



December 21, 2022

**BY EMAIL**

To: Major Forest Licensees and British Columbia Timber Sales (BCTS) operating in the Prince George Timber Supply Area (PG TSA)

Re: **District Managers' Letter of Expectations for the Implementation of the Order Establishing Landscape Biodiversity Objectives in the Prince George Timber Supply Area, 2004 (the Order)**

The Ministry of Forests (Ministry) is the Province's agency responsible for the management of forests, lands, and range. By a commitment to sustainable natural resource management, the Ministry supports activities that provide economic, environmental, cultural, and social benefits to all British Columbians.

Through the Old Growth Panel Review, *A New Future for Old Forests* (April 2020) and Forest Practices Board investigations, the expectation of the Province, First Nations, stakeholders, and societal needs for old growth management have changed. To date old forest and biodiversity in the PG TSA have been managed through the Order.

**Executive Summary**

The implementation policy for the Order allows the Ministry to revise how the Order is implemented. The Order nor its implementation have never been amended or revised to reflect the rapidly changing conditions on the landscape from cumulative effects, natural disturbance, operational uncertainty for timber harvesting or to ensure that First Nations interests and rights are considered in the management of old forest biodiversity.

In December 2020 the Forest Practices Board (FPB) released the findings from an investigation that found old forest biodiversity to be at risk in the PG TSA. To mitigate the risk to old forest biodiversity, the FPB recommended that the Ministry immediately spatialize old forest in the PG TSA. In March 2021, the Ministry responded to the FPB committing to spatialize the Order and work began to identify and design candidate old forest areas (COFAs) using a multi-valued approach. This multi-valued approach combined the use of best available information, and the interests and concerns of First Nations. The resultant COFAs were then shared with major forest licensees, and BCTS to ensure that immediate impacts to timber harvesting operations were mitigated.

The District Managers within the PG TSA expect that major forest licensees and BCTS will abide by this letter of expectations regarding implementation of the Order. While the implementation of the Order will continue to be dynamic to improve COFAs as more information becomes available, the intent of the Order will not be compromised, nor will the integrity of the COFAs. The Ministry is committed to keeping the implementation of the Order transparent and available to the public and recognizes that as collaborative land use and forest landscape

planning initiatives evolve with First Nations and public stakeholders, the implementation of the Order could require amendment or replacement.

## **Background**

The Order establishes landscape biodiversity objectives across the PG TSA for old forest retention, old interior forest, and young forest patch size distribution. These objectives provide minimum retention targets by merged biogeoclimatic ecosystem classification units (mBEC). The mBECs are legal landscape units where the objectives of the Order are to be applied on the Crown Forested Land Base (CFLB). The Order primarily applies to volume-based licenses and BCTS within the CFLB and PG TSA. The Order does not automatically apply to the lands covered by area-based licenses, including Tree Farm Licenses, First Nations Woodland Licenses, Woodlots, Research Forests and Community Forest Agreements. Since the establishment of the Order in 2004, PG TSA old forest retention has been managed non-spatially. PG TSA major forest licensees and BCTS, submit yearly analyses of the quantity of old forest and old interior forest for each mBEC and an analysis of young forest patch size distribution every five years. The Order can be found by following this link, [Prince George Biodiversity Order - Province of British Columbia \(gov.bc.ca\)](https://www2.gov.bc.ca/gov/content/land/forestry/old-forest-retention/biodiversity-order)

Following a complaint around the aspatial management of old forest retention and harvest levels since 2004, the FPB initiated an investigation. The investigative report, released by the FPB in December 2020 ([IRC235 - Management of Biodiversity in the PG TSA \(bcfpb.ca\)](https://www2.gov.bc.ca/gov/content/land/forestry/old-forest-retention/biodiversity-order)), found that although major forest licensees and BCTS were in compliance with the Order, the non-spatial management of the Order put old forest biodiversity at risk and recommended the Ministry mitigate the risk through spatialization. The Ministry responded to the FPB recommendation and committed to spatially locating old forest retention within the PG TSA ([IRC235 - Response to Recommendations \(bcfpb.ca\)](https://www2.gov.bc.ca/gov/content/land/forestry/old-forest-retention/biodiversity-order))

Under the Implementation Policy of the Order, the Ministry can spatially locate old forest retention areas when:

- Information identifies the biological values on the landscape are jeopardised or at risk,
- Gaps in the ability to manage for and maintain the old growth values on the landscape.

Following the FPB report, the Omineca Regional Executive Director (RED) instructed staff to initiate work with First Nations and develop an interim spatialization approach for the implementation of the Order. Consistent with the original implementation strategy of the Order, these COFAs are not legally designated or considered an amendment to the Order.

While spatialization of old forest retention targets with the COFAs does not amend the Order, nor it's intended objectives, it will change the way it is implemented from non-spatial to spatial management. Major forest licensees and BCTS, will continue to report to the Ministry on the status of the mBECs where they are managed non-spatially, and in mBEC A4, as they have always done. The Ministry will manage the spatial COFA layer and the legally established targets of the Order for both the spatial and non-spatially managed mBECs. The implementation of the spatial and non-spatial components of the Order will be evaluated on an annual basis by the Ministry and be made available to the public.

The spatialization of the Order with COFAs, while not legal, will temporarily address the risk to old forest biodiversity, provide transparency to the public on how old forest is being managed, and provide options for future decisions regarding the management of old growth in the PG TSA.

## **Methodology**

The Order is the legal requirement for the management of old forest retention within the PG TSA. The spatialization of the Order with COFAs is a different and separate process than the Old Growth Panel Review. Specifically, spatialization of the Order is not part of the Technical Advisory Panel (TAP) Old Growth Deferral Areas that were released by the Province in November of 2021.

The mapping of COFAs was bound by the legal old forest retention targets in the Order and the implementation policy governing the Order. The spatial polygons will be publicly available at the [BC geographic warehouse \(BCGW\)](#). The amount of old forest within legally established no harvest designations such as provincial parks, Old Growth Management Areas (OGMAs), Ungulate Winter Ranges (UWRs), Wildlife Habitat Areas (WHAs), and Wildlife Tree Retention Areas (WTRAs) all contributed to meeting the Order targets in each mBEC. Old forest was defined using the 2020 Vegetation Resource Inventory (VRI).

Periodic changes to CFLB and updates to the VRI can result in some mBECs to be in deficit of old forest. Under Section D5 of the Order, major forest licensees and BCTS are required to develop recruitment strategies for mBECs that are in deficit of old forest targets. Additionally, Section D4 of the Order states that the objective for old forest retention may be comprised of younger age classes, to a maximum of 20%, where it can be demonstrated that equal or better conservation benefits would result. In some situations, the mBECs current condition (from the 2020 VRI) were found to be in deficit for old forest as defined in the Order. The spatialized COFAs were designed to meet the old forest objectives of the Order. Therefore, those mBECs within COFAs currently in deficit of old forest do not require recruitment strategies. For further breakdown of the age class distribution within each mBEC, see Appendix 3.

The initial COFAs were designed by a team of qualified Ministry professionals who used a multi-valued approach of best available information. This approach considered ecological principles, habitat information for old growth dependant species, and First Nations' knowledge and values. As a result, many of the COFAs will provide functional old forest habitats and connectivity across the landscape and mBECs. Please see Appendix 4 for more details regarding the methodology used in the design of the COFAs.

Modifications to the COFAs were required to be made to address major forest licensees and BCTS immediate forest harvesting operations as part of the short-term fibre supply concerns. Impacts to timber supply were not considered in the design of the COFAs as the Order was already accounted for in the 2017 Timber Supply Review (TSR) process as a forest cover constraint. As such, the short-term impacts of the Order are reflected in the 2017 TSR. Long-term timber supply and the associated socio-economic impacts were not within the scope of spatializing the Order but will be assessed in future TSRs and landscape level planning processes.

The Order governs the entire PG TSA, which includes a portion of the Prince George Forest District and the Stuart Nechako Forest District, formerly the Vanderhoof and Fort St. James Forest Districts. However, a phased approach to the spatialization of the Order has been taken. The Environmental Stewardship Initiative (ESI) with the Carrier Sekani First Nations (CSFN) occupies portions of the Prince George Forest District and much of the Stuart Nechako Forest District (see map in Appendix 1). To honour the work occurring with the CSFN, the ESI area has been excluded from this spatialization process in this phase of the project. Management of the Order within the Stuart Nechako Forest District and the CSFN ESI study area will continue to be managed non-spatially in collaboration between major forest licensees, BCTS, CSFN and the Province. Spatialization of the Order within Stuart Nechako Forest District will occur in a later phase. Within the Prince George Forest District, the mBEC A04, a landscape unit in the Order, is also excluded from spatialization as there is an approved 2012 spatial recruitment strategy in place to manage the old forest targets under the Order.

### **Engagement & Collaboration**

Early engagement with the McLeod Lake Indian Band and the Lheidli T'enneh Nation was a priority in the development of the COFAs to ensure their interests were considered in the Prince George Forest District portion of the PG TSA. Consultation with all impacted First Nations within the Prince George Forest District portion of the PG TSA followed to understand potential concerns they may have for old forest spatialization and any other specific concerns regarding the process of identifying COFAs. Through engagement and consultation with First Nations the general interest expressed was regarding the process to establish the COFAs. First Nations also had specific concerns related to the ecological risk of old forest, flexibility for managing the implementation of the Order, and socio-economic impacts to forest licensees, BCTS and communities.

To address the immediate socio-economic impacts to the forest industry and communities, consideration was given to the operational investments made by major forest licensees and BCTS. Specifically, the Ministry, major forest licensees, and BCTS, committed significant time and resources to review the COFAs in consideration of balancing current investments, as well as priority habitat and old forest biodiversity.

We would like to acknowledge the time and effort made by First Nations, major forest licensees operating within the PG TSA, and BCTS in the development of these COFAs and for making this commitment to old forest retention under the Order.

### **Implementation Expectations**

#### **Prince George Forest District**

As a District Manager of the Prince George Forest District, I am presenting information I consider to be of weight and relevance to the management of old forest and biodiversity in the PG TSA. The establishment of the COFAs not only provides options for future landscape level planning processes, but certainty for major forest licensees and BCTS. The COFAs will not be replaced if they succumb to broadscale disturbances, such as wildfire or forest health agents, and will be considered as candidates for other habitat designations when opportunities arise.

It is my expectation that the COFAs will be respected as no harvest areas. The COFAs spatially identify a minimum of 100% of the Order target for each mBEC, outside of the CSFN ESI area. As such, the area within them will contribute towards meeting the legal targets for old forest

retention and old interior forest objectives in the mBECs as set out in the Order. The targets for each mBEC and designation for management can be found in the tables in Appendix 2.

The COFAs have been designed using the best available information at a large ecological scale. I recognize that the COFAs have some uncertainties around stand and habitat condition. I understand there will be operational challenges, however, my expectation is these COFAs will remain intact until another landscape level planning process amends or replaces the implementation of the Order. As such, my expectation is that COFAs will be avoided in future harvesting planning. I also recognise that over time, as new and or better information for old forest biodiversity and habitat conditions become available, the District Manager may consider the refinement of COFAs.

It is not my intention to isolate or prevent harvesting timber in areas outside of the COFAs and I recognize that allowances for road development and cutblock boundary adjustments will be necessary. As such, the District Manager may consider a variance to the no harvest expectation in a COFA when it is determined through a rationale, that the impact is unavoidable. The District Manager must be satisfied that:

- An alternative area of ecological importance of equal or greater value has been identified.
- The rationale for the variance to the COFA is supported by current science.

My expectation is that these rationales for operational adjustments will be brought forward to the District Manager by major forest licensees and BCTS on an annual basis and at the planning stage of harvesting development. The District Manager will have the discretion to determine if a variance to the expectations surrounding the COFA would be supported. Any variance to the COFA would be replaced, such that 100% of the target objective in the Order will be maintained. I have purposely avoided providing a range of acceptable incursions in this letter to prevent the erosion of the intent of the COFAs.

As forest operations persist over time and better information for old forest biodiversity and habitat conditions becomes available, there will need to be a process to refine the COFAs. As I do not wish to cause undue administrative burden for the Ministry, major forest licensees, or BCTS, this process needs to be dynamic to accommodate operational adjustments for timber harvesting and road access pertaining to timber harvesting, changes in the CFLB, VRI, and the consideration of new legally designated no harvest areas. I expect that the following annual coordinated process will provide the mechanism for review, reporting and consideration of the rationales for potential variances and COFA refinement:

- Annually, the Ministry will account for any major changes to the CFLB, or establishment of new legally designated no harvest areas.
  - As part of the Ministry annual review, inclusion of WTRAs, that are consistent with the development of the COFAs, may be considered. The WTRAs must be greater than 2 hectares in size, mappable, and be defined as old forest consistent with the Order. However, it is important to state that considerations of WTRAs is not to replace or trade the COFAs with fragmented WTRAs across the land base and ensure that the COFAs remain intact.

- Annually, individual major forest licensees and BCTS will submit a summary of requested variances with rationales where COFA cannot be avoided. This summary will include planned road locations and cutblock boundary adjustments.
  - The expectation is that major forest licensees and BCTS will be able to forecast potential incursions and/or avoid the COFAs prior to proceeding with operational development and permit submissions.
  - It is reasonable to assume that small un-planned incursions may occur based on the scale of mapping or operability concerns that may not have been known at the planning stage. The expectation is that all incursions, regardless of size and timing, must be presented to the Ministry for consideration of a variance. All incursions require approval.
- Annually, for approved variances to the no harvest expectation in the COFAs, individual major forest licensees and BCTS will submit a report to the Ministry of all actual incursions (regardless of size) into the COFAs.
  - The intent is to ensure that actual versus planned incursions into the COFAs are accounted for.
  - This is to ensure accurate reporting and transparency to the Ministry and the public.
- If individual major forest licensees or BCTS discover areas that are of higher ecological value that could be added to the COFAs, these areas should be brought forward to the District Manager for consideration.
  - This is to ensure that the best ecological and biological information is being used and incorporated into the COFAs, which is one of the intentions of the Order.
- Annually, a technical team of subject matter experts from the Province will review and assess all rationales for variances into COFAs and information presented to the Ministry, as higher ecological and/or biological value. This technical team will be responsible for providing recommendations for COFA variances to the District Manager for consideration.

My expectation for the management of the non-spatial mBECs is that the following annual process will be followed:

- The Ministry will complete a review of current amount of old forest as compared to the Order based on the current VRI for the purpose of updating the tables in Appendix 2. During this review, the Ministry will also account for any major changes to the CFLB, or establishment of new legally designated no harvest areas.
- Collectively, major forest licensees and BCTS, will continue to report annually for those mBECs that are managed non-spatially as well as for the mBEC A04 in the manner that they have always reported.

I would like to thank the major forest licensees operating within the PG TSA and BCTS for their cooperation and commitment to the conservation of the COFAs within their operating areas. While variances to these expectations may be considered by the District Manager, as outlined above, it is my expectation that these COFAs, as presented, will be retained to ensure the integrity of the Order.

The spatialized COFAs will remain in place until such time when the implementation of the Order is amended through a legislative or another landscape level planning process with First Nations and stakeholders that determines the socio-economic choices regarding the management of old forest and biodiversity.

Yours truly,

A handwritten signature in blue ink, appearing to read "John Huybers", with a long horizontal flourish extending to the right.

John Huybers, RPF (Ret.)  
District Manager  
Prince George Natural Resource District

## **Stuart Nechako Forest District**

We are not spatializing COFAs within the Stuart Nechako Forest District at this time. As District Manager of the Stuart Nechako Forest District, my expectation is that the objectives of the Order will continue to be managed non-spatially by major forest licensees and BCTS according to the Order and to the old forest targets in the attached tables (see Appendix 2).

Yours truly,

A handwritten signature in black ink that reads "Jill Park". The signature is written in a cursive, flowing style.

Jill Park, RPF  
District Manager  
Stuart Nechako Natural Resource District



APPENDIX 1

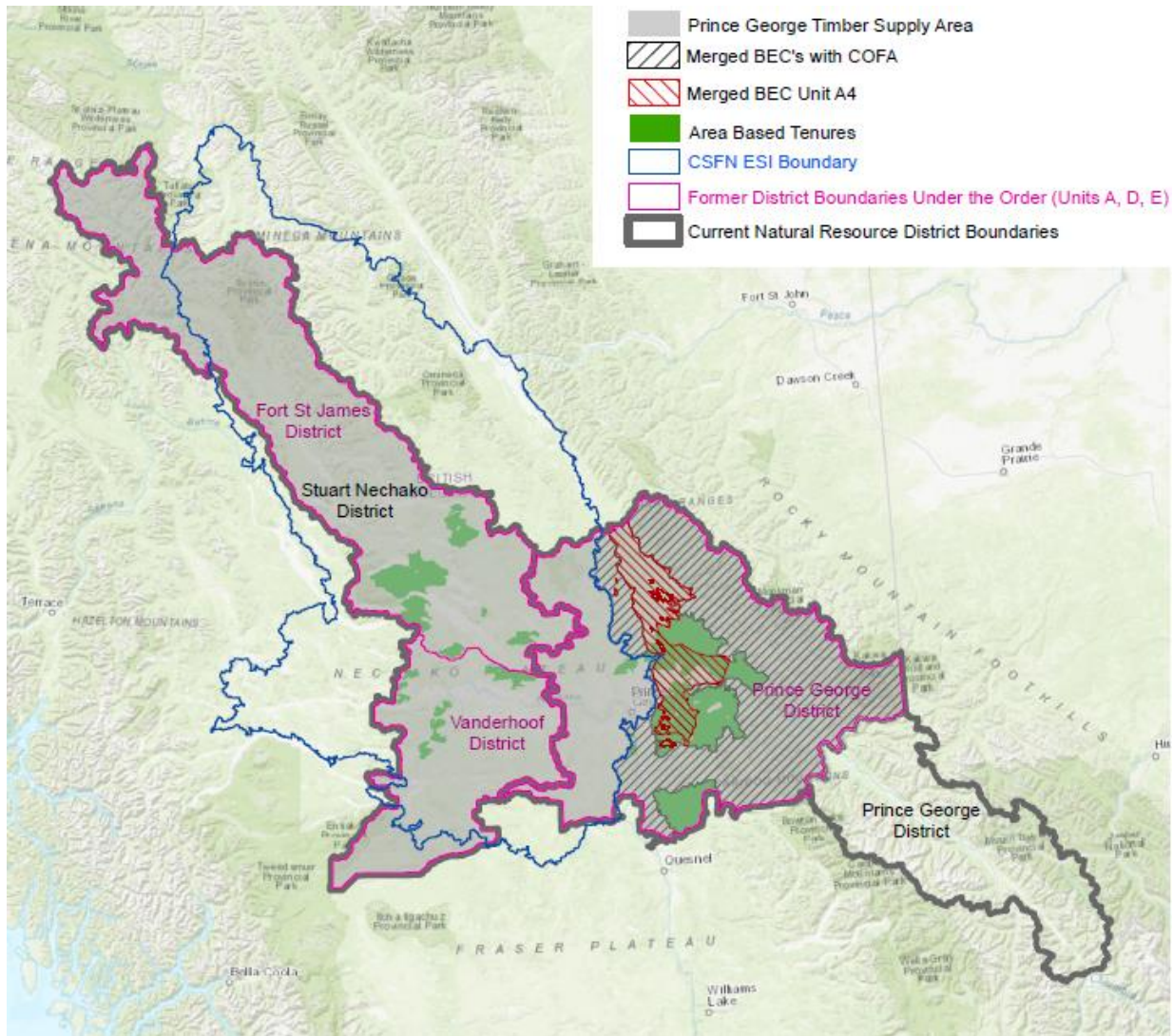


Figure 1. Map showing the location of current and old Forest Districts and CSFN ESI boundaries and area where the COFAs are located.

APPENDIX 2

Table 1. Vanderhoof District Old Forest Retention Targets (as per the Order)

Unit Label (mBEC)	Min. Age of Stands (years)	Total CFLB (hectares)	Old Forest Retention Target (% of CFLB)	Min. Old Forest Retention Target (hectares)	Total Legal No Harvest Areas * (hectares)	Net Min. Old Forest Retention Target ** (hectares)	Spatial or Non-spatial Management	Total Amount of Old Forest in CFLB (hectares)
D1	141	133,411	29	38,689	6,792	31,898	Non-spatial	40,854
D2	121	47,358	17	8,051	7,834	217	Non-spatial	15,305
D3	121	169,870	17	28,878	3,628	25,250	Non-spatial	40,360
D4	121	46,997	12	5,640	4,883	757	Non-spatial	14,489
D5	121	213,725	17	36,333	6,011	30,323	Non-spatial	51,894
D6	121	240,002	12	28,800	10,674	18,127	Non-spatial	65,401
D7	121	211,544	12	25,385	6,932	18,453	Non-spatial	59,548

Source data: 2020 VRI and 2017 TSR CFLB

\* Legal no harvest areas include parks, UWRs, WHAs, and WTRAs

\*\* Net minimum old forest retention target accounts for the old forest in legal no harvest areas and is the target for management spatially or non-spatially.

Table 2. Fort St. James District Old Forest Retention Targets (as per the Order)

Unit Label (mBEC)	Min. Stand Age (years)	Total CFLB (hectares)	Old Forest Retention Target (% of CFLB)	Min. Old Forest Retention Target (hectares)	Total Legal No Harvest Areas * (hectares)	Net Min. Old Forest Retention Target ** (hectares)	Spatial or Non-spatial Management	Total Amount of Old Forest in CFLB (hectares)
E1	141	18,755	41	7,690	2,662	5,027	Non-spatial	7,123
E2	121	27,003	17	4,590	2,862	1,729	Non-spatial	7,300
E3	121	59,225	17	10,068	8,250	1,818	Non-spatial	24,451
E4	121	180,424	12	21,651	0	21,651	Non-spatial	38,431
E5	121	196,793	12	23,615	6,989	16,626	Non-spatial	46,087
E6	141	110,544	37	40,901	6,449	34,453	Non-spatial	92,381
E7	141	30,915	37	11,439	6,709	4,730	Non-spatial	26,758
E8	141	34,348	26	8,930	663	8,268	Non-spatial	28,148
E9	141	23,301	58	13,515	3,356	10,159	Non-spatial	19,658
E10	141	69,480	41	28,487	11,070	17,417	Non-spatial	59,056
E11	141	393,872	41	161,488	49,094	112,393	Non-spatial	267,517
E12	121	10,099	16	1,616	376	1,239	Non-spatial	3,590
E13	141	11,979	23	2,755	454	2,301	Non-spatial	11,157
E14	121	64,995	16	10,399	3,925	6,474	Non-spatial	47,285
E15	121	99,976	16	15,996	13,040	2,956	Non-spatial	76,278
E16	121	242,904	16	38,865	8,546	30,318	Non-spatial	111,320
E17	141	357,839	16	57,254	4,181	53,073	Non-spatial	153,561

Source data: 2020 VRI and 2017 TSR CFLB

\* Legal no harvest areas include parks, UWRs, WHAs, and WTRAs

\*\* Net minimum old forest retention target accounts for the old forest in legal no harvest areas and is the target for management spatially or non-spatially.

Table 3. Prince George District Old Forest Retention Targets (as per the Order)

Unit Label (mBEC)	Min. Stand Age (years)	Total CFLB (hectares)	Old Forest Retention Target (% of CFLB)	Min. Old Forest Retention Target (hectares)	Total Legal No Harvest Areas * (hectares)	Net Min. Old Forest Retention Target ** (hectares)	Spatial or Non-spatial Management	Total Amount of Old Forest in CFLB (hectares)
A1	141	8,292	33	2,736	7,024	0	Spatial	7,024
A2	141	10,386	26	2,700	413	2,287	Spatial	5,481
A3	121	59,645	12	7,157	1,352	5,805	Spatial	17,391
A3	121	1,872	12	225	5	220	Non-spatial	819
A4	141	159,462	26	41,460	2,339	39,121	Spatial	33,441
A5	141	0	29	0	0	0	Spatial	0
A5	141	12,868	29	3,732	255	3,477	Non-spatial	3,267
A6	141	15,899	29	4,611	200	4,411	Spatial	5,985
A7	121	3,951	17	672	67	604	Spatial	951
A7	121	1,601	17	272	0	272	Non-spatial	551
A8	121	9,269	12	1,112	156	956	Non-spatial	1,503
A9	121	12,758	12	1,531	44	1,487	Spatial	2,349
A9	121	20,237	12	2,428	821	1,607	Non-spatial	3,626
A10	121	32,843	17	5,583	488	5,095	Spatial	9,816
A10	121	10,255	17	1,743	1,664	79	Non-spatial	4,128
A11	121	21,188	12	2,543	758	1,785	Spatial	3,539
A11	121	106,134	12	12,736	3,220	9,516	Non-spatial	25,849
A12	121	21,295	12	2,555	104	2,451	Spatial	3,333
A12	121	153,323	12	18,399	9,152	9,247	Non-spatial	31,311

Source data: 2020 VRI and 2017 TSR CFLB

\* Legal no harvest areas include parks, UWRs, WHAs, and WTRAs

\*\* Net minimum old forest retention target accounts for the old forest in legal no harvest areas and is the target for management spatially or non-spatially.

Table 3. Prince George District Old Forest Retention Targets as per the Order (continued)

Unit Label (mBEC)	Min. Stand Age (years)	Total CFLB (hectares)	Old Forest Retention Target (% of CFLB)	Min. Old Forest Retention Target (hectares)	Total Legal No Harvest Areas * (hectares)	Net Min. Old Forest Retention Target ** (hectares)	Spatial or Non-spatial Management	Total Amount of Old Forest in CFLB (hectares)
A13	121	40,808	12	4,897	1,363	3,534	Spatial	8,702
A13	121	319,755	12	38,371	20,572	17,799	Non-spatial	71,198
A14	141	124,191	50	62,096	52,142	9,954	Spatial	98,966
A15	141	15,683	84	13,174	11,362	1,812	Spatial	11,536
A16	141	34,347	26	8,930	496	8,434	Spatial	13,539
A17	141	118,504	50	59,252	7,204	52,048	Spatial	72,727
A18	141	43,864	80	35,091	34,251	840	Spatial	33,588
A19	141	63,951	48	30,696	26,990	3,706	Spatial	51,059
A20	141	92,736	80	74,189	72,679	1,510	Spatial	78,931
A21	141	108,805	48	52,226	27,602	24,624	Spatial	55,013
A22	141	27,342	53	14,491	10,344	4,147	Spatial	17,761
A23	141	120,006	53	63,603	26,667	36,936	Spatial	77,672
A24	141	75,372	30	22,612	963	21,649	Spatial	22,166
A25	141	148,643	46	68,376	8,979	59,397	Spatial	61,826

Source data: 2020 VRI and 2017 TSR CFLB

\* Legal no harvest areas include parks, UWRs, WHAs, and WTRAs

\*\* Net minimum old forest retention target accounts for the old forest in legal no harvest areas and is the target for management spatially or non-spatially.

Note: The spatial management area for mBEC A5 does not fall within the PG TSA CFLB as it is 100% located within an area-based license.

Appendix 3.

Table 1. Distribution of contributing age classes, in hectares, within COFAs, by mBEC – December 2022

Unit Label (mBEC)	Total Area in COFA (hectares)	Age Class 1 (hectares)	Age Class 2 (hectares)	Age Class 3 (hectares)	Age Class 4 (hectares)	Age Class 5 (hectares)	Age Class 6 (hectares)	Age Class 7 (hectares)	Age Class 8 (hectares)	Age Class 9 (hectares)
A2	2,304	0	0	0	3	42	123	208	1,928	0
A3	5,802	0	2	6	49	120	27	311	5,165	122
A6	4,417	0	1	0	9	0	136	461	3,615	195
A7	711	0	0	2	0	0	0	419	291	0
A9	1,486	1	6	6	6	23	24	579	841	0
A10	5,184	1	2	1	4	15	19	1,029	3,875	238
A11	1,828	2	3	6	4	7	6	910	865	25
A12	2,462	0	0	0	0	0	0	882	1,580	0
A13	3,540	4	7	19	25	66	43	1,053	2,254	69
A14	10,017	14	1	51	214	110	285	815	6,945	1,582
A15	948	0	0	0	0	0	0	304	638	6
A16	8,439	39	3	26	211	188	140	316	6,614	902

Source data: 2020 VRI and 2017 TSR CFLB

Table 1. Distribution of contributing age classes, in hectares, within COFAs, by mBEC – December 2022 (continued)

Unit Label (mBEC)	Total Area in COFA (hectares)	Age Class 1 (hectares)	Age Class 2 (hectares)	Age Class 3 (hectares)	Age Class 4 (hectares)	Age Class 5 (hectares)	Age Class 6 (hectares)	Age Class 7 (hectares)	Age Class 8 (hectares)	Age Class 9 (hectares)
A17	51,690	47	102	264	420	432	662	3,129	36,714	9,920
A18	872	0	0	3	2	3	33	119	710	2
A19	3,814	0	13	7	11	110	103	76	3,344	150
A20	1,513	0	0	0	0	0	25	112	1,345	31
A21	24,630	0	708	259	396	106	384	1240	20,330	1,207
A22	4,253	1	86	35	0	3	6	25	2,561	1,536
A23	36,917	6	234	305	351	444	1,235	1,503	22,401	10,428
A24	21,609	25	99	368	216	139	161	434	19,227	940
A25	59,177	5	646	509	894	1,838	2,357	5,069	44,117	3,742

Source data: 2020 VRI and 2017 TSR CFLB

**Principles, Data Inputs, Assumptions and Analysis Methodology used to Identify Candidate Old Forest Areas (COFAs) for the *Order Establishing Landscape Biodiversity Objectives for the Prince George Timber Supply Area (Order)***  
**December 2022**

The following were the guiding principles and considerations used by the Ministry for the identification and spatialization of COFAs in the Prince George Timber Supply Area (PG TSA):

**1. To fulfil the Ministry's commitment to the Forest Practices Board to spatialize the Order.**

- The spatialization of the Order achieves two goals, it manages the risk to biodiversity based on how the Order has been implemented and it provides options for future decisions regarding the management of old growth in the PG TSA.
- The parameters for the spatialization of old forest are confined to the legal targets as identified in Objective A, and Tables 1,2,3 of the Order.
- The Order only applies primarily to volume-based licenses within the PG TSA. Area-based tenures are not included in the analysis because they are not part of the PG TSA. Area-based licenses include Tree Farm Licenses, Woodlots, Research Forests, Community Forest Agreements, and First Nations Woodland Licenses.
- All old forest within legally designated no harvest areas like provincial parks, Old Growth Management Areas (OGMAs), Ungulate Winter Ranges (UWRs), Wildlife Habitat Areas (WHAs), and Wildlife Tree Retention Areas (WTRAs) contribute to the targets of the Order. The amount of old forest within these legally designated no harvest areas was defined as per the age-based definition in the Order.
- The spatial identification of the legal targets within each merged biogeoclimatic zones/subzones unit (mBEC) provides certainty for the location of old forest. Therefore, at a minimum, 100% of the legal targets for each mBEC were spatialized in the Prince George Forest District portion of the PG TSA, unless otherwise exempt (mBEC A04).
- The Carrier Sekani First Nations (CSFN) Environmental Stewardship Initiative (ESI) is a government-to-government process that used trusted information to address the risk to values important to the CSFN, which included the development of Biodiversity Management Areas (BMAs). The spatialization of the Order will not supersede these BMAs, as they are an outcome of a separate process. As such, all mBECs that fall within the boundary of the CSFN ESI study area are exempt from the spatialization of the Order and will continue to be managed non-spatially by the major forest licensees and British Columbia Timber Sales (BCTS).
- Given that much of the Stuart Nechako Forest District is comprised of the CSFN ESI study area, spatialization of the Order will occur at a later time.
- Old forest in mBECs impacted by spruce beetle were identified for spatialization as they were deemed as having high conservation value to retain the characteristics of old forest ecosystems.
- The spatialization of the old growth forest within each mBEC were prioritized based on locating the ecologically high value and oldest forest first (i.e., >250 years in large, intact patches) followed by near old forest (>140 years) within the mBEC. The inclusion of younger aged primary forests were considered in mBECs where they contributed to a higher conservation value on the landscape (e.g., known critical habitat, landscape connectivity).



- The spatialisation of old growth forest within mBECs that were currently in deficit of the old forest target, used the oldest forest first, followed by selecting the next oldest forest stands before consideration of younger age classes.
- All cut block reserves (riparian, wildlife tree retention) that were old (>140 years) and spatially locatable (>2 hectares) in existing cutblocks were used towards meeting the targets in mBECs.
- To maximize elevational connectivity between mBECs, proximity to already protected areas were considered while identifying the spatial location of candidate old forest areas.
- Impacts to timber supply from the Order have been accounted for in Timber Supply Review (TSR) 5 (2017). The socio-economic factors of the spatialization of the Order will be determined in future land use decisions, next timber supply review, or at the time that the Order is amended.
- Impacts to harvesting operations were considered through meetings between the Ministry and individual major forest licensees and BCTS.
- Only spatial recruitment strategies approved by the Ministry are exempt from the spatialization of the Order in the PG TSA. The only mBEC exempt is the A04, located in the Prince George Forest District.
- Forest licensee operating areas were not considered to ensure equitable distribution during the spatialization of candidate old forest areas.
- The spatialization of the Order will be non-legal and the implementation of the Order will be directed through a District Managers' Letter of Expectations. These candidate old forest areas (COFAs) will be made publicly available in the British Columbia Geographic Warehouse (BCGW) and Data BC.

**2. To ensure transparency in the development of baseline information for the spatialization of old forest using current and publicly accessible data and methodology to calculate the target.**

- The CFLB layer from PG TSA TSR 5 (2017) was used to spatialize the Order. This CFLB was the base for which the current AAC for the TSA was determined.
- All information used to spatialize the Order was taken from the BCGW or is available on request from Forest Analysis and Inventory Branch (FAIB) for TSR 5 (2017) CFLB layer or BC Knowledge Branch for species at risk information.
- The most current Vegetation Resource Inventory (VRI) (2020) was used to identify old forest within the CFLB.
- The total amount of CFLB was determined for each mBEC and the target of the Order was applied. For mBECs partially located within CSFN ESI study area, the total CFLB within and outside of the study area were separated by the study area boundary, and the targets of the Order were applied to each separated unit. This was to ensure fair and equitable distribution of the Order's old forest targets within and outside of the CSFN ESI study area.
- For all mBECs, the total amount of old forest in all legally established no harvest areas were netted out from the target of the Order to determine the amount of old forest that must be managed both spatially and non-spatially.

**3. To ensure transparency in the development of a multi-value methodology for selection of candidate old forest areas.**

- The multi-value approach taken included using old forest habitat dependent species and input from First Nations.

- Current ecological science was used when considering the design of candidate old forest areas using principles such as oldest forests first, large intact old forest patches, elevational connectivity, and site productivity.
- A nested approach was incorporated to maximize the overlap between ecologically high value old growth with habitat data for species at risk that are old forest obligate . Species at risk included caribou, bull trout, fisher, and lichens and high value habitat for these species were identified using various data sets and habitat models.
- The Province's technical team that identified candidate old forest areas consisted of biologists, ecologists, foresters, and other specialists. Selected candidate old forest areas were then vetted through other biologists and ecologists and specialists to verify the selection process and use of specific data.
- The Ministry engaged with First Nations to ensure that their values and interests were incorporated into the COFAs. The information shared with the Ministry was considered trusted information and is treated as such.
- Provincial old growth deferral areas identified by the provincial technical advisory panel were incorporated where possible, as they were of high ecological value and at risk of irreversible biodiversity loss.

**Table 1: Assumptions and Analysis Methods**

Information Type	Analysis Purpose	Methodology and Input Data <sup>1</sup>
<p>Biodiversity Overlay #1:</p> <p><b>Old Growth Forest Patches</b></p>	<p>Identify large, functionally intact, primary old growth patches across the landscape and mBECs (Original Study 2.0, 2019)</p> <p>Determine where large and intact patches without influence from edge are situated on the landscapes for interior conditions.</p>	<p><b>Original Study 2.0 methods</b></p> <ul style="list-style-type: none"> <li>• Located all age class (AC) 7, 8, and 9 polygons from 2019 BCGW VRI data</li> <li>• Used Excel Quartile Analysis to determine size ranges of patch sizes. Selected Top 25% &gt;100 ha</li> <li>• Intersected mBEC boundaries</li> <li>• Removed all roads and FTA approved and permitted blocks from patches.</li> </ul> <p><b>Original Study 2.0 Selection Criteria Assumptions</b></p> <ul style="list-style-type: none"> <li>• Coarse filter old forest biodiversity management relies on maintaining old forest biodiversity through preservation of old age classes (i.e., AC 8, 9) with interior forest condition. Large intact patches with old age classes have the highest probability of containing the ecologically important old forest biodiversity values.</li> <li>• The presence of old growth obligate species supports the assumption of the importance of old forest and provides some certainty of the VRI polygons as being biologically important old forests. Adding the presence of old growth obligate species to an identified old forest (VRI) patch adds a higher old forest conservation value than using VRI alone.</li> <li>• Captured the largest patches of &gt;250 years (AC 9) first.</li> <li>• Expanded patches with &gt;140 years. Build landscape redundancy and patch size with &gt;120 years recruiting stands.</li> <li>• Located isolated and smaller patches (&gt;4 hectares) in highly altered mBECs. Determined landscape position for connectivity of these patches to already protected old and old growth patches. Assumption was that 4 ha is the smallest patch size that may provide interior forest condition.</li> <li>• Younger age classes (&lt;120 years) were used in mBECs that were in deficit of old forest, or in mBECs where it contributed to higher conservation value. Higher conservation value was defined as 1) primary forest that provides complex legacy structure, that is of natural disturbance origin, not a harvesting disturbance, 2) patch size that provides landscape connectivity between mBECs and critical habitats for old forest obligates, 3) if the remaining old forest is isolated, fragmented and in small patches (&lt;4 ha).</li> </ul>
<p>Biodiversity Overlay #2:</p> <p><b>Habitat Information</b></p>	<p>Use of high value habitat data for old forest dependent species, with focus on species at risk (plant and animal)</p> <p>Location of multiple species overlap in old forest patches Original Study 2.0:</p>	<p><b>Locations of critical habitat for overlap - methods and assumptions:</b></p> <ul style="list-style-type: none"> <li>• Selected where old forest habitat occurs and overlap using individual habitat mapping information. Resource Selection Function (RSF) model and Kernel Density Mapping based on caribou telemetry data (collared cows), that highlights habitat that caribou have been selecting and using on the landscape in higher densities.</li> <li>• A combination of High, Medium, Low RSF, TAP Deferral Polygons and VRI patches of &gt;140 – 250 were deemed critical areas to spatialize under the old growth target before any recruitment polygons (&lt;120 years).</li> </ul>

<sup>1</sup> For details on data inputs and sources, refer to Table 2

Information Type	Analysis Purpose	Methodology and Input Data <sup>1</sup>
<p>Biodiversity Overlay #2:</p> <p><b>Habitat Information</b></p>		<ul style="list-style-type: none"> <li>• Used Hexagonal model for predicting habitat suitability for fisher. Prioritized areas with &gt; or = 50% chance of having suitable habitat for a female fisher's home range.</li> <li>• Used internal Ministry data driven locations for bull trout spawning, rearing, and juvenile rearing.</li> <li>• Used information from the BC Explorer Conservation Data Center website for identifying areas containing rare lichens.</li> <li>• Confirmed and refined all boundaries for species at risk overlap with old forest patches with Ministry professional biologists' expertise.</li> </ul> <p>Data Sources</p> <ul style="list-style-type: none"> <li>• 2018, 2019, 2020 Ministry caribou telemetry data for Hart Ranges</li> <li>• Consolidated caribou telemetry data (1990 – 2021)</li> <li>• 2021 Ministry caribou kernel density mapping for all telemetry points, seasonal use and home range</li> <li>• Caribou Resource Selection Function (RSF) model</li> <li>• Ministry bull trout spawning, rearing, juvenile locations</li> <li>• FLNRO Fisher Landscape Occupancy Data</li> <li>• Goshawk habitat modelling assumptions</li> <li>• Conservation Data Center (CDC) unmasked smokers' lung, crumpled tar paper, and cryptic paw lichen occurrences</li> <li>• CDC ICH vk 05 ostrich fern, devils club occurrences</li> <li>• CSFN ESI moose candidate areas</li> <li>• Aleza Lake Research Forest OGMA and moose habitat recommendations</li> <li>• Ministry Spruce Beetle Ecosystem Monitoring Plots (SBEM)</li> <li>• UNBC Research: D. Coxson Hungary Creek Corridor</li> <li>• FLNRO critical locations of whitebark pine</li> </ul>
<p>Biodiversity Overlay #3:</p> <p><b>Ecologically Important and High Value Old Growth Forest</b></p>	<p>Identification of primary old growth forest that is of ecological high value within mBECs based on Original Study 2.0 patches. These areas represent:</p> <ul style="list-style-type: none"> <li>- structural complexity and stable conditions</li> <li>- very old and ancient forest stands</li> <li>- unique, rare (&lt;10% remaining) and irreplaceable ecological conditions of old growth forest habitats.</li> </ul>	<p><b>Assumptions:</b> Ecologically high value was defined as old (&gt;250 years) and near old (&gt;140 years) on productive sites. Used proxies from the BCGW VRI of age, height, volume, and site index. Referenced methodology in Price, Holt, Daust (2020).</p> <p><b>Method and selection criteria for COFAs</b></p> <ul style="list-style-type: none"> <li>• Located all very old (&gt;250 years) and near old (&gt;140 years) with Original Study 2.0 patches</li> <li>• Considered a range of productivity classes. Productivity affects the rate at which stand attributes develop as well as helps to determine the species composition/rarity of sites.</li> <li>• Location of very old forests with higher productivity (site index &gt;20) within age classes 8 and 9. Age represents time since last disturbance.</li> <li>• Climax or long-lived tree species representation (avoid seral species) as per BEC.</li> <li>• Integration of TRIM or slope mapping to locate mid and bench slopes vs steep slopes in the elevation connectivity. Proxy for soil moisture and nutrient regimes (SMR/SNR).</li> </ul>

Information Type	Analysis Purpose	Methodology and Input Data <sup>1</sup>
<p>Biodiversity Overlay #3:</p> <p><b>Ecologically Important and High Value Old Growth Forest</b></p>		<ul style="list-style-type: none"> <li>• Volume and height: represent large diameter trees.</li> <li>• Considered the landscape connectivity, elevational connectivity, intact patches of old forests, connections to parks, UWR, and other no harvest designations, TRIM for landscape position and elevational corridors.</li> <li>• Mature, recruiting, and younger forest stands were considered if they were primary forest (not harvested or managed) and provided high ecological value on the landscape (e.g., fire origin, presence of known habitats based on inventories, habitat connectivity).</li> <li>• The age-based definition for mature was &gt;120 years and recruitment forest stands (immature) was &lt; 120 years. Recent fire origin stands could be a range of ages based on year of fire disturbance.</li> <li>• All old forest within legal OGMAs counted towards the legal targets of the Order. The amount of old forest in legal OGMAs were netted out of the total old forest target that was to be spatialized.</li> <li>• The non-legal OGMAs in mBECs A22 and A23, were collectively absorbed into the COFAs. These non-legal OGMAs were developed in 2009 based on being ancient stands in the ICH (see Table 2 for clarification regarding the BCGW layer).</li> <li>• Comparison and incorporation of the Technical Advisory Panel (TAP) Old Growth Deferral Information (Nov 2021) to verify and ensure representation of the oldest and high value forested ecosystems.</li> </ul> <p>Note: The age-based definition within the Order was used to determine the current condition of old forest within mBECs on the CFLB. However, the location and design of the COFAs was based on ecological principles regarding biodiversity and not simply the age of a forest.</p>
<p>Indigenous Knowledge and Interests Overlay # 4:</p> <p><b>Important Areas to First Nations</b></p>	<p>Refine candidate old forest areas to incorporate traditional use areas of high importance to First Nations.</p> <p>Information gathered through a collaborative approach in project design, purpose, and outcome</p>	<ul style="list-style-type: none"> <li>• First Nations shared areas of importance with the Ministry and these areas were incorporated into the design and refinement of COFAs.</li> <li>• Generally, First Nations appreciated the Ministry's use of high value habitat and connectivity when considering the location of COFAs.</li> </ul>
<p>Landscape Condition Overlay #5:</p> <p><b>Old Growth Forest Current Condition</b></p>	<p>Determine total amount CFLB (ha), old growth target amount (ha) and current condition in mBECs in the PG TSA</p> <p>Calculate and spatially determine the location of old forest in already protected no harvest areas.</p> <p>Determine proportional targets in the CFLB for mBECs that are intersected by the CSFN ESI</p>	<p><b>Current Condition Baseline Assumptions</b></p> <ul style="list-style-type: none"> <li>• Used 2020 VRI and TSR 2017 CFLB, calculated the total amount of CFLB (ha), old growth forest (ha) and current condition baseline (surplus and deficits) of old forest as compared to the legal order targets by mBEC.</li> <li>• Age of old growth forest by mBEC on CFLB was defined by Order. Age of old growth varied by mBEC (&gt;120 years and/or &gt;140 years).</li> <li>• Current condition of old forest is the amount of remaining old forest (surplus and/or deficit) after accounting for the legal order old forest target amount.</li> </ul> <p><b>Contributions of old forest in legally established no-harvest designation (already protected areas):</b></p> <ul style="list-style-type: none"> <li>• Calculated amount (ha) of old growth forest in parks, UWR, WHA, OGMA based on the ages defined in the Order.</li> </ul>

Information Type	Analysis Purpose	Methodology and Input Data <sup>1</sup>
<p>Landscape Condition Overlay #5</p> <p><b>Old Growth Forest Current Condition</b></p>		<ul style="list-style-type: none"> <li>• The amount of old forest in already protected/no harvest areas needed to be spatially locatable.</li> <li>• The total amount (ha) of old growth forest in no harvest areas contributes towards meeting the old growth target. This total area (ha) of old forest was removed from the target and the remaining area (ha) is what will be spatialized.</li> <li>• Used the Reporting Silviculture Updates and Land status Tracking System (RESULTS), wildlife tree retention reserves that were &gt;2 hectares and &gt;140 years and spatially locatable in mBECs counted towards the spatialization of old growth.</li> <li>• Reviewed and compared to licensee landscape objectives working group (LLOWG) tabular old growth reporting (2019,2020).</li> </ul> <p><b>Spatial and non-spatial target for old growth</b></p> <p>For mBECs that are intersected by the CSFN ESI boundary, the mBECs were separated by the CSFN ESI boundary and independently assessed for the target of the Order. This meant that for each separate area, the CFLB, old forest target, contributing legally protected areas, and the implementation old forest target management (the calculated old forest target minus the legal no-harvest areas) were calculated. This was done because the mBEC portion within the CSFN ESI boundary would continue to be managed non-spatially at this time, while the portion outside of the CSFN ESI boundary would be managed spatially. This method of separation was consistent with the Order in calculating the old forest targets for the mBECs. As well, provided a fair and equitable separation of the mBEC for the purposes of implementing the Order.</p>
<p>Landscape Condition Overlay #6:</p> <p><b>Harvesting Disturbance</b></p>	<p>Consideration of current forest harvesting and future forest harvesting areas of interest</p>	<ul style="list-style-type: none"> <li>• Removal of all blocks and roads from candidate old forest areas that were submitted to the Forest Tenure Administration (FTA) database.</li> </ul> <p><b>In consultation with major forest licensees and BCTS:</b></p> <ul style="list-style-type: none"> <li>• Requested and received spatial and other information regarding current and future (3-5 years) harvesting plans and investments for consideration and integration into COFA design. <ul style="list-style-type: none"> <li>○ COFAs that overlapped forest harvesting plans that were demonstrated to have high investment and/or were critical for current operations, were removed or adjusted by the Ministry.</li> <li>○ Where forest harvesting plans overlapped COFAs with high ecological value, major forest licensees and BCTS altered their harvesting plans and the COFAs were not adjusted or removed.</li> </ul> </li> </ul>

**Table 2: Candidate Old Forest Areas Spatial Data Input and Sources**

Spatial Data	Source	Feature Name	Extraction Year	Comments
<b>Vegetation Resource Inventory (VRI)</b>	BCGW	WHSE_FOREST_VEGETATION.VEG_COMP_LYR_R1_POLY	2019	VRI extracted at initiation of project in September 2019. Locations of old forest (>140 years) confirmed with 2021 VRI.
<b>Timber Supply Areas</b>	BCGW	WHSE_ADMIN_BOUNDARIES.FADM_TSA	2019	PG TSA boundary
<b>Biogeoclimatic Ecosystem Classification (BEC)</b>	BCGW	WHSE_FOREST_VEGETATION.BEC_BIOGEOCLIMATIC_POLY	2019	BCGW BEC is raster-based data
<b>Crown Forest Landbase (CFLB)</b>	FAIB	TSR 5	2017	Spatial CFLB available upon request to Ministry. Raster based data.
<b>Ownership and Public Land</b>	BCGW	WHSE_FOREST_VEGETATION.F_OWN WHSE_CADASTRE.PMBC_PARCEL_FABRIC_POLY_FA_SVW	2019	
<b>PG TSA Biodiversity Order mBEC's</b>	BCGW	WHSE_LAND_USE_PLANNING.RMP_LANDSCAPE_UNIT_SVW	2019	Custom natural disturbance dataset for PG TSA Biodiversity Order. Query required: STRGC_LAND_RSRCE_PLAN_NAME = 'Prince George Timber Supply Area (TSA) Legal Order - Landscape Biodiversity Objective Order - Extent' The label field is: LEGAL_FEAT_ATRB_5_VALUE
<b>Managed Forest Tenure Licenses and Permits</b>	BCGW	WHSE_FOREST_TENURE.FTEN_MANAGED_LICENCE_POLY_SVW WHSE_FOREST_TENURE.FTEN_SPEC_USE_PERMIT_POLY_SVW	2019	Woodlots, Community Forests, Research Forests, First Nations Woodland Agreements
<b>Tree Farm License</b>	BCGW	WHSE_ADMIN_BOUNDARIES.FADM_TFL_ALL_SP	2019	For TFL 30 and TFL 53

Spatial Data	Source	Feature Name	Extraction Year	Comments
<b>Forest Tenure Administration</b>	BCGW	WHSE_FOREST_TENURE.FTEN_CUT_BLOCK_POLY_SVW WHSE_FOREST_TENURE.FTEN_ROAD_SECTION_LINES_SVW	2022	Active and pending forest harvesting permits and roads
<b>Digital Road Atlas</b>	BCGW	WHSE_BASEMAPPING.DRA_DGTL_ROAD_ATLAS_MPAR_SP	2022	Authoritative source for road data in Province of BC
<b>Forest Depletions</b>	BCGW	WHSE_FOREST_VEGETATION.VEG_CONSOLIDATED_CUT_BLOCK_S_SP	2022	Forest Consolidated Cutblocks
<b>Results Openings</b>	BCGW	WHSE_FOREST_VEGETATION.RSLT_OPENING_SVW	2022	Polygons that were harvested with silviculture obligations or natural disturbances with forest management activities.
<b>Results Reserves</b>	BCGW	WHSE_FOREST_VEGETATION.RSLT_FOREST_COVER_RESERVE_SVW	2022	Identification of reserves of retention associated with forest harvesting. Reserves of retention include riparian, wildlife tree patches, and others.
<b>Historic and Current Fire Perimeters</b>	BCGW	WHSE_LAND_AND_NATURAL_RESOURCE.PROT_HISTORICAL_FIRE_POLYS_SP	2022	Location of naturally disturbed primary young stands
<b>Legal and non-legal OGMA</b>	BCGW	WHSE_LAND_USE_PLANNING.RMP_OGMA_LEGAL_CURRENT_SVW WHSE_LAND_USE_PLANNING.RMP_OGMA_NON_LEGAL_CURRENT_SVW	2019	The non-legal OGMA layer contains the mBEC A4 polygons, the non-legal OGMAs(2009) in mBEC A22 and A23, and will contain the COFA layer.  Note: The BCGW requirements meant that the non-legal OGMAs (2009) are maintained as an independent entity. But are in fact counting as the COFA layer.
<b>Approved Ungulate Winter Ranges</b>	BCGW	WHSE_WILDLIFE_MANAGEMENT.WCP_UNGULATE_WINTER_RANGES_SP	2019 and 2022	Moose, Caribou, Multi-species in the PG TSA



Spatial Data	Source	Feature Name	Extraction Year	Comments
<b>Approved Wildlife Habitat Areas</b>	BCGW	WHSE_WILDLIFE_MANAGEMENT.WCP_WILDLIFE_HABITAT_AREA_POLY	2019	Caribou, Bull Trout, Grizzly Bear in the PG TSA
<b>Caribou telemetry</b>	Ministry	Historical and current seasonal telemetry data for Caribou Hart ranges	2020	Species at risk sensitive and confidential data. Contact ministry Knowledge Management Branch
<b>Caribou Kernel Density Mapping: Hart Ranges</b>	Ministry	Summer and winter Kernel Density Mapping. The layers represent the relative use by caribou. Higher values represent areas more intensely used. The summer layer is based on locations from May 1 <sup>st</sup> to Oct 15, winter is Oct 16 to April 30 <sup>th</sup> .	2020 and 2021	Developed using ArcGIS spatial analysis using 135,000 GPS telemetry data collected from 206 adult female caribou in the Hart Ranges, North Cariboo Mountains, and Narrow Lake ranges from 2018-2022. Data available on request from Ministry.
<b>Caribou Resource Selection Function (RSF)</b>	UNBC	Based on the methodology developed by Dr. Chris Johnson, 2004. Ratings of High, Medium and Low relative probability of caribou occurrence based on season telemetry points	2020	Johnson et al.2004. Open source journal <a href="https://besjournals.onlinelibrary.wiley.com/doi/10.1111/j.0021-8901.2004.00899.x">https://besjournals.onlinelibrary.wiley.com/doi/10.1111/j.0021-8901.2004.00899.x</a> Raster based data
<b>Fisher Hexagonal Occupancy Model</b>	Ministry	Application of the model from Weir and Corbould 2010 (Journal of Wildlife Management Vol. 74 Issue 3 Pages 405-410) to the VRI dataset.	2019	Predictive model of occurrence where fishers are likely to occur based on home range and habitat needs. Model output available on request to ministry  Data available on request
<b>Bull Trout</b>	Ministry	Locations of high value Bull trout habitat (pools, spawning, juvenile rearing)	2021	Species at risk sensitive and confidential data. Contact ministry Knowledge Management Branch
<b>Goshawk Habitat Planning</b>	Various	Skeena FLNRORD Goshawk Planning Team, Ecora and Canfor: Optimizing timber supply with stewardship values using Goshawk as case example presentation (Patchworks model).	2021	Consideration of the methods and assumptions provided in this presentation and model for Goshawk habitat needs in designing and spatializing old forest patches in mBECs
<b>Technical Advisory Panel: Old Growth</b>	BCGW	WHSE_FOREST_VEGETATION.OGSR_TAP_PRIORITY_DEF_AREA_SP	2022	Priority Deferral Areas raster and vector based data methodology were used in spatialization project.

Spatial Data	Source	Feature Name	Extraction Year	Comments
<b>Deferral Polygons</b>				
<b>CSFN ESI Boundary</b>	Ministry	CSFN Traditional Territories used in the ESI	2019	

## **Spatial Data and the Definition of Terms Explaining the Descriptors Used in the Design of Candidate Old Forest Areas (COFAs) December 2022**

The COFA spatial data for the Prince George Forest District will be integrated into the BCGW Old Growth Management Areas – Non-legal – Current spatial layer (WHSE\_LAND\_USE\_PLANNING.RMP\_OGMA\_NON\_LEGAL\_CURRENT\_SVW).

Within this BCGW spatial layer, the area (ha) in legacy Non-legal OGMAs (2009) in mBECs A22 and A23 contribute towards the spatialization of old growth under the Order. Therefore, to view all the spatialized old growth that meets the Order old forest retention targets, both the PRG\_COFA and the PRG\_DPG (with the exception of mBEC A04) in the NON\_LEGAL\_OGMA\_PROVID column, need to be viewed together.

The following terms are defining and explaining the descriptors in the attribute column of OGMA\_Primary\_Reason of the BCGW Old Growth Management Areas – Non-legal – Current spatial data. These descriptors are the ecological and habitats features captured in the COFAs.

**mBEC (merged Biogeoclimatic Unit):** groupings of Biogeoclimatic Units that are designated as legal landscape units under the Order with old forest objectives.

**large patch og (Large Patch Old Growth):** Spatially identified patches of intact old growth forest, usually greater than 100 ha in size, with very old (>250 years) and near old (>140 years) forests. These large patches of old growth were the starting point in the development of COFAs and may have been reduced in size to accommodate socio-economic investments (e.g., Forest development)

**park connect (Park Connectivity):** Spatial patches of old growth forest that specifically provide landscape connectivity between provincial parks.

**uwr connect (Ungulate Winter Range Connectivity):** Spatial patches of old growth or near old forest that specifically provide landscape connectivity between no harvest or conditional harvest Ungulate Winter Range.

**caribou (Caribou):** Old growth forest identified as providing critical habitat for old growth dependant species at risk species. These COFA polygons have been identified based on the use of confidential and secure caribou telemetry data and habitat selection models (with appropriate permissions).

**lichen:** Old growth forest that have known locations and/or occurrences of growth dependant, red listed lichen species (e.g. Cryptic Paw, Smokers Lung, Crumpled Tar Paper). These COFA polygons have been identified based on the masked locations from the Conservation Data Center (CDC) BC Species & Ecosystem Explorer Tool and the confidential secure data from the CDC (with appropriate permission).

**fisher:** Old growth forest identified as providing critical habitat for old growth dependant species at risk. These COFA polygons have been specifically identified based on the use of the Provincial Fisher Occupancy Model that identifies areas of remaining primary forest that have greater than 30% probability of fisher occurrence.

**wildlife hab (Wildlife Habitat):** Old growth forest identified as providing critical habitat for old growth dependant species at risk species. These COFA polygons have been identified based on the use of confidential and secure (with appropriate permissions).

**Non-legal OGMA (Non-legal Old Growth Management Area):** Spatial patches of old growth forest that have been set aside to meet the legal objectives for old growth forest under the Order in mBECs A22 and A23.

**Results (RESULTS - Reporting Silviculture Updates and Land Status Tracking System):** Administrative openings of forest that have been harvested and have silviculture obligations or are polygons with natural disturbance that had forest management activities. Those RESULTS openings integrated into COFAs have past Intermediate Utilisation (IU) selection harvesting that are >140 years old.

**fire primary origin (Historic fires):** Patches of forest that have natural disturbance from forest fires without forest harvesting or silviculture activities (i.e., salvage harvesting, planting). These areas provide representation of young successional or primary recruiting forest within the COFA to develop larger patches of primary forest, elevational and landscape connectivity.

**vri imm (VRI Immature):** These are patches of forest that are identified in the VRI as being less than 120 years old.

**vri mat (VRI Mature):** These are patches of forest that are identified in the VRI as being greater than 120 years and considered recruiting or near old forest, depending on the mBEC.

**og def (Old Growth Deferral):** Areas of priority old growth forest that have been identified by the Old Growth Technical Advisory Panel (TAP). The TAP polygons integrated into the COFA represent ancient forest and remnant old forest ecosystems most at risk to irreversible biodiversity loss.

**Note:** The WTRAs that are spatially contributing to the COFAs have not been identified as a primary reason for COFA selection as they are incorporated for the purposes of co-location under the Order. The WTRA information is publicly available on the BCGW in the RESULTS layer WHSE\_FOREST\_VEGETATION.RSLT\_FOREST\_COVER\_RESERVE\_SVW.