369)	ESSFdk	49,080	0	229	48,866	No
	MSdk	8,984	0	57	8,927	No
	ICHmk	289	0	10	279	No
	IDFdm2	1,401*	0	3	1,399	No
	ESSFdku	23,531	0	5	23,526	No
A18979** (includes A90310)	ESSFdk	55,455	91	132	55,270	No
	ICHmk	8,282	33	21	8,232	No
	IDFdm2	861	0	0	861	No
	MSdk	9329	0	78	9,252	No
A19040 and A20212 (includes	ESSFdk	66,321	53	1010	65,344	No
	ESSFdm	22,968	1	109	22,859	No

License Management Unit	BEC variant[1]	Surplus Reserves[2] (ha)	Area (ha) impacted by harvesting		Current Reserves (Surplus minus harvest-to-date)	Impact 2007-2016 on special values?
			2016	2007-2015		
A80321, K1W)	ESSFwm	20,717	0	24	20,693	No
	MSdk1/2	8,965	47	392	8,535	No
	ICHdm	9,772	2	171	9,599	No
	ICHdw1	1,491	0	20	1,471	No
	ICHmk1	3,392	0	110	3,282	No
	IDFdm2	11,684	0	17	11,674	No

[1] *BEC variants not included in this table that are known to occur within the areas have not been impacted by harvesting.*
[2] *Surplus reserves come from 2006 data for TFL 14 and A18978, and from 2012 data for A19040 and A20212*
*Considering HCVF as reserves, as per the Protected Areas report.
**Area impacted by harvesting for 2014-2016 only

Indicator 1.1.1c – Patch Size Distribution

Indicator Statement	Target (Variance)	Results
Patch size distribution by Natural Disturbance Type (NDT), within Ecosections	Trend towards patch size distribution targets as defined in the Biodiversity Guidebook (Table 21), by Natural Disturbance Type (NDT) within Ecosections, over the mid-term (20-50 yrs)	Trend to be evaluated in 2020

Current patch size distributions by Landscape Unit and License are available in the 2015 Annual Report, with further information available in the 2016 SFMP. In general, current condition (determined in 2015) indicates that:

- In NDT2, there are too many small patches (< 40 ha) and not enough patches between 40-80 ha. Very large patches (250+ ha) are within target.

- In NDT3, there are either too many patches < 40 and 40-250 ha, or these size of patches are within targets (depending on the ecosection). There are typically too few patches in the larger size classes of 250-1000 and > 1000.

- In NDT4, there are too few patches in the 40-80 ha size class and a trend towards too many patches in the larger size classes (80-250, 250+).

Patch size distributions are relatively slow to change through time, however, it is forecasted that patch size distributions will trend towards targets over the mid-term through implementation of the Patch Size Distribution Strategy, where there are specific targets for percent distribution of patch size (Table 7, also available in the 2016 SFMP).

Table 7. Target Patch Size Distributions for the NDTs in Canfor's DFA

NDT2		NDT3		NDT4	
Patch size (ha)	Target Percentage Range	Patch size (ha)	Target Percentage Range	Patch size (ha)	Target Percentage Range
<40	30-40	<40	15-25	<40	30-40
40-80	30-40	40-250	20-40	40-80	30-40
80-250	20-40	250-1000	30-50	80-250	20-30

250+	0-5	1000+	10-20	250+	5-15

Patch size distributions will be recalculated in 2020, or earlier if a major natural disturbance event occurs that impacts patch size distributions, with results presented in the Annual Report for that year. This indicator is applicable to both CSA and FSC.

Indicator 1.1.2 – Distribution of Forest Type

Indicator Statement	Target (Variance)	Results
Percent distribution of forest type across the DFA	No significant decline (> 10% of the total amount) in broadleaf or mixedwood types by BEC zone, over a 10-year period	N/A – Trend to be evaluated in 2020

The area under analysis included the entire landbase in the DFA, excluding private land, provincial parks, and woodlots. The broad forest types are defined in Table 8, further information for which is found in the current SFMP. Estimates for percent composition are derived from a combination of the BC Land Cover Classification Scheme (subset of the VRI data), BEC, and harvest data.

This indicator will be reported out on a 5-year basis, based on calculations done by the Woodlands Information Management (WIM) team using VRI data updated with the Reporting Silviculture Updates and Land Status Tracking System (RESULTS). WIM has a standardized code for this calculation that they follow (available from the WIM team or GIS Analyst). Reporting on a more frequent basis is not necessary because the indicator will change very slowly due to the large scale of the analysis (licence-wide) and the relatively small changes that occur each year in each category. The current (as of September 2016) percent distribution of forest type across the DFA by major licence is shown in Table 9.

Table 8: Definitions of broad forest types

Forest Type	Description
0 – 10 Years	Recently disturbed areas, either from harvesting or natural disturbance (i.e. fires more than 3 years old). Too early in succession to classify confidently as mixedwood, deciduous or conifer leading.
11 – 30 Years	
Conifer*	Percent composition conifer is at least 75%
Mixed*	Neither deciduous nor conifer has percent composition greater than 75%
Deciduous*	Percent composition deciduous is at least 75%
Non-Forest	Vegetated areas with than 10% tree cover, predominantly grassland areas
Non-Productive (Natural)	Areas that do not fall into the other broad categories; also includes alpine BECs, avalanche paths, naturally non-vegetated areas
Roads and Landing	Temp constructed roads, spur roads, FSRs, gravel mainlines, paved roads, and landings
Water	Areas classified by the VRI as water

All five licences are dominated by conifer stands, and there are small percentages of broadleaf and mixedwood stands. Over the next five years, no significant declines in the total amount of broadwood or mixedwood types are expected to occur as Canfor does not target hardwoods for harvest.

Table 9: Percent distribution of broad type by BEC by Forest License as of September 2016

Forest License	Forest Type and Age Class	BEC zone						Grand Total
		ESSF	ICH	IDF	IMA*	MS	PP	

Forest License	Forest Type and Age Class	BEC zone						
		ESSF	ICH	IDF	IMA*	MS	PP	Grand Total
A18978	0 - 10 Years	3%	17%	9%	0%	8%	13%	16477
	11 - 30 Years	11%	14%	19%	0%	22%	11%	43329
	Conifer 31 - 90 Years	9%	28%	19%	0%	23%	23%	44064
	Conifer >90 Years	33%	29%	27%	0%	36%	24%	98569
	Mixed 31 - 90 Years	0%	2%	2%	0%	1%	1%	1484
	Mixed > 90 Years	0%	1%	0%	0%	0%	0%	541
	Deciduous 31 - 90 Years	0%	0%	1%	0%	1%	0%	876
	Deciduous > 90 Years	0%	0%	0%	0%	0%	0%	116
	Non-Forest	1%	0%	1%	0%	0%	1%	3061
	Non-Productive (Natural)	42%	6%	11%	100%	6%	21%	95341
	Roads	1%	3%	2%	0%	2%	2%	3712
	Landings	0%	1%	0%	0%	0%	0%	523
	Water	0%	0%	9%	0%	1%	4%	4796
A18979	0 - 10 Years	1%	6%	4%	0%	10%	0%	12505
	11 - 30 Years	5%	15%	15%	0%	19%	0%	30998
	Conifer 31 - 90 Years	7%	18%	17%	0%	19%	0%	37051
	Conifer >90 Years	37%	49%	29%	0%	42%	0%	119054
	Mixed 31 - 90 Years	0%	1%	1%	0%	0%	0%	1009
	Mixed > 90 Years	0%	0%	1%	0%	1%	0%	910
	Deciduous 31 - 90 Years	0%	1%	1%	0%	0%	0%	661
	Deciduous > 90 Years	0%	0%	1%	0%	0%	0%	413
	Non-Forest	0%	0%	2%	0%	0%	0%	1408
	Non-Productive (Natural)	49%	6%	21%	100%	6%	0%	162544
	Roads	0%	2%	2%	0%	2%	0%	3304
	Landings	0%	0%	0%	0%	0%	0%	20
	Water	0%	2%	7%	0%	1%	0%	4588
A19040	0 - 10 Years	2%	7%	8%	0%	8%	23%	33921
	11 - 30 Years	5%	11%	16%	0%	13%	14%	57634
	Conifer 31 - 90 Years	21%	39%	22%	0%	41%	10%	194600
	Conifer >90 Years	24%	27%	38%	0%	25%	27%	189221
	Mixed 31 - 90 Years	0%	3%	1%	0%	1%	0%	5058
	Mixed > 90 Years	0%	1%	1%	0%	1%	1%	2065
	Deciduous 31 - 90 Years	0%	1%	0%	0%	0%	0%	1475
	Deciduous > 90 Years	0%	1%	0%	0%	0%	0%	859
	Non-Forest	0%	0%	2%	0%	0%	6%	3762
	Non-Productive (Natural)	48%	6%	10%	100%	7%	14%	259711
	Roads	0%	2%	2%	0%	2%	2%	6860
	Landings	0%	0%	0%	0%	0%	0%	1149
	Water	0%	2%	1%	0%	1%	3%	4739
A20212	0 - 10 Years	2%	8%	0%	0%	0%	0%	6112
	11 - 30 Years	9%	10%	0%	0%	0%	0%	10542
	Conifer 31 - 90 Years	41%	49%	0%	0%	0%	0%	49917
	Conifer >90 Years	39%	27%	0%	0%	0%	0%	34775
	Mixed 31 - 90 Years	0%	1%	0%	0%	0%	0%	769
	Mixed > 90 Years	0%	0%	0%	0%	0%	0%	295
	Deciduous 31 - 90 Years	0%	0%	0%	0%	0%	0%	192
	Deciduous > 90 Years	0%	0%	0%	0%	0%	0%	229
	Non-Forest	1%	1%	0%	0%	0%	0%	1077

Forest License	Forest Type and Age Class	BEC zone						
		ESSF	ICH	IDF	IMA*	MS	PP	Grand Total
	Non-Productive (Natural)	7%	1%	0%	0%	0%	0%	3489
	Roads	1%	2%	0%	0%	0%	0%	1286
	Landings	0%	0%	0%	0%	0%	0%	186
	Water	0%	0%	0%	0%	0%	0%	151
TFL14	0 - 10 Years	6%	13%	21%	0%	29%	0%	15451
	11 - 30 Years	3%	24%	10%	0%	14%	0%	8455
	Conifer 31 - 90 Years	3%	11%	34%	0%	16%	0%	11338
	Conifer >90 Years	20%	44%	14%	0%	27%	0%	32426
	Mixed 31 - 90 Years	0%	1%	9%	0%	1%	0%	1398
	Mixed > 90 Years	0%	1%	3%	0%	1%	0%	551
	Deciduous 31 - 90 Years	0%	0%	0%	0%	0%	0%	7
	Deciduous > 90 Years	0%	0%	0%	0%	0%	0%	46
	Non-Forest	0%	0%	0%	0%	0%	0%	45
	Non-Productive (Natural)	67%	0%	6%	100%	9%	0%	78463
	Roads	1%	4%	3%	0%	3%	0%	1930
	Landings	0%	1%	0%	0%	1%	0%	307
	Water	0%	0%	1%	0%	0%	0%	180

IMA stands for "Interior Mountain-heather Alpine"

Indicator 1.1.3a (4.1.1) – Old and Mature Forest Retention

Indicator Statement	Target (Variance)	Results
Amounts of old and mature stands by landscape unit and BEC variant	Full compliance with the mature and old targets as defined in the Kootenay Boundary Higher Level Plan and spatial identification of stands to meet these targets (no more than -0.3% variance)	Pending - Analysis is underway for Cranbrook, Invermere, and Kootenay Lake TSAs, as well as TFL14.

The area of forest currently present in identified OGMAs and MMAs relative to targets specified in the Kootenay Boundary Higher Level Plan Order (2002) for the Invermere, Cranbrook, and Kootenay Lake TSAs is currently being assessed, results and applicable actions will be presented in the 2017 Annual Report. Canfor has a detailed OGMA/MMA replacement SWP that ensures that any time a portion of an OGMA or MMA is harvested that it is replaced with an equal or better OGMA/MMA of similar or greater size.

Indicator 1.1.3b – Seral and Structural Stages Relative to the Range of Natural Variability

Indicator Statement	Target (Variance)	Results
Area of old, mature and early seral stands, by ecosystem (BEC subzone) grouping, for current and future time periods relative to the Range of Natural Variability	To be compatible with (either within or moving towards) the Range of Natural Variability	Achieved

This indicator is assessed through a model which compares the area of each seral stage to that expected under historic disturbance regimes, and which is expected over the next 250 years under current harvest

practices (TSR III). A detailed description of the model and its assumptions is provided in the SFMP under this indicator. This indicator is relevant to both CSA and FSC.

Results of the model showed that:

- For most ecosystem types (BEC groupings), the amount of early seral stands and mature stands are currently below historic amounts, and,
- The amounts of mid- and old seral stands are currently above or similar to historic amounts.
- Under current management, trends in seral stage are toward historic conditions for most ecosystem types and seral stages, except that there is a trend towards more old forests than existed historically.

It is important to note that the model did not incorporate any effects of climate change. Future climate trends are expected to differ from historic and current ones in that fires are projected to increase in frequency and severity as the climate warms and summers become hotter and drier (see Indicator 4.1.4 – Climate Change Adaptation in the SFMP for a discussion). Although the model projects a trend toward more old forests than existed historically, it is expected that effect of climate change will lead to an increase in disturbed areas and consequently younger stands.

Figures and tables illustrating these conclusions are provided in the SFMP and in the report on the model (Appendix to SFMP). The model will be re-run in the years following the release of TSR IV, and trends will be re-evaluated. Further discussion for this indicator is available in the 2016 SFMP.

Indicator 1.1.3c – Interior Forest Habitat

Indicator Statement	Target (Variance)	Results
Median patch size of Old Growth and Mature Management Areas, by NDT and ecosection	Median patch size is maintained or increases through time	N/A – second year for this indicator. To be reported in 2020.

Current condition for the median patch size of Old Growth Management Areas (OGMAs) and Mature Management Areas (MMAs) is shown in Table 10. Of note is that the medians in most ecosections, with the exception of the Southern Purcell Kootenay Lake, are relatively small. This indicator is slow to change over time because relatively few OGMAs and MMAs are changed each year; consequently, median patch size will be re-calculated in 2020.

Recently, spatial changes to OGMAs and MMAs were primarily for re-allocation of OGMAs from proposed harvest areas to other areas and ensuring targets were maintained throughout this process. In all cases, the "Old and Mature Forest Replacement SWP" was followed, which indicates that replacement stands must be "of similar or greater area, and at least 2 ha in size alone or when combing with an adjacent OGMA if one exists", and that when choosing a replacement OGMA, to "…try to add on to existing OGMAs or riparian reserves to make them larger, rather than making small isolated patches.".

Through continued implementation of the Interior Forest Habitat Strategy, we expect the median patch size of old and mature management areas to remain stable or increase over this time period. Further discussion on this indicator and size class distributions of the OGMA and MMAs in each ecosection is presented in the SFMP.

Table 10: Median OGMA/MMA polygon size by ecosection in the DFA

Ecosection	NDT3	NDT4

Forest License	Median size	n polygons	Median size	n polygons
TFL14				
Upper Columbia Valley – TFL14	5.80	193	5.47	118
Eastern Purcell Mountains – TFL14	6.43	289	-	0
A18979				
Southern Park Ranges – North	5.07	973	5.47	19
Upper Columbia Valley – Radium	4.34	365	3.56	264
A18978				
East Kootenay Trench – North	4.83	417	4.35	188
Shared A18978/A18979				
Southern Park Ranges – Central	4.74	929	9.95	11
Eastern Purcell Mountains – Central	5.81	745	6.37	42
A19040				
Southern Purcell Mountains – Cranbrook	7.66	296	6.06	6
Southern Park Ranges – South	8.34	448	5.91	23
McGillivary Range	7.77	1000	5.97	73
East Kootenay Trench – South	8.76	137	8.63	233
Mid Elk Valley	8.97	257	6.95	9
Upper Elk Valley	6.69	682	3.42	1
Flathead Valley/ Crown of the Continent	6.94	918	2.95	3
Eastern Purcell Mountains – North	5.27	574	5.53	19
Eastern Purcell Mountains – South	8.16	162	6.20	18
A20212				
Southern Purcell Mountains – Kootenay Lake	64.02	59	-	0
Total	**6.15**	**8444**	**5.30**	**1027**

Indicator 1.1.4a – Green Tree and Snag Retention

Indicator Statement	Target (Variance)	Results
Density (stems/ha) of dominant and co-dominant green trees and snags (standing dead trees) on each cutblock or cutblock area (gross block area)	All blocks or block areas to exceed the densities specified in FSC-BC Indicator 6.3.9 for each Natural Disturbance Type (NDT) and Biogeoclimatic zone combination (Table 11)	Achieved

Table 11: FSC-BC Indicator 6.3.9 minimum retention levels of dominant and co-dominant trees within each cutblock area (>200 m wide or 100 ha in aggregate)

NDT	NDT 1		NDT 2		NDT 3		NDT 4	
BEC	ESSF	Other	ESSF	other	ESSF	other	PP	other
Green Tree and Snag target (sph)	12	8	15	10	12	8	4	8
Snag target (sph)	3	2	3.75	2.5	3	2	1	2

This indicator only pertains to FSC Certified licenses (Table 2). Over the past eight years, including 2016, all blocks in Canfor's FSC certified areas have met the green tree retention targets (Table12) However, not all blocks met the snag retention targets over this time period unless stubs (man-made snags, demonstrated to have wildlife value) were counted. Due to the large no-harvest buffers required around most snags by WorkSafe BC (minimum 1.5 tree lengths in diameter), not all snags can be retained within

cutblocks and have the block still make an economic harvest unit. Thus, stubs help fill this gap. At the layout stage the focus is still on retaining the highest value wildlife trees (snags) in safe reserve patches. A high value snag SWP and target has been developed to assist with this goal.

Table 12: Percentage of blocks meeting green tree and snag retention targets in FSC certified areas between 2009 and 2016.

Year	Percent of Blocks meeting Green Tree Retention Targets	Percent of Blocks meeting Snag Retention Targets when Stubs are not included	Percent of Blocks meeting Snag Retention Targets when Stubs are included[1]	Total number of blocks on FSC certified areas
2016[2]	**100%**	**75%**	**100%**	**72**
2015[2]	100%	76%	100%	85
2014[2]	100%	80%	100%	109
2013	100%	75%	100%	132
2012	100%	70%	100%	103/67[3]
2011	100%	75%	n/a	164/129[3]
2010	100%	n/a[4]	n/a	137
2009	100%	n/a[4]	n/a	65

[1] *Stubs were not consistently prescribed in all Site Plans in years prior to 2012*
[2] *Analysis done using the total number of harvested blocks in that calendar year, rather than CP approved blocks.*
[3] *The total number of approved blocks in FSC certified areas/ the number of approved blocks in FSC certified areas with the target densities of snags present in the pre-harvest stands (used in snag retention calculation).*
[4] *Snag retention not measured separately from green tree retention in this year*

Indicator 1.1.4b – Landscape Unit Wildlife Tree Patch Retention

Indicator Statement	Target (Variance)	Results
Percent of Wildlife Tree Patches retained across the DFA, by Landscape Unit and BEC variant	Varies by BEC/Landscape Unit combination, as specified in the Forest Stewardship Plan	Achieved

Targets for Wildlife tree patch retention have been determined through analyses conducted by Forsite as part of Forest Stewardship Plan submissions over the past decade. The analysis is a two-step process that first uses current BEC linework and the methodology outlined in the Landscape Unit Planning Guide to determine the % Wildlife Tree Retention (WTR) required for each BEC/LU combination. The second step involves determining the amount of forest in the Non-Timber Harvest Landbase (THLB) that is contributing to WTR and comparing these amounts to WTR targets, and results on three possible scenarios for a given LU-BEC variant (Table 13).

Table 13. Possible Scenarios from LU-BEC Variant WTR analysis

Scenario	Required Retention in the THLB
1. Retention level in Non-THLB is above target and spacing was adequate to ensure no THLB was outside the buffered area.	This unit does not need any WTR implemented during cutblock development.
2. Retention level in Non-THLB is above target but there is THLB area that does not meet the spacing requirement (outside the buffered area).	This unit needs WTR implemented in the identified areas so that appropriate spacing is achieved. There is no specific percent requirement for the THLB but patches implemented for spacing should be at least 0.25 ha in size.
3. Retention level in Non-THLB is below target and there is THLB area that does not meet the spacing requirement (outside the buffered area).	This unit needs WTR implemented in the identified areas to both achieve spacing and target levels. A percent retention in the THLB is specified and spacing is to be considered during implementation.

Within Canfor's East Kootenay DFA, nearly all LU/BEC combinations fall under Scenario 1 or 2, meaning they have enough area within the Crown Forested Landbase (CFLB) that is not expected to be harvested (e.g. Riparian areas, unstable terrain, Parks and Ecological Reserves), and is therefore contributing to WTR targets. Only a handful of LU-BEC variant combinations fall under Scenario 3, and consequently have percent targets for Wildlife Tree Patch Retention.

Table 14 presents the amount of WTR within the THLB for those LU-BEC-variants with percent targets for WTR, where harvesting occurred in 2015 or 2016. In both 2015 and 2016, all BEC/LU combinations with a requirement for wildlife tree retention within the THLB met or exceeded targets for retention.

Table 14. BEC-LUs harvested in 2015 and 2016 with targets for THLB retention within WTPs

LU No.	LU Name	BEC	Year harvest complete *	n blocks	Total Gross Block Area (ha)	Total WTP Area (ha)	Total Area (ha) of WTP in THLB	% WTP in THLB	TARGET**	VARIANCE FROM TARGET
C09	Yahk River	ICHdm	2015	6	165.5	28.5	16.1	9.71%	0.70%	+9.01%
C09	Yahk River	ICHdm	2016	2	97.5	4.5	2.3	2.37%	0.70%	+1.67%
C10	Bloom - Caven	MSdk	2015	3	203.9	9.3	9.1	4.46%	2.40%	+2.06%
C10	Bloom - Caven	MSdk	2016	2	38.9	16.2	2.2	5.71%	2.40%	+3.31%
C11	Teepee Creek	ICHmk1	2016	1	114.3	20.7	20.7	18.11%	0.30%	+17.81%
C11	Teepee Creek	ESSFdk	2016	1	22.3	1.9	1.9	8.52%	3.00%	+5.52%
C34	Jaffray - Baynes Lake	IDFdm2	2015	2	222.6	15.7	15.7	7.05%	3.10%	+3.95%
C37	Linklater - Englishman	IDFdm2	2016	1	192.4	34.1	18.8	9.75%	1.90%	+7.85%
K02	Moyie River	ICHdw	2015	1	38.5	5.6	5.5	14.29%	0.30%	+13.99%
K02	Moyie River	ICHdw	2016	4	289.4	34.1	25.3	8.75%	0.30%	+8.45%
K02	Moyie River	ICHdm	2015	2	108.8	5.1	5.2	4.80%	1.40%	+3.40%
K02	Moyie River	ICHdm	2016	6	516.9	39.8	30.3	5.85%	1.40%	+4.45%
K03	Hawkins Creek	ICHdm	2015	3	146.5	18.7	13.6	9.29%	4.30%	+4.99%

LU No.	LU Name	BEC	Year harvest complete *	n blocks	Total Gross Block Area (ha)	Total WTP Area (ha)	Total Area (ha) of WTP in THLB	% WTP in THLB	TARGET**	VARIANCE FROM TARGET
K03	Hawkins Creek	ICHdm	2016	3	280.6	49.9	27.7	9.89%	4.30%	+5.59%
K03	Hawkins Creek	ESSFdm	2015	1	43.8	6	6.1	13.86%	6.60%	+7.26%
K03	Hawkins Creek	ESSFdm	2016	2	215.3	32.2	18.0	8.36%	6.60%	+1.76%
K05	Kid Creek	ICHdm	2015	4	194.6	14.8	5.0	2.55%	0.50%	+2.05%
K05	Kid Creek	ICHdm	2016	3	121.6	5.9	5.7	4.70%	0.50%	+4.20%

As per FSP wording, a year is considered 1 April - 31 March
**Target amount of THLB to be retained in Wildlife Tree Patches, further information available from Forsite reports*

Indicator 1.1.4c – High Value Snags

Indicator Statement	Target (Variance)	Results
a) The density (stems/ha) of all identified High Value snags within gross block areas, all BEC subzones combined;	a) 5% improvement annually in the average	a) Achieved
b) The average percentage of protected High Value snags	b) Minimum 65%	b) Achieved

Analysis for this indicator differs slightly from the way that it was calculated for Current Condition in the SMFP (Table 15). These changes were made to simplify analysis and to provide a more accurate picture of High Value Snag identification and retention in a given calendar year.

Table 15: Changes to current condition calculations for High Value Snags

Indicator	SFMP Current Condition	2016 Reporting Year	Rationale
Density	Included Partial Harvest blocks in analysis	Only blocks with Harvest complete status included in analysis	Partial harvest blocks can show up in multiple years.
% Protected	HV Snags that are either within the Gross Block Area of *any* block (i.e. Proposed, Available, Stagnant, WIP, Permitted, Partial Harvest, Harvested blocks) OR are outside the Gross Block area of any block	HV Snags that are either within the Gross Block Area of a block *harvested* in a specific calendar year (e.g. 2015) OR are outside the Gross Block area of any block (i.e. outside of Proposed, Available, Stagnant, WIP, Permitted, Partial Harvest, Harvested blocks)	Blocks that are not yet harvested may have changes to the linework, possibly leading to fewer or greater HVS protected.

Current condition for the two indicator statements for High Value Snags (HVS) is presented in Table 16 and Table 17. The density of identified snags within the gross block area of a harvested block (Indicator Statement a) increased from 0.964 HVS/ 100 ha (2013 – 2014) to 1.12 HVS/ 100 ha (2016, Table 16), representing a 16% increase.

Over all BEC groupings the average percent protected is 91% (Table 16). A notable exception was the ICH dry, in which the percent protection was only 65%. Additional emphasis will be placed on blocks in this zone for the upcoming years, in order to increase the percentage of high value snags protected.

Through the continued implementation of both the High Value Snag Retention Strategy, as well as the Green Tree and Snag retention strategy, it is expected that the density of identified HVS within the Gross

block area of harvested cutblocks will continue to increase. It is also expected that the average percentage of High Value snags retained outside net harvest areas will continue to be maintained above the target 65%.

Table 16: Density (stems/100 ha) of all identified High Value snags within gross block areas (harvested), by BEC zone grouping.

BEC	Area harvested (ha)			n HVS			Average density (HVS/100 ha)		
	2013-2014	2015	2016	2013-2014	2015	2016	2013-2014	2015	2016
ESSF	3968.2	1803.2	2426.2	3	3	5	0.075	.0166	0.206
ICH dry	874.3	1298.1	1323.9	7	7	11	0.800	0.539	0.830
ICH moist	1125.9	789.2	684.3	31	31	20	2.750	3.928	3.650
IDF/PP	4130.3	933.4	606.9	84	84	23	2.030	9.000	1.810
MSdk	6850.4	2081.6	807.7	39	39	7	0.570	1.873	0.870
Total	**17010.5**	**6905.5**	**5849.0**	**164**	**164**	**66**	**0.964**	**2.374**	**1.120**

Table 17: Average percentage of High Value snags protected, by BEC grouping

	n HVS*	n HVS protected**	% Protected
ESSF[‡]	19	17	89%
ICH dry[‡‡]	20	13	65%
ICH moist	71	63	89%
IDF/PP[‡‡]	162	155	96%
MSdk	43	39	91%
Total	**315**	**288**	**91%**

In harvested blocks, or outside the gross block area of any block
*** HVS within a WTP of a harvested block, or outside the gross block area of any block, or a Class 2 wildlife tree anywhere within the Gross area of a harvested block*
[‡] *ESSF dry and ESSF moist are grouped together due to small sample size for ESSF moist (n=1).*
[‡‡] *Includes HV snags identified post-harvest through the HCVF Effectiveness Monitoring Program.*

Indicator 1.1.5 – Riparian Management

Indicator Statement	Target (Variance)	Results
a) Riparian Reserves and Management Zones planned in accordance with Canfor's Integrated Riparian Assessment.	0 non-conformances	Achieved
b) Within each Riparian Management Unit, the combined Riparian Reserve and Management Zone widths meet the FSC budgets in Table 52 (SFMP), including both *FRPA* legal minimums on each stream, lake and wetland	0 non-conformances	Achieved

Canfor did not have any incidents in 2016 reported on riparian reserves not being planned to meet the Integrated Riparian Assessment process (no ITS incidents). Further information on the detailed field data collected on riparian areas as part of the HCVF Effectiveness Monitoring Program are found in the HCVF Effectiveness monitoring reports (years 2013 – 2016).

The current condition of Canfor's riparian reserves with respect to the FSC budget is available in the Integrated Riparian Assessments, Volumes 2-9. For each of the 46 Riparian Management Units within the DFA, the required retention amounts for each lake, wetland, and stream class are calculated, together with

the amount of retention currently calculated to be present. Surplus and Deficits are presented by feature class, and for the overall unit.

All of the 46 RMUs have a budget surplus when lakes, wetlands, and streams across the unit were considered as a whole. However, in some units particular feature classes are at or near deficit. This is particularly so for lakes and wetlands which are relatively rare on the landscape and thus have small budgets and small surpluses. In addition, these features tend to be located on valley bottoms where historic logging has taken place, much of it without riparian reserves.

Element 1.2 – Species Diversity & Element 1.3 – Genetic Diversity

Indicator 1.2.1 – Species of Management Concern – Habitat Protection

Indicator Statement	Target (Variance)	Results
Forest management activities conform to operational plans that include the appropriate management strategies from the SWP for blocks containing habitat for species of management concern	100% (5)	Achieved

The first part of this indicator includes determining how many blocks contained habitat for Species of Management Concern, and if the site plans for these blocks contained appropriate management strategies for this habitat. Table 18 shows that 54 blocks harvested in 2016 contained habitat for Species of Management Concern. One block (A19040 577-006) overlapped ~2 ha with the Grizzly Bear WHA (4-180), but did not prescribe management for it. The issue of not including management strategies for HCVFs and WHAs was identified during the 2016 FSC Annual Audit (Canfor was issued a Non-Conformance as a result). Steps have been taken to ensure that all unharvested blocks that overlap with HCVFs and WHAs have been identified and amended prior to harvest taking place.

The second part of this indicator is determining if the strategies in the Site Plans were implemented during operational activities including harvesting and road-building. Each year a subset of harvested cutblocks are assessed under Canfor's HCVF Effectiveness Monitoring Field program. Results can be found in the HCVF Effectiveness Monitoring reports.

Please note that Migratory Bird habitat was not included in analysis for 2016 as the migratory bird layer was not fully implemented until mid-2016. Analysis of migratory bird habitat will be presented in the 2017 Annual Report and will only cover Site Plans signed after full implementation of the Migratory Bird SWP.

Table 18: Number of blocks harvested in 2016 following SWPs for SoMC when block overlaps with habitat for SoMC

License	Habitat Type	n blocks with overlap with habitat for SoMC	n blocks with appropriate management strategies prescribed
A18978	Ungulate Winter Range	3	3
A18979	Ungulate Winter Range	16	16
A19040	Ungulate Winter Range	10	10
	Grizzly Bear - WHA	5	4
A20212	Ungulate Winter Range	7	7
	Grizzly Bear - WHA	5	5
A91306	Ungulate Winter Range	4	4
	WISA Critical habitat	2	2
A91309	Ungulate Winter Range	1	1
TFL14	Ungulate Winter Range	4	4
Total		**58**	**57**
	Total Percent		**98%**

Indicator 1.2.2 – Species of Management Concern – Habitat Suitability

Indicator Statement	Target (Variance)	Results
Suitable habitat is provided for key Species of Management Concern	Within one quartile (+ 25%) of the Mean in the Range of Natural Variation	Pending –TSR IV models under review

Since this is a new indicator, current condition has not yet been established. Current condition will be the currently available amount of suitable habitat for the key species of management concern that were modelled in TSR IV. Government finalized these reports in late 2017. The available models require

further refinement with Predictive Ecosystem Mapping to be applicable at the watershed and stand level, which Canfor will investigate in 2018. Results of the investigation will be reported in the 2017 Annual Report.

Indicator 1.2.3a & 1.3.1a (4.1.3) – Tree Seed

Indicator Statement	Target (Variance)	Results
Percentage of tree seed used in yearly tree planting program that is consistent with the *Chief Foresters' Standards for Seed Use*	100% (-5%)	Achieved

For 2016 planting, Canfor is within the 5% variance with the percent of trees planted outside of the *Chief Forester's Standards for Seed Use*: 1.27% Cranbrook TSA, 0% TFL 14 and 0.39% on the Invermere TSA as demonstrated in the Infoview Seed Transfer Compliance reports. Not using select seed where it is available is included in the percent above.

Indicator 1.2.3b & 1.3.1b – Natural Regeneration

Indicator Statement	Target (Variance)	Results
Percentage of stands at free growing that have a component of natural regeneration	100% (-10%)	Achieved
60% of stands have 60% of their total inventory coming from natural regeneration at free growing	60% (-10%)	Achieved

Current condition for the percentage of stands with a portion of their inventory coming from natural regeneration is slightly higher than the target (Table 19); however targets were chosen to reflect a balance between site productivity objectives and maintaining genetic and species diversity.

Table 19. Natural Regeneration within 2016 Free-Growing cutblocks

Strata	n	Area (ha)	Percent of Total	
			Strata	Area
Surveyed for Free-Growing in 2016	661	7157	100%	100%
With some natural regeneration	650	7103	**98%**	**99%**
With >60% natural regeneration	473	5415	**72%**	**76%**

Indicator 1.2.3c, 1.3.1c (2.1.3, 4.1.4) – Mix of Species Planted

Indicator Statement	Target (Variance)	Results
Percentage of hectares planted with more than one species (by year)	100% (-30%)	Achieved

In 2016, a total of 9228.16 ha were planted and 91.7% were planted with more than one species.

Figure 1: Canfor Kootenay 2016 Planting – Species Mix

2016 Planting Species
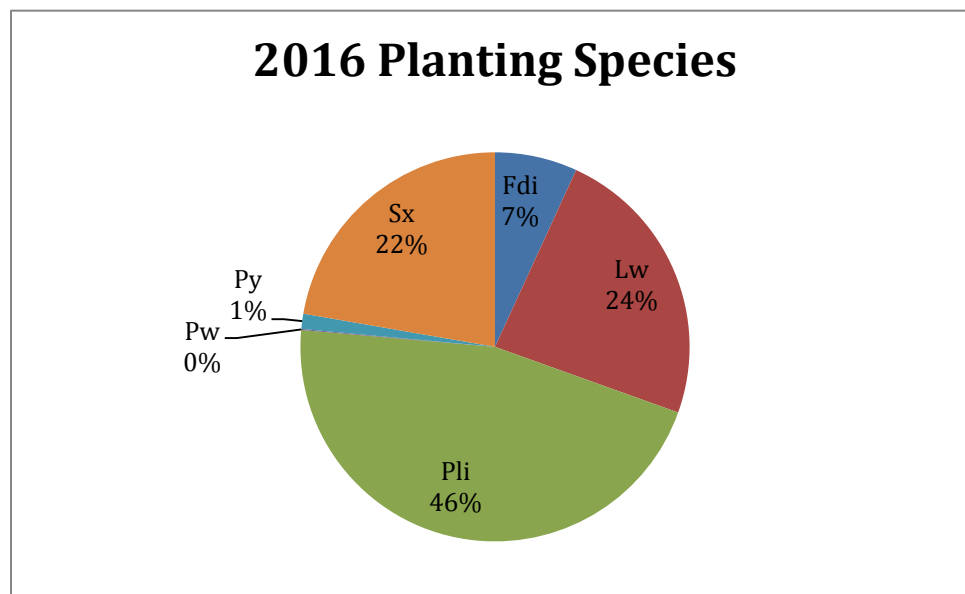
Indicator 1.2.4a – Managing for Species Diversity during Tree Thinning

Indicator Statement	Target (Variance)	Results
Percentage of maximum density spaced hectares with species diversity maintained or enhanced	100% (-10%)	Achieved

In 2016, the area that was Juvenile spaced was 268ha. In at least 95% of the area spaced, species diversity was maintained or enhanced due to the following spacing prescription that prioritizes non-lodgepole pine species to leave:

Leave tree species priority high to low for juvenile spacing due to maximum density is as follows:
"Lw, Sx, Fdi, Pli. Reserve all small deciduous. Reserve all Lw, Fdi and Sx that are less than 30cm".

Element 1.4 – Protected Areas and Sites of Special Biological and Cultural Significance

Indicator 1.4.1a (1.1.1b) – Protected Reserves

Indicator Statement	Target (Variance)	Results
Percent of area in protected reserves, by BEC variant and management unit, within the DFA	12 – 24%	Target achieved, with consideration of HCVFs in the IDFdm2 and PPdh

See the information provided under Indicator 1.1.1b (1.4.1a) – Protected Reserves as it satisfies the requirements for Indicator 1.4.1a.

Indicator 1.4.1b – Sites of Biological Significance

Indicator Statement	Target (Variance)	Results
Forest management activities conform to operational plans that include the appropriate management strategies from the SWP for blocks containing sites of biological significance	100% (0)	Not met - two blocks where SWP not followed. Actions in place to prevent re-occurrence

Eight blocks were harvested in 2016 that overlapped with Sites of Biological Significance (referred to as "SBS", Table 20), two of which did not follow the appropriate SWP (Block A91309 100-LMR0018, inactive stick nest with no management, and A18978 294-GRA0026 "Moderate" Avalanche path).

Investigation into the non-conformance related to the stick nest found that the permitting forester (a contractor) was unaware that stick nests discovered during layout require follow-up check(s) in the breeding season (mid-March – July) to determine what, if any species are using the nest, and that management of the stick nest is driven by what species is using the nest. In addition, one block (Block A19040 813-LIN0013) had an inactive stick nest within a reserve incorrectly labelled as a High Value Snag (the active nest, occupied by a red-tailed hawk was adequately managed for). In response to this, a memo was sent to all Permitting Foresters and Field Operations with information on the non-conformance, and re-iterated that SWPs and Guidance documents must be followed, and the following documents were attached: the Sites of Biological Significance SWP, the Wildlife Features and High Value Snag tracking card (for recording Wildlife Features), and the Guide to Stick Nests and their Management (guidance document for Canfor Western Canada Operations, released April 2017).

The newly released stick nest guide (distributed at Field Ops/ Contractor Spring Training in 2017 to staff and contractors) is much more comprehensive than the original stick nest SWP, and provides detailed instructions for what needs to be done when stick nests are discovered in the field. It is expected that issues related to stick nest management will be eliminated as field staff and permitting operations are required to adhere to this guidance.

In addition, one block (A18978 294-GRA0026) is adjacent to a "Moderate" value avalanche path, and had narrower buffers than those required by the SWP (~30 m around higher value areas within slide path, instead of the required 50 m for all blocks >5 ha). This block was slightly larger than 5 ha (merchantable area was 5.4 ha). Consequently, a review of all unharvested, laid out blocks (Block status = "Permitted", "Field Complete", "WIP Field") that are adjacent to avalanche paths will be completed (to determine if any other blocks do not have adequate buffers) and cutblock linework will be adjusted as required, where possible. In addition, the Avalanche SWP will be reviewed and revised as required to improve clarity. These revisions will be presented at Field Operations Spring Training in 2018.

Table 20: Number and percentage of blocks following SWPs for Sites of Biological Significance (SBS) for blocks harvested in 2016 that overlap with an SBS

Site of Biological Significance	n blocks		
License	**SBS in GBA**	**SWP followed**	**% meeting target**
Rare ecosystem			
	0	n/a	n/a
Red or Blue listed plant community			
	0	n/a	n/a
Hot or thermal spring			
	0	n/a	n/a
Ephemeral pond			
	0	n/a	n/a
Stick nest			
A18979	1	1	100%
A19040	1	1	50%*
A20212	1	1	100%
A91309	1	0	0%
Great Blue heron rookery			
	0	n/a	n/a
Carnivore den			
A19040	1	1	100%
Significant Wallow			
	0	n/a	n/a
Significant Ungulate lick			
	0	n/a	n/a
High or Moderate value avalanche path			
A18978	2	1	50%
Bat maternity roost			
	0	n/a	n/a
Bat hibernaculum			
	0	n/a	n/a
Total	8	6	75%

* Active nest within the same block managed for, inactive nest incorrectly labelled as HVSG.

Indicator 1.4.1c – High Conservation Value Forests

Indicator Statement	**Target (Variance)**	**Results**
Forest management activities conform to operational plans that include the appropriate HCVF management strategies	100% (±5%)	78% Not Met

For analysis purposes, each block was given a score from 0-1, with one being a perfect score. In order for a block to receive a score of one, the Site Plan had to contain information about the HCVF/CCVF along with measures in place for protecting the applicable values, and all values had to be adequately protected according to results from effectiveness monitoring. The result for this indicator is the percent average score: the percent of all scores added together divided by the total number of blocks:

$15.14 \div 19.5^{\ddagger} \times 100\% = 78\%$

$\ddagger$ *One block was not included in the effectiveness monitoring results as pre-harvest condition was not known; see Appendix 4 for more detail.*

Thirty one blocks were assessed in 2016 under the HCVF Effectiveness monitoring program; 20 overlapped with HCVFs. Based on Effectiveness monitoring results, management strategies were adequately applied 83% of the time:

Review of Site Plans: Fifteen cutblocks had HCVF management strategies written into the Site Plan (one block only mentioned one of two HCVFs it overlapped with), while five did not. Investigations into why these five Site Plans did not include management strategies found that some were older Site Plans before constraints maps did not include CCVFs, some blocks failed to pick up HCVFs on Planning and Permitting SFMP checklists (Appendix III provides further detail). Regardless, a review of all unharvested blocks that overlap with HCVFs (including HCV3s, and CCVFs) was conducted as part of the corrective actions for NCR 9.3.1 (2016 FSC Surveillance Audit finding), and any Site Plan or Checklist for an unharvested cutblock that failed to include management strategies was amended (or flagged to be amended prior to harvest start.

Field review: All blocks that had management strategies written into the Site Plans demonstrated good management of HCVF values (Table A-III 1). In addition, management strategies were adequately applied for two blocks (A19040 516-009, A19040 516-010 Teepee creek CCVF) even though the HCVFs were not mentioned in the Site Plan (management strategies for this HCVF are broad, e.g. ungulate winter range, riparian values). Opportunities for improvement include: ensuring that blocks within Grizzly Bear HCVFs include measures in the site plan to avoid harvest during the spring (seven instances where some degree of time of harvest overlapped with Spring), ensuring that large pieces of CWD are retained on site, and not skidded to a landing to be processed for firewood (two instances where this was noted by assessors), determining pre-harvest condition of huckleberries in Huckleberry CCVFs (one instance where pre-harvest condition was not known, making post-harvest assessment impossible), and ensuring that when OGMAs are harvested, suitable replacement areas are loaded into Resources (one instance where OGMAs were harvested, replacement areas identified but not loaded).

In response measures have been implemented where required to ensure that management strategies are applied adequately in the future. This includes updating the SFMP Planning and Permitting Checklist, and covering CWD retention at the 2017 Logging Contractor Annual Pre-work.

Appendix III provides detailed results for this indicator.

Indicator 1.4.2 (6.1.3) – Protection of Identified Sacred and Culturally Important Sites

Indicator Statement	Target (Variance)	Results
Forest management activities conform with operational plans which include management strategies to manage and protect Aboriginal culturally important sites, practices and activities	100% compliance with operational plans (0)	Achieved

See the information provided under
Indicator 6.1.3 (1.4.2) – Level of Management and/or Protection for Aboriginal Culturally Important Sites, Practices and Activities as it satisfies the requirements for Indicator 1.4.2.

Criterion 2 – Ecosystem Condition and Productivity

Element 2.1 – Forest Ecosystem Resilience

Indicator 2.1.1 (4.1.2) – Reforestation Success

Indicator Statement	Target (Variance)	Results
Percentage of blocks that achieve regeneration delay (RG) within the regen delay period	100%	Achieved
Percentage of blocks that achieve free growing within the free growing (FG) period	100%	Achieved

Within the DFA, 100% of cutblocks have met Regeneration Delay (RG) and Free-Growing (FG) obligations within the period. As of 2016, RG is achieved within 3 years and FG within 15, on average.

Indicator 2.1.2 – Invasive Plants

Indicator Statement	Target (Variance)	Results
A: Percentage of treatments with no follow-up	0% (10%)	N/A trend to be evaluated in 2017
B: Percentage of infestations that go untreated	0% (10%)	Achieved (0%)

The original indicator statement for invasive plants (Percentage increase of occurrence of invasive plants due to forest management activities - with a target of 0 and variance of 10%) has been replaced with the two statements above. The indicators were changed due to difficulties with measuring the change in invasive plant occurrence; this analysis relies heavily on knowledge of pre-harvest site conditions, in some cases is not accurate or available. In addition, it is difficult to discern the cause of invasive plant infestations in a given area (due to multiple activities potentially taking place).

Canfor's process for addressing invasive plants is evolving. Increased focus has been placed on identification of invasive plants during early block development (layout, SFMP Permitting and Planning Checklist). Annual Spring training in 2017 for Canfor Field Operations staff included a half day course on Invasive Plants with the East Kootenay Invasive Species Council. A Standard Work Procedure for Invasive plants was developed in early 2017. It includes procedures for recording invasive plants when they are discovered, and lists activities that can be prescribed for management of existing invasive plant sites in cutblocks and roads during harvest activities. These management activities include not disturbing sites where possible, re-vegetating disturbed ground promptly either through grass seeding (where there is no obligation to grow trees, like on roads and landings), or tree-planting (most invasive species are shade-intolerant). The herbicide ClearView™ is used in a handful of locations where grass seeding and/or tree-planting is not likely to be effective. Hand pulling of existing infestations during monitoring visits is also done where it's appropriate.

Currently, areas with invasive plants are generally restricted to roads and along old oil and gas exploration, rights- of-way and near communities. Information about the presence of invasive plants is recorded in Cengea Resources, Canfor's data management system. Spatial locations of infests are recorded using the Invasive Alien Plant Program Application (IAPP), a provincial resource managed by the provincial government; this information is downloaded yearly to Cengea Resources to ensure spatial locations are up to date (the government updates their database in the spring and our update needs to make sure it's done after the new data is loaded).

In 2016, 14 blocks were monitored (20 total, 6 of which are outside the scope of this report), 5 were treated using chemicals (9 total, 4 of which are outside the scope of this report) and 8 blocks were hand-pulled. Grass seeding was done on 58 blocks (this includes blocks that did not have invasive plants).
Indicator statement 'A: percentage of treatments with no follow-up': This could not be calculated for 2016 due to inconsistent record keeping in 2015 and an evolving process. Canfor did not perform any chemical spraying in 2015, though based on invoices it did conduct a fair amount of grass seeding in 2015. This indicator will be assessed going forward and will be reported on in the 2017 Annual Report.
Indicator statement 'B: percentage of infestations that go untreated': All infests being monitored for invasive plants were treated in 2016 (either with hand-pulling, chemicals, or grass seed).

Indicator 2.1.3 (1.2.3c, 1.3.1c, 4.1.4) – Mix of Species Planted

Indicator Statement	Target (Variance)	Results
Percentage of hectares planted with more than one species (by year)	100% (-30%)	Achieved

See the information provided under Indicator 1.2.3c, 1.3.1c (2.1.3, 4.1.4) – Mix of Species Planted as it satisfies the requirements for Indicator 2.1.3.

Element 2.2 – Forest Ecosystem Productivity

Indicator 2.2.1a (4.2.1) – Permanent Access Structures

Indicator Statement	Target (Variance)	Results
Percent of operable landbase converted to permanent access structures through forest management activities	5% or less per LU (+2%)	Achieved

Table 21: Percent Permanent Access Structures for Landscape Units in the DFA

2015 % PAS for Landscape Units				
> 5	4.1 - 5	3.1- 4	2.1- 3	<2
I25	C08, C30, C36, I16, I18, I23, I25, I26, I29, I30, I33	C01, C02, C04, C06, C11, C20, C21, C24, C25, C27, C29, C32, C34, C38, I07, I09, I15, I20, I21, I22, I24, I27, I28, I32, I36	C05, C07, C09, C10, C16, C17, C18, C19, C22, C23, C31, C33, C37, I02, I03, I04, I05, I06, I08, I10, I11, I12, I13, I14, I17, I19, I35, I37, I38, K02, K03, K05	C13, C14, I01, I34, K06

Note the I# landscape units are CSA certified not FSC. They area is outside of the DFA.

This indicator remains unchanged for this year. None of the roads built impacted the thresholds on this table. Only one LU currently exceeds the 5% target, although it is currently within the acceptable variance. Eleven LUs are approaching the 5% target. No new road construction has occurred in LU I25 (CSA DFA) all future planning will follow the PAS strategy as it pertains to LUs over the indicator target.

Indicator 2.2.1b – Landslides

Indicator Statement	Target (Variance)	Results
Number of recordable landslides resulting from Canfor's forestry operations on permitted roads or cutblocks	0 (4)	Achieved

In 2016 there have been two (2) landslides recorded; one identified during a helicopter flight in the back end of the Goat river drainage, and one in Ward creek. The Ward Creek slide has been successfully mitigated (i.e. Assessment by Professional Engineer, implemented recommendations of assessment, including making the road safe again, stabilized slope, minimized future hazard). The Goat river slide was not accessible at the time it was discovered, however there is a plan in place to mitigate it once access is restored (roads are currently being upgraded for permits which will allow access to the area).

Indicator 2.2.1c (4.2.2) – Land Conversion

Indicator Statement	Target (Variance)	Results
Percent of DFA converted to non-forest land use through forest management activities not including roads, landings and other infrastructure directly related to forest management	Less than 5% reduction of DFA annually	Achieved

See the information provided under Indicator 4.2.2 (2.2.1c) – Land Conversion as it satisfies the requirements for Indicator 2.2.1c.

Indicator 2.2.2 (5.1.1a) – Volume Harvested Vs. Allocated

Indicator Statement	Target (Variance)	Results
Percent of volume harvested compared to allocated harvest level	100% over the legislated cut control period for Canfor's major replaceable forest licenses in the Kootenay region (+/-10%)	Achieved

See the information provided under Indicator 5.1.1a (2.2.2) – Volume Harvested Vs. Allocated as it satisfies the requirements for Indicator 2.2.2.

Criterion 3 – Soil and Water

Element 3.1 – Soil Quality and Quantity

Indicator 3.1.1 – Detrimental Soil Disturbance

Indicator Statement	Target (Variance)	Results
Number of blocks where the % detrimental soil disturbance exceeds acceptable limits	0 (4)	Achieved

In 2016 Canfor had no incidents related to excessive soil disturbance in the DFA. Surveys were completed both internally and by a contractor on a list of highest-risk blocks. One block, Haw0014, was within the temporary allowable levels and has been scheduled for reassessment in 2018 to ensure rehabilitation efforts have brought it under the acceptable long term levels (5% for HAW0014 due to sensitive soils).

Indicator 3.1.2 – Coarse Woody Debris

Indicator Statement	Target (Variance)	Results
Number of large pieces of CWD per ha in harvested cutblocks each year, by BEC zone in each major Forest Licence	The annual median and mean by BEC and License to be at or above the following: • PP – 1 piece/ha • IDF – 2 pieces/ha • MS and ICH, Pl leading stands – 2 pieces/ha • MS and ICH, non-Pl leading stands – 4 pieces/ha • ESSF, Pl leading stands – 8 pieces/ha • ESSF, non-Pl leading stands – 10 pieces/ha NOTE: Targets do not apply to blocks within community-forest interface areas being managed to reduce fire risk.	Pending - methodology updated, results to be presented in 2017 Annual Report

While mean and median large Coarse Woody Debris (CWD) densities for several BEC/ Leading species groups increased compared to 2015, densities were lower than expected (Table 22). Initial analysis indicated that three licenses (A19040, A20212, and A18978) had below target densities of large CWD over nine BEC/leading species groupings. This prompted two actions:

1. *Ensure that logging contractors are aware of piece density targets*. This was achieved at the Spring Contractor training in early 2017, where leaving large woody debris pieces on site was re-emphasized

2. *Ensure that the sampling methodology was properly capturing site conditions*. The decision was made to run longer transects because targets for piece density are quite low (1-10 pieces/ha), and consequently pieces may be missed as the methodology only counts pieces that intersect the

transect. A subset of blocks (n=11, from A18978, A18979, and A19040 licenses) were selected for resampling using longer transects (540 m, as opposed to a minimum of 90 m). When this was one, of the 11 blocks re-sampled, nine blocks had an increase in measured piece density, one showed no change (IDF block), and one showed a slight decrease.

Post-harvest CWD assessments going forward will use a minimum transect length of 540 m. This distance was selected to correspond to the distance that the Waste and Residue Surveyors walk (the contractors conducting the CWD assessments). Post-harvest CWD data (using the updated methodology) for blocks harvested in 2017 have been collected for 19 blocks, with all but 2 meeting CWD targets. Data will be collected for all BEC/Leading species combinations (where blocks were harvested), and results will be presented in the 2017 Annual Report, it is expected that targets will be met for all BEC/ leading species combinations with the revised transect methodology.

Table 22: Mean and Median pieces per hectare of CWD >20 cm and 10 m long for blocks harvested in 2016

License	Leading Species	ESSF		MS/ICH		IDF	
		n blocks	Mean *Median*	n blocks	Mean *Median*	n blocks	Mean *Median*
Target	Non-Pl	-	10.0 *10.0*	-	4.0 *4.0*	-	2.0 *2.0*
	Pl	-	8.0 *8.0*	-	2.0 *2.0*	-	2.0 *2.0*
A18978	Non-Pl	7	16.4 *16.2*	2*	8.0 *7.9*	0	- -
	Pl	1	4.1 *-*	3	0.0 *0.0*	0	- -
A18979	Non-Pl	3	37.5 *21.4*	10*	7.6 *7.4*	0	- -
	Pl	1	8.3 *-*	3*	12.8 *10.5*	0	- -
A19040	Non-Pl	2*	18.3 *18.3*	4*	2.3 *2.0*	2*	0.0 *0.0*
	Pl	4	0.3 *0.2*	4*	8.5 *0.4*	0	- -
A20212	Non-Pl	1	0.5 *-*	0	- -	0	- -
	Pl	0	- -	8	0.55 *0.6*	3	5.7 *6.4*
TFL14	Non-Pl	2	32.4 *32.4*	1	9.9 *-*	0	- -
	Pl	5	25.5 *23.5*	1	6.8 *-*	0	- -
Grand Total	Non-Pl	15	21.9 *21.1*	17	6.5 *6.5*	2	0.0 *0.0*
	Pl	11	12.8 *8.3*	19	4.4 *0.5*	3	5.7 *6.4*

Indicates BEC groupings where resampling occurred, and results updated.

Element 3.2 – Water Quality and Quantity

Indicator 3.2.1a – Sensitive Watersheds

Indicator Statement	Target (Variance)	Results
Percent of Sensitive Watersheds, where forest development is planned, above ECA thresholds that have had further assessment by a qualified professional	100% (-10%)	Achieved

In 2016 Canfor added the Riparian Assessment Unit (RAU) drainage type to the results for this indicator (Table 23). This addition was done in response to a 2015 FSC Surveillance Audit Finding (Note 02/15), where it was unclear how watersheds other than those considered to be sensitive watersheds (i.e. Community Watersheds, Domestic Watersheds, HCV3s) were being managed to control increases in peak flow. RAUs were delineated by a Hydrologist in 2015, and provide coverage for information on ECA management for all watersheds within the Kootenay DFA.

Table 23: Hydrological Assessments

Watershed type	Above ECA Threshold	Hydrological Assessment Complete	Assessment Scheduled	No Planned Activity	Assessments Required – Not Yet Scheduled
HCV3	16	13		3	-
CWS	2	2	-	-	-
DWS	14	10	-	4	-
RAU	7	7	-	-	-
Total	39	30		9	0

Indicator 3.2.1b – Stream Crossing Sedimentation Control

Indicator Statement	Target (Variance)	Results
Number of drainage structures on Canfor's permitted roads identified as having a high risk of significant sedimentation that are not remediated within 1 year of identification	0 (3)	Achieved

In 2016 there were 2 ITS incidents regarding sedimentation from drainage structures into high-risk streams. One was in Kidd Creek, which is ongoing with a detailed plan for remediation. The other is in Hawkins Creek. This one has been remediated with a follow up inspection action scheduled for next summer.

Criterion 4 – Role in Global Ecological Cycles

Element 4.1 – Carbon Uptake and Storage

Indicator 4.1.1 (1.1.3a) – Old and Mature Forest Retention

Indicator Statement	Target (Variance)	Results
Percentages of old and mature stands by landscape unit and BEC variant	Full compliance with the mature and old targets as defined in the Kootenay Boundary Higher Level Plan and spatial identification of stands to meet these targets ($\pm$ 0.3% of the target).	Achieved for Cranbrook and Invermere TSAs, Pending for TFL14 and Kootenay Lake TSA as analysis is underway.

See the information provided under
Indicator 1.1.3a (4.1.1) – Old and Mature Forest Retention as it satisfies the requirements for Indicator 4.1.1.

Indicator 4.1.2 (2.1.1) – Reforestation Success

Indicator Statement	Target (Variance)	Results
Percentage of blocks that achieve regeneration delay (RG) within the regen delay period	100%	Achieved
Percentage of blocks that achieve free growing within the free growing (FG) period	100%	Achieved

See the information provided under Indicator 2.1.1 (4.1.2) – Reforestation Success as it satisfies the requirements for Indicator 4.1.2.

Indicator 4.1.3 (1.2.3a & 1.3.1a) – Tree Seed

Indicator Statement	Target (Variance)	Results
Percentage of tree seed used in yearly tree planting program that is consistent with the *Chief Foresters' Standards for Seed Use*	100% (-5%)	Achieved

See the information provided under Indicator 1.2.3a & 1.3.1a (4.1.3) – Tree Seed as it satisfies the requirements for Indicator 4.1.3.

Indicator 4.1.4 – Climate Change Adaptation

Indicator Statement	Target (Variance)	Results
a) Annual meeting to review: possible effects of climate change, new information available, results of monitoring other indicators/strategies (from the perspective of climate change) and determine if changes are needed for the SFMP.	Annual Meeting	Achieved
b) Implement climate change stocking standards into regeneration plans	Within 1 year of approval of FSP climate change stocking standards	Pending – KLFD – 2017 RMFD – 2018
c) Percent of cutblocks (by area) reforested with mixed species at free growing	100% (-30%)	Achieved

a) The annual climate change meeting was held in Cranbrook on 19 October 2016. Topics covered included Hydrological mapping (currently being applied in the Palliser and White River watersheds), climate based seed transfer, changes to stocking standards, weather changes (fall decking, sort yards), invasive plants, and wet weather shutdown procedures. Currently, no changes to the SFMP are planned. Minutes from the meeting are available in the Climate Change section of the 2017 FSC Audit Evidence Binder.

Canfor continues to work with FLNRO staff on development and implementation of Climate Based Seed Transfer (CBST) system. This will apply changes in climate already measured and apply a quarter of rotation of predicted weather changes to determine where best to deploy seed in our reforestation programs. There are several reports that have been produced to summarize the project (see Climate Change Audit Evidence folder). Canfor has begun the process of evaluating our seed inventory and the seed we chose to sow for our reforestation program against both the current seed transfer system and the CBST tool. Canfor will apply for an Alternate to the Chief Foresters Standards for Seed Use to allow us to implement the new system before the necessary legislative changes have been made. This will allow us to try CBST out on a small scale to evaluate establishment success and allow us to use orchard seed in a larger area on the land base.

b) New stocking standards incorporating changes in climate are currently being developed by FLNRO.

c) For 2016 FG surveys, mixed species reforestation occurred on 100% of survey units.

Element 4.2 – Forest Land Conversion

Indicator 4.2.1 (2.2.1a) – Permanent Access Structures

Indicator Statement	Target (Variance)	Results
Percent of operable landbase converted to permanent access structures through forest management activities	5% or less per LU (+2%)	Achieved

See the information provided under Indicator 2.2.1a (4.2.1) – Permanent Access Structures as it satisfies the requirements for Indicator 4.2.1.

Indicator 4.2.2 (2.2.1c) – Land Conversion

Indicator Statement	Target (Variance)	Results
Percent of DFA converted to non-forest land use through forest management activities not including roads, landings and other infrastructure directly related to forest management	Less than 5% reduction of DFA annually	Achieved

In 2016, no land was converted to non-forest land use through forest management activities, not including roads, landings and other infrastructure directly related to forest management (Table 24 and Table 25).

Table 24: Current FSC Certified DFA – by TSA

Area	Cranbrook	Invermere	Kootenay Lake	TFL 14	Total
Total Certified Area (ha)*	729,758	198,390	109,854	TSA	1,188,335

Table 25: Pro-rated FSC AAC resulting from Excision

Year	ha's	AAC (m3/yr)	m3/ha/yr
2013	1,194,301	1,013,214	0.85
2014	1,188,335	1,008,153	0.00
2015	1,188,335	1,008,153	0.00
2016	1,188,335	1,008,153	0.00

Criterion 5 – Economic and Social Benefits

Element 5.1 – Timber and Non-timber Benefits

Indicator 5.1.1a (2.2.2) – Volume Harvested Vs. Allocated

Indicator Statement	Target (Variance)	Results
Percent of volume harvested compared to allocated harvest level	100% over the legislated cut control period for Canfor's major replaceable forest licenses in the Kootenay region (+/-10%)	Achieved

In 2016, the overall harvest for the entire region was 91.2% which meets the target (Table 26). The percent of volume harvested compared to allocated harvest level for the year were; FL A18978 (56.5%), A19040 (65.9%), A18979 (116.6%), A20212 (238.6%) and TFL 14 (89.0%). The Invermere and Cranbrook Timber Supply Areas (TSA's) continue in the process of a new Timber Supply Review (TSR) with a determination expected in 2017.

In addition, two First Nations licenses had volume harvested from within the FSC DFA: the Lower Kootenay Indian band harvested 17, 683 m3 from A91309 license, and the ?Aq'am band harvested 33, 302 m3 off A91306.

Table 26: Harvest Results – 2016

License	AAC by license (m^3)	2016 harvest (m^3)	% or AAC
FLA 19040 (Cranbrook)	477,652	314,629	65.87%
FLA 18978 (Canal Flats)	220,668	124,564	56.45%
FLA 20212 (Creston)	99,081	236,410	238.60%
TFL14 (Parson)	180,000	160,225	89.01%
FLA 18979 (Radium)	221,005	257,573	116.55%
Total	**1,198,406**	**1,093,401**	**91.24%**

Indicator 5.1.1b – Identified Non-Timber Forest Benefits

Indicator Statement	Target (Variance)	Results
Number of incidences of documented concerns about non-timber forest benefits (NTFB) brought forward, where the NTFB strategy was not followed	0 incidents (0)	Achieved

In 2016 there were zero incidences of concerns brought forward where Canfor's strategy to deal with public concerns was not followed.

Indicator Statement	Target (Variance)	Results
Number of incidences of documented concerns related to overlapping tenures brought forward, where the Overlapping Tenures Strategy was not followed	0 incidences (0)	Achieved

In 2016 there were zero incidences of concerns brought forward by overlapping tenure holders where Canfor's strategy to deal with their concerns was not followed.

Element 5.2 – Communities and Sustainability

Indicator 5.2.1a – Local Procurement of Goods & Services

Indicator Statement	Target (Variance)	Results
Maintain a high percentage of procured goods and services that are from local sources	>= 70% of FMG dollars spent in local communities; 5-year rolling average (-10%)	Achieved

Based on the 5-year average information available for Radium (Figure 2), the 5-year average percent spend for local goods and services is 90% and the target has been met. There was a significant decrease in 2016 figure compared to previous years (Figure 2 and Figure 3). A significant reason for the decrease in local spend was due to two factors; the Wyndell acquisition in April resulted in an increase in spend in the Creston area and associated increase in log procurement and trades in that area including the West Kootenay. Second, Canfor has also increased purchases from Alberta which is also showing an increase in spend for fibre acquisition outside the Kootenay Region.

Figure 2: Five Year average % local spend in Radium DFA
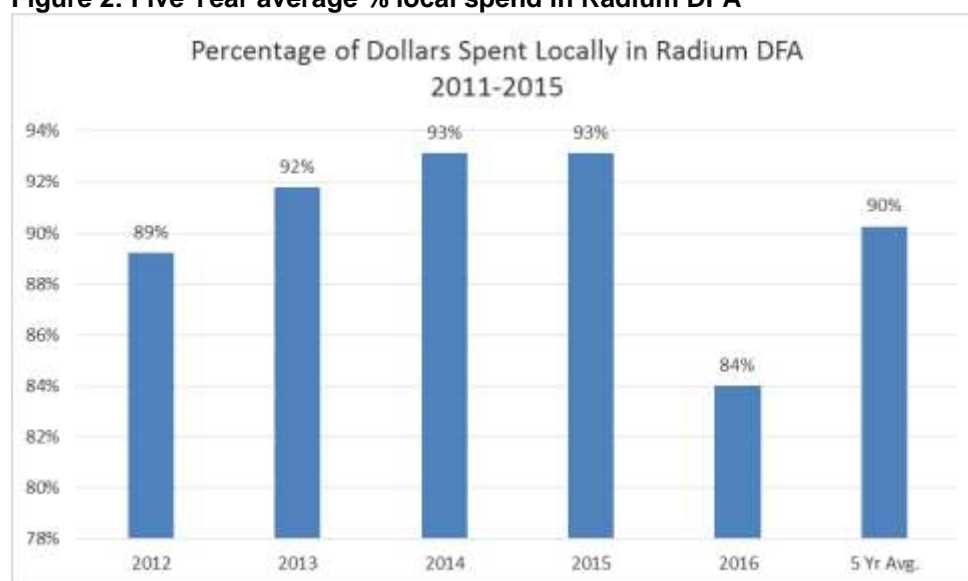
Figure 3: Percent Local Spend in Kootenay Region by DFA
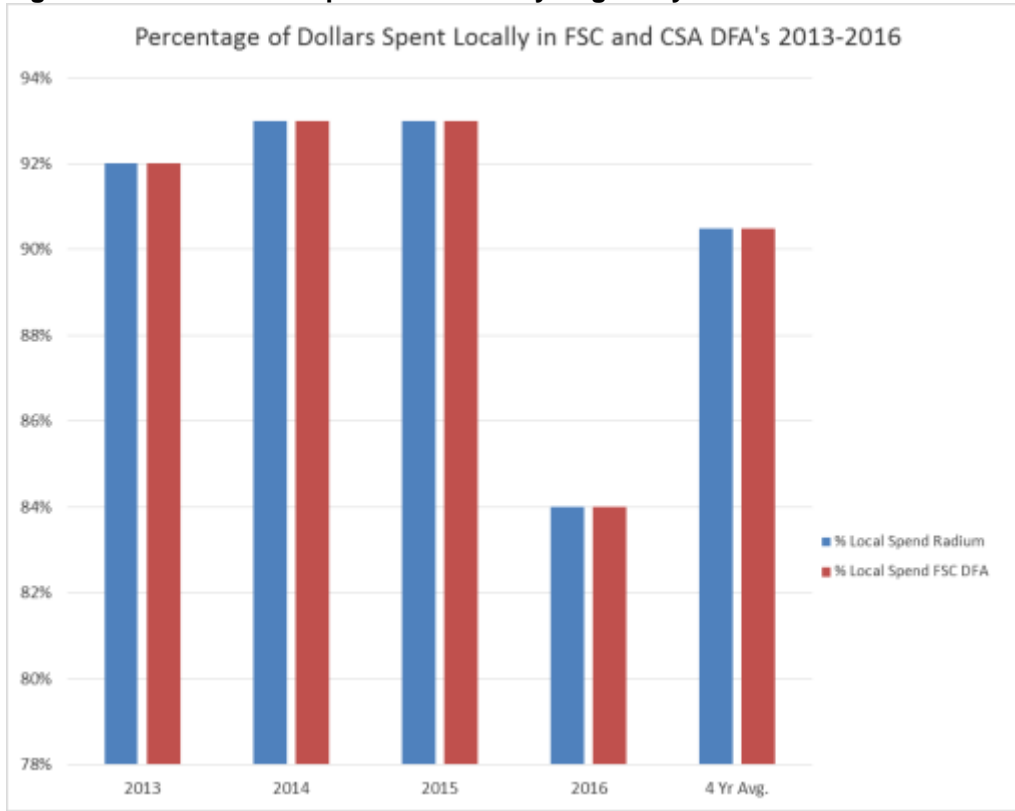
Indicator 5.2.1b – Corporate Sponsorships, Donations and Scholarships

Indicator Statement	Target (Variance)	Results
Number of Corporate donations, scholarships or other sponsorships to local community groups, individuals or events	>= 5 donations and/or sponsorships to regional communities, events or individuals per year (- 1)	Achieved

Based on the 2016 reporting year, a total of 16 donations or sponsorships were given within Kootenay communities for a total of $26,550, which approximately doubles the 2015 amount. The target was achieved in 2016.

Within the Radium DFA, two donations were made to local First Nations and the Food Bank.

Within the remaining region, donations were made to various First Nations communities and their events. Canfor staff also supported the local United Way, The Canadian Cancer Relay for Life and Movember fund raising campaigns.

Donations also include 11 loads of firewood to local First Nations communities, a donation of lumber to the TPIB for national Aboriginal Day celebrations, a donation of lumber to the LKIB and over $5,000 to Ktunaxa Nation Pow Wow's the Akinmi Pow Wow and the Shuswap's Salmon Festival.

Indicator 5.2.2 – Environmental & Safety Training

Indicator Statement	Target (Variance)	Results
Training in environmental and safety procedures in compliance with company training plans	100% of Canfor Kootenay FMG employees will have required environmental and safety training (-5%)	Achieved

In 2016, there were 43 FMG employees. Training records indicate that by the end of the year, all had completed their training. Several employees' training was set to expire in 2016 and they will have to re-certify and complete annual refresher courses.

Indicator 5.2.3 – Direct & Indirect Employment

Indicator Statement	Target (Variance)	Results
Level of direct and indirect employment	AAC * employment multiplier – 5-year average (+/- 10%)	Achieved

Based on the last 5 years harvest levels within the Radium license, the calculated 5-year average employment Person Years (PYs) is 200 persons which is + 21.0% of the target (Table 27). It should be noted that due to Canfor Radium's shutdown in 2009-2011, these numbers are not reflective of normal operations for that license as several years had no harvesting and then higher annual figures to achieve the cut control. After three years of elevated annual harvest to capture the full cut control, the annual harvest level has trended back towards normal rates. The target is exceeded and trending to lower levels as the annual cut returns to a normal level in the new cut control period.

Table 27. Radium Employment 2010-2016

	Year				
	2012	**2013**	**2014**	**2015**	**2016**
AAC m^3	221,005	221,005	221,005	221,005	221,005
Cumulative AAC m^3	221,005	442,010	663,015	884,020	1,105,025
Annual Harvest m^3	96,356	428,222	473,677	352,205	257,573
Percent (%) of AAC	43.60%	193.76%	214.33%	159.37%	116.55%
Cumulative	96,356	524,578	998,255	1,350,460	1,608,033
Percent of cumulative AAC	43.60%	118.68%	150.56%	152.76%	145.52%
Average per year over five years					268,006
Direct + indirect employment per 1000 m^3					0.745
Person Year Target					**165**
Person Year Actual					**200**

Based on the last 5 years harvest levels within the remaining Kootenay DFA, the calculated 5-year average employment PY's is 784 which is 92.6 % of the target slightly down from last year's 96.6 % (Table 28). This lower level reflects less activity on the FSC tenures to balance the 5 year FSC AAC cut control, increased purchase program and focus on the Wyndell and Canfor licenses in Creston as both tenures had their Forest Act cut control periods ending.

Table 28. Kootenay DFA Employment

	Year				
	2012	**2013**	**2014**	**2015**	**2016**
AAC m^3	1,025,925	1,025,925	1,020,051	1,020,051	1,020,051
Cumulative AAC m^3	1,021,686	2,047,611	3,073,536	4,093,587	5,113,638
Annual Harvest m^3	1,185,876	1,238,985	921,122	958,257	886,813
Percent (%) of AAC	115.59%	120.77%	90.30%	93.94%	86.94%
Cumulative	1,185,876	2,424,861	3,345,983	4,304,240	5,191,053
Percent of cumulative AAC	116.07%	118.42%	108.86%	105.15%	105.51%
Average per year over five years					1,060,430
Cranbrook TSA and Kootenay Lake TSA Direct + indirect employment per 1000 m^3					0.95
Invermere and TFL 14 Direct + indirect employment per 1000 m^3					0.75
TFL14 and A18979 total 5 year harvest					1,867,441
Cranbrook TSA and Kootenay Lake TSA total 5 year licenses harvest					3,049,477
Person Year Target					847
Person Year Actual Invermere TSA and TFL 14					212
Person Year Actual Cranbrook TSA and Kootenay Lake TSA					572
Total Person Years Actual					784

Indicator 5.2.4 – Level of Aboriginal Participation in the Forest Economy

Indicator Statement	Target (Variance)	Results
Evidence of Aboriginal participation in the forest economy and efforts to increase the level of participation	Maintain 2013 levels of Aboriginal participation in the forest economy at a minimum and continual improvement towards strategies to increase those levels of participation based on a 3-year average (-10%)	Achieved

The total amount of business between Canfor and Aboriginal vendors and contractors in 2016 exceeded 2013 levels by $1,860,573 (Figure 4). The trend towards greater aboriginal participation in the forest economy continued in 2016. A total of 15 Aboriginal contractors and vendors provided goods and services to Canfor in 2015 versus 12 in 2013.

Figure 4: Summary FMG Aboriginal Contractors: 2008 – 2016
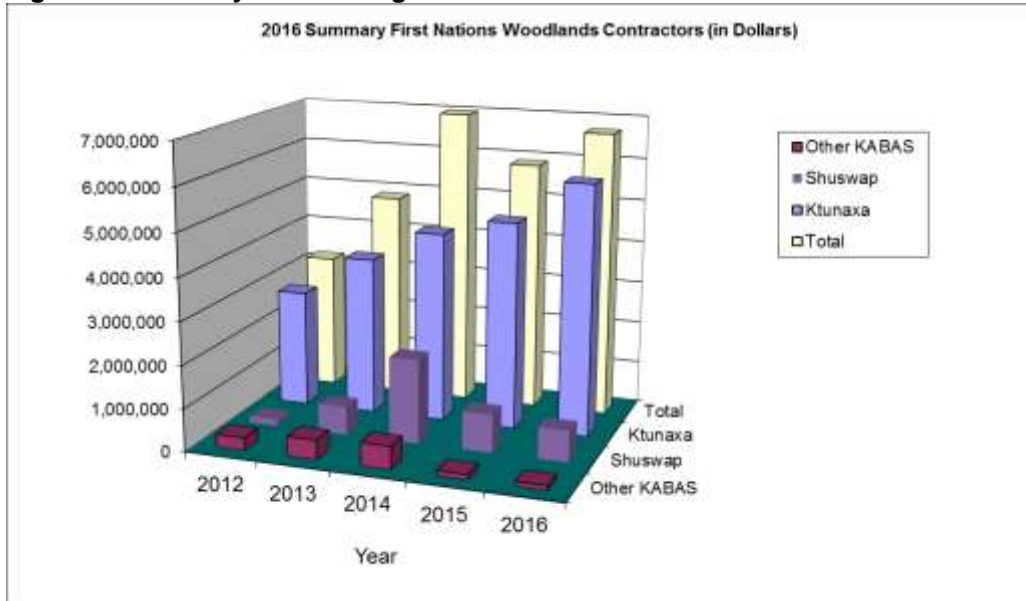
Criterion 6 – Society's Responsibility

Element 6.1 – Aboriginal and Treaty Rights

Indicator 6.1.1 – Aboriginal Awareness Training

Indicator Statement	Target (Variance)	Results
Employees receive Aboriginal awareness training	100% of staff who are required to have aboriginal awareness training as per the staff training matrix. (-10%)	Achieved

In 2016, 100% of required staff completed Aboriginal Awareness Training.

Indicator 6.1.2 (6.4.3) – Aboriginal Understanding of Plans

Indicator Statement	Target (Variance)	Results
Evidence of best efforts to obtain acceptance of applicable management plans based on Aboriginal communities having a clear understanding of the plans	≥ 3 forms of communication for all applicable management plans (0)	Achieved

Table 29 provides a summary of communications and information shared with Aboriginal communities in 2016.

Table 29. Information sharing and communication types for Aboriginal Communities in 2016

Nation or Band	# Plans Shared Annually with Aboriginals	Forms of Communication	Qualitative Information provided in 2016?
Ktunaxa Nation (and Bands)	15	Face-to-face meetings, phone calls, field trips, letters and information sharing digital submissions.	Canfor met twice with the Ktunaxa to review the amalgamated Forest Stewardship Plan. The KNC and Canfor also met to review spruce bark beetle infestations in the Canal and Radium licenses. They also conducted a field trip to review riparian management in beetle affected stands. The parties also began discussions on reviewing and updating the CCVF's. Canfor conducted 8 information sharing submissions to the Kootenay Lands and Resource Agency (KLRA) on proposed developments. The consultation sub-committee continued to meet to discuss the information sharing submissions, plans, emerging issues, review information sharing processes and any other areas of interest to the nation. Canfor and the KLRA invited many other lands resource assistants to join to review the information collectively. Finally, KLRA staff joined Canfor at an all staff meeting to review changes to the SFM Plan.
Shuswap Indian Band	12	Face-to-face meetings, phone calls, letters and information sharing hard copy submissions.	Several meetings were held with the Shuswap Band's referrals coordinator, Sierra Stump, and subsequently Diana Cote. Canfor met their referrals staff to discuss the 8 information sharing submissions, the new SFMP and to provide update on emerging forest health issues. Additionally, two meetings were held to identify culturally important forest areas in their traditional territory and the Shuswap staff reviewed it with their elders. Canfor staff also met with SIB staff on the amalgamated FSP.
Adams Lake Indian Band	3	Phone calls, emails, letters and information sharing digital submissions.	ALIB's claim of traditional territory over northern parts of the Kootenay region was brought to Canfor's attention in 2013. Canfor sent 6 information sharing submissions to the Band. Additionally, Canfor sent the Band information and sought input on the amalgamated FSP.
Neskonlith Indian Band	3	Phone calls, emails, letters and information sharing digital submissions.	ALIB's claim of traditional territory over northern parts of the Kootenay region was brought to Canfor's attention in 2013. Canfor sent 6 information sharing submissions to the Band. Additionally, Canfor sent the Band information and sought input on the amalgamated FSP.

Indicator 6.1.3 (1.4.2) – Level of Management and/or Protection for Aboriginal Culturally Important Sites, Practices and Activities

Indicator Statement	Target (Variance)	Results
Forest management activities conform with operational plans which include management strategies to manage and protect Aboriginal culturally important sites, practices and activities	100% compliance with operational plans (0)	Achieved

No instances of non-conformance with operational plans that include management strategies to manage and protect Aboriginal important sites were reported in the Incident Tracking system (ITS). In 2016, 41 archaeological assessments were completed on proposed harvesting blocks within Kootenay Region of which 5 were within the CSA DFA, 3 were within the Golden TSA and 33 were in the FSC DFA.

The CCVF review project discussions were initiated in 2016 after scheduling issues were resolved with Kootenay Lands and Resource Agency staff. An outside consultant will be brought in to develop a work plan for implementation in 2017.

Element 6.2 –Aboriginal Forest Values, Knowledge, and Uses

Indicator 6.2.1 – Evidence of Understanding and Use of Aboriginal Knowledge

Indicator Statement	Target (Variance)	Results
Management strategies, developed through a collaborative process, including traditional knowledge and use, to protect identified Aboriginal and other cultural forest values or sites of spiritual importance	Minimum of 1 process in place with willing Aboriginal communities to identify and manage culturally important resources and values.	Achieved

A process to refer all proposed forest development activities to the? Ktunaxa Nation and all other bands was established. Submissions to the Nation and other bands follows the process they prefer. A

consultation sub-committee has been established with the Ktunaxa Nation to meet for face-to-face discussions on forest management. Face-to-face meetings occur on a periodic or as needed basis with the Shuswap band to review proposed forest management activities. The process for completing archaeological assessments adheres to the process as described by the Ktunaxa Nation's guidelines.

The CCVF process is in place with the Ktunaxa Nation to identify and culturally important sites and develop joint management strategies. A monitoring program is being implemented in coordination with Ktunaxa Nation. Discussions with the Ktunaxa Lands and Resource Agency (KLRA) have begun on updating the LKIB CCVF's although capacity and other priorities have made it challenging for the Nation to dedicate resources to the update and the process is on-going.

Initial discussions began with the Shuswap band to identify culturally significant areas within their traditional territory. Shuswap staff reviewed potential locations with community elders.

With a recent outbreak of spruce bark beetle in the north-eastern portion of the region, Canfor staff reviewed forest health survey results with both the Shuswap and Ktunaxa. A field trip with KLRA staff including their fisheries specialist reviewed potential treatment options in the Palliser drainage.

Element 6.3 – Forest Community Well-being and Resilience

Indicator 6.3.1 – Primary and By-Products

Indicator Statement	Target (Variance)	Results
Primary and by-products that are bought, sold, or traded with other forest dependent businesses in the local area	Report annually on the total number of vendors (n/a)	Achieved

Primary and by-products were sold or traded with 33 forest dependent businesses on the local area. Sales included pulp chips, hog fuel, cedar poles, peeler logs, posts, beams, firewood, and spruce for musical instruments.

Indicator 6.3.2 & 6.3.3 – Certified Safety Program

Indicator Statement	Target (Variance)	Results
Implementation and maintenance of a certified safety program	100% (0)	Achieved

Canfor maintains a certified safety Program – Occupational Health & Safety Program. The program covers topics ranging from relevant legislation to hazard identification, risk assessment and control measures.

Canfor's staff and contractor safety record is above the industry average and the trend is reported as improved compared to previous years ("YTD" and "Pr[evious] YTD", Figure 5).

Figure 5: Kootenay Safety Numbers – 2016
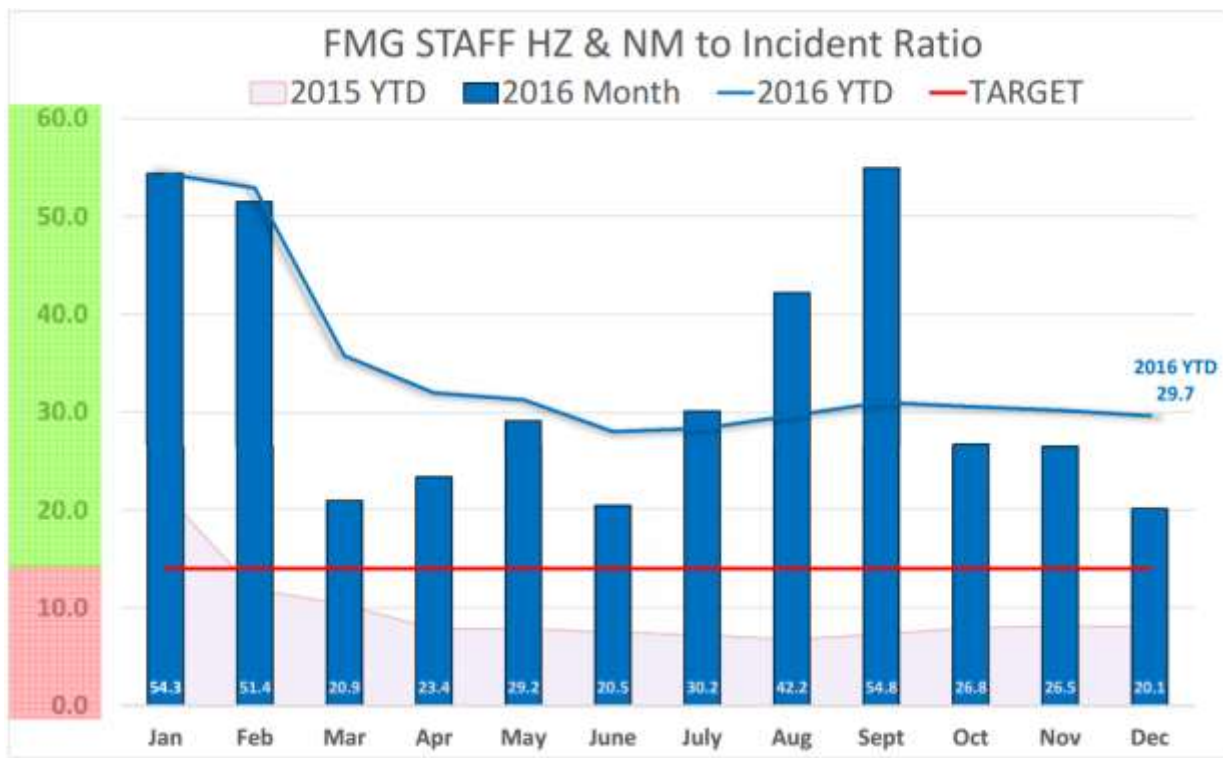
FMG	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	YTD	Pr YTD
Hazard	217	188	158	161	206	259	229	266	188	197	203	82	2,354	671
Near Miss	163	172	177	143	203	232	224	156	141	152	115	79	1,957	1,115
INCIDENTS														
Prp Damage	6	6	9	9	4	12	7	7	4	8	6	6	84	66
First Aid	0	0	7	3	10	9	7	3	2	4	6	0	51	59
Medical Aid	0	1	0	1	0	2	1	0	0	1	0	1	7	9
Medical Treatment	1	0	0	0	0	1	0	0	0	0	0	0	2	3
Lost Time	0	0	0	0	0	0	0	0	0	0	0	1	1	1

1/9/2017

Element 6.4 – Fair and Effective Decision-making

Indicator 6.4.1 – PAG Satisfaction

Indicator Statement	Target (Variance)	Results
PAG established and maintained according to Terms of Reference (satisfaction survey implemented)	80% satisfaction from surveys (-10%)	Achieved

During 2016, two meetings were held for the Radium PAG (Public Advisory Group). Meeting #49 was a field trip, and #50 was a presentation and discussion session held in an office setting.

Only one of the meetings (#50) had a satisfaction survey completed. For the other meeting, written satisfaction surveys were not completed as the PAG participated in a field trip that resulted in a long meeting. The Facilitator initiated a "verbal" satisfaction survey. All participants were extremely satisfied with the field tour.

Overall the Satisfaction Survey (22 questions) resulted in a score of 4.4 (88%), above the target of 4.0.

Indicator 6.4.2 – Educational Opportunities – Information/Training

Indicator Statement	Target (Variance)	Achieved
Number of educational opportunities for information/training that are delivered to the PAG	≥ 1/meeting (0)	Achieved

In 2016, there were two PAG meetings. Educational opportunities were provided to the PAG for each of those meetings. Although the PAG is specific to CSA Certification (A18979) they provide input to Canfor over the entire DFA.

Indicator 6.4.3 (6.1.2) – Aboriginal Understanding of Plans

Indicator Statement	Target (Variance)	Results
Evidence of best efforts to obtain acceptance of applicable management plans based on Aboriginal communities having a clear understanding of the plans	≥ 3 forms of communication for all applicable management plans (0)	Achieved

See the information provided under Indicator 6.1.2 (6.4.3) – Aboriginal Understanding of Plans as it satisfies the requirements for Indicator 6.4.3.

Indicator 6.4.4 – Third Party Verification

Indicator Statement	Target (Variance)	Results
Independent, third party review of the degree of Canfor achievement of meaningful participation	Compliance with external audit	Achieved

This indicator is currently being met, as verified by the valid FSC and CSA certificates for the applicable DFAs during 2016.

Element 6.5 – Information for Decision-Making

Indicator 6.5.1 – Educational Opportunity

Indicator Statement	Target (Variance)	Results
Number of people who took part in an educational opportunity	25 (-10) annually	Achieved. There were over 70 people in attendance at various presentations, field tours and workshops.

In 2016, Canfor staff led numerous educational opportunities including presentations, workshops, field tours, presentations to schools, and one-on-one meetings. Examples include: a Wings over the Rockies tour on forest practices, hosting a tour of US Foresters in the Flathead area on Canfor practices, forest health updates to Concerned Residents of Sheep Creek, a presentation at the Crown of the Continent workshop, a presentation on forest practices to the Conservation Partnership board, and updating the Shuswap on cultural landscapes process and presentations to local town councils on forest practices.

Indicator 6.5.2 – SFM Monitoring Report

Indicator Statement	Target (Variance)	Results
SFM monitoring report made available to the public	One SFM Annual Report available to public annually via web (N/A)	Achieved

The current (2016) SFMP Annual Report for the entire DFA, addressing both CSA and FSC indicators. All current and historic SFMP Annual Reports are located on Canfor's Website – Canfor Plans - select Kootenay Operations .

Appendices

Appendix I. Common Ecosystem Type Representation within HCVFs

Table A-I 1. Common Ecosystem type overlap with Ecosystem Restoration HCVFs

HCVF Number	HCVF Name	Group	Area in HCVF (ha)
2114	Skookumchuk Priarie	1	703.1
2115	Reed Lakes	1	500.7
2125a	Lower Findlay A	1	22.6
2125b	Lower Findlay B	1	134.2
2126	E. Columbia Lake	1	420.3
2128	Findley Mouth	1	0.0
3127	Fussee Lake	1	679.6
3128	Englishman Creek	1	1711.4
3152	Saugum Lake	1	2272.9
		Total Group 1	**6444.9**
	Area required to be harvested under Ecosystem Restoration (ha)		**4098.0**
		Total Surplus (ha)	**2349.9**
2115	Reed Lakes	3	1699.4
2125a	Lower Findlay A	3	1673.2
2125b	Lower Findlay B	3	676.0
2125c	Lower Findlay C	3	331.5
2126	E. Columbia Lake	3	908.5
2128	Findley Mouth	3	45.2
3127	Fussee Lake	3	350.9
3128	Englishman Creek	3	6826.1
3139	Kiakho Lake	3	211.5
3152	Saugum Lake	3	2744.7
		Total Group 3	**15466.8**
	Area required to be harvested under Ecosystem Restoration (ha)		**3021.0**
		Total Surplus (ha)	**12445.8**

Appendix II. IDFdm2 and PPdh BEC Variant Representation within HCVFs

Table A-II 1. IDFdm2 and PPdh BEC Variant Representation within HCVFs

License	BEC	HCVF#	HCVF	Area (ha)
A18978	IDFdm2	Lower Findlay a,b,c	2125a,b,c	5746.2
A18978	IDFdm2	Findlay Mouth	2128	106.5
A18978	IDFdm2	East Columbia Lake	2126	1075.5
A18978	IDFdm2	Dutch Creek	2124	25
A18978	IDFdm2	Lower Lussier a	2113a	696.5
A18978	IDFdm2	Lower Lussier	2112	200
A18978	IDFdm2	Mud Creek a	2127a	57
A18978	IDFdm2	Mud Creek b	2127b	26.5
A18978	IDFdm2	Reed Lakes	2115	2124
			Total Area IDFdm2	**10057.2**
		Area required to be harvested under Ecosystem Restoration (ha)		**2242.3**
			Total Surplus (ha)	**7814.9**
A18978	PPdh	Lower Lussier b	2113b	128.4
A18978	PPdh	Reed Lakes	2115	770.9
A18978	PPdh	Skook Prairie	2114	1370.7
			Total Area PPdh2	**2270.0**
		Area required to be harvested under Ecosystem Restoration (ha)		**835.4**
			Total Surplus (ha)	**1434.6**
A18979	IDFdm2	Aberdeen	2545	1500
			Total Area IDFdm2/PPdh	**1500**
		Area required to be harvested under Ecosystem Restoration (ha)		**46**
			Total Surplus (ha)	**1454**
A19040	IDFdm2	Saugum Lake	3152	3698
A19040	IDFdm2	Lower St. Mary's b	3150b	475.6
A19040	IDFdm2	Kimberley Nature Park	3151	1190
A19040	IDFdm2	Lower St. Mary's c	3150c	69.7
A19040	IDFdm2	Lower St. Mary's d	3150d	182.7
A19040	IDFdm2	Kiakho Lake	3139	173.4
A19040	IDFdm2	Englishman Creek	3128	7778.3
A19040	IDFdm2	Fussee Lake	3127	657.2
A19040	IDFdm2	Lower Elk Fish a	3125	1084.7
A19040	IDFdm2	Mt. Broadwood	3126	2706.5
A19040	IDFdm2	Morissey GB Linkage	3113	104.3

License	BEC	HCVF#	HCVF	Area (ha)
			Total Area IDFdm2	**18120.4**
		Area required to be harvested under Ecosystem Restoration (ha)		**4293.0**
			Total Surplus (ha)	**13827.4**
A19040	PPdh	Saugum Lake	3152	2520
A19040	PPdh	Lower St. Mary's c	3150c	19
A19040	PPdh	Englishman Creek	3128	2949.3
A19040	PPdh	Fussee Lake	3127	1031
A19040	PPdh	Lower Elk Fish a	3125	6.6
			Total Area PPdh	**6525.9**
		Area required to be harvested under Ecosystem Restoration (ha)		**1667.0**
			Total Surplus (ha)	**4858.9**

Appendix III. Detailed Results from 2016 HCVF Effectiveness Monitoring Program

Table A-III 1. Detailed results from 2016 HCVF Effectiveness Monitoring Program

License	CP	Block ID	HCVF/*CCVF* #/ Name	HCVF Strategies in SP?	Score	Why not included?	Management strategies effectively implemented? (*opportunities for improvement are bolded*)	Score	Recommendations?	Total score
A18978	295	295-002	*2310 Grave Creek*	No	0	Constraints map does not appear to include the appropriate CCVF layer (?Aqam), this is no longer an issue (complete constraints maps, planning/permitting checklists)	Management strategies are for huckleberries, not clear if there were huckleberries pre-harvest. No management strategies were implemented, however, not possible to determine if management strategies were required, given that **pre-harvest condition of huckleberries were not known (no assessments done)** Monitoring indicated that few huckleberries were growing within the block, and that logging may have damaged some rootstock	n/a	Pre-harvest assessments should record when there is a significant huckleberry component in CCVFs for Huckleberry ****ACTION**Update Planning and Permitting checklist to include a note regarding huckleberry CCVFs**	0.00
A18978	330	330-001	2124 Dutch Creek	No	0	Consultant completed Site Plan, no checklist available.	No evidence that management strategies were reviewed/ applied. Block is on South side of goat lick. - Road accessing the block is within Motor Vehicle Hunting Access Closure (MVHAC), meaning there is a seasonal restriction on hunting with the aid of a vehicle.	0	Area is within Motor Vehicle Hunting Closed Area (MVHCA), no further access measures at the moment. No changes required for Site Plan management; measures are in place to confirm that management strategies are included in Site Plans.	0.00
A18978	378	LUS0016	2105 Inlet Creek	Yes	1	n/a	There was only one directly applicable HCVF management strategy for this block (Group 7 representation), which was to emphasize retention of structural attributes (CWD, Snags, Vets, deciduous trees). According to monitoring: - Large CWD was left where it occurred/was felled (though low CWD volume was noted in the block) - An average of 4.1 sph of snags were noted through the block, none of which were > 20 cm dbh; no stubs were noted throughout the block. No HVS were identified within the block pre or post harvest - 5.1 sph of Lw> 30 cm dbh were retained within the block, 1.0 sph of which blew over, no stumps were observed - Nearly 200 sph of understory/ non-merch stems were retained - 8.16 sph deciduous were retained, 2.0 sph of which blew over	1	None.	1.00
A18978	378	LUS0025	2105 Inlet Creek	Yes	1	n/a	There was only one directly applicable HCVF management strategy for this block (Group 7 representation), which was to emphasize retention of structural attributes (CWD, Snags, Vets, deciduous trees). According to monitoring: - Large CWD was noted throughout the block - An average of 33.7 sph of snags were noted through the block, 3 sph of which were > 20 cm dbh, plus an additional 2 sph stubs throughout the block. The two identified High Value Snags were not retained (marked	1	None.	1.00

License	CP	Block ID	HCVF/*CCVF* #/ Name	HCVF Strategies in SP?	Score	Why not included?	Management strategies effectively implemented? (*opportunities for improvement are bolded*)	Score	Recommendations?	Total score
							along proposed roads, likely felled for safety reasons). - 21.42 sph of Lw> 40 cm dbh were retained within the block, 1.0 sph of which blew over, 9.1 sph of which were stumps - 234 sph of understory/ non-merch stems were retained - 70.3 sph deciduous were retained, 5.1 sph of which blew over, and an average of 1.0 sph stumps were noted			
A18978	382	NOR0004	2101/ 2102North White EF/ White River Riparian	Yes	1	n/a	This block was harvested to control the spread of Mountain Pine Beetle and Spruce Bark Beetle, the prescription for the area that overlapped with the HCVF included retaining acceptable understory. A review of the LiDAR canopy height model (showing post-harvest) suggests that not much understory was retained, pre-harvest was 50% Bl (according to pre-harvest assessments conducted by layout contractors, Bl is not as desirable leave).	0.5	None.	0.75
A18978	382	NOR0039	2102 White River Riparian	Yes	1	n/a	Applicable management strategies are for Old Growth stands. This block was harvested in part to address the Spruce Bark Beetle infestation in the North White, consequently, a small area below the road, mostly around the trapper's cabin, was harvested. Effort was made to retain understory to promote a multi-layered stand. In addition, Sx was hand felled along the main road (danger trees); hand-felling would have protected existing CWD, and promoted a multi-layered canopy.	1	None, HCVF values were managed as best possible given Sx infestation.	1.00
A18978	382	NOR0044	2101 North White EF	Yes	1	n/a	This block was harvested to control the spread of Spruce Bark Beetle. Originally it overlapped with 2101 (an EF), however the linework was changed to account for the Sx beetle infestation and block. Understory retention was prescribed to promote a multi-layered canopy. This was achieved for the block, as surveyors noted that understory was retained in clumps throughout block.	1	None.	1.00
A18979	333	INV0004	2532 Lower Brewer	Yes	1	n/a	Applicable management strategies were to retain vets and large snags. - Four High value snags were checked within the block, three were within reserves (two had fallen over, not clear what the cause was), one was in the net area (it was retained). - No plots completed in block - LiDAR analysis indicates that ~8 sph ha retained of the largest trees	1	None, HCVF values were managed as best possible given Mountain Pine Beetle infestation.	1.00
A19040	248	248-002	3115 Flathead Grizzly	Yes	1	n/a	Applicable management strategies were primarily for Grizzly Bears. Results from monitoring indicate that five out of the six applicable management strategies at the time of monitoring were applied adequately: - Cover was retained for movement and cub security - Non merchantable stems and existing vegetation were retained (avg of 119 sph) - 20 m non-merch zone wasnot been slashed - Post-harvest slashing of understory/non-merch was not done - In block roads/ access roads were deactivated - Effective visual buffers were retained - Large CWD was retained within the block - Felled snags were left in block - Application of herbicides was avoided - **Harvest during spring occurred**	0.9	None, measures are in place to confirm that management strategies are included in Site Plans, and that blocks with recommended timing restrictions are flagged in Forest Ops.	0.95

License	CP	Block ID	HCVF/*CCVF* #/ Name	HCVF Strategies in SP?	Score	Why not included?	Management strategies effectively implemented? (*opportunities for improvement are bolded*)	Score	Recommendations?	Total score
A19040	255	255-005	3115/ *3324* Flathead Grizzly/ *Flathead Huckleberry*	Partially 3115	0.5	- Site Plan indicates overlap and that management strategies have been applied, but doesn't list specifics 3324 - Site Plan only indicates overlap, does not list specifics, or state that management strategies have been applied. Older Site Plan, requirements for documentation in Site Plan were not as clear	Management strategies were for Grizzly Bears. Results from monitoring indicate that two out of the six applicable management strategies at the time of monitoring were applied adequately, two were partially applied, and two were not applied: - Cover was retained for movement and cub security - Non merchantable stems and existing vegetation were not well retained (in lower portion of the block, anecdotal information from surveyor) - 20 m non-merch veg zone has not been slashed out - Post-harvest slashing of non-merch/understory has been avoided - In block roads have been deactivated where practicable - Effective visual buffers were maintained - **Large CWD was not retained within the block** - **Felled snags were skidded, not left in block** - **Harvest during spring occurred**	0.7	None, measures are in place to confirm that management strategies are included in Site Plans, and that blocks with recommended timing restrictions are flagged in Forest Ops. In addition, no follow-up required with contractor, or at Contractor spring training as contractor no longer works for Canfor.	0.60
A19040	516	516-009	3301 Teepee Creek	No	0	Missed on Planning checklist	Applicable management strategies were to protect riparian areas, coarse woody debris, live residual trees. - Riparian area protected along S3- Extensive amounts of large CWD left in block - Live residuals were retained (however many have blown over) - Roadside hedge retained, ~10sph understory retained within block (unclear how much in block pre-harvest)	1	None, measures are in place to confirm that management strategies are included in Site Plans.	0.50
A19040	516	516-010	3301 Teepee Creek	No	0	Missed on Planning checklist	Applicable management strategies were to protect riparian areas, coarse woody debris, live residual trees. - Riparian area protected along S3 - Extensive amounts of large CWD left in block - Live residuals were retained (however many have blown over) - Roadside hedge retained, ~9sph understory retained within block (unclear how much in block pre-harvest)	1	None, measures are in place to confirm that management strategies are included in Site Plans.	0.50

License	CP	Block ID	HCVF/*CCVF* #/ Name	HCVF Strategies in SP?	Score	Why not included?	Management strategies effectively implemented? (*opportunities for improvement are bolded*)	Score	Recommendations?	Total score
A20212	186	186-001	4109b/ *4307* South Purcell High Value Grizzly Bear/ *Lower Kootenay CCVF*	Yes	1	n/a	Applicable management strategies were for Grizzly Bears, Fisheries, veteran trees (Lw, Cw, Fd), White Pine, and Deciduous trees. Results from monitoring indicate that: - 78% of Lw >30 were retained (plot data) - 100% of Fd> 35 were retained - 100% of deciduous trees were retained (avg 2.55 sph), an average of 0.85 sph blew over - No other species were noted. Large diameter Cw (35-40 cm dbh) was noted in the cruise, and not factored out of the cruise, therefore was not prescribed to be harvested. - Riparian features were well protected (feathering to protect from windthrow, wide buffers that followed prescription, patches followed logical topographic breaks and terrain features. Appeared to be minor amounts of sediment from road (outside block) being deposited into s6a stream below crossing Grizzly bears: - Cover was retained for movement and cub security - An average of 159.8 sph of non-merch trees were retained throughout the block (large amount), - 20 m non-merch zone was not been slashed out - Post-harvest slashing was avoided - In block roads were not deactivated, however this block has access control measures (gate), so not practicable to reclaim roads - Effective visual buffers were retained - Large CWD was retained - Felled snags were left in block - Application of herbicides has been avoided - **Harvest during spring occurred**	0.93	None, measures are in place to confirm that management strategies are included in Site Plans, and that blocks with recommended timing restrictions are flagged in Forest Ops.	0.97
A20212	189	189-001	*4309 Lower Kootenay CCVF*	Yes	1	n/a	Applicable management strategies were for riparian features, veteran trees (Lw, Cw, Hw, Fd), White Pine, and Deciduous trees. Results from monitoring indicate that: - An average of 3.0 sph of Fd/Lw/Cw were found on site (over 5 plots), only one stump was noted for all plots combined. It was difficult to determine why this was felled. - An average of 13.3 sph of Pw were noted over 5 plots, an average of 1 sph was cut, **while 8.2 sph Pw were windthrown** - An average of 118.3 sph of deciduous were noted over 5 plots, 9.2 sph were felled, 5.1 sph were windthrown - 6600 Pw plus tree seedlings planted in 2017 Riparian - All the riparian habitat contained within reserves/ MFZs, follow logical topographic breaks and terrain features, clean running water and minimal windthrow	0.88	When management strategies are updated for CCVFs, suggest reserving large Pw in small windfirm WTPs, rather than blanket statement to "Reserve".**ACTION** **Update SFMP/Planning and Permitting Checklist to include management of Pw**	0.94

License	CP	Block ID	HCVF/*CCVF* #/ Name	HCVF Strategies in SP?	Score	Why not included?	Management strategies effectively implemented? (*opportunities for improvement are bolded*)	Score	Recommendations?	Total score
A20212	189	189-002	*4309 Lower Kootenay CCVF*	Yes	1	n/a	Applicable management strategies were for riparian features, veteran trees (Lw, Cw, Hw, Fd), White Pine, and Deciduous trees. Results from monitoring indicate that: - Very few large Fd/Lw/Cw (>50 cm dbh) were found on site, only one was noted for all plots combined, and it was felled. It's difficult to determine why this was felled. Only 0.5 sph stems >50 cm dbh were included in the cruise, likely more on site, but not picked up by plots. - An average of 34.3 sph of Fd and Lw >20 cm dbh (some of which would be considered vets) were found within plots, an average of 12.2 were retained. - An average of 17.3 sph of Pw were noted over 5 plots, an average of 1 sph was cut, 1 sph were windthrown - 6160 Pw plus tree seedlings planted in the block in 2017 - An average of 118.3 sph of deciduous were noted over 5 plots, 9.2 sph were felled, 5.1 sph were windthrown Riparian - Well designed reserve, evidence of feathering of trees in RMZ, all the riparian habitat contained within reserve - Minimal windthrow - **Poorly constructed crossing over Stream #4**. This was reported to Operations, entered into ITS (Incident Tracking System), and a plan for rehabilitation has been developed	1	None	1.00
A20212	196	LMR0008	4109a Kitchener Grizzly Bear Linkage	Yes	1	n/a	Applicable management strategies were for Grizzly Bears and Hydrology. Results from monitoring indicate that 6 of 7 applicable management strategies at the time of monitoring were applied adequately: - Non-merch and existing vegetation were retained. Again, pre-harvest assessments indicated that minimal non-merch existed. - The 20 m non-merch zone was not brushed out - Post-harvest slashing was avoided - Large CWD was retained in block in some areas of the block. Pre-harvest CWD transects indicate that no pieces >27.5 cm diameter were available to be retained (from 4 transects). - Some felled snags were left in block - Treatments that would destroy or reduce bear foods were avoided - **Harvest during spring occurred**	0.86		0.93
A86246	100	KID0019	4109bYahk Grizzly Bear Linkage	Yes	1	n/a	Applicable management strategies are for Grizzly Bears. Results from monitoring indicate that 7 of 9 applicable management strategies at the time of monitoring were applied adequately: - Cover was retained for movement and cub security - Non-merch and existing vegetation were retained - the 20 m non-merch zone was not brushed out - Post-harvest slashing was avoided - Effective visual buffers were maintained around areas containing important bear foods - Large CWD was retained in block - **Some felled snags were not left in block** - Treatments that would destroy or reduce bear foods were avoided - **Harvest during spring occurred**	0.78	None, measures are in place to confirm that management strategies are included in Site Plans, and that blocks with recommended timing restrictions are flagged in Forest Ops. In addition, retention of felled snags was covered at 2017 contractor training.	0.89

License	CP	Block ID	HCVF/*CCVF* #/ Name	HCVF Strategies in SP?	Score	Why not included?	Management strategies effectively implemented? (*opportunities for improvement are bolded*)	Score	Recommendations?	Total score
A86246	100	KID0020	4109b Yahk Grizzly Bear Linkage	Yes	1	n/a	Applicable management strategies were for Grizzly Bears. Results from monitoring indicate that 7 of 8 applicable management strategies at the time of monitoring were applied adequately: - Some cover was retained for movement and cub security lower in the block. According to the cruise, this block was 95 Pl, meaning that likely very little structure existed pre-harvest - Non-merch and existing vegetation were retained. Again, pre-harvest assessments indicated that minimal non-merch existed. - The 20 m non-merch zone was not brushed out - Post-harvest slashing was avoided - Large CWD was retained in block in some areas of the block. Pre-harvest CWD transects indicate that no pieces >27.5 cm diameter were available to be retained (from 4 transects). - Some felled snags were left in block - Treatments that would destroy or reduce bear foods were avoided - **Harvest during spring occurred**	0.88	None, measures are in place to confirm that management strategies are included in Site Plans, and that blocks with recommended timing restrictions are flagged in Forest Ops.	0.94
A86246	100	KID0021	4109b Yahk Grizzly Bear Linkage	Yes	1	n/a	Applicable management strategies were for Grizzly Bears. Results from monitoring indicate that 6 of 7 applicable management strategies at the time of monitoring were applied adequately: - Non-merch and existing vegetation were retained. Again, pre-harvest assessments indicated that minimal non-merch existed. - The 20 m non-merch zone was not brushed out - Post-harvest slashing was avoided - Large CWD was retained in block in some areas of the block. Pre-harvest CWD transects indicate that no pieces >27.5 cm diameter were available to be retained (from 4 transects). - Some felled snags were left in block - Treatments that would destroy or reduce bear foods were avoided - **Harvest during spring occurred**	0.86	None, measures are in place to confirm that management strategies are included in Site Plans, and that blocks with recommended timing restrictions are flagged in Forest Ops.	0.93
TFL14	201	TWE0008	1102 Columbia Wetlands	No	0	Block summary indicated that no applicable management strategies for block	Applicable management strategies are for Ungulate Winter Range and OGMAs. - UWR was managed for appropriately, and documented in the Site Plan - **OGMAs were harvested, even though management strategies are to retain OGMAs**, unless forest health issues are present (MPB). No forest health issues were within the block. In addition, the identified replacement areas were not loaded into Resources	0.5	None related to ensuring management strategies are in the Site Plan (this was covered with dealing with the HCVF NCR). ****ACTION** Follow up with consultants for this block to ensure that replacement areas for OGMAs are only done when necessary, and that the replacement info is passed on to WIM.**ACTION** a WIM task is to be submitted for this block to delete/replace OGMAs that were harvested**	0.25
				Total	14.5		Total	15.79	Total	15.15
				Percent	73%		Percent	83%	Percent	78%