

BIG WHITE SKI RESORT LTD. OLD GROWTH ASSESSMENT REPORT

Prepared by:

Linden Priest, RPF
Professional Forester

Kyle Broome, RPF
Professional Forester

Aubin Dorion
Geospatial Specialist

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Cabin Resource Management Ltd.
Unit 20A
100 Kal Lake Road
Vernon, BC
V1T 9G1



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Executive Summary

Big White Ski Resort (BWSR), located Southeast of Kelowna, BC has an existing Controlled Recreation Area (CRA) based on an approved Master Plan (1999) and Master Development Agreement (MDA). BWSR is in the process of replacing their current Master Plan which includes proposed development with new chair lifts, additional ski terrain, expanded real estate, commercial development, and additional trail networks. Proposed development overlaps forested areas throughout the CRA, with both Technical Advisory Panel Old Growth Deferral Areas (OGDA), and Non-Legal Old Growth Management Area (OGMA) polygons overlapping proposed development. In order to further develop the BWSR, the management of both OGDA and OGMA areas must be considered.

To better understand the impact of development on these old growth areas, this report provides a high-level analysis of old growth within the CRA. Using available geospatial data as well as field sampling to review old growth overlaps, both OGDA and OGMA were reviewed. The geospatial analysis includes using an in-house Enhanced Forest Resource Inventory (EFRI) tool which utilizes a LiDAR derived Canopy Height Model (CHM) to identify individual stems and create forest type polygons. The EFRI results are then compared to minimum OGDA requirements. Field sampling was used to verify the EFRI results, as well as complete a reconnaissance level survey of mapped OGDA and OGMA.

Field and geospatial data were then synthesized to confirm areas where OGDA meets or is likely to meet provincial OGDA requirements according to “Field Verification of Priority Old Forest Deferral Areas: Technical Guidance” V3.1. Areas that require additional sampling, or are not expected to meet minimum OGDA requirements were also identified. Field plots completed within mapped OGMA include OGMA Scorecards to provide a comparison with potential replacement areas, as well as general qualitative observations.

The old growth analysis found that a significant amount of the OGDA within the CRA is either confirmed OGDA or are likely to meet minimum OGDA requirements. These OGDA polygons overlap the majority of proposed ski and real estate development pods, therefore, environmental mitigation strategies will be required for OGDA. OGMA does not have any measurable requirements, therefore all OGMA polygons are treated like old growth.

As mitigation measures will be required for managing mapped old growth, general recommendations to minimize BWSR impacts to old growth forests include; using the results of this analysis and additional field sampling to identify the highest value areas and adjust proposed development to either avoid or minimize the impact to mapped old growth forests, minimize the number and size of ski runs in old growth areas, use glading prescriptions where possible to retain the largest and oldest trees in proposed ski terrain, and prioritize protecting ancient forests or old growth around riparian areas when determining areas to develop. Where old growth incursions are unavoidable, work with a qualified professional to identify suitable replacement areas. Replacement areas should prioritize connectivity with existing mapped old growth to create contiguous old growth areas where possible.

As this report provides a high-level analysis of the entire CRA, additional field work and analysis will be required at the site level during the development phase. Additionally, best management practices for old growth are likely to shift over the timeframe of the new MDA, it's important to follow the best management



Unit 20A-100 Kal Lake Road
Vernon, BC, V1T 9G1
778-475-3655

practices of the day when managing old growth. BWSR should continue to work with Mountain Resorts Branch and qualified professionals in consultation with First Nations to best manage old growth values within their CRA.

This report is tied to the Forest Health Assessment and Management Plan as well as the Wildfire Risk Assessment and Management Plan. These reports outline objectives for management of biodiversity, forest health and wildfire. Successful implementation of all three plans will yield more resilient forests and contribute to the sustainable growth Big White Ski Resort.

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1.0 Background

Big White Ski Resort (BWSR) is located 56km Southeast of Kelowna, BC in the Kootenay Boundary Regional District of British Columbia. Currently, BWSR is operating within their Controlled Recreation Area (CRA) based on the approved 1999 Master Plan and Master Development Agreement (MDA). In 2020, BWSR began the process of replacing their current Master Plan and MDA. This proposed master plan outlines the location of additional development including new chair lifts, additional ski terrain, expanded real estate, commercial development, and additional trail networks.

During the Master Plan review process, a provincial Technical Advisory Panel (TAP) released a new Old Growth strategy "[A New Future for Old Forests](#)" which included 2.6 million hectares of forest to be immediately deferred from harvest. In addition to the newly identified TAP Old Growth Deferral Areas (OGDA), the CRA contains Old Growth Management Area (OGMA) polygons. In order to further develop the BWSR, the management of both OGDA and OGMA areas must be considered.

This report uses available geospatial data sourced from BC provincial databases, LiDAR, and field sampling to complete an analysis of the mapped Old Growth areas within the CRA. Cabin Resource Management (Cabin) has developed an in-house Enhanced Forest Resource Inventory (EFRI) tool which utilizes a LiDAR derived Canopy Height Model (CHM) to identify individual stems and create forest type polygons. These EFRI derived forest types were then compared with the minimum requirements of OGDA stands to determine where OGDA polygons were most likely to be mapped correctly as well as identify potential replacement areas. A sampling plan to verify the EFRI results, collect sample tree ages, and complete OGMA field sampling cards was then developed, with sampling taking place between August-November 2024. The combined results of this geospatial and field sampling analysis within BWSR's tenure boundary informs the recommendations for the management of proposed incursions into mapped old growth.

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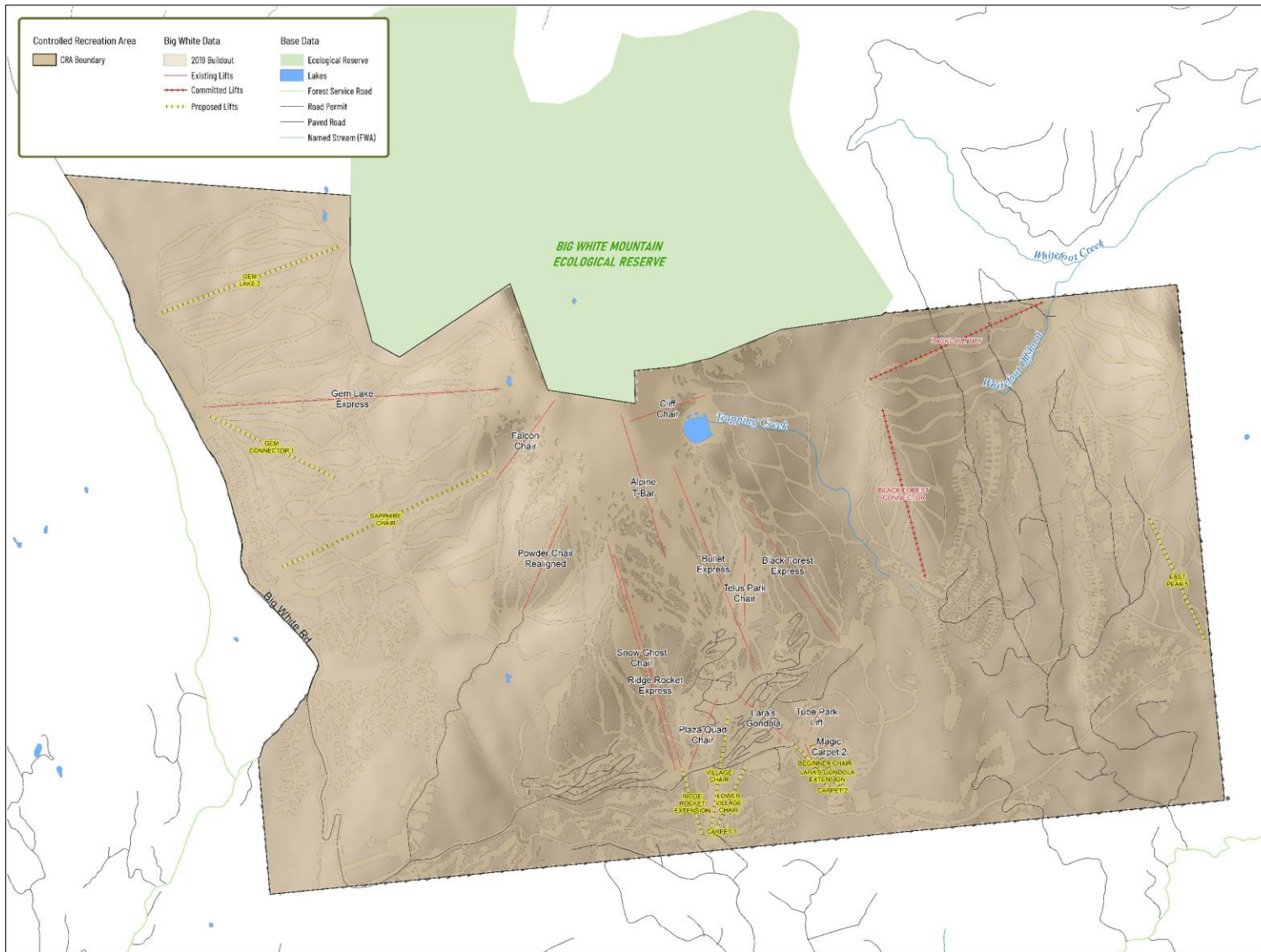


Figure 1. Map of BWSR CRA boundary with planned and proposed chairlifts from the 2019 Proposed Expansion spatial.

1.1 Old Growth Deferral Area Overview

In September 2020, the Old Growth Strategic Review report: “A New Future for Old Forests” was released to the Minister of Forests, Lands, Natural Resource Operations and Rural Development. This report included 14 recommendations for managing old growth forests within BC; recommendation 6 was to immediately “defer development in old forests where ecosystems are at very high and near-term risk of irreversible biodiversity loss”. The Provincial government committed to these recommendations and engaged with the Old Growth Technical Advisory Panel (TAP) to identify areas that fall within the following three categories of old forests: Ancient Forests, Remnant Old Ecosystems, and Prioritized Big-treed Old Growth. Any proposed development within the TAP identified Old Growth Deferral Areas (OGDA) was immediately deferred until a new strategy for old growth could be established. At the time of writing this report, no new old growth strategy has been developed, however several guidance documents for the verification have been released.

1.1.1 OGDA Field Verification and Replacement Process

To assist forest managers with managing OGDA, [“Field Verification of Priority Old Forest Deferral Areas: Technical Guidance”](#) Version 3.1 was released July 20, 2022 by the Ministry of Forests (“The Ministry”). This document provides direction for Professional Foresters to use field verification to evaluate individual stands and determine whether they meet the old forest deferral criteria used in the TAP selection process. It’s important to note that this procedure can only be used where First Nations are in support of the old growth deferrals. This document then provides a template for a rationale that can be submitted to the Ministry with details on how the areas in question may not meet have the minimum TAP deferral requirements, and details on proposed replacement areas.

Where stands within OGDA polygons have the potential to not meet the deferral criteria, forests are stratified and sampled to compare with TAP requirements. Stratification is used to delineate different types within a larger OGDA polygon allowing the OGDA to be split into smaller units. This allows for those units that meet minimum OGDA requirements to be deferred from harvest while replacement areas may be identified for types below OGDA thresholds. The forest types are stratified prior to field sampling and cannot be changed once the sampling work has commenced.

Forest stratification and field sampling processes follow standard forest measurement models from the Timber Pricing Branch as outlined in the 2020 Timber Cruising Manual. Forest stratification is based on landscape unit (LU), Biogeoclimatic Ecosystem Classification (BEC) subzone and variant, stand structure, and stand age prior to field work. Field sampling collects stand information includes the age, quadratic mean diameter, and average height of merchantable trees.

Where the deferral criteria are met, the area is deferred with very limited options for harvest. Where the deferral criteria are not met, a suitable replacement area must be identified within the same LU and BEC that matches the priority of the old forest type (ex. Ancient, Remnant Old, Big-Treed Old). In addition, the size, shape, and connectivity should be of similar or better value, and the replacement area must fall within the timber harvesting landbase (ie, OGDA cannot be moved to a Provincial Park etc.). It should be noted that the replacement areas are not limited within the CRA boundary and can be moved elsewhere provided they meet the criteria above. As the TAP OGDA process is relatively new to the province, there is no limited precedent for a ski resort to propose significant development into OGDA areas. Therefore, this report takes into consideration recent guidance for general forestry practices as well as the current approach indicated by communications from Mountain Resorts Branch (MRB).

The OGDG Verification steps as outlined in the Field Verification of Priority Old Forest Deferral Areas: Technical Guidance document are listed below.

ODGA Verification Steps

1 Stand age

Ancient Forest	Yes →	Meets deferral criteria - STOP
Old Forest	Yes →	Go to 2
Older Mature Forest	Yes →	Go to 3
Younger Forest	Yes →	Go to 6

2 Remnant Old Ecosystem

Old Forest <i>and</i> in a BEC subzone/variant or BEC/LU identified as a Remnant Old Ecosystem (Table A6.1)	Yes →	Meets deferral criteria- STOP
	No →	Go to 4

3 Older Mature Requirements

Older Mature is required? (Table A6.1)	Yes →	Go to 5
	No →	Available for harvest, pending all other constraints and consultation are met

4 Big-treed Criteria for Old Forests

Mapped Area?	Yes →	Go to 4(a)
	No →	Go to 4(b)

4(a) Big-treed Criteria for stands *mapped* as Old Forest Priority Deferrals

Field-measured QMD and Stand Height are <i>both less than</i> values for Old Forests in Table A6.1	Yes →	Available for harvest, pending all other constraints and consultation are met
	No →	Meets deferral criteria- STOP

4(b) Big-treed Criteria for stands *not mapped* as Old Forest Priority Deferrals

Field-measured QMD and Stand Height are <i>both greater than or equal to</i> values for Old Forests provided in Table A6.1	Yes →	Meets deferral criteria- STOP
	No →	Available for harvest, pending all other constraints and consultation are met

Table continued next page

5 Big-treed Criteria for Older Mature Forests

Mapped Area?	Yes →	Go to 5(a)
	No →	Go to 5(b)

5(a) Big-treed Criteria for stands *mapped* as Older Mature Forest Priority Deferrals

Field-measured QMD and Stand Height are <i>both less than</i> values for Older Mature Forests in Table A6.1	Yes →	Available for harvest, pending all other constraints and consultation are met
	No →	Meets deferral criteria - STOP

5(b) Big-treed Criteria for stands *not mapped* as Older Mature Forest Priority Deferrals

Field-measured QMD and Stand Height are <i>both greater than or equal to</i> values for Older Mature Forests provided in Table 6.1	Yes →	Meets deferral criteria - STOP
	No →	Available for harvest, pending all other constraints and best practices are met

6 Younger Forests with a Veteran Tree Layer in BEC or BEC/LU ONLY where Older Mature Forests are identified (see Table A6.1)

Is this a BEC where Older Mature Forests are identified for Priority Deferrals (Table A6.1)	Yes →	Go to 6(a)
	No →	Available for harvest, pending all other constraints and best practices are met

6(a) Veteran Tree Thresholds for Younger Forests

Is there a veteran tree layer present with 20 sph or more?	Yes →	Meets deferral criteria - STOP
	No →	Available for harvest, pending all other constraints and best practices are met

Table 1. Decision flowchart for OGDA from Field Verification of Priority Old Forest Deferral Areas: Technical Guidance document.

1.2 Old Growth Management Area Overview

Current old growth mapping began when the province started the process for provincial landscape level plans including the [Okanagan Shuswap Land and Resource Management Plan](#) (OSLRMP) and the [Kootenay Boundary Higher Level Plan Order](#) (KBHLPO) in the 1990's. These landscape level plans identified the need for protecting old growth forests and set out guidance to develop legal OGMA's. No orders have been declared to date establishing spatially defined legal OGMA's in the Big White Area, as such, the OGMA within the area examined by this report is defined as "Non-Legal OGMA". This non-legal OGMA has an established order to set aside a specified minimum area of OGMA in the OSLRMP and KBHLPO, but the spatial extent of these areas are not legally defined.

The minimum OGMA targets set according to the Natural Disturbance Type (NDT), Biogeoclimatic Ecosystem Classification (BEC) zone, and LU. Other factors considered for OGMA placement are Vegetation Resource Inventory derived age, logging operability, and grizzly bear connectivity corridors. To ensure the required targets are met, forest licensees incorporate OGMA into their Forest Stewardship Plans and spatially define OGMA's across their operating area. Therefore, when other tenure holders, such as an Occupant License to Cut applicant proposes development within a mapped OGMA, that tenure holder must work with the overlapping forest licensee.

1.2.1 OGMA Replacement Process

Typically, when an OGMA incursion is proposed, a suitable rationale and replacement area must be submitted to the Ministry of Forests for approval. While the process varies slightly between resource districts, all OGMA replacements are required to be of equal or better old forest values than the incursion area. Replacement areas are to be located within the same LU and BEC zone as the incursion, but it is not required to keep the replacement area within the CRA boundary. It should be noted that the BEC zones used for mapping OGMA is based on historic V.4 BEC mapping. As such, historic BEC linework should be used when identifying potential replacement areas. Values to be taken into consideration with the replacement areas include: stand age, stand structure, successional stage, forest health, wildlife habitat value, lack of human disturbance, patch size, amount of interior habitat, connectivity, and rare ecosystem representation. In the Selkirk Natural Resource District, Old Growth Scorecards have been developed to help with the evaluation of the quality of the old forest values. These scorecards were used during the field assessments of the OGMA areas and replacement areas for this project.

In the most recent analysis published in July 2024, there is a deficit of old forest that meets the OGMA targets within several of the LU/BEC combinations that overlap Big White's CRA. This limits suitable replacement area options meeting the minimum requirements for OGMA. To address the deficit, the Forest Licensees will use mature forests to meet targets and may identify OGMA replacement areas not mapped with provincial OGMA layers. Big White will need to work with the overlapping Forest Licensee to identify replacement areas that work around their internally recognized replacement areas, as well as their own forest development plans.

1.3 Current Expectations and Future Management for Old Growth

While the management of both OGDA's and OGMA's is generally established for standard forestry practices, Mountain Resorts Branch (MRB) at the Ministry of Forests is still formalizing policy surrounding OGDA's at this time. Currently, there is no mandatory deferral of OGDA polygons within the current CRA. Voluntary deferrals and ecosystem management across the CRA are used to broadly manage old growth values where disturbance is proposed. This report does not drill down into the specifics of OGDA replacement as detailed old growth management will be prescribed during the OLTC application process. Further analysis and field verification may



be required at that time.

It's also important to note that while both OGMA and OGDA polygon mapped layers used for this report accurately reflect the provincially available spatial data at the time of this report, these features may be adjusted in the future. OGMA targets are based on BEC V.4 mapping in the Boundary, however the most recent version of BEC mapping is V.12. The updated V.12 mapping adjusts subzone boundaries and includes additional subzones and variants. The Ministry has indicated at various industry events that updating OGMA targets to current BEC mapping is likely to occur in the next several years which may impact the OGMA allocation/relocation options.

With regards to OGDA mapping, OGDA was intended as a temporary measure to protect old growth values. These deferral areas are likely to be revisited and may be remapped as Forest Landscape Plans (FLP) are established to replace the existing Forest Stewardship Plans (FSP). This process may take 10 years or more to complete, however it's anticipated that OGDA policy and spatial will be adjusted with the FLP process. It's important to follow the best management practices of the time regarding old growth management as old growth policies shift.

2.0 BWSR's CRA and Old Growth – Present State

2.1 Big White Ski Resort CRA and Old Growth

While both OGDA and OGMA are put in place to protect old forests with targets for each LU and BEC Zone, the criteria for each varies. Within the BWSR CRA(s), there are areas mapped as either OGMA or OGDA, and some areas where both OGMA and OGDA overlap. When considering any rationales or replacement areas, it's important to differentiate between OGMA and OGDA and how each are managed.

Referencing published provincial datasets, old growth overlap within Big White's CRA includes 775.5ha of OGDA and 88.2ha of OGMA.

Current Old Growth Statistics			
	Total CRA Area	OGDA Overlap	OGMA Overlap
Hectares	3163.1	775.5	88.2

Table 2. Current Old Growth Statistics within the CRA.

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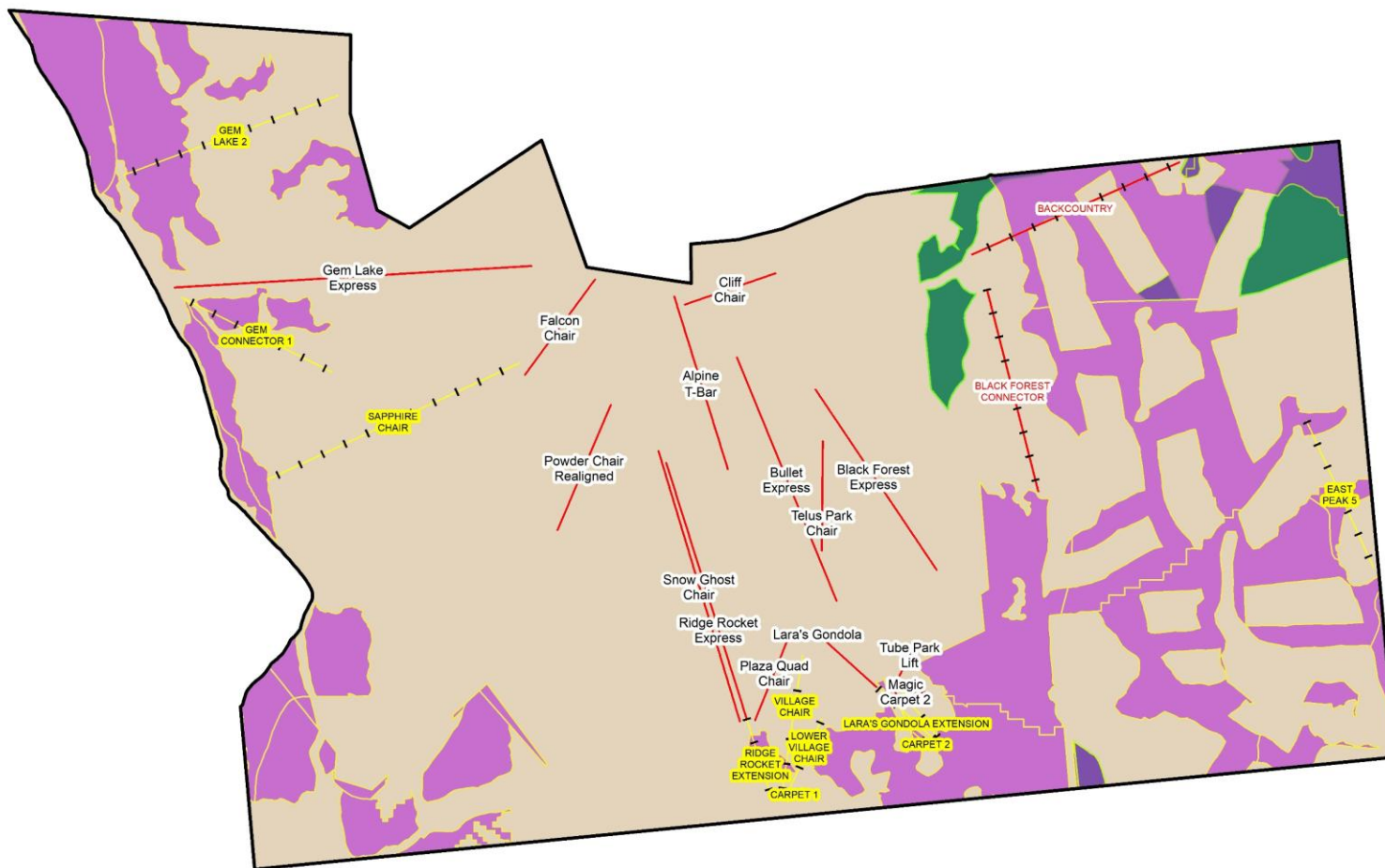


Figure 2. Map showing OGMA in green, OGDA in purple, and OGMA/OGDA overlap in dark purple as it relates to the BWSR CRA.

2.1.1 Relocation Factors

As discussed in Section 1.1 and 1.2, it's important to delineate which Natural Resource District, LU, and BEC the OGDA or OGMA polygon falls into. Without Ministry approval for special circumstances, both OGDA and OGMA replacement areas must fall within the same Natural Resource District, LU, and BEC as the incursion area. When comparing replacement area BEC zones, OGDA polygons should be compared using current V.12 BEC mapping and OGMA should be compared using BEC V.4 mapping.

The Big White CRA overlaps the Okanagan Shuswap Natural Resource District in the Northwest, and the Selkirk Natural Resource District in the South and East.

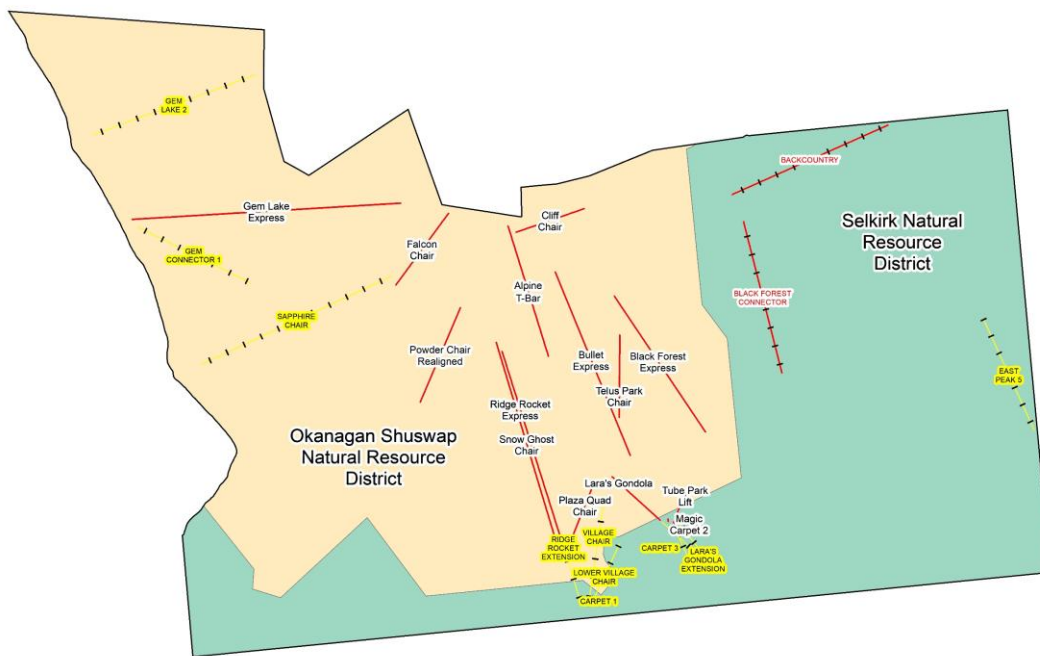


Figure 3. Map showing the location of the Okanagan Shuswap Natural Resource District and the Selkirk Natural Resource District.

The CRA overlaps the Kettle, Trapping, and Rendell LUs.

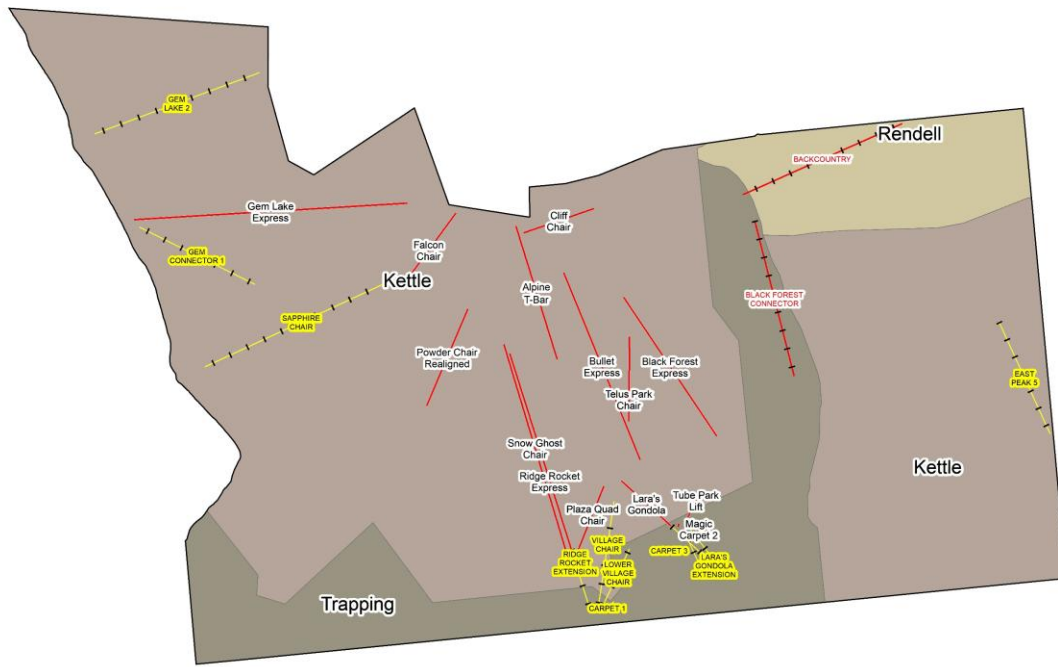


Figure 4. Map showing the overlap of the Kettle (brown), Rendell (tan), and Trapping (green) LUs.

BEC subzones and variants (V.12) that overlap the CRA include ESSFdc1, ESSFdc2, ESSFdcw, ESSFdcp, ESSFmh, and MSdm1. At the time of this report, V.12 is current version of BEC mapping.

BEC Metrics within CRA	
BEC Zone	CRA Overlap (ha)
ESSFdc1	1344.4
ESSFdc2	703
ESSFdcw	410.3
ESSFdcp	220.6
ESSFmh	448.2
MSdm1	36.5

Table 3. BEC Zone metrics within the CRA

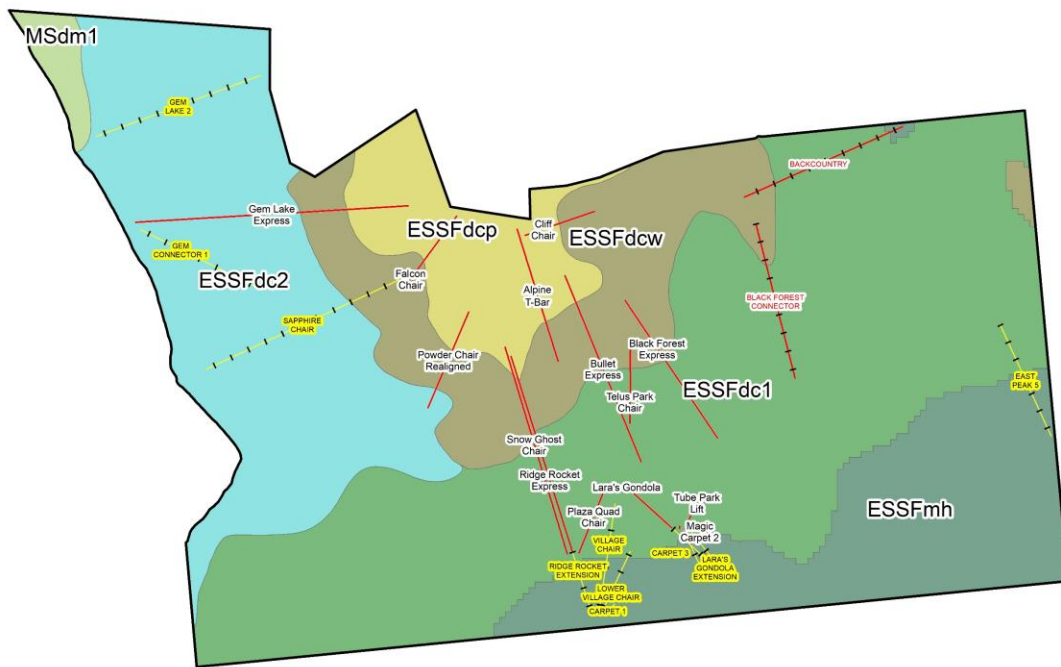


Figure 5. Map showing the overlap of BEC V.12 subzones/variants.

There are three major forest licensees whose operating areas overlap the BWSR tenure: Interfor Corporation, BCTS, and Weyerhaeuser Company Ltd.

The major licensee overlapping all the OGMA within the Big White Ski Resort Tenure areas is Interfor Corporation. OGDA within the Big White CRA overlaps BC Timber Sales – Okanagan in the west, Interfor Corporation in the east and south, and Weyerhaeuser Company Ltd in the north.

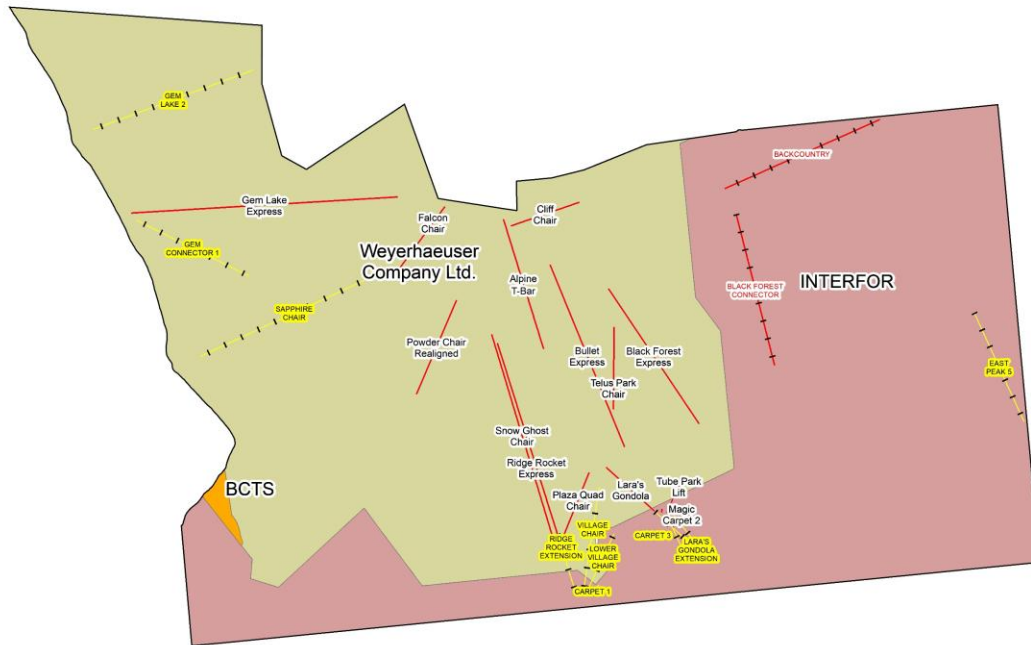


Figure 6. Map showing overlap of major Forest Licensee operating areas with BCTS in orange, Weyerhaeuser in tan, and Interfor in red.

When considering BEC subzones and variants for OGDAs verification and replacement, the current BEC V.12 should be used under current guidance. At the time of this report, OGDAs overlap the ESSFdc1, ESSFdc2, ESSFmh, and MSdm1 BEC zones. No OGDAs are currently allocated to ESSFdcp or ESSFdcw, these are the high elevation open forest types which generally do not contain merchantable timber and were not included in the TAP analysis.

OGDA Area Overlap Within Each BEC Subzone (V.12)	
BEC Zone	CRA (ha)
ESSFdc1	366.2
ESSFdc2	168.8
ESSFmh	205.1
MSdm1	35.4
Total (ha)	775.5

Table 4. OGDAs area overlap within each BEC subzone/variant using V.12 mapping.

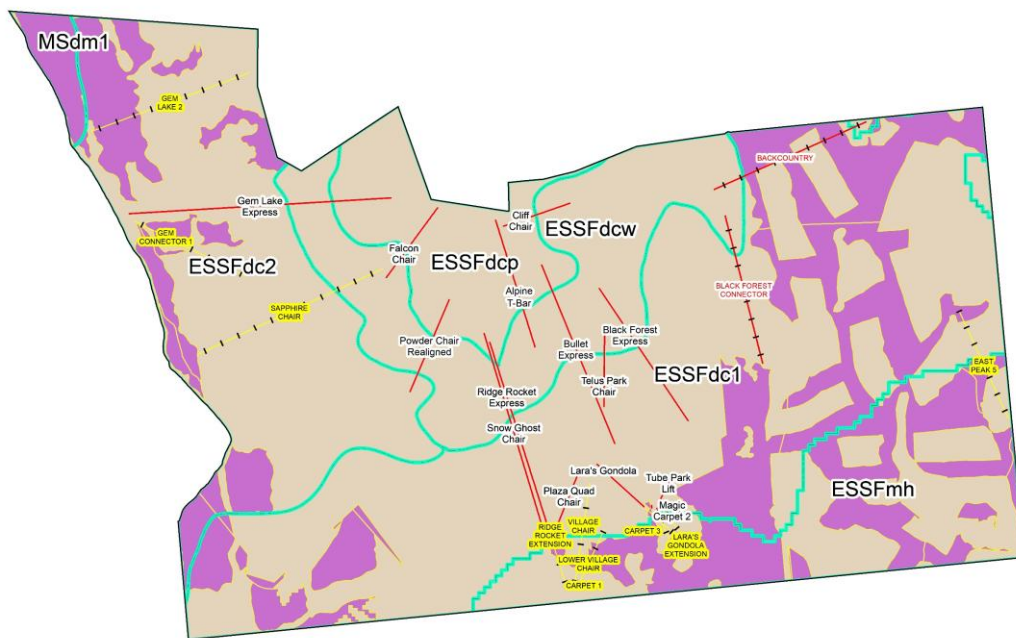


Figure 7. Map showing BEC V.12 subzone boundaries in teal as it relates to OGDAs (purple).

As OGMA allocation is based on BEC V.4, the overlap with V.4 subzone and variants should be considered when for OGMA replacements. The CRA overlaps ESSFdc1, MSdm1, and ATunp BEC V.4 areas. OGMA is allocated to all of these subzones and variants except for ATunp as it's defined as Alpine Tundra – Unproductive. The high elevation forests were not included in the original OGMA allocation.

OGMA Area Overlap within each BEC Subzone (V.4)	
BEC Zone	CRA Overlap (ha)
ESSFdc1	88.2
MSdm1	-

Table 5. OGMA area overlap within each BEC subzone/variant using V.4 mapping.

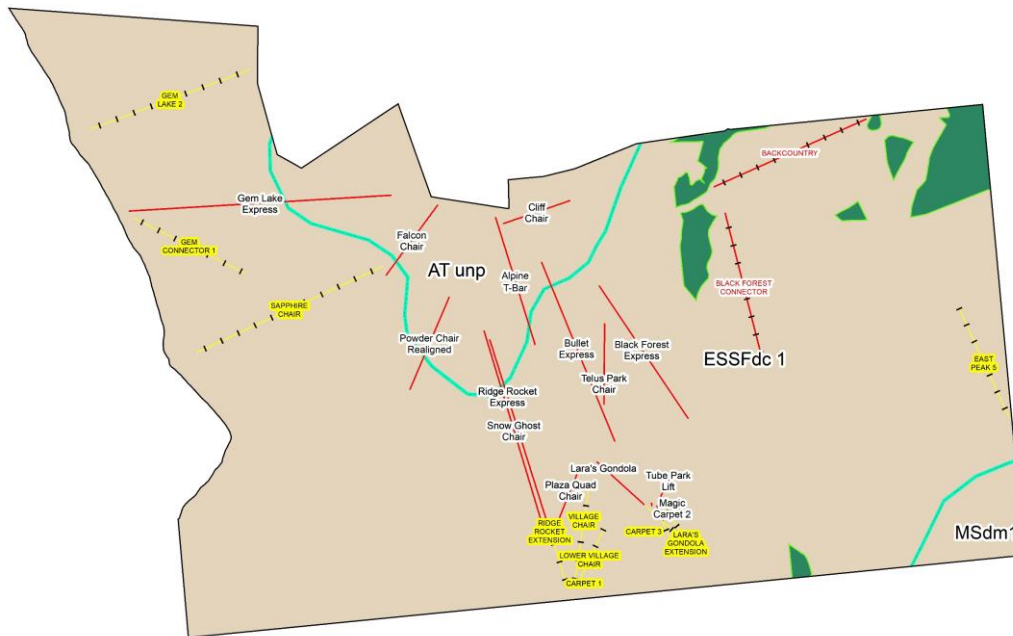


Figure 8. Map showing BEC V.4 subzone/variant boundaries in teal as it relates to OGMA (green).

2.2 Old Growth Overlap with Planned and Proposed Development Phases

Under the proposed 2025 Report Master Plan, planned development falls into larger designated areas which are either classified as ski pods or real estate development areas. The ski pods include development for ski terrain including lifts and associated clearing areas, parking areas, ski runs, and glading areas. Real estate development areas include proposed and planned real estate development including single and multi-family homes lots, industrial areas, RV lots, and associated transportation infrastructure. The ski pod and development areas have been used for this analysis as the location of specific site improvements has not been finalized at the time of this report. Detailed information for planned development within each pod is outlined in the 2025 Resort Master Plan.

Table 6 below outlines the OGMA and OGDA overlap with each ski pod and Table 7 outlines the overlap with real

estate development areas based on the 2019 Resort Expansion spatial within the current CRA. Further analysis of the specific overlaps with areas to be cleared for development should be completed during the OLTC application phase once the exact boundary of cleared areas is known.

Old Growth Overlap with Ski Pod Development			
Ski Pod	Total Pod Area (ha)	OGDA (ha)	OGMA (ha)
A	31.3	3.3	-
C	110.0	4.3	18.5
Existing	994.2	27.4	-
G1	106.4	41.1	1.1
L	127.1	46.9	-
M	42.7	10.6	-
N	113.3	54.5	3.1
P	78.5	23.3	39.9
Q	49.6	16.5	-
R	40.6	2.5	-
S	7.9	6.6	7.9
SP	110.6	0.7	-
Y	13.3	0.8	-
TOTAL	1825.5	238.4	70.5

Table 6. Old growth overlap with ski pods based on the 2019 Resort Expansion Spatial within the current CRA.

Old Growth Overlap with Real Estate Development			
Real Estate Dev.	Total Dev. Area (ha)	OGDA (ha)	OGMA (ha)
Backcountry	39.2	4.7	-
Black Forest	117.4	52.8	0.5
Chateau Blanc	5.7	-	-
East Peaks	70.8	34.1	-
Horsefly Road	14.8	6.3	-
Ridge Valley	9.1	3.0	-
Snowpines	21.3	-	-
Village	70.9	2.2	-
Westridge	122.2	47.7	-
TOTAL	349.3	150.7	0.5

Table 7. Old growth overlap with real estate development based on the 2019 Resort Expansion spatial within the current CRA.

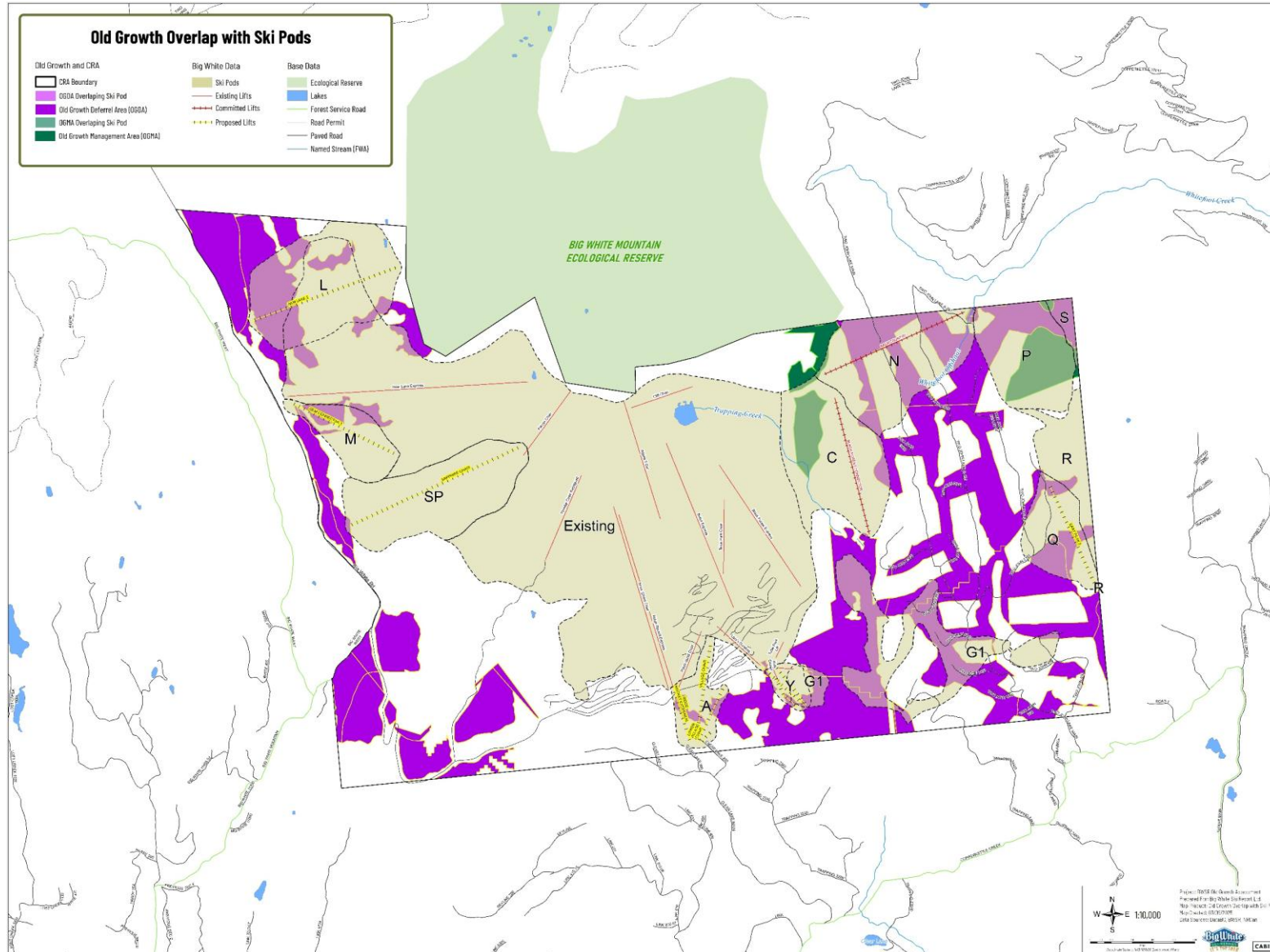


Figure 9. Map Showing OGDA in purple and OGMA in green overlapping proposed ski pods (tan).

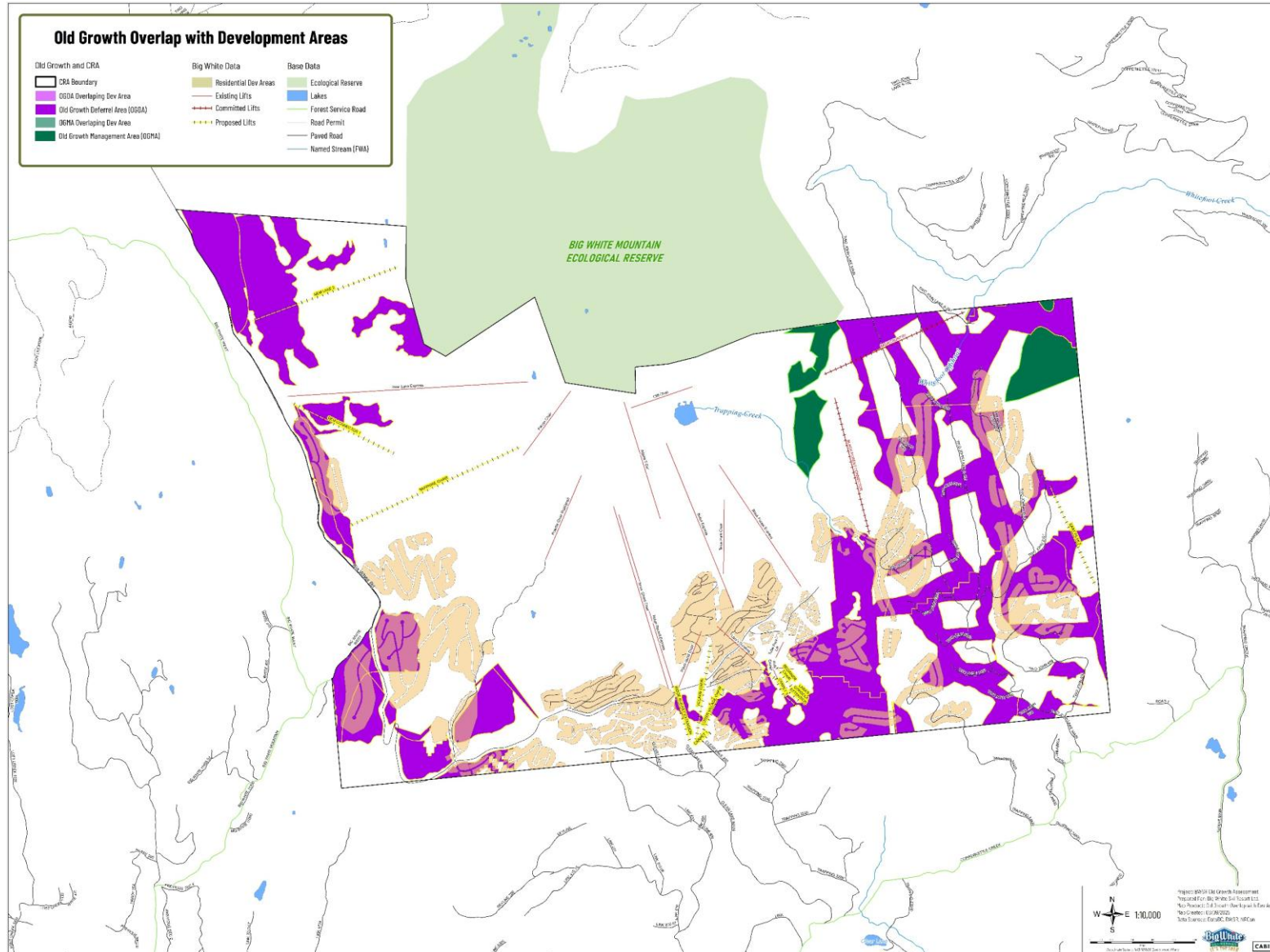


Figure 10. Map Showing OGDA in purple and OGMA in green overlapping proposed real estate development (tan).

OGMA Netdown Summary			
	Netdown Applied (ha)	Provincial Dataset (ha)	Difference (ha)
CRA Overlap	87.6	88.2	-0.6

Table 9. OGMA netdown summary showing negligible change between provincial OGMA and netdown applied OGMA.

3.0 Enhanced Forest Resource Inventory (EFRI)

3.1 EFRI Background, Methodology and Limitations

Prior to field assessments, a desktop analysis was used to identify old growth values using the Technical Advisory Panel parameters for Old Forest Attributes across the CRA. Currently, OGDA and OGMA polygons are mapped using the Province’s Vegetation Resource Inventory (VRI) which is a coarse-scale mapping standard not well-suited to operational planning. As noted in TAP Guidance documents, the placement of OGDAs based on this data is often incorrect leading to the requirement for a field verification process. The province has provided detailed methodology to verify OGDAs and identify replacement areas in the TAP Technical Guidance document. Accurate and precise mapping of old- forest attributes provide further clarity to old growth management decisions that assist with replacement procedures.

To perform verification of the VRI polygons and OGDA values within the CRA, we first used 2015 LiDAR coverage of the forested portion of the CRA and our proprietary LiDAR analysis tools to create an Enhanced Forest Resource Inventory (EFRI). This EFRI analysis mapped the location and height of individual trees then segmented the land base into discrete polygons of forest types with predicted average heights and diameters. As the methodology prescribed by the province requires stratification of proposed replacement areas, the EFRI method was used for efficiency and accuracy over manual mapping methods. Actual tree heights observed in the LiDAR were used to calculate the lorry height (Ht) and predict the quadratic mean diameter (QMD) of each segmented forest type polygon.

The EFRI tool employs LiDAR-derived heights from a CHM to predict critical stand and individual tree parameters, including DBH, volume, and QMD. Individual tree heights are extracted through a segmentation process (e.g., watershed or local maxima approaches) that identifies distinct tree crowns. These height measurements are then run through species- and region-specific allometric equations that were developed based on provincial permanent sample plot data. By calibrating the model to reflect known relationships between height, diameter at breast height (DBH), and species traits, the EFRI method enables more accurate DBH predictions than simple, generic formulas.

Once DBH has been predicted, tree volume estimates and QMD values can be derived. QMD is particularly useful for characterizing stands that contain a wide mix of tree sizes, as it provides an area-weighted average diameter. By analyzing the distribution of predicted DBH values, EFRI effectively captures stand structure and the presence of larger, older trees—critical for old growth evaluations. The diagram below depicts the full workflow. The resulting outputs can then be compared against provincial benchmarks to assess whether stands meet old growth criteria.

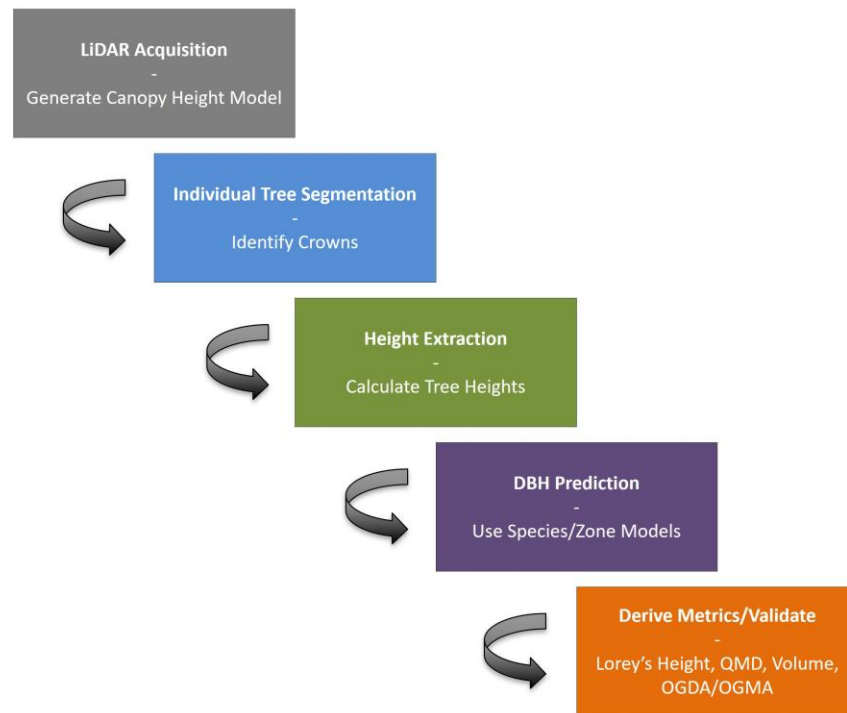


Figure 12. EFRI analysis workflow.

Beyond DBH predictions, EFRI can be tailored to specific forest conditions by using zone- and species-specific models for more reliable results. However, the accuracy of these models depends on the quality and representativeness of data used in calibration. Forest types or elevations lacking sufficient permanent sample plot data may see reduced precision in the EFRI outputs. Additionally, while LiDAR provides a cost-effective, spatially comprehensive way to assess canopy structure, variations in LiDAR return density, acquisition timing, and forest canopy complexity can introduce additional uncertainty into tree height and subsequent DBH predictions.

The EFRI data in the context of this project, was then compared to minimums set out in Provincial OGDA Guidance. Following an EFRI based desktop analysis, existing OGMA/OGDA polygons were then targeted for field verification based on their conformance to the deferral criteria. Additionally, several possible recruitment/replacement areas were targeted for field verification.

While the EFRI tool provides a comprehensive analysis of the entire CRA land base using the LiDAR derived CHM, there are several limitations in the context of this project. First, Big White does not have access to LiDAR coverage for the entire CRA area, limiting the area where EFRI can be used. This gap exists in the portion of the CRA where Interfor operates, it's recommended to obtain an info share agreement or purchase the LiDAR data for this area for future resort planning and analysis projects. Second, as Cabin's EFRI models are based on data collected from provincial permanent sample plots, the accuracy of these models is associated with forest types with more sample plot data. As sample plots tend to be skewed towards merchantable forest areas, the accuracy of model predictions at high elevations with non-merchantable trees is reduced. Lastly, age which EFRI cannot directly measure plays an important role in old growth determination emphasizing the importance

of field verification. For the purpose of this project, age was extrapolated from VRI data.

3.2 EFRI Derived Old Growth Polygons

The EFRI derived polygons contain QMD and lorry height to create a prediction model for potential old growth areas using OGDA requirements. By using the same metrics as the provincially mapped ODGA with the enhanced accuracy of LiDAR produced EFRI polygons, an EFRI derived old growth dataset was created. To create this dataset, the ages from each overlapping VRI polygon were first averaged and applied to each EFRI polygon. Next, the EFRI polygons with ages below the older mature age for the corresponding BEC subzone/variant were removed from the dataset. Finally, the EFRI polygons that did not meet the minimum old or older mature height, or did not meet the minimum old or older mature QMD within each BEC subzone/variant were removed. The resulting dataset only included EFRI polygons that met the age and either the QMD or lorry height for the associated BEC in Table 8.

The resulting EFRI derived old growth was reviewed and compared to the provincial OGDA layer. While there are significant overlaps between the layers, additional area outside of provincial OGDA was identified that can be further analyzed as potential replacement area. Additionally, where EFRI derived old growth was not identified within provincially mapped OGDA polygons, there is a high likelihood that field verification will reveal they are not OGDA polygons.

BEC subzone/variant	NDT	Ancient Age (>)	Old Age (>)	Older Mature Age (>)	Remnant Old Ecosystems	Old Min Heights	Old Min QMD	Older Mature Min Height	Older Mature QMD
ESSF dcw	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
ESSF dcp	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
ESSF dc1	NDT2	400	250	200	All	27	25	-	-
ESSF dc2	NDT3	250	140	120	Some LUs	27	30	-	-
ESSF mh	NDT2	400	250	200	All	All	All	28	28
ICH mk1	NDT3	250	140	120	Some LUs	32	31	-	-
MS dm1	NDT3	250	140	120	Some LUs	24	24	-	-

Table 10. Priority old forest criteria for Ancient, Remnant, and Big-treed old growth by BEC subzone/variant (V.12).

3.3 Identifying Potential Replacement Areas

As part of the desktop analysis, replacement areas for proposed incursions into OGMA and OGDA within the CRA were identified. First, potential replacement polygons were delineated with the EFRI derived old growth polygons. These polygons and surrounding areas were then reviewed by a forest professional to confirm the potential within the EFRI forest types, as well as to expand to logical boundaries. Finally, the entire CRA was reviewed using available data to look for potential replacement areas that may not have been identified during the EFRI analysis. Proposed BWSR development, the CRA boundary, forestry development, connectivity, LiDAR CHM, aerial imagery, and the vegetation resource inventory were taken into consideration. The resulting

replacement areas included forests that Cabin felt were worth verification.

4.0 Field Sampling

4.1 OGDA Stratification into Sampling Forest Types

Prior to developing a sampling plan, the OGDA areas had to first be stratified into forest types as specified in [the Interior Timber Cruising Manual](#). Following TAP guidance, OGDA stands must be stratified to reflect forests where more than one ecosystem or forest type is present. However, as the types delineated here are used for assessments in all future OGDA verification steps without amendments, this stratification is to be completed prior to field sampling. Stratification for OGDA sampling is typically an office-based exercise that is sometimes confirmed with a field level reconnaissance.

The stratification process for ODGA is based on the procedures for delineating cruise types in the Interior Cruising Manual. As described in TAP guidance, stratification should reflect:

- **Changes in BEC**, where cut blocks are stratified when they cross BEC subzone/variant lines.
- **Forest Type**, including changes in stand structural condition such as successional structural stage, tree sizes, stand volume, tree species changes, and/or varying densities of veteran tree layers (where present); and/or
- **Stand age**, where ancient, old, older mature, and younger portions of the stand are assessed separately.

Using available data including, LiDAR, aerial imagery, local domain knowledge, BEC mapping, existing Vegetation Resource Inventory data, and EFRI results, OGDA polygons within the BWSR CRA has been stratified into forest types. For consistency and future data analysis with EFRI results, the boundaries of each sampling forest type follow EFRI stand segmentation polygon boundaries. Note that these types were originally drawn over a conceptual CRA expansion, as a result plots and types may not be consecutive. Small non-productive areas such as road right-of-ways and both natural and man-made existing openings were typed as "NP" in the stratification process. A total of 65 individual forest sampling types were created not including NP areas.

As EFRI polygons are typed at a smaller scale than forest types used for cruise plan design, the EFRI forest types were merged into larger forest types using the delineation methods used in the cruise manual. This resulted in the sampling forest types being a logical size to sample using standard 100m grids in future sample planning. Where the EFRI forest types average 1-3 ha in size, the sampling forest types average 10-20ha in size.

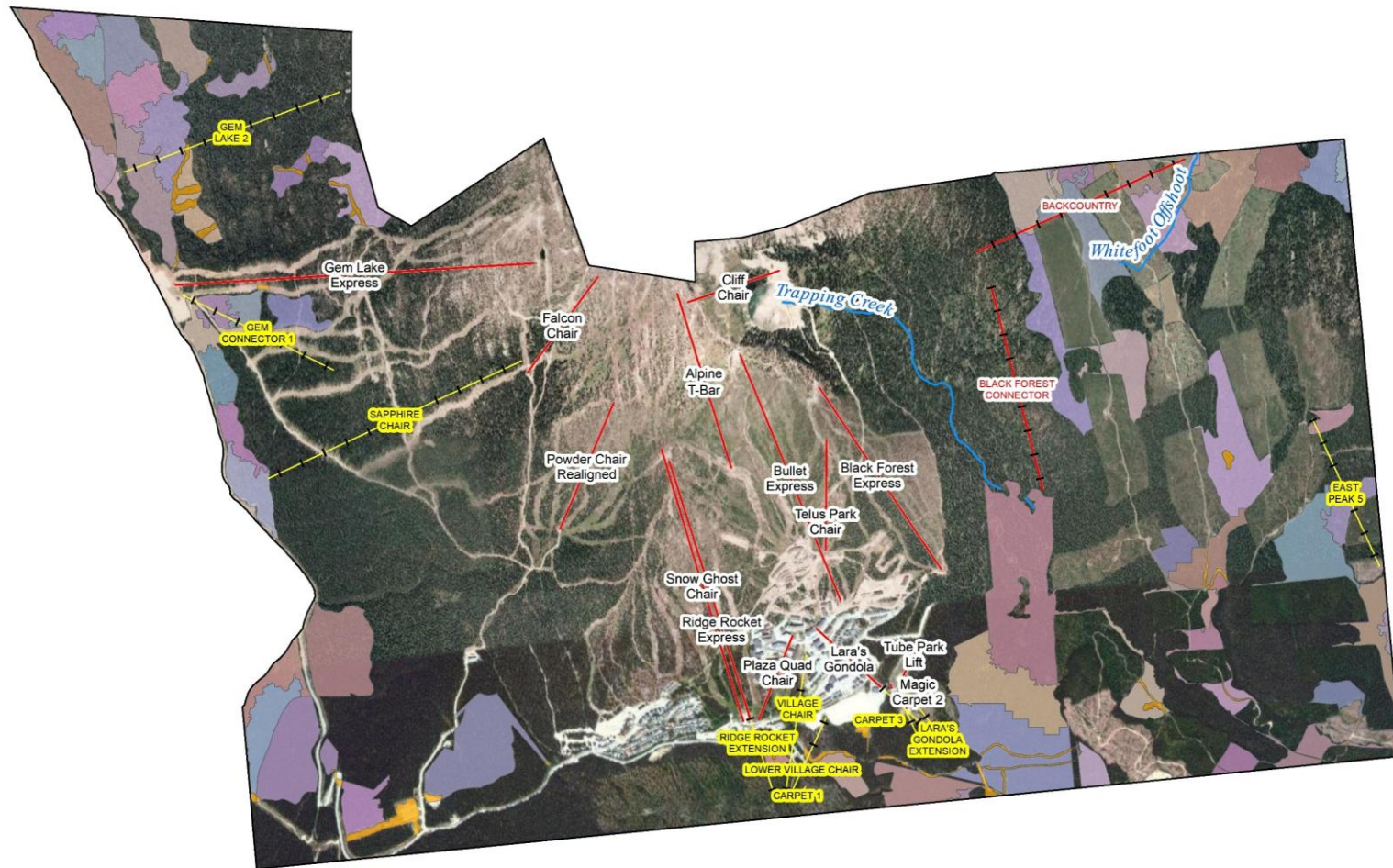


Figure 13. Map showing cruise stratification types in brown and purple as they overlap OGDA with netdown applied. Non-productive areas removed from the cruise types are shown in orange.

4.2 Sampling Design

A sample plan for collecting sufficient field data within the Big White CRA to guide future management decisions was developed following the EFRI analysis. Cabin laid out a local 300m x 300m grid over the entire CRA using the process described in the BC Interior Timber Cruising Manual. Plots were planned where grid intersections fell within OGDA, OGMA, or replacement area polygons. After all 300m grid plot locations were delineated, an ocular assessment identified several gaps in the sampling plan. In these areas, additional plots were added on a 100m x 100m grid based on the sample local grid. It should be noted that the original sampling plan covered a conceptual CRA expansion area, therefore plot numbers may not be sequential.

This sampling plan resulted in a total of 82 plots. Cabin determined that the 300m grid would best maximize the efficiency two timber cruising crews for two weeks when following field data collection standards set out in the TAP Technical Guidance, as well as regional OGMA replacement guidance. The purpose of this sampling was not to provide complete OGDA rationales for all stratification types, but to provide guidance to Big White, MRB, and additional stakeholders for the management and future sampling needs of old growth within the CRA areas. In combination with the EFRI analysis, field data collected at these sample plots provides guidance for decision making, while ensuring that the time spent collecting field data can contribute to future professional OGDA and OGMA replacement rationales.

To meet the requirement for a full OGDA professional rationale document, the TAP ["Field Verification of Priority Old Forest Deferral Areas: Technical Guidance"](#) document specifics methodologies for sample plan design that's derived from the current version of the BC Interior Timber Cruising Manual. The TAP guidance document describes the number of plots required based on stratified forest types as described in Section 3.2. Forest types over 20ha must have a minimum of 20 full measure cruise plots or a density equivalent to a 100m x 100m grid, and a forest type less than 20ha should have a density of measure plots equivalent to a 100m x 100m grid. This sampling plan was laid out to allow any additional future sampling to follow the same design by filling in the remaining plots 100 and 200m away, reducing future data collection necessary.

Plots were numbered and assigned a category based on the old growth type they landed in to guide the specific field data collected. Where OGDA information was required, data was collected using old growth field verification tables provided by the Ministry. Where OGMA information was required, Old Growth Scorecards as provided by MRB were tallied based on the BEC zone the plot fell in. Note that no card for ESSFmh, ESSFdc1, or ESSFdc2 was provided so ESSFwm was used as it is the closest ESSF subzone.

The plot types include OGDA, OGMA, Hybrid, and Replacement. Hybrid plots land where both OGDA and OGMA occur, and field cards for both old growth types were collected. As replacement areas were identified as having potential for both OGMA and OGDA replacement, replacement plots are treated the same as Hybrid plots with both OGMA and OGDA data collected.

Access for sample plots in the western half of the CRA is from Big White Road or resort access roads. Plots within the eastern half of the CRA is through gated access in the resort or from Trapping Creek FSR via Highway 33. From Trapping Creek, Whitefoot Rd provides access into the northeast corner of the CRA. Resource roads under road permit and non-status roads provide additional access throughout the BWSR tenure.

Sample Plan Plot Summary	
Plot Type	Quantity
OGDA	75
OGMA	12
Total Plots	82

Table 11. Sample plan plot summary showing the total plots within provincially mapped old growth.

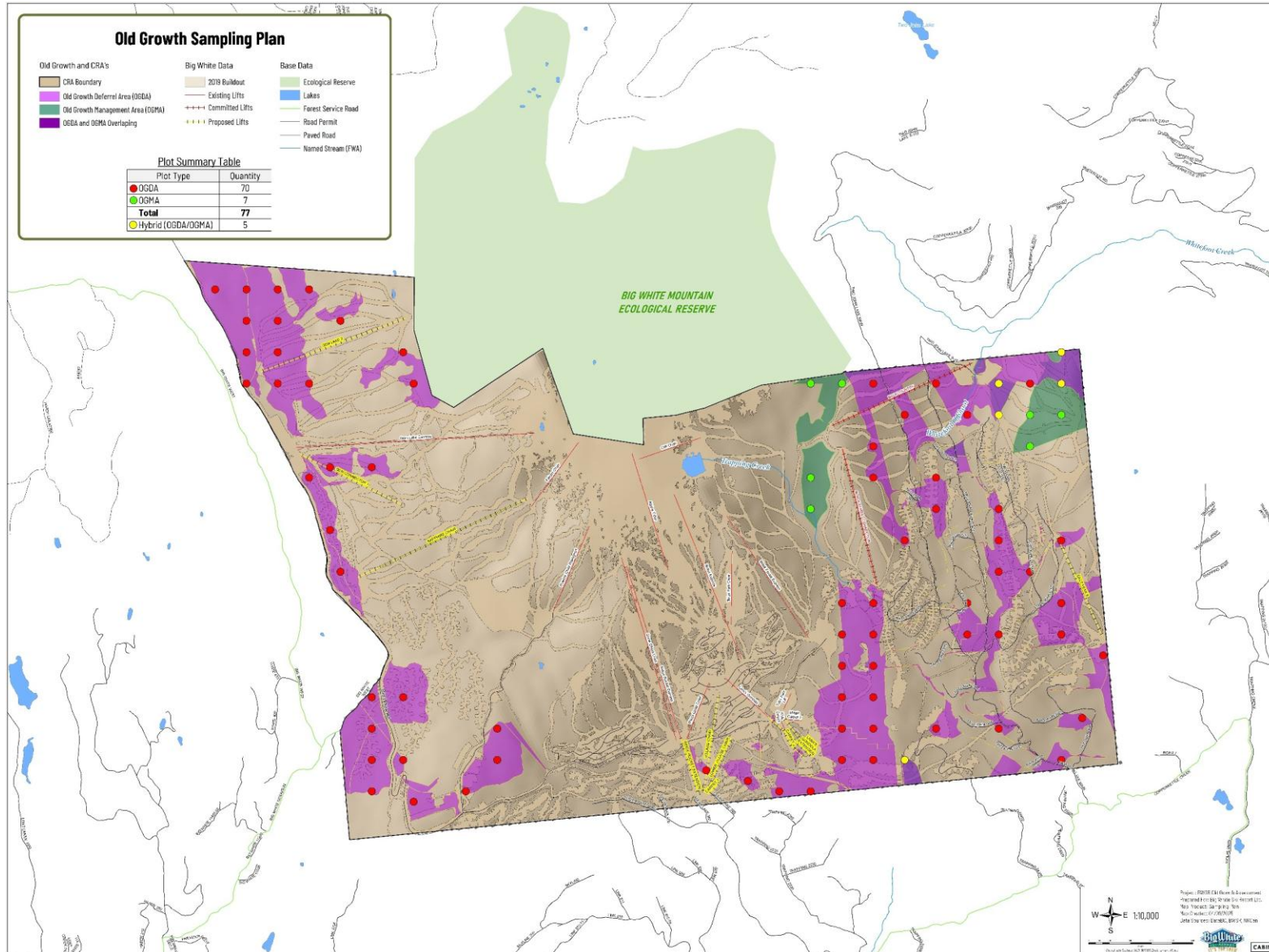


Figure 14. Old growth sampling plan showing planned plots in OGDA (red), OMGA (green), and in both OGDA and OGMA (yellow).

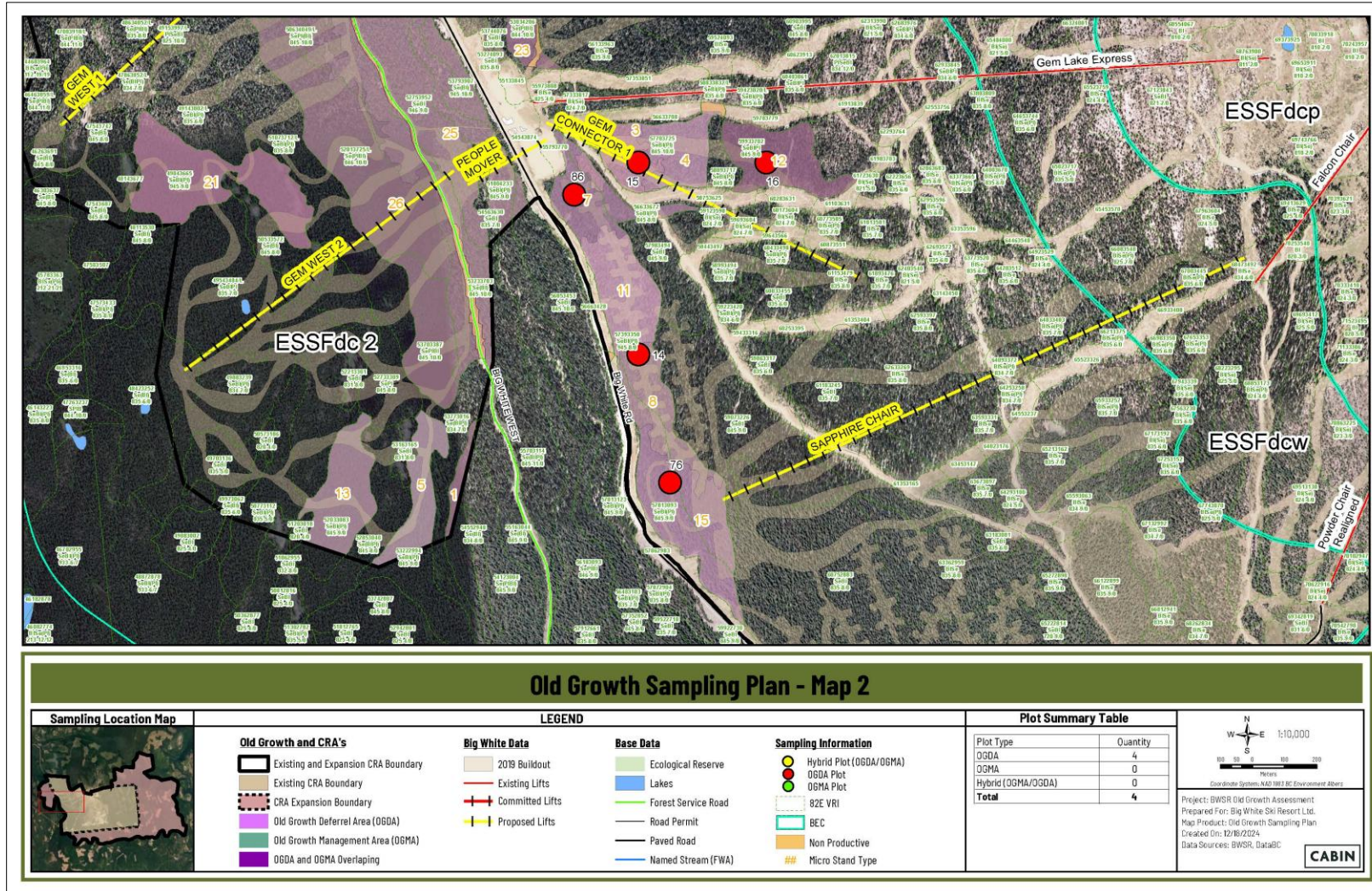


Figure 15. Example of old growth sampling plan map used for field work.

4.3 Field Sampling Summary

A total of 12 days of field was completed between August 19 and November 8, 2025 using 2-4 people. A total of 62 plots were sampled with 3 OGMA plots, 56 OGDA plots, and 3 hybrid (OGMA and OGDA) plots completed. The original sample plan was designed to provide excess sample plots for the possibility that crew production exceeded expectations. Access challenges and weather/terrain limited the number of plots that could be sampled each day.

The majority of field sampling was completed snow free, however three crew days were completed with 10-20cm of snow. As part of BWSR First Nations engagement, Zena Eli from Westbank First Nations Natural Resource field team joined Cabin’s field crew from September 3-8.

Sample Plan Completed Plot Summary		
Plot Type	Quantity	Completed
OGDA	70	56
OGMA	7	3
Hybrid (OGDA/OGMA)	5	3
Total Plots	82	62

Table 12. Sample plan plot summary showing the total number of completed plots.

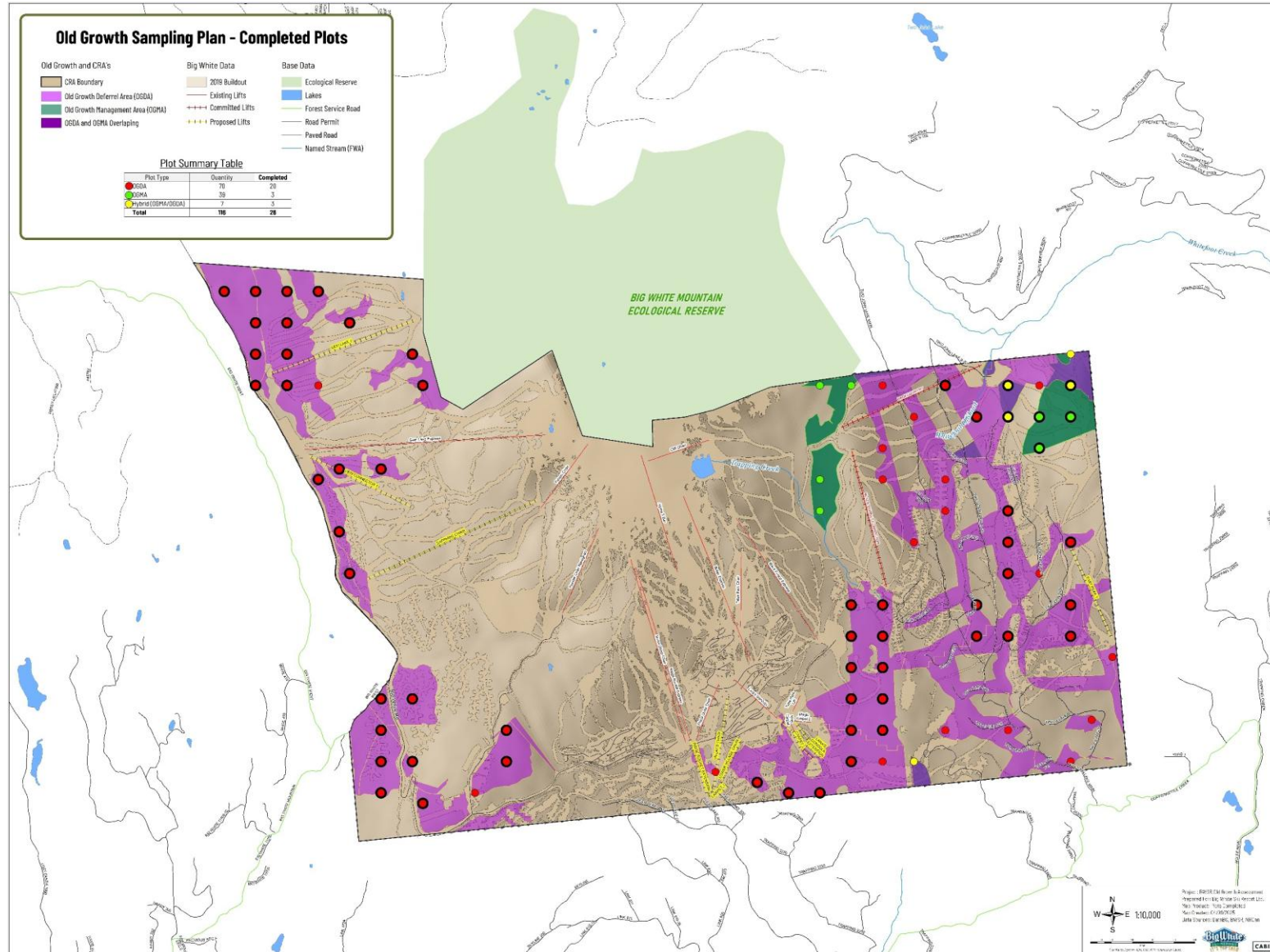


Figure 16. Map showing completed plots with black outline around plot symbol.

5.0 Results

5.1 OGDA Initial Sampling Results

5.1.1 EFRI Old Growth Validation

EFRI derived old growth can assist with identifying Big Treed Old Growth (Old and Old Mature) as they are associated with QMD and lorry Height measurements. It should be noted that the LiDAR data was collected during or before 2015, therefore an additional 10 years of growth has not been accounted for within the modeled QMD and lorry Height. While minimal growth tends to occur in high elevation old growth stands, this should be considered with EFRI results.

The EFRI identified old growth was reviewed within both provincially identified OGDA polygons and outside mapped OGDA in areas that could be potential replacement area. A total of 352.7ha of EFRI OGDA overlaps the 653.7ha provincial OGDA within the CRA. EFRI also identified 222.2ha of potential old growth outside of the provincial OGDA layer. These areas have been identified as potential old growth replacement areas to be considered for future sampling and discussions with MRB.

EFRI Old Growth			
Type	OGDA – Netdown Applied	EFRI old growth w/in OGDA	EFRI old growth not w/in OGDA
CRA Overlap (ha)	612.6	352.7	222.2

Table 13. EFRI old growth validation with field sampling data.

Total EFRI Old Growth per BEC	
BEC Zone	(ha)
ESSFdc1	302.6
ESSFdc2	176.7
ESSFdcw	-
ESSFdcp	-
ESSFmh	66.2
MSdm1	29.3
Total	574.8

Table 14. EFRI old growth as it overlaps BEC V.12, this includes areas within and outside of mapped OGDA.

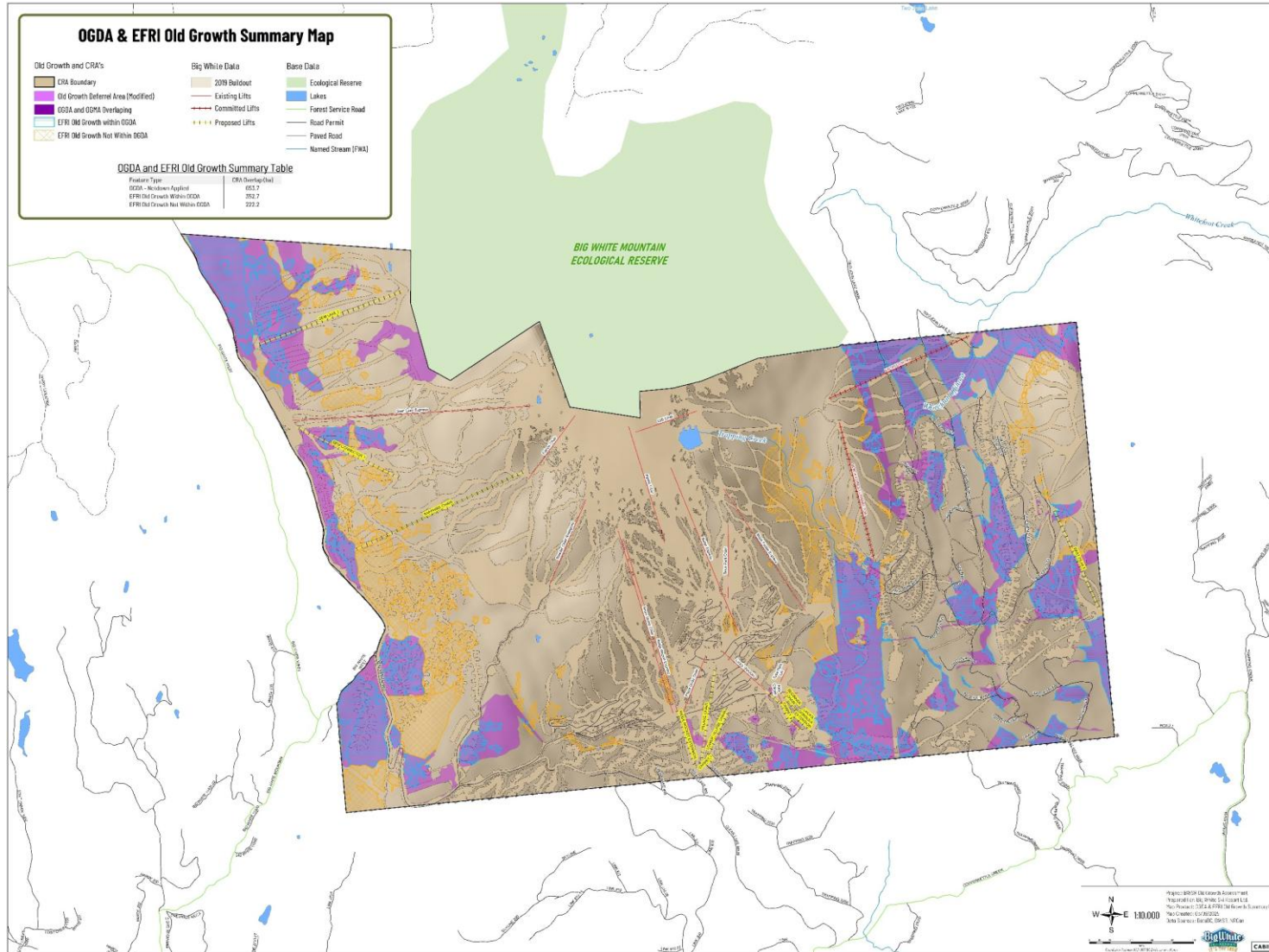


Figure 17. Map showing EFR1 derived old growth. EFR1 old growth within provincially mapped OGDA polygons is blue and potential replacement areas are orange.

5.1.2 Provincial OGDA Field Verification

The plots that landed within provincial OGDA area were reviewed according to the TAP OGDA Field Verification Guidance requirements. Plots were recorded in the ministry provided forms which summarize lorry Ht and QMD by plot, as well as correcting field collected ages. These values were compared to the values in Table 8 with the steps outlined in Table 1 to determine whether the plot will contribute to OGDA classification.

The first step in analyzing OGDA field data is to look at the stand age which is measured using the five oldest trees sampled within the forest sampling type. Next, the QMD and lorry Height from field data was compared against the values in Table 8. As the QMD and lorry Height are based on all trees sampled on a 100m x 100m grid, it's expected that these values will vary with additional field sampling data. Since the EFRI analysis considers every tree in the stand, the EFRI QMD and lorry Height were also considered in this step of the analysis.

Plots were first reviewed individually, then compared across forest sampling types. Each type was categorized based on whether it met, or is likely to meet with further sampling, the Ancient, Old, Older Mature, or Remnant Old minimum OGDA values. Where available data was inconclusive and types indicated there was a possibility of meeting OGDA minimum requirements, types were classified as "Partially Met". Where no values were close to meeting OGDA minimum requirements, types were classified as "Not Met". Types without sufficient plot data were classified as "More Field Sampling Needed".

Although the QMD and lorry Height require data from more intensive field sampling designs, age requirements only require 5 trees within the type to exceed the minimum requirements. As there are no QMD/Ht requirements to meet "Ancient" old growth, sufficient field data has been gathered in several polygons where at least 5 trees over the minimum age threshold had been sampled. While the majority of the field sampling data represents the initial sampling result to guide future data collection, further field sampling is not required to confidently meet minimum ODGA requirements in these types. The "Further Sampling Required" column in Table 9 below indicates "N" where forest types have sufficient data to confidently meet the old forest type in the "Initial Sampling Result" column.

Forest Type	Sampled (Y/N)	Plots Completed/ Total Plots	Initial Sampling Result	Further Sampling Required (Y/N)
2	N	0	Insufficient Sampling	Y
3	N	0	Insufficient Sampling	Y
4	Y	1/1	Old Growth Not Met	Y
6	N	0	Insufficient Sampling	Y
7	Y	1/1	Ancient	Y
8	Y	1/1	Big Treed Old	Y
9	Y	1/1	Big Treed Old	N
10	N	0	Insufficient Sampling	Y
11	N	0	Insufficient Sampling	Y
12	Y	1/1	Ancient	Y
14	Y	1/1	Big Treed Old	Y
15	Y	1/1	Big Treed Old	Y
16	Y	1/1	Big Treed Old	Y
17	Y	2/2	Ancient	N
18	Y	1/1	Big Treed Old	Y
19	Y	1/1	Big Treed Old	N
20	N	0	Insufficient Sampling	Y
22	Y	1/1	Big Treed Old	Y
23	Y	1/1	Ancient	N
24	Y	1/1	Big Treed Old	N
27	Y	1/1	Old Growth Partially Met	Y
29	N	0	Insufficient Sampling	Y
30	N	0	Insufficient Sampling	Y
31	Y	1/1	Old Growth Not Met	Y
35	N	0/1	Insufficient Sampling	Y
36	Y	1/1	Old Growth Not Met	Y
37	Y	2/2	Remnant Old Ecosystem	N
38	N	0/1	Insufficient Sampling	Y
39	N	0/1	Insufficient Sampling	Y
40	N	0	Remnant Old Ecosystem	Y
41	Y	2/2	Insufficient Sampling	Y
42	N	0/1	Insufficient Sampling	Y
43	N	0/3	Insufficient Sampling	Y
44	Y	2/2	Remnant Old Ecosystem	Y
45	Y	4/4	Remnant Old Ecosystem	N
46	Y	3/3	Remnant Old Ecosystem	N
47	Y	1/1	Remnant Old Ecosystem	Y
48	Y	2/2	Old Growth Partially Met	Y
49	N	1	Insufficient Sampling	Y
51	Y	7/7	Remnant Old Ecosystem	N
52	Y	3/3	Ancient	Y
53	N	0	Insufficient Sampling	Y
54	Y	1/1	Big Treed Old	Y

Forest Type	Sampled (Y/N)	Plots Completed/ Total Plots	Initial Sampling Result	Further Sampling Required (Y/N)
55	Y	1/1	Old Growth Not Met	Y
57	N	0/1	Insufficient Sampling	Y
58	Y	1/1	Old Growth Not Met	Y
59	Y	2/2	Older Mature	Y
60	N	0	Insufficient Sampling	Y
70	Y	2/2	Remnant Old Ecosystem	Y
71	N	0/2	Insufficient Sampling	Y
73	N	0/1	Insufficient Sampling	Y
74	N	0/1	Insufficient Sampling	Y
76	N	0/1	Insufficient Sampling	Y
77	N	0/1	Insufficient Sampling	Y
78	N	0/1	Insufficient Sampling	Y
79	N	0	Insufficient Sampling	Y
80	N	0	Old Growth Not Met	Y
81	N	0	Insufficient Sampling	Y
82	Y	2/2	Older Mature	Y
83	N	0	Old Growth Not Met	Y
84	N	0/1	Insufficient Sampling	Y
85	N	0/1	Insufficient Sampling	Y
86	Y	2/2	Insufficient Sampling	Y
87	N	0	Older Mature	N
105	Y	0/1	Old Growth Not Met	Y

Table 15. OGDAs field sampling initial results.

5.2 OGMA Results

OGMAs are prescribed by old growth targets in landscape level plans including the OSLRMP and KBHLPO. The current OGMA polygons have been mapped to meet these targets. Therefore, unlike OGDA, there is no field verification method that can be used to reclassify the area as not being OGMA. Instead, the only way for an area to lose its OGMA classification is for it to be relocated with a replacement rationale approved by the ministry. For OGMA to be relocated, the replacement area must fall within the same BEC subzone and variant, as well as the same LU. The replacement area must contain equivalent or better old forest values and align with old growth targets.

Depending on regional requirements, OGMA replacement rationales may require ground truthing. The Kootenay Boundary Natural Resource District uses Old Growth Scorecards which are completed in the field to assess old forest values quantitatively. The resulting old growth score can be compared to another sample plot within the same BEC subzone. Higher values indicate higher old forest values allowing forests within the same BEC zone to be compared.

While finding suitable replacement area for OGMA that overlaps the CRA is outside the scope of this report, any sample plots that fall into OGMA were assessed using these scorecards to collect an old growth score. The old growth scores for the plots below can be used when analysing future replacement options, as well as providing a general comparison indicating old growth quality throughout the sampled areas.

OGMA ID	Plot ID	Score
DSE 6341	91	18
DSE 6341	97	17
DSE 6341	98	17
DSE 6341	112	18
DSE 6549	96	28
DSE 6549	110	28

Table 16. OGMA Scorecard results for each field sample plot completed by OGMA polygon ID.

5.2.1 OGMA Field Observations

OGMA was generally composed of a mix of hybrid spruce (Sx), Lodgepole pine (Pl), subalpine fir (Bl), with Douglas Fir (Fd)/western Larch (Lw) pockets at lower elevations. Ages range from 120-250 years, isolated patches of trees averaging under 100 years on the rocky slopes where poor growing conditions exist. Tree diameters decrease at higher elevations, with 0-10 stems per hectare >50cm. Snags and coarse woody debris are common throughout the mapped OGMA with mountain pine beetle, balsam bark beetle, and abiotic forest health factors contributing to higher mortality levels.



Figure 19. Example photos of mixed Spruce, Subalpine fir, and Pine forests found in OGMA.

6.0 Moving Forward with Ski Resort Development in Old Growth

6.1 Proposed Mitigation Measures within Mapped Old Growth Areas

Where proposed development overlaps mapped old growth, whether it's OGMA or OGDA, finding suitable replacement areas containing equivalent or better-quality old forest ecosystems is generally the preferred approach. However, where suitable replacement options aren't available or identified, BWSR could propose mitigation strategies to manage the old growth values within the CRA. The intent of these proposed strategies is to manage proposed ski resort development and old forest values together within the mapped old polygons. These suggestions can be used to guide MRB and regional old growth experts, however there is no known precedent for the approval of such measures with the current old growth management standards. It should be noted that development should follow the best management practices of the day as old growth management strategies continue to evolve.

Throughout the geospatial analysis, field sampling, and synthesizing results for this report, several mitigation measure options were identified. Strategies to reduce impact of proposed development within mapped old growth polygons:

- Use EFRI results, LiDAR CHM, orthoimagery, and field sampling results to identify highest value old growth areas and adjust proposed development plan to reduce development footprint in these areas
- Prioritize retaining areas identified as Ancient or Remnant Old OGDA
- Prioritize retaining OGMA with higher relative OGMA scorecard scores
- Minimize the number and width of ski runs in old growth areas
- Where possible, adjust lift locations to minimize impacted old growth area
- In proposed glading areas, maintain the largest and oldest trees prioritizing cutting trees under 30cm DBH
- When retaining younger smaller trees, leave retention in a clumped distribution rather than an even distribution to mimic old forests and enhance skiability
- Leave coarse woody debris and snags where safe to do so as both contribute to old growth attributes
- Use existing roads and trails where possible for access to minimize new development in old growth, including construction access and snowcat access (cat tracks) for operations
- Plan to retain larger trees around development where possible, such as in the real estate development areas, rather than removing all trees from site in the construction phase
- Maintain appropriate buffers around major riparian features where the largest trees and greatest biodiversity occurs
- Manage old growth objectives with forest health and wildfire prescriptions

Additional consideration should be given to areas found to be higher value old growth, riparian areas, or where higher density development is planned.

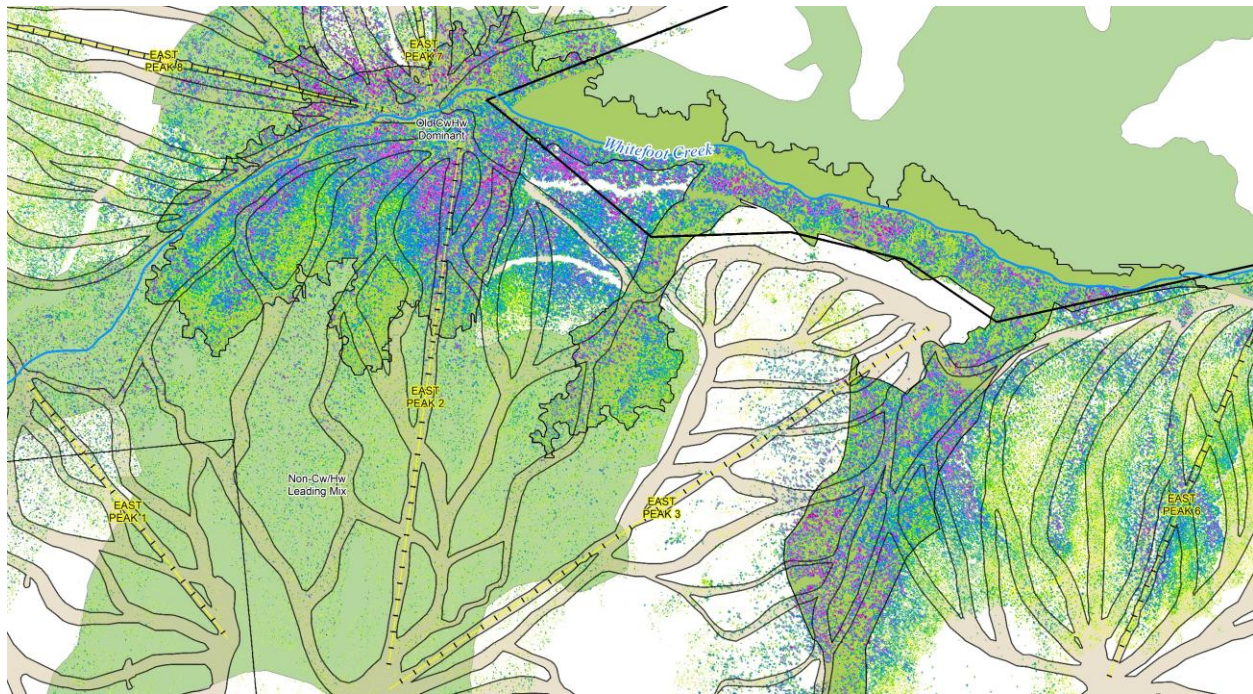


Figure 20. Map showing an example of ski run and lift development with a CHM overlay to use as a resort planning tool.

6.2 Considerations for Replacing Mapped Old Growth

If old growth mitigation measures are determined to be insufficient by MRB, there are several options within the BWSR CRA to manage old growth. Based on ortho-imagery, EFRI Old Growth, LiDAR, and VRI data, the OGMA and OGDA forest types likely extend beyond mapped boundaries in some locations where existing OG polygons could be expanded. For example, there is potential to “fill in” gaps between the lower runs and existing OGDA polygons which maintains improves connectivity without impacting proposed BWSR development. Once lift, run, and access road locations have been finalized, gaps in proposed development with potential old growth attributes could be identified and ground truthed.

While connectivity and patch size will be challenging to maintain, areas between runs may also be considered when working through OLTC's with MRB. The impact of planned development for both summer and winter activities, as well as general resort development will need to be considered as fragmented old growth is generally of lower value. Consider connectivity with existing and proposed old growth where the amount of interior habitat is increased.



Figure 21. Example of gaps in sample ski run development area where there's opportunities to reallocated old growth.

If, after discussions with MRB, replacement areas outside the CRA are necessary additional analysis on the overlapping LU and BEC zones will be required. A query using the VRI could be used to identify potential replacement areas to be discussed with forest licensees and field verified. A sampling plan with procedures identical to this project will be required for data collection in any proposed replacement areas.

Working agreements with any forest licensee that has overlapping operating areas should also be considered when identifying old growth replacement opportunities. Collaborating with these licensees on any old growth analysis/replacement projects will streamline the process and assist both BWSR and forest companies best manage old growth values. For example, when field sampling an EFRI identified potential replacement area outside the CRA boundary, Interfor cutblock ribbon was found indicating this area is planned for harvest. Working with Interfor and BCTS would identify these areas prior to investing time for planning and executing any field work.

7.0 Recommended Next Steps

This report provides an initial analysis of both OGDA and OGMA overlaps within the BWSR CRA. To move ahead with any development in these overlap areas, the following steps are recommended:

1. BWSR should work with MRB and regional old growth experts to determine the preferred approach to managing OG obligations within the CRA. Current recommendations for old growth sampling are listed in 1.a), however it's important to follow Old Growth Best Management Practices of the day.
 - a) At the development/OLTC stage, additional field sampling may be required to further inform MRBs decision making process. The data collected for this report represents a "recce" level approach under OGDA TAP guidance, additional plots to meet the OGDA field verification specifications (plots on a 100m

grid)) may be needed. Refer to forest sample type summary for types where sampling has already collected sufficient information for classifying a polygon as an OGDAs type and types that additional field sampling may be required. Use the sampling plan design for this project to include plots on a 100m grid, filling in the 300m grid sampling design.

2. Follow the Environmental Mitigation Policy for BC approach to mitigate negative impacts to old growth from planned and proposed development:
3. Work to manage old growth values across the CRA. If possible under MRB direction, use proposed mitigation measures outlined in Section 6.1 to assist in managing old growth values. Work with qualified professionals to develop ecosystem and forest type specific prescriptions for ski run and glading development. These prescriptions should take old growth values into consideration, as well as manage for wildfire risk and forest health.
4. When managing for protection of biodiversity and old forest values, forest health and wildfire objectives must also be considered. Glading and clearing operations must be done to minimize wildfire hazard at each site and must not exacerbate the incidence of forest health factors.
5. Pursue replacement areas for the proposed incursions:
 - a) BWSR should first look at opportunities within the CRA in areas that don't interfere with proposed development. Prioritize connectivity with existing old growth and larger patch sizes containing old forest values.
 - b) If replacement areas cannot be found within the CRA, a geospatial analysis should be completed of the entire LU/BEC where the OG incursion occurs. At this stage, engaging with the forest licensee whose tenure overlaps the potential replacement areas will be needed to ensure replacement areas are agreeable for both BWSR and the licensee. Forest licensee's will want to ensure that proposed replacement areas will not impact their planned operations. This is especially true in the case of OGMA's which are currently managed under the licensee's FSP as "Non-Legal OGMA".
6. Consider using Big White Old Growth Management as an educational opportunity for the public. There are limited opportunities within the BC Interior for the public to access old growth forest in the front country. Old growth ecosystems at higher elevations such as those found in the ESSF might not be easily recognizable as having old growth values, this is where Big White can use interpretive signage, etc. as an educational opportunity.

At the site level during OLTC applications, it may be determined that OGMA replacement rationales are necessary. In these incursion areas, additional plots may be required if there is significant variability within the forest type. However, additional field sampling in the replacement area will be required so that OGMA scorecard values can be compared with the incursion scorecard values. This information is required in a OGMA Replacement Rationale which is written and signed off by a Forest Professional.

OGDA Rationales are based on the TAP Field Verification of Priority Old Forest Deferral Areas: Technical Guidance document. The OGDA field sampling procedures set out in this guidance document follow the Southern Interior Cruise Manual. Therefore, additional plots will be required for more detailed planning within the incursion areas as well as the replacement areas in order to meet the minimum sampling error as described in the Cruise Manual. The sampling plan for this project used a 300m grid system which samples 1 plot per 9 hectares to collect sufficient information to guide decision making. For the purpose of a professional rationale, additional plots will need to be added on a 100m grid system for a minimum of 1 plot per hectare. The plots sampled for this project can be used, with additional plots added to fill in the remaining 100m grid. This will result in a large number of plots and significant field time; therefore, it's recommended that OGDA verification



requirements are confirmed with MRB prior to field sampling.

As old growth forests generally contain culturally significant values, First Nations engagement is a critical component of development planning. The BWSR master plan will impact multiple mapped old growth polygons, proposed changes to the OGDA/OGMA polygons should be included in referral communication. It's likely that the approach MRB takes to old forest management will be influenced by guidance from First Nation communities. As part of BWSR obligations under Article 31 of the Declaration on the Rights of Indigenous Peoples Act, it's strongly recommended that presence of both OGMA and OGDA within the CRA should be included in discussions.

8.0 References, Data Sources and Abbreviations

8.1 Data Sources

Dataset	Source
LiDAR (2015)	Big White Ski Resort Ltd.
Buildout	Big White Ski Resort Ltd.
Existing Lifts	Big White Ski Resort Ltd.
Committed Lifts	Big White Ski Resort Ltd.
Proposed Lifts	Big White Ski Resort Ltd.
Tantalus Crown Tenures	Data BC
BEC V4 and 12	Data BC
Vegetation Resource Inventory	Data BC
Digital Road Atlas	Data BC
Landscape Units	Data BC
Old Growth TAP Priority Deferral Areas	Data BC
Old Growth Management Area - Non Legal	Data BC

8.2 Abbreviations

Abbreviation	Definition
BCTS	British Columbia Timber Sales
BEC	Biogeoclimatic Ecosystem Classification
BWSR	Big White Ski Resort
CHM	Canopy Height Model
CRA	Controlled Recreation Area
DBH	Diameter Breast Height
EFRI	Enhanced Forest Resource Inventory
FLP	Forest Landscape Plans
FSP	Forest Stewardship Plan
KBHLPO	Kootenay Boundary Higher Level Plan Order
LiDAR	Light Detection and Ranging
LU	Landscape Unit
MDA	Master Development Agreement
MOF	Ministry of Forests
MRB	Mountain Resorts Branch
NP	Non-Productive
OGDA	Old Growth Deferral Area
OGMA	Old Growth Management Area
OKSLRMP	Okanagan Shuswap Land and Resource Management Plan
TAP	Old Growth Technical Advisory Panel
QMD	Quadratic Mean Diameter
VRI	Vegetation Resource Inventory

CABIN

Unit 20A-100 Kal Lake Road
Vernon, BC, V1T 9G1
778-475-3655

BEC Label	Zone	Suzbzone	Variant
ESSFdc1	Engelmann Spruce Subalpine Fir	dry cold	1
ESSFdc2	Engelmann Spruce Subalpine Fir	dry cold	2
ESSFdcw	Engelmann Spruce Subalpine Fir	dry cold woodland	-
ESSFdcp	Engelmann Spruce Subalpine Fir	dry cold parkland	-
ESSFmh	Engelmann Spruce Subalpine Fir	moist hot	-
MSdm1	Montane Spruce	dry mild	1
AT unp	Alpine Tundra	Unproductive	