

FSC Conservation Areas Network Gap Analysis (Indicator 6.5.2)

CANFOR'S KOOTENAY REGION

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Project [1182-14]

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1 Introduction

Canadian Forest Products (Canfor) voluntarily maintains Forest Stewardship Council (FSC) Forest Management certification for most of its Kootenay licenses in British Columbia. On January 1, 2020, the new Canadian FSC National Stewardship Standard¹ came into effect, replacing the four regional standards previously in effect across Canada, including the BC FSC Standard that Canfor was previously certified under. Criterion 6.4, pertaining to representative sample areas of native ecosystems, was changed to Criterion 6.5 and updated. As such, it was necessary for Canfor to update their Ecosystem Representation Analysis previously completed to meet FSC BC requirements for Criterion 6.4.

This report addresses Indicators 6.5.2 and 6.5.7 under the new Criterion 6.5. The intent is to determine if any gaps exist in the Conservation Areas Network established in the management unit and what those gaps might be relative to minimum percentages specified by the standard.

Criterion 6.5 in the National FSC Standard states that:

“The Organization shall identify and protect representative sample areas of native ecosystems and/or restore them to more natural conditions. Where representative sample areas do not exist or are insufficient, The Organization shall restore a proportion of the Management Unit to more natural conditions. The size of the areas and the measures taken for their protection or restoration, including within plantations, shall be proportionate to the conservation status and value of the ecosystems at the landscape level, and the scale, intensity and risk of management activities.”

Indicator 6.5.2 requires that:

Using best available information, an analysis is used to identify potential gaps in the completeness of the Conservation Areas Network in the Management Unit. Elements considered for inclusion in the gap analysis address enduring features, representation of native ecosystems, landscape connectivity, High Conservation Values and High Conservation Value areas.

The analysis uses inputs from the entire area of ecological influence.

The results of the gap analysis are mapped.

Indicator 6.5.7 requires that:

The Conservation Areas Network must comprise a minimum of 10% of the area of the Management Unit. The extent of the Conservation Areas Network on the Management Unit is identified by considering:

- 1. Relative extent of the Conservation Areas Network in the area of ecological influence*
- 2. Contribution of the Conservation Areas Network to the attainment of regional, provincial, national, and international (e.g. Aichi biodiversity targets) conservation and protected area targets;*
- 3. Best available scientific information and research regarding appropriate conservation targets;*
- 4. Previous contributions of the Organization to Conservation Areas Network on lands that were formerly within the Management Unit; and*
- 5. Socio-economic considerations (e.g. implications for wood availability and harvest levels).*

¹ https://ca.fsc.org/sites/default/files/2022-03/FSC-STD-CAN-01-2018%20EN_V1.pdf

1.1 PROJECT OBJECTIVES

1. Assess regional representation within ecosystems that overlaps Canfor's operating area:
 - a. What percent area of each Biogeoclimatic (BGC) zone/subzone/variant is comprised of parks, protected areas, and covenant lands / wildlife management areas where conservation is the exclusive or primary objective?
2. Assess representation at Canfor's management unit level:
 - a. What percent of each BGC zone/subzone/variant within the management unit falls within the Conservation Areas Network (CAN) established by Canfor?
 - b. How does this percentage compare to the minimum required by FSC?
 - c. Identify any gaps where the network requires additional area as compared to the minimum 10%.

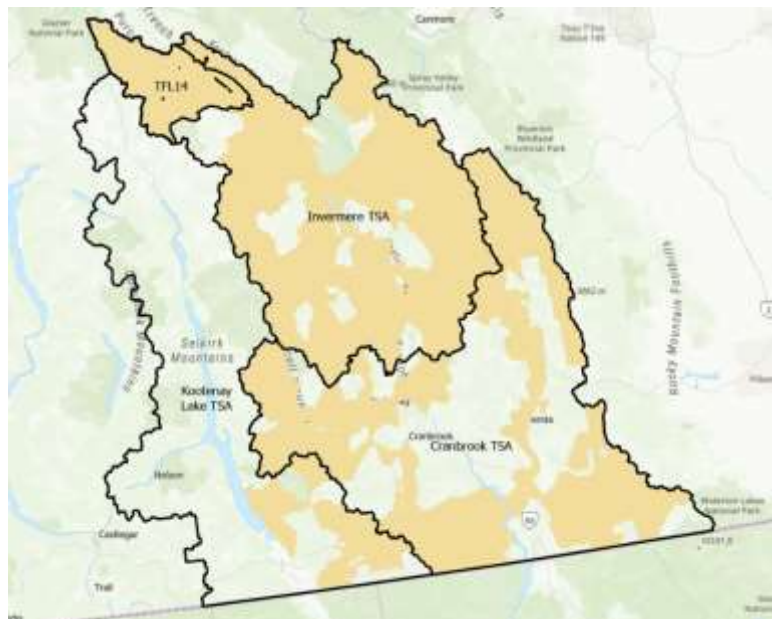
1.2 STUDY AREA

This analysis addressed Canfor's operating area in four management units in the Kootenays (Cranbrook TSA, Kootenay Lake TSA, Invermere TSA, and TFL 14). The total area of these tenures was considered the 'management unit'.

To meet the requirements, it was necessary to identify protected areas both "outside the management unit" and "inside the management unit". For this analysis, the following definitions were used:

Area Outside the Management Unit: The full extent of the Biogeoclimatic (BGC) variants (as mapped by the British Columbia Ministry of Environment, Version 12) that intersect Canfor's operating area was used to assess the proportion of protected areas occurring at a regional scale. Any parks, legally protected areas, or lands protected from commercial logging or managed for biodiversity as the primary objective through legal covenants were considered reserves outside of the management unit. These were considered to represent the area of ecological influence, as per the FSC standard.

Area Inside the Management Unit: All of the forested landbase (FLB) within Canfor's operating area (not including parks or legally protected areas) was considered the area of the management unit (shaded area in image above). Protected areas inside the management unit were examined at the BGC zone/subzone/ and variant levels. For detailed information on BC's ecological classification system, refer to [BECWEB](https://www.for.gov.bc.ca/hre/becweb/) (<https://www.for.gov.bc.ca/hre/becweb/>).



2 Approach

2.1 REGIONAL REPRESENTATION ASSESSMENT

1. Determine the BGC variants that overlap with Canfor's operating areas.
2. Extract the full extent of these BEC variants from the provincial BGC dataset.
3. Compile parks, protected areas, Wildlife Management Areas (WMA's) from the provincial ownership layer (see figure in results section for locations). Wildlife Management Areas in BC cannot have any timber harvest unless this is approved by the Regional Director of Resource Management in the BC Government, and if this harvest prioritizes the ecological values within the area.
4. Compile covenant lands (no harvest potential) received from Nature Trust BC representing all lands in the Kootenay Conservation Partnership. Covenant areas are in the analysis but are not included in the mapping (as per request from Nature Trust). There are just over 17,098 ha (gross) of covenant area in the analysis – with 76% of the area occurring adjacent to the Columbia River wetlands in the Invermere Timber Supply Area (TSA).
5. Using gross areas, calculate the percent of each BGC variant covered by parks/protected areas/WMA's/covenant lands.

2.2 MANAGEMENT UNIT CONSERVATION AREAS NETWORK ASSESSMENT

All representation calculations were based on the Forested Land Base (FLB) associated with each management unit. This was defined as any stand in the Vegetation Resource Inventory (VRI) with a FLB flag of 'Y' and then removing polygons with the following criteria (BCLCS = British Columbia Land Cover Classification):

Non-Forest Description	Criteria
Water	BCLCS_L1 = "N", BCLCS_L2 = "W"
Snow/Ice	BCLCS_L1 = "N", BCLCS_L2 = "L", BCLCS_L4 = "SI"
Rock	BCLCS_L1 = "N", BCLCS_L2 = "L", BCLCS_L4 = "RO"
Exposed Land	BCLCS_L1 = "N", BCLCS_L2 = "L", BCLCS_L4 = "EL"

Non-Productive Description	Criteria
NP Brush	BCLCS_L1 = "V", BCLCS_L2 = "N" and no past history of logging
Wetland	BCLCS_L1 = "V", BCLCS_L2 = "T", BCLCS_L3 = "W"
NP Forest	BCLCS_L1 = "V", BCLCS_L2 = "T", BCLCS_L3 = "U", Site Index < 5 and no past history of logging

Ownership	Criteria
Parks/protected/private/etc	40,51, 52, 54, 60, 65, 66, 67, 68, 75, 77, 80, 81, 91, 99
ICIS Private Lands	Provide by Canfor
Covenant Lands	Provided by Nature Trust

Each of the reserve types (see section 2.3) were placed into a hierarchical order to eliminate double counting. If an area was associated with two or more reserve types (inoperable, Old Growth Management Area (OGMA),

unstable terrain), its area would only be tallied with the reserve type highest on the list (i.e., OGMA). Reserve types used in the regional assessment were ignored here to avoid double counting.

Once the hierarchical list was completed, reserve types were summarized by BGC variant in each management unit, and the percent area in the Conservation Area Network (CAN) was determined as follows:

- ▶ % CAN = (Sum of reserve areas) / FLB excluding parks and covenants

The % CAN was compared to the FSC minimum requirements, as well as other minimum requirements such as the Aichi Targets², and any deficit or surplus was reported. This was repeated after including the High Conservation Value Areas as a sensitivity as well.

2.3 RESERVED TYPES IN CONSERVATION AREA NETWORK

The reserve types that make up the Conservation Area Network are described below along with a written objective for each type to indicate how each contributes to maintaining or restoring ecological integrity within the management unit. Protected areas used to support the regional assessment are NOT used in the Management Unit assessment to avoid double counting, and thus are not listed below.

Caribou No Harvest Areas

Data source / Description: Approved boundaries of the Ungulate Winter Range Government Action Regulation Order (U-4-013 & U-4-014; February 2009). The order states timber harvesting and road construction must not occur within identified Caribou UWR units (with very few extremely limited exceptions, only within the Kootenay Lake TSA). Canfor has procedures in place to ensure compliance with the UWR Order, and monitors compliance on an annual basis.

Management Objective(s): Maintenance and restoration of mountain caribou habitat.

High Conservation Value Areas- Reserve (HCVA-R)

Data source / Description: HCVA-R are a subset of the areas designated as Canfor's High Conservation Value Areas (HCVA), as of July 2022. Canfor has written management strategies that prohibit timber harvest and roadbuilding unless it is consistent with the values and management objectives for them (i.e., ecological restoration). These areas are primarily inoperable, indicating that the BC Government has determined them to be not available for timber harvesting due to physical limitations or due to unsuitable economics related to steep slopes, road access or yarding distance (see the data package for [TSR III, Cranbrook TSA](#)). Canfor monitors the amount of harvesting and road-building within these areas on an annual basis, to ensure the designation is being respected and HCVA management strategies are being followed. Further, given the solid licensee operating area designation within the East Kootenay, encroachment within these areas by other forest licensees is extremely unlikely.

Management Objective(s): Provide unmanaged areas to contribute to ecological representation, and larger, intact areas for those species that benefit from such habitat.

Cultural and Conservation Value Areas – Reserve (CCVA-R)

Data source / Description: CCVA-Rs areas are a subset of the areas designated as Canfor's Cultural and Conservation Value Area mapping, as of July 2022. Canfor has management strategies for these areas, developed together with Indigenous Nations, that prohibit timber harvest and roadbuilding unless it is consistent with the values and management objectives for the areas. The majority of these areas are either inoperable or overlap with

² <https://www.cbd.int/aichi-targets/>

riparian reserves. As with the HCVA-R, Canfor monitors the amount of harvesting and road-building within these areas on an annual basis, to ensure the designation is being respected and management strategies are being followed.

Management Objective(s): maintain areas of high cultural sensitivity and importance, for medicinal plants, spiritual use, hunting/gathering, or otherwise.

Old Growth and Mature Management Areas (OGMA/MMA)

Data source / Description: Old Growth Management Areas (OGMA's) and Mature Management Areas (MMA's) as required by Canfor's Forest Stewardship Plan and the Kootenay Boundary Higher Level Plan Order. Canfor provided spatial data in July 2022. OGMA's and MMA's were treated as reserves because there is no intention to harvest these areas for the foreseeable future. If they are logged due to forest health issues or small adjustments in the boundaries made based on field work, replacement stands of similar or greater area with higher, similar, or next best old growth characteristics are identified in the same LU-BEC variant. Compliance with minimums is monitored on an annual basis.

Management Objective(s): Provide forests with old and mature age and/or ecological attributes within each Landscape Unit - BEC variant combination. OGMA's were also prioritized on rare ecosystems, where old forest occurred on these types, and so offer ecosystem representation as well.

Wildlife Habitat Areas (WHA's)

Data source / Description: WHA for species at risk as legally established by the BC government.

The table below outlines the species that have had WHAs established and how each were considered for reserves based on the management objectives associated with each WHA (harvest restrictions or not). Additionally, it shows the WHA's not included in this analysis. Some, like Flammulated Owl, although they permit limited timber harvest within the management zone, are highly unlikely to be logged given the highly limited logging allowed (70% Basal Area retention and all wildlife trees retained) and so were treated as reserves. Compliance with requirements is monitored on an annual basis.

Species	Core Area Considered a Reserve (Y/N)	Management Zone / Conditional Harvest Zone – Treat as Reserve (Y/N)
Tailed Frog		Yes
Coeur D'alane Salamander		Yes
Lewis Woodpecker		No
Flammulated Owl	Yes	No
Badger		No
Long-billed Curlew		No
Western Screech Owl		Yes
Great Blue Heron	Yes	No
Williamson Sapsucker		Yes
Grizzly Bear		No
Caribou		Yes
Gillette's Checkerspot		No
Antelope Bruch/Bluebunch Wheatgrass		No
Douglas fir/Snowberry/balsamroot		NO

Management Objective(s): Provide habitat for species at risk at sites the species are known to occur at, or where high-quality habitat for them occurs.

Riparian Reserve Zones

Data source / Description: Areas adjacent to streams/lakes/wetlands where harvesting does not occur. Classes were assigned to each lake/wetland based on size and ecosystem. For streams, existing known classes were used whenever possible (field work, fish sampling, etc.). Streams with no known class were grouped by fish/non-fish bearing (based off slope %) and assigned a class based on stream magnitude (# of streams draining into this stream from upland locations). Once riparian classes were established, FRPA (BC Forest Range Practices Act) riparian reserve buffers were applied to streams (S1B-50m, S2-30m, S3-20m), lakes (L1B-12.5m, L2-15m, L3-10m, L4-7.5m), and wetlands (W1/W5 – 20m, W2/3-15m, W4-7.5m). The exact spatial location of these reserves will vary based on ground truthed locations and attributes, but the amount of area in riparian reserves is expected to be equal to or greater than that assumed here.

Management Objective(s): Protect riparian habitat and the values associated with it.

Whitebark Pine Stands

Data source / Description: Whitebark Pine (*Pinus albicaulis* - Pa) leading stands as identified in the provincial VRI dataset. Whitebark pine leading stands are considered fully non-merchantable in the Timber Supply Review for the Cranbrook and Invermere TSAs, demonstrating that the BC Government does not consider them part of the Timber Harvesting Landbase. In addition, Canfor does not log stands with a Whitebark Pine component greater than 10-250%, or any live, healthy Whitebark Pine, as stated in their Standard Work Procedure. Adherence to this procedure is monitored annually.

Management Objective(s): Maintain Whitebark Pine stands on the land base to maintain / contribute to biodiversity, and to provide an important food source for several species.

White Pine Stands

Data source / Description: White Pine (*Pinus strobes* - Pw) leading stands as identified in the provincial VRI dataset. These stands are suffering from blister rust and are reduced in extent due to past logging and development in the East Kootenays. There is no intention to log these stands.

Management Objective(s): Maintain existing White Pine stands to maintain / contribute to biodiversity.

Deciduous stands

Data source / Description: Deciduous leading stands as identified in the provincial VRI dataset. Deciduous-leading stands are considered fully non-merchantable in the Timber Supply Review for the Cranbrook and Invermere TSAs, demonstrating that the BC Government does not consider them part of the Timber Harvesting Landbase. Canfor has no intention to log these stands.

Management Objective(s): Provide habitat for deciduous associated species.

Cedar, Hemlock, and Balsam Stands > 200 years old

Data source / Description: Cedar, Hemlock, or Balsam leading stands as identified in the provincial VRI dataset. These stands are considered fully non-merchantable in the Timber Supply Review for the Cranbrook and Invermere TSAs, demonstrating that the BC Government does not consider them part of the Timber Harvesting Landbase. The majority of these stands are identified OGMAs.

Management Objective(s): Provide unmanaged areas for ecological representation; provide old growth habitat.

Unstable Terrain

Data source / Description: Areas where harvesting will not occur because of terrain issues. This included all 'Unstable' polygons from Terrain Stability Mapping, and all 'Potentially Unstable' polygons in Community watersheds. These areas are netted out of the Timber Supply Review, demonstrating that the BC Government does not consider them part of the Timber Harvesting Landbase. Like inoperable areas, the size of this area is not completely fixed because it is refined as better inventory data becomes available. On the ground assessments may result in a small amount of this area being logged (<5%) but this is usually more than offset by potentially unstable terrain that will ultimately be set aside. This reserve type is most common in upper elevation ecosystems where there are typically large surpluses in reserves.

Management Objective(s): Provide unmanaged areas for ecological representation, habitat for various species.

Inoperable

Data source / Description: Areas that cannot be harvested at the present time due to physical limitations or economics. The current operability line for each unit was used to define inoperable areas. There is no expectation that management will occur in the vast majority of these stands for the foreseeable future. If changes do occur, land may be included or excluded from the inoperable designation. At an operational scale, Canfor generally operates well below the operability line. Although incursions do occur on occasion, these incursions are kept monitored and reported on in the annual Sustainability Report. These incursions are almost entirely in the ESSF variants, which are highly represented in parks and the non-harvestable land base, so removal of small areas do not significantly affect the reserve requirement calculations. Over the past 15 years that Canfor has been keeping track of incursions above the operability line, no BGC variants have had reserve percentages pushed below minimum targets due to harvesting or road-building above the operability line. The areas of incursions are very small relative to the size of the total inoperable and are typically offset by the retention of areas below the operability line that turn out to be inoperable. If significant changes occur in the operability line, Canfor will rerun the analysis to account for these.

Management Objective(s): Provide habitat for species associated with upper elevation forests and alpine areas, such as caribou, mountain goats and grizzly, as well as those species that use steeper ground. In addition, provide unmanaged areas for ecological representation in many BGC variants.

Wildlife Tree Retention Areas (WTRA/WTP)

Data source / Description: Areas currently designated and mapped as Wildlife Tree Patches, which are legally established for at least 1 rotation (60-120yrs).

Management Objective(s): Provide habitat and structural diversity for biodiversity, as well as to contribute to ecological representation (rare and uncommon ecosystems are placed in WTRAs when these are encountered in the field).

Indigenous Protected and Conserved Areas (IPCA)

Data source / Description: Areas currently designated and mapped as indigenous protected and conserved areas. Within the management units there is currently only one IPCA: Qat'muk (Ktunaxa Nation).

Management Objective(s): Protect and restore cultural heritage and biodiversity of areas of significance for indigenous peoples.

High Conservation Value Areas (special case)

HCVA and CCVA forests (other than the Reserve subsets addressed above) were also tallied as a sensitivity run as part of this exercise, separate from the other representation components. HCVA areas are provided only for context and to support future decision-making aimed at addressing BGC variants where ecological restoration is widely acknowledged to be required, rather than protection, in order to restore biodiversity. For example, in dry ecosystem types such as the IDFdm2, simply reserving most areas will not contribute to biodiversity, in fact it may decrease it. Due to the cessation of Indigenous cultural burning over 150 years ago, combined with historical logging and ranching activity, these ecosystems now require active management with the goal of ecosystem restoration to provide, through time, high quality habitat for the many species dependent upon them.

Other Considerations

Unique enduring features in the management unit such as Hoodoos, Tufa formations, and karst/caves were also considered for inclusion in the analysis. However, none of these features are known to occur within Canfor's timber harvesting landbase; to our knowledge they are all located on private land, within provincial parks or other protected areas, or in inoperable areas high in the mountains (i.e., Gargantua cave at the headwaters of Andy Good Creek). Thus, these features are considered covered by layers already included in the analysis.

Other geological features such as mountains are considered enduring features, but since the vast majority of the East Kootenay region is dominated by mountains, it did not make sense to include them in the analysis.

Landscape connectivity was included at a landscape scale by the HCVA-R/CCVA-R and HCVAs/CCVAs that provide for grizzly movement and linkage and for movement over high and mid-elevation passes, and along major rivers. It is also provided by riparian reserves along major rivers and streams (S1,S2,S3), and through OGMAs/MMAs that were established for riparian and elevational connectivity. This value is also a key output of the entire Conservation Network.

High Conservation Values (HCVs) were included in this analysis through the inclusion of the layers above and also through the inclusion of the HCVAs and CCVAs, which represent both areas where singular HCVs occur (i.e., caribou no-harvest UWR), as well as where concentrations of these values occur (low elevation HCVAs that include areas for ecosystem restoration with high densities of veteran trees, deciduous trees, and key habitat for various species at risk).

3 Results

3.1 REGIONAL CONTEXT

Table 1 and Figure 1 show the amount of protected area within each of the BGC variants that intersect Canfor’s operating area and the resulting percent protected area. Covenant areas are included (17,098 ha) in the analysis but not shown on the map at the request of Nature Trust. These areas almost exclusively occur in valley bottom IDF (Interior Douglas Fir) ecosystems with small areas in the MS (Montane Spruce) and ICH (Interior Cedar Hemlock).

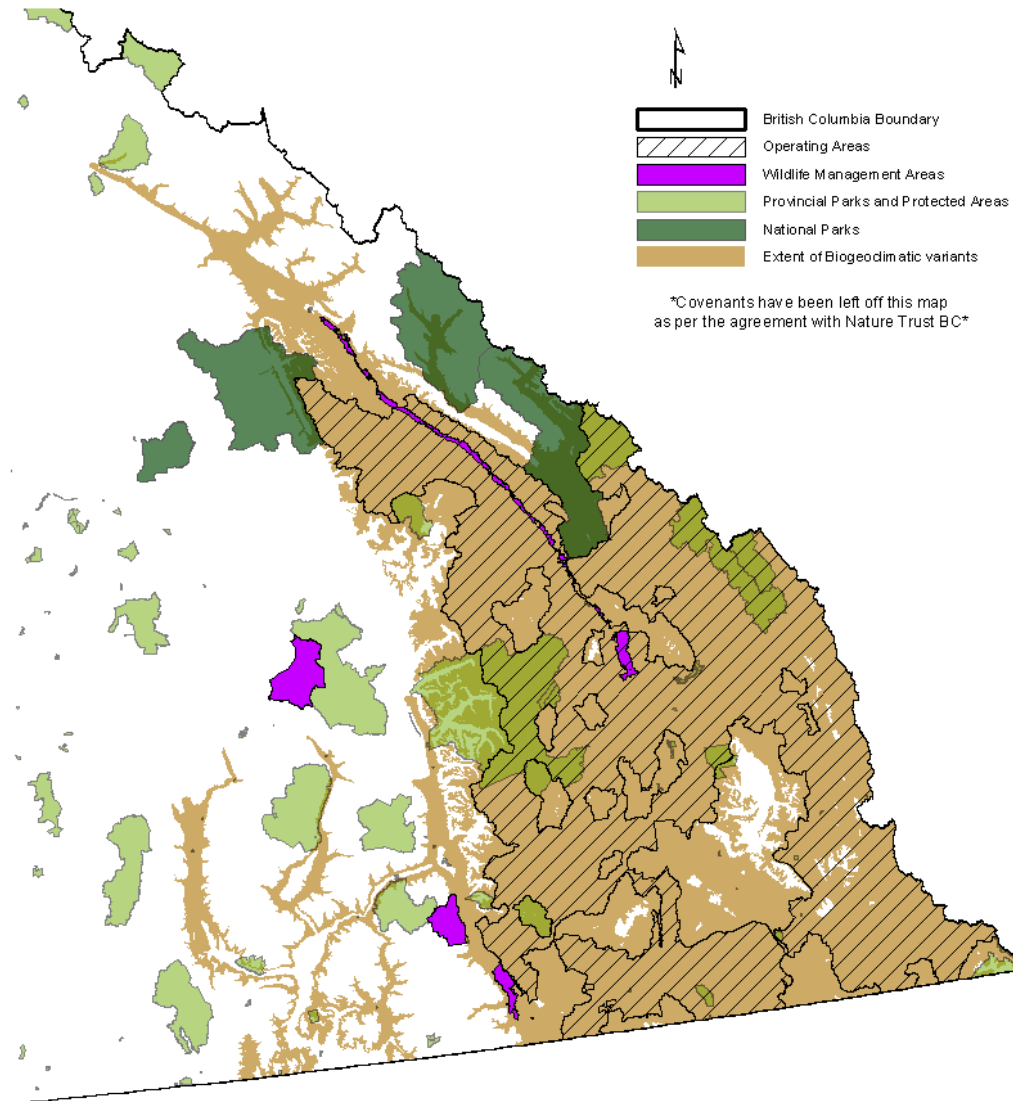


Figure 1. Full extent of BGC variants overlapping Canfor's operating areas in the East Kootenays

Table 1. Regional Context (% of each BEC variant 'protected')

BGC_LABEL	Total Area (ha)	Non-Protected Area (Ha)	Protected Areas (ha)	% Protected
ESSFdk 1	297,463	284,301	13,162	4%
ESSFdk 2	371,978	288,597	83,381	22%
ESSFdkp	158,413	118,135	40,278	25%
ESSFdkw	272,963	212,798	60,166	22%
ESSFmm 3	64,290	49,115	15,175	24%
ESSFmmp	41,838	35,776	6,062	14%
ESSFmmw	40,854	34,384	6,470	16%
ESSFwcp	17,642	17,535	108	1%
ESSFwcw	17,408	17,350	58	0%
ESSFwh 2	20,979	17,105	3,874	18%
ESSFwm 1	61,232	60,847	385	1%
ESSFwm 2	100,994	64,016	36,978	37%
ESSFwm 4	137,924	131,062	6,863	5%
ESSFwmp	62,580	37,562	25,018	40%
ESSFwmw	112,012	81,587	30,425	27%
ICH dm	175,570	170,502	5,068	3%
ICH dw 1	328,694	315,304	13,390	4%
ICH mk 4	39,189	38,740	449	1%
ICH mk 5	53,477	49,560	3,917	7%
ICH mw 1	130,568	127,941	2,627	2%
ICH mw 2	3,993	3,993	-	0%
ICH xw	49,328	42,299	7,028	14%
IDF dk 5	76,923	64,648	12,275	16%
IDF dm 2	215,469	209,975	5,495	3%
IDF xk	38,116	28,114	10,056	26%
IDF xx 2	90,899	87,999	2,900	3%
IMA un	186,229	129,797	56,433	30%
MS dk	314,312	228,286	86,026	27%
MS dw	273,617	270,504	3,113	1%

At a regional scale the BGC variants with significant areas (> 50,000 ha) and low levels of protected area in parks or covenants (< 10%) are the ESSF dk1/wm1/ wm4, ICH dm/dw1/mw1/mk5, IDF dm2/xx2, and the MS dw. When the same analysis area is summarized at the BGC subzone the ESSF units are no longer < 10% but the ICH dm/dw1/mw1/mk5, IDF dm2/xx2, and the MS dw remain below (**Table 2**). When summarized at the BGC zone level (**Table 3**), the ICH and IDF units remain below 10% (note – based only on the ICH/IDF variants used in this analysis, not all ICH /IDF areas).

Table 2. Regional Context (% of each BEC subzone 'protected')

BCG_Subzone	Total Area (Ha)	Non-Protected Area (Ha)	Protected Area	Protected %
ESSFdk	669,441	572,898	96,543	14%
ESSFdkp	158,413	118,135	40,278	25%
ESSFdkw	272,963	212,798	60,166	22%
ESSFmm	64,290	49,115	15,175	24%
ESSFmmp	41,838	35,776	6,062	14%
ESSFmmw	40,854	34,384	6,470	16%
ESSFwcp	17,642	17,535	108	1%
ESSFwcw	17,408	17,350	58	0%
ESSFwh	20,979	17,105	3,874	18%
ESSFwm	300,151	255,925	44,226	15%
ESSFwmp	62,580	37,562	25,018	40%
ESSFwmw	112,012	81,587	30,425	27%
ICH dm	175,570	170,502	5,068	3%
ICH dw	328,694	315,304	13,390	4%
ICH mk	92,666	88,300	4,366	5%
ICH mw	134,562	131,934	2,627	2%
ICH xw	49,328	42,299	7,028	14%
IDF dk	76,923	64,648	12,275	16%
IDF dm	215,469	209,975	5,495	3%
IDF xk	38,116	28,060	10,056	26%
IDF xx	90,899	87,999	2,900	3%
IMA un	186,229	129,797	56,433	30%
MS dk	314,312	228,286	86,026	27%
MS dw	273,617	270,504	3,113	1%

Table 3. Regional Context (% of each BEC zone 'protected')

BEC_Zone	Total Area (Ha)	Non-Protected Area (Ha)	Protected Area	Protected %
ESSF	1,778,573	1,450,169	328,404	18%
ICH	780,819	748,340	32,479	4%
IDF	421,408	390,681	30,726	7%
IMA	186,229	129,797	56,433	30%
MS	587,929	498,791	89,138	15%

3.2 MANAGEMENT UNIT RESERVES

Summary results describing the extent of the Conservation Area Network (CAN) within Canfor's operating areas are presented below in Tables 4-6. Detailed results can be found in Appendix A (area by each type of reserve). Note that the areas shown in Appendix A are the hierarchically assigned areas that avoid double counting when two or more types of reserves occur on a single area (e.g., inoperable, OGMA, unstable terrain). Areas are tallied into the reserve type furthest to the left (OGMA).

CAN percentages are compared to the minimum requirement specified by FSC in 6.5.7 (10%) and the deficit/surplus areas shown. **Using this criterion, all BGC variants meet the minimum requirement with the current set of CAN reserves (Table 4).** The IDFxx2 is just above the target but once HCVA areas are included, minimum requirements are exceeded by a wide margin. For this very dry IDF ecosystem, the priority for HCVA areas is ecosystem restoration focused on restoring biodiversity, and thus including HCVA areas is appropriate to ensure the future health of this ecosystem.

The variants that had low levels of protected area in the regional analysis are well represented with CAN reserves except for the IDF dm2/xx2 variants which require consideration of HCVA areas to reach significant levels of protection. The ICH mw1 remains at 14% reserved even after considering HCVA's because it is a very small area in the north end of the Invermere TSA (vast majority occurs in the Golden TSA). However, when Canfor's new OGMA plan (being finalized November 2022) is considered, the representation of this variant in reserves will increase, because of the increase in OGMA from 3 to 9% in that variant in the new OGMA plan.

Table 4. Conservation Area Network reserve areas in Canfor's operating areas by BEC variant

Ecosystem	CFLB_Area	Minimum Reserve Requirement (%)	Minimum Reserve Requirement (Ha)	Reserve Area (ha)	Reserve %	Deficit or Surplus (Ha)	Reserve % Including HCVF	Deficit or Surplus HCVF (Ha)
ESSFdk 1	166,560	10	16,656	109,040	65%	92,384	67%	94,139
ESSFdk 2	176,177	10	17,618	109,461	62%	91,843	67%	99,733
ESSFdkp	10,537	10	1,054	10,493	100%	9,439	100%	9,439
ESSFdkw	78,758	10	7,876	76,158	97%	68,282	97%	68,432
ESSFmm 3	27,715	10	2,771	14,943	54%	12,171	59%	13,711
ESSFmmp	1,096	10	110	1,096	100%	986	100%	986
ESSFmmw	9,300	10	930	9,197	99%	8,267	99%	8,277
ESSFwcv	1	10	0	1	100%	1	100%	1
ESSFwh 2	12,996	10	1,300	9,529	73%	8,230	73%	8,230
ESSFwm 1	9,610	10	961	8,153	85%	7,192	85%	7,193
ESSFwm 2	24,570	10	2,457	23,285	95%	20,828	95%	20,828
ESSFwm 4	89,677	10	8,968	54,966	61%	45,999	61%	46,087
ESSFwmp	5,092	10	509	5,092	100%	4,582	100%	4,582
ESSFwmw	28,467	10	2,847	27,986	98%	25,139	98%	25,139
ICH dm	110,936	10	11,094	41,312	37%	30,219	40%	33,136
ICH dw 1	19,220	10	1,922	7,816	41%	5,894	51%	7,784
ICH mk 4	13,821	10	1,382	9,157	66%	7,775	66%	7,798
ICH mk 5	20,073	10	2,007	7,480	37%	5,472	44%	6,924
ICH mw 1	1,035	10	103	140	14%	37	14%	37
ICH mw 2	3,599	10	360	2,112	59%	1,752	60%	1,789
ICH xw	1,747	10	175	776	44%	601	44%	601
IDF dk 5	28,408	10	2,841	7,068	25%	4,227	34%	6,927
IDF dm 2	64,672	10	6,467	9,288	14%	2,821	39%	18,455
IDF xk	2,130	10	213	306	14%	93	22%	250
IDF xx 2	19,987	10	1,999	2,125	11%	126	40%	5,965
MS dk	138,321	10	13,832	45,607	33%	31,775	42%	44,190
MS dw	129,580	10	12,958	47,441	37%	34,483	41%	39,636

When assessed at the BGC zone and subzone levels, all units meet the minimum (10%) requirement and only the IDF remains with percentages in the teens (Table 5 and Table 6).

Table 5. Conservation Area Network reserve areas in Canfor's operating areas by BEC subzone

Ecosystem	CFLB_Area	Minimum Reserve Requirement (%)	Minimum Reserve Requirement (Ha)	Reserve Area (ha)	Reserve %	Deficit or Surplus (Ha)	Reserve % Including HCVF	Deficit or Surplus HCVF (Ha)
ESSFdk	342,738	10	34,274	218,501	64%	184,227	67%	193,872
ESSFdkp	10,537	10	1,054	10,493	100%	9,439	100%	9,439
ESSFdkw	78,758	10	7,876	76,158	97%	68,282	97%	68,432
ESSFmm	27,715	10	2,771	14,943	54%	12,171	59%	13,711
ESSFmmp	1,096	10	110	1,096	100%	986	100%	986
ESSFmmw	9,300	10	930	9,197	99%	8,267	99%	8,277
ESSFwcw	1	10	0	1	100%	1	100%	1
ESSFwh	12,996	10	1,300	9,529	73%	8,230	73%	8,230
ESSFwm	123,857	10	12,386	86,404	70%	74,019	70%	74,108
ESSFwmp	5,092	10	509	5,092	100%	4,582	100%	4,582
ESSFwmw	28,467	10	2,847	27,986	98%	25,139	98%	25,139
ICHdm	110,936	10	11,094	41,312	37%	30,219	40%	33,136
ICHdw	19,220	10	1,922	7,816	41%	5,894	51%	7,784
ICHmk	33,894	10	3,389	16,637	49%	13,247	53%	14,723
ICHmw	4,634	10	463	2,253	49%	1,789	49%	1,826
ICHxw	1,747	10	175	776	44%	601	44%	601
IDFdk	28,408	10	2,841	7,068	25%	4,227	34%	6,927
IDFdm	64,672	10	6,467	9,288	14%	2,821	39%	18,455
IDFdk	2,130	10	213	306	14%	93	22%	250
IDFxx	19,987	10	1,999	2,125	11%	126	40%	5,965
MSdk	138,321	10	13,832	45,607	33%	31,775	42%	44,190
MSdw	129,580	10	12,958	47,441	37%	34,483	41%	39,636

Table 6. Conservation Area Network reserve areas in Canfor's operating areas by BEC zone

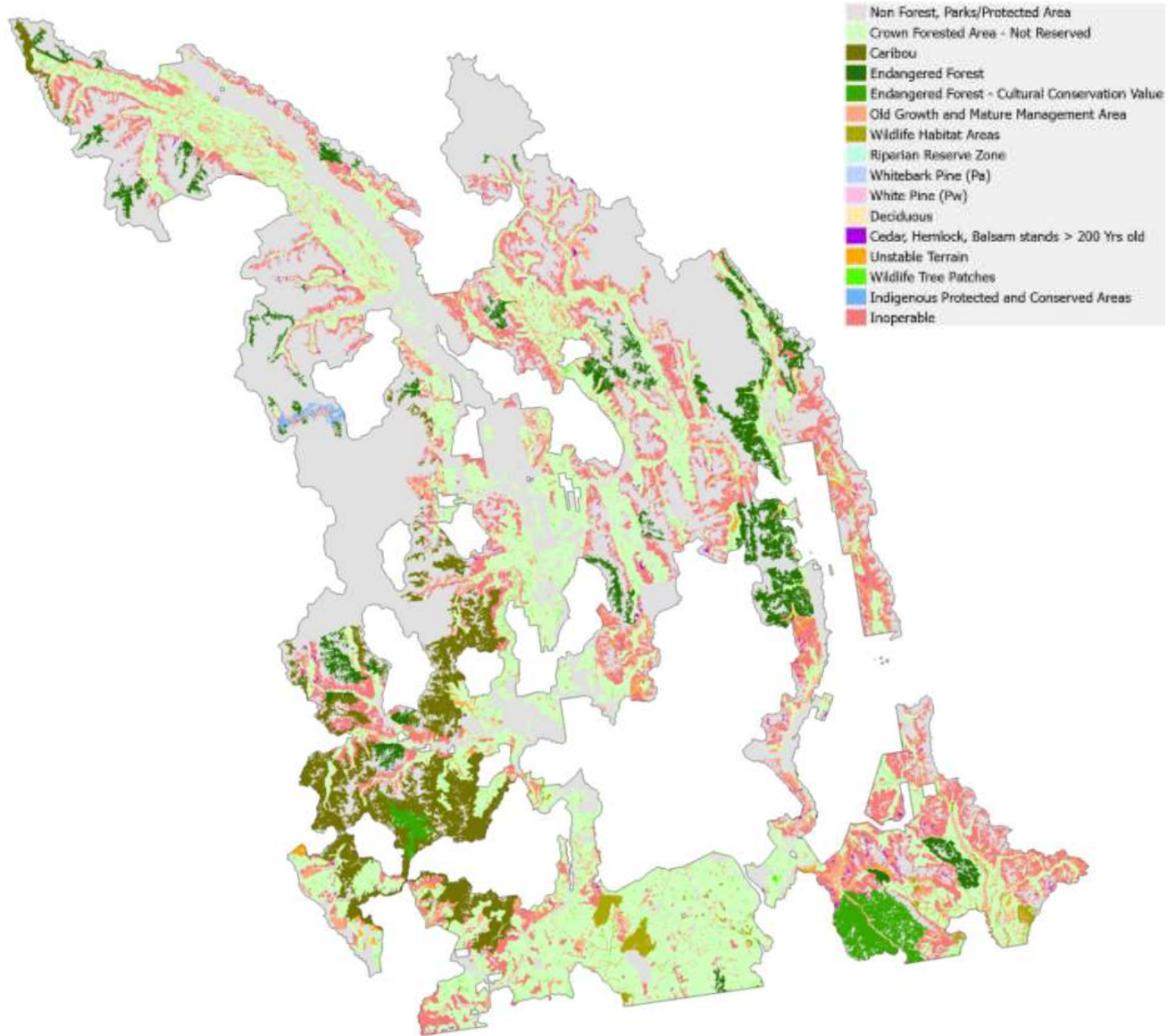
Ecosystem	CFLB_Area	Minimum Reserve Requirement (%)	Minimum Reserve Requirement (Ha)	Reserve Area (ha)	Reserve %	Deficit or Surplus (Ha)	Reserve % Including HCVF	Deficit or Surplus HCVF (Ha)
ESSF	640,557	10	64,056	459,399	72%	395,343	74%	406,777
ICH	170,431	10	17,043	68,793	40%	51,749	44%	58,069
IDF	115,196	10	11,520	18,787	16%	7,266	37%	31,596
MS	267,901	10	26,790	93,049	35%	66,258	41%	83,826

Results are similar if alternate conservation targets are considered, such as the [Aichi Biodiversity Targets](#). Aichi Target 11 states that "by 2020, at least 17 percent of terrestrial and inland waters, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective areas-based conservation measures, and integrated into the wider landscapes".

The BGC variants that do not meet the 17% requirement are the same as those discussed above (ICH mw1, IDF dm2/xk/xx2), and again only the IDF ecosystem remains below 17% at the BGC subzone and zone levels. These ecosystems were historically dominated by low severity fires and require restoration rather than protection to restore biodiversity components. Aichi requirements are easily met with consideration of HCVAs and their management requirements.

Further, no additional changes to the results would occur if the recent [Federal target](#) of '25 by 2025' were used. It should also be noted that this target is not assessed at the very fine scale of biogeoclimatic variant. Most protected area targets are set at much broader scales of representation, such as grassland, temperate forest, boreal forest, etc.

Figure 2. Conservation Area Network reserves mapped by type (parks/protected areas/WMA excluded)



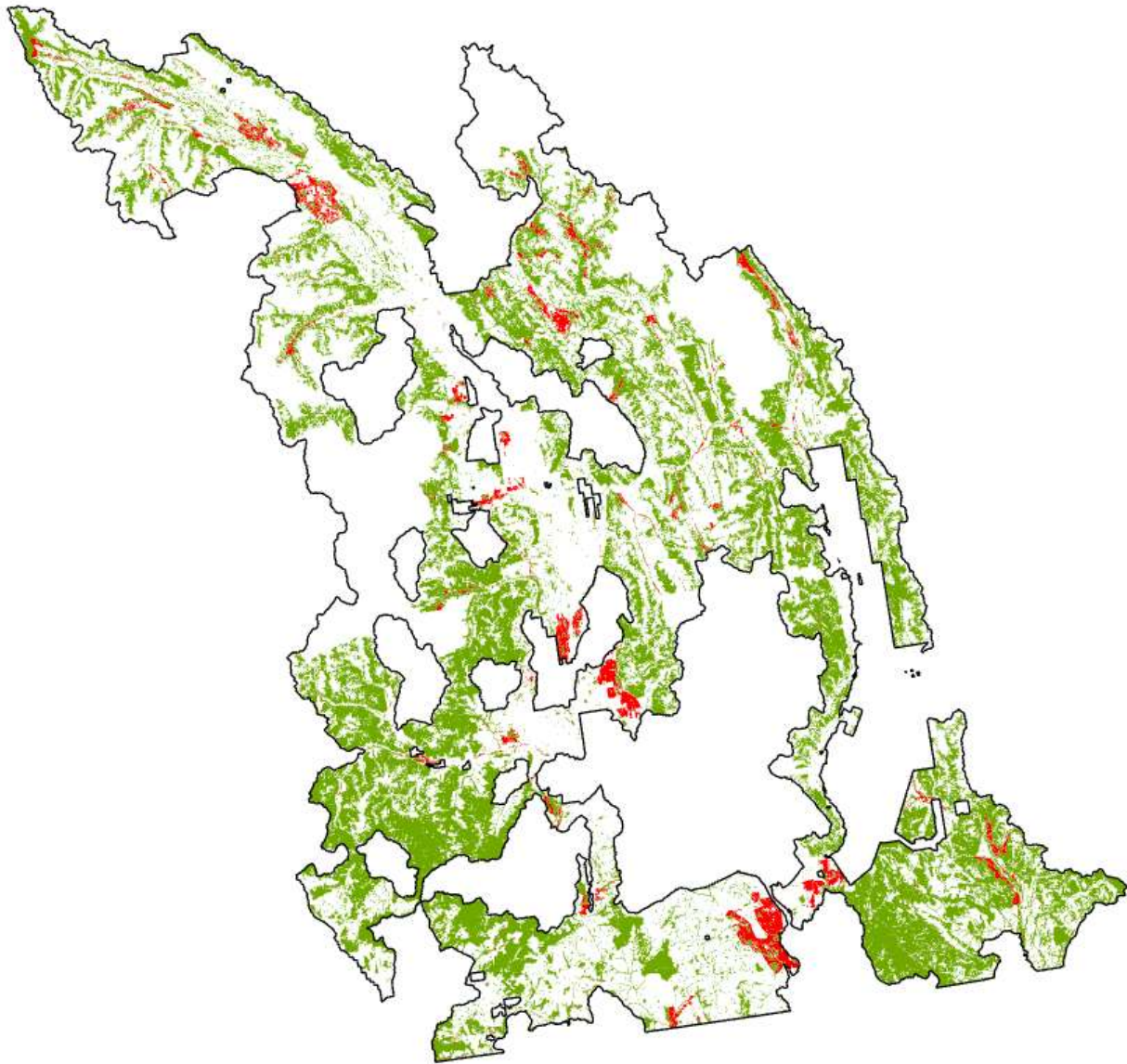


Figure 3. Conservation Area Network reserves (Green) and additional HCVA areas (red)

Appendix A - Detailed Reserve Table

Areas shown in this table are the areas that were counted towards the Conservation Area Network. If an area was associated with two or more reserves (inoperable, OGMA, unstable terrain), it's area would only be tallied with the reserve type highest on the list (OGMA), to avoid double counting reserves.

BGC Variant	CFLB Area (Ha)	Minimum Reserve Requirement (%)	Minimum Reserve Requirement (Ha)	Caribou	EF	CCVF	OGMA	MIMA	WHA	RRZ	Pa	Pw	Decid	CHB > 200	Unstable	WTP	IPCA	OPER	PSP	Total Reserve Area (Ha)	% Reserve	HVCF Consideration (Ha)
ESSFdk 1	166,560	10	16,656	10,681	6,441	14,835	10,961	1,380	4,717	1,264	647	-	185	950	2,288	1,240	-	53,440	13	109,040	65%	1,755
ESSFdk 2	176,177	10	17,618	800	31,031	-	12,089	1,620	-	2,043	1,042	-	180	928	1,096	1,726	725	56,162	21	109,461	62%	7,890
ESSFdkp	10,537	10	1,054	862	2,804	7	53	1	17	1	175	-	-	176	316	-	10	6,071	-	10,493	100%	-
ESSFdkw	78,758	10	7,876	9,305	17,271	2,204	4,360	277	88	74	1,645	-	2	1,470	1,124	22	113	38,202	-	76,158	97%	150
ESSFmm 3	27,715	10	2,771	1,338	4,037	-	2,297	-	-	532	296	-	11	171	-	321	-	5,940	-	14,943	54%	1,539
ESSFmmp	1,096	10	110	229	181	-	3	-	-	1	90	-	-	7	-	-	-	586	-	1,096	100%	-
ESSFmmw	9,300	10	930	2,008	2,104	-	471	-	-	8	412	-	-	140	-	-	-	4,053	-	9,197	99%	10
ESSFwcw	1	10	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	100%	-
ESSFwh 2	12,996	10	1,300	2,963	1,578	-	378	287	-	195	-	-	-	105	92	26	202	3,704	-	9,529	73%	-
ESSFwm 1	9,610	10	961	-	715	-	789	31	-	10	51	-	26	419	107	19	-	5,986	-	8,153	85%	0
ESSFwm 2	24,570	10	2,457	12,340	4,078	-	305	572	-	54	76	-	-	302	19	10	628	4,895	6	23,285	95%	-
ESSFwm 4	89,677	10	8,968	38,826	567	1,664	2,792	488	357	209	148	-	3	267	670	686	-	8,278	11	54,966	61%	89
ESSFwmp	5,092	10	509	3,798	458	33	-	-	-	-	70	-	-	20	15	-	3	694	-	5,092	100%	-
ESSFwmw	28,467	10	2,847	20,189	2,279	95	187	151	0	1	355	-	-	402	102	2	70	4,153	-	27,986	98%	-
ICH dm	110,936	10	11,094	6,564	1,429	3,510	7,037	100	3,265	1,831	6	211	634	476	1,413	1,823	-	12,992	22	41,312	37%	2,917
ICH dw 1	19,220	10	1,922	299	-	89	2,466	-	59	523	-	266	505	34	373	460	-	2,728	13	7,816	41%	1,891
ICH mk 4	13,821	10	1,382	-	127	-	2,621	524	18	266	-	-	1,876	17	60	140	-	3,508	-	9,157	66%	24
ICH mk 5	20,073	10	2,007	-	980	-	2,449	6	-	337	-	-	558	27	-	459	-	2,653	9	7,480	37%	1,452
ICH mw 1	1,035	10	103	-	-	-	127	-	-	-	-	-	-	1	-	-	13	-	-	140	14%	-
ICH mw 2	3,599	10	360	277	504	-	175	-	-	129	-	-	24	78	7	-	-	919	-	2,112	59%	37
ICH xw	1,747	10	175	-	-	-	531	-	1	9	-	-	43	-	-	25	-	167	-	776	44%	-
IDF dk 5	28,408	10	2,841	-	28	-	3,817	-	4	760	-	-	1,063	-	-	355	-	1,034	7	7,068	25%	2,700
IDF dm 2	64,672	10	6,467	-	27	-	2,660	-	1,031	1,197	-	-	1,157	-	293	1,143	-	1,751	29	9,288	14%	15,634
IDF xk	2,130	10	213	-	-	-	40	-	1	97	-	-	132	-	-	-	-	35	-	306	14%	157
IDF xx 2	19,987	10	1,999	-	-	-	914	-	74	265	-	-	333	-	29	506	-	-	4	2,125	11%	5,838
IMA un	923	10	92	14	60	-	-	-	-	-	0	-	-	-	6	-	-	843	-	923	100%	-
MS dk	138,321	10	13,832	-	4,126	-	17,933	3,001	-	3,216	-	-	2,012	15	308	2,283	885	11,810	18	45,607	33%	12,414
MS dw	129,580	10	12,958	188	1,891	6,027	12,518	3,465	2,740	2,318	9	-	1,666	7	1,401	2,539	-	12,645	26	47,441	37%	5,153
Totals	1,195,009	10	119,501	110,681	82,716	28,464	87,974	11,902	12,373	15,338	5,020	477	10,411	6,013	9,718	13,797	2,636	243,249	181	640,950	54%	59,651