Current Condition Report for Forest Biodiversity and Old Growth Forests: 100 Mile House Natural Resource District

Appendix 1: Overview of Forest Biodiversity and Old Growth Forest Management in the Cariboo Region

Table of Contents

Forest Biodiversity and Old Growth Management in the Cariboo Region 2
Biodiversity Management in the Cariboo Region 2
High Level Plans and Legal Orders 3
Biodiversity Targets 3
Old Growth Forest Management in the Cariboo Region 4
Legal Orders 5
OGMA Incursions 5

Forest Biodiversity and Old Growth Management in the Cariboo Region

Forest biodiversity and old growth forest objectives in the Cariboo Region were originally defined in the Cariboo Chilcotin Land Use Plan (CCLUP) and declared as a Higher Level Plan in 1996[1] under the Forest Practices Code of British Columbia Act (FPC) and guided the application of the Code and other resource management activities within the plan area. The objectives were accompanied by a Biodiversity Conservation Strategy in 1996[2] that provided further direction on implementation in the CCLUP area. The resource management objectives, targets, and strategies within the CCLUP were carried forward under the Land Act as objectives under the Forest and Range Practices Act (FRPA) which replaced the FPC in 2002. A key part of implementing the CCLUP was the completion of seven sustainable resource management plans (SRMPs) covering the entire Cariboo Region. These plans were completed by 2007, and address CCLUP strategies and targets on an area-specific basis through detailed objectives and strategies for the management of natural resources and the maintenance of environmental values. They were endorsed by government and resource stakeholders and remain as non-legal guidance.

Using the SRMPs as a foundation, a Land Act Order (LAO) was declared pursuant to the Land Use Objectives Regulation (LUOR) in 2010[3] (consolidated to 2018), which sets legal direction for forestry activities under FRPA with respect to key resource values. The order contains objectives and maps for biodiversity, wildlife trees, old growth forest, critical habitat for fish, community areas of special concern, lakes, riparian areas, mature birch retention, grasslands, scenic areas, recreation trails, high value wetlands for moose, and grizzly bear.

Biodiversity Management in the Cariboo Region

Biodiversity objectives consist of old and mature-plus-old forest target amounts specified by Landscape Unit (LU) and Biogeoclimatic Ecosystem Classification (BEC) subzone variant combinations (hereafter referred to as LU/BEC). Old and mature-plus-old forest targets are based on the Biodiversity Emphasis Option (BEO) assigned to each LU and the expected seral amounts that consider the natural disturbance return intervals for each BEC unit. Old forest targets are managed spatially through a suite of no-harvest areas, while the combined mature-plus-old targets are managed aspatially across LU/BEC combinations. The process for establishing biodiversity emphasis is outlined in Section 3 of the CCLUP Biodiversity Conservation Strategy:

> "Recommended biodiversity emphasis was allocated to each landscape unit in the region using the following primary criteria: ecosystem representation, habitat of selected red and blue listed species, and ecological sensitivity to forest development. Based on these criteria, a conservation priority was assigned to each landscape unit. The conservation priority plus secondary criteria (the regional mosaic, CCLUP land use zonation, proximity to protected areas, and additional biological values) were used to derive the interim biodiversity emphasis. Recommended biodiversity emphasis was then derived by reviewing the interim emphasis with respect to current forest condition. In some cases the emphasis of a unit was changed due to current condition. The targets presented in the biodiversity guidebook of 10% higher biodiversity emphasis, 45% intermediate biodiversity emphasis, and 45% lower biodiversity emphasis were met on a region wide basis."

[1] https://www2.gov.bc.ca/gov/content/industry/crown-land-water/land-use-planning/regions/cariboo/cariboochilcotin-rlup
[2] https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/cariboo-region/cariboochilcotin-rlup/bio_strategy_report.pdf
[3] https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/cariboo-region/cariboochilcotin-rlup/legal-direction/cariboochilcotin_rlup_luor_6sep2018consolidated.pdf

A total of 153 LUs were mapped in the Cariboo Forest Region (now the Cariboo Natural Resource Region) (see Section 2 of the Biodiversity Conservation Strategy). Three of these LUs (Betty Wendle, Chilko, and Edmond) are entirely within Provincial Parks. Of the remaining 150 LUs, 19 have a recommended biodiversity emphasis of High, 62 have a recommended biodiversity emphasis of Intermediate, and 69 have a recommended biodiversity emphasis of Low.

High Level Plans and Legal Orders

Biodiversity Targets

Several provisions were made in the implementation of old and mature-plus-old seral targets for biodiversity management in the CCLUP area that are specific to the plan area including:

Interior Douglas-fir Zone – The CCLUP Biodiversity Conservation Strategy states: "BEO and expected seral amounts by BEC unit are based on the Biodiversity Guidebook with the exception of the Interior Douglas-fir (IDF) zone. Stands within the IDF zone were divided into the Douglas-fir group and Lodgepole pine group and separate seral guidelines were developed using regional research databases. The targets for the pine group are less restrictive than those in the guidebook while the guidelines for the Douglas-fir group are more restrictive. Overall, the refinement of the Guidebook thresholds for the IDF zone are consistent with the Guidebook methodology but are a much better representation of the ecology of the IDF[4]."

Forest Inventory Adjustment – The CCLUP Biodiversity Conservation Strategy states: "Comparison of age structure data derived from the forest inventory database with the expected age structure from landscape age structure models revealed a disproportionately low representation of old forests even on undeveloped landscapes. This low representation may be real (due for example to a greater frequency of wildfires prior to the 1700s), an artifact of forest stand age inventory methodology, or result from a combination of both real causes and inventory methods. Although the cause of the low representation is not clearly known at this time, field observations and other considerations suggest that inventory methodology is a principal contributor, consequently a conservative approach was adopted in which the inventory area of old forests was adjusted. This adjustment reapportioned the inventory area of mature and older forests into mature forests and old forests based on the mathematical model used by the Biodiversity Guidebook to establish seral stage guidelines. The inventory area of combined mature and older forests was unchanged. This inventory adjustment method assumes that the forest inventory more accurately distinguishes immature (100-120 years) than it does mature from old seral stages (>250 years). This is a widely accepted assumption."

The 1996 seral analysis of the CCLUP area illustrated some of the issues without adjusting the inventory stating that: "Approximately 50% (81 out of 161) of the landscape units as-a-whole failed to meet the lower biodiversity emphasis guidelines. Although some of the failed landscape units contain extensive timber harvesting, many have experienced little or no industrial activity and are in a natural condition. Approximately 57% of the biogeoclimatic subunits of landscape units also failed to meet lower biodiversity emphasis guidelines. All failures of landscape units as-a-whole to meet lower biodiversity emphasis guidelines in this preliminary assessment were due to failures to meet old forest guidelines. No landscape units failed as-a-whole due to failure to meet early or mature-plus-old guidelines.

[4] https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/cariboo-region/cariboochilcotin-rlup/update_note_3.pdf

Similarly, all biogeoclimatic zones that failed to meet lower biodiversity emphasis did so because of failure to meet old forest guidelines. Approximately 6% also failed to meet mature-plus-old guidelines. Among biogeoclimatic zones, the highest failures were associated with the IDF (>95%), ICH (86%), and ESSF (84%) zones. Failures were comparatively low in the SBPS (12%) and MS (16%) zones."

The Forest Inventory Adjustment was derived and used during the original 1996 analysis to address the significant under-representation of old seral forest in the forest inventory. After derivation and application of the Forest Inventory Adjustment, based on the 1996 seral analysis conditions 83% of LUs fully met the seral targets for the recommended BEOs and 85% met the targets based on both the current condition and the committed timber supply projected for 20 years (to 2016). As a result, the 1996 seral analysis had no bearing on the resulting biodiversity management strategy.

Amalgamating Smaller Units – Only biogeoclimatic zones larger than 5,000 ha within the landscape unit were required to meet seral stage guidelines unless the biogeoclimatic zone is a valley bottom unit (valley bottom units >1,000 ha was required to meet guidelines). Rules for amalgamating have been provided in a 2001 update[5] and the current amalgamations based on this guidance, which all Cariboo Region Forest Stewardship Plans commit to[6].

Old Growth Forest Management in the Cariboo Region

To manage old growth forests and natural processes, Old Growth Management Areas (OGMAs) were spatially established along with other no-harvest areas across all LUs in the CCLUP area. OGMAs are grouped into one of three categories:

- **Permanent OGMA – static** – means an old growth management area (OGMA) which retains a fixed location in the landscape.
- **Permanent OGMA – rotating** – means an old growth management area (OGMA) that contributes to the long-term OGMA target area but can be harvested under the conditions specified in the order.
- **Transition OGMA** – means an old growth management area (OGMA) which only exists until it is replaced by other old forest in that LU/BEC unit or 20 years from the effective date of the order, whichever is less.

Since this time, the Quesnel and 100 Mile House Natural Resource Districts completed OGMA reconciliation processes that resulted in the removal of rotating permanent OGMAs. The result of this process in these two land bases is that only static permanent OGMAs and transitional OGMAs remain. Rotating OGMAs were removed because they were NDT3 pine-leading OGMAS; these were all harvested but not replaced as there was no process or commitment to replace them in a timely manner. The OGMA reconciliation process replaced the harvested rotating OGMA as needed to meet the spatial OGMA targets and redesignated them to permanent static. The Cariboo-Chilcotin Natural Resource District has not completed the same process and therefore still has all three OGMA categories identified in that District, however the rotating permanent OGMAs have largely been harvested but not replaced.

[5] https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/cariboo-region/cariboochilcotin-rlup/update_note_2.pdf

[6] Mature and old seral targets for amalgamating smaller units available here: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/cariboo-region/cariboochilcotin-rlup/biogeoclimatic_unit_amalgamation_table_2007.pdf

In the Cariboo Region, the CCLUP requirement to manage the aspatial old seral targets was carried forward as a Land Act objective under FRPA. The aspatial old seral targets were used as the basis for calculating the target area of spatial OGMAs to map for each LU/BEC unit. For each LU-BEC unit, all no-harvest areas counted towards the old seral target, and the remaining areas required to meet the targets were mapped as spatial permanent OGMAs. Portions of these no-harvest areas were not old seral forest, including within the spatially mapped OGMAs, to capture valuable attributes such as larger patch size, mature seral for recruitment to old seral, and association with valuable biodiversity features such as wetlands and rare species occurrence. Accordingly, Cariboo Region Statutory Decision Makers have exempted (pursuant to FRPA Section 12(5) Licensee FSPs from managing for the aspatial old seral targets.

Legal Orders

The legal objective for OGMAs is defined in Part 2, Sections 8-11 of the LAO[7] (the Order). Section 8 of the Order defines the legal objective which states:

> "Retain old forest and natural successional processes by maintaining as no-harvest area the permanent OGMA-static, permanent OGMA-rotating, and transition OGMAs as shown on map 3[8] and defined by the spatial dataset, Cariboo-Chilcotin Old Growth Management Areas[9].

OGMA Incursions

Section 9 of the Order permits some incursions into permanent static and rotating OGMAs, and states that: "Despite objective 8, harvesting and road-building are permitted in permanent OGMA-static or permanent OGMA-rotating for any of the following reasons:

a) Harvesting incursions of 10 hectares or less that better align OGMA boundaries with intended geographic features,
b) Where harvesting is essential for insect control to curtail severe damage to forest values at the landscape level in a beetle management unit (BMU) classified as suppression for that insect pest,
c) Road and fence construction where no other practicable location is available,
d) Thinning-from-below to enhance old forest attributes in OGMAs located within Mule Deer Winter Range in the shallow and moderate snowpack zones,
e) Within primary and interface fuel breaks, in an approved community or regional wildfire plan, where impacts to primary old seral forest characteristics are minimized:
    (i) reduction of fine surface debris, ladder fuels and small diameter trees in intermediate and overtopped crown classes and,
    (ii) separation of tree crowns among individual trees or clumps within the dominant and co-dominant layers sufficient to mitigate the spread of a passive crown fire, to a maximum spacing of 6 metres between crowns.
f) Where permanent-rotating OGMAs on map 3 have:
    (i) mature conifer mortality exceeding 50% by basal area >17.5 cm DBH or,
    (ii) stand age exceeding 200 years for stands with 70% or greater lodgepole pine by basal area >17.5 cm DBH."

[7] https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/cariboo-region/cariboochilcotin-rlup/legal-direction/cariboochilcotin_rlup_luor_6sep2018consolidated.pdf

[8] Refers to the map that accompanied the Order.

[9] OGMA data available here: https://catalogue.data.gov.bc.ca/dataset/old-growth-management-areas-legal-current

Section 10 of the Order allows for some incursion that: "Despite objective 8, primary forestry activities are permitted in transition old growth management areas for any the following reasons:

a) Harvesting incursions of 10 hectares or less that better align OGMA boundaries with intended geographic features,
b) Where harvesting is essential for insect control to curtail severe damage to forest values at the landscape level in a beetle management unit (BMU) classified as suppression for that insect pest,
c) Road and fence construction where no other practicable location is available,
d) Thinning-from-below to enhance old forest attributes in OGMAs located within Mule Deer Winter Range in the shallow and moderate snowpack zones,
e) Within primary and interface fuel breaks, in an approved community or regional wildfire plan, where impacts to primary old seral forest characteristics are minimized:
    (i) reduction of fine surface debris, ladder fuels and small diameter trees in intermediate and overtopped crown classes and,
    (ii) separation of tree crowns among individual trees or clumps within the dominant and co-dominant layers sufficient to mitigate the spread of a passive crown fire, to a maximum spacing of 6 metres between crowns.
f) Equivalent old forest exists in locations contributing to the permanent OGMA target in the same LU/BEC Unit,
g) Conifer mortality exceeds 50% of stand basal area in the transition OGMA.

Section 11 states that: "Changes to OGMAs resulting from harvesting or road building under objective 9 or 10 must be reported by licensees to ILMB and MOFR upon completion." Amended boundaries for OGMAs and rationale for changes have been made in the Quesnel Natural Resource District in 2015[10] and 100 Mile House Natural Resource District in 2017.[11] Both of these amendments repealed and replaced Map 3 and the dataset in relation to objective 8 in the Order.

[10] https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/cariboo-region/cariboochilcotin-rlup/legal-direction/cariboochilcotin_rlup_luor_12nov2015amend.pdf

[11] https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/cariboo-region/cariboochilcotin-rlup/legal-direction/cariboochilcotin_rlup_luor_26jan2017amend.pdf