

Cariboo-Chilcotin
Land Use Plan

Regional Biodiversity Conservation Strategy

UPDATE NOTE #12

Stand-Level Retention for Biodiversity

Prepared by:
Biodiversity
Conservation
Strategy Committee

Prepared for:
Cariboo Managers'
Committee

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Biodiversity Conservation Strategy Update Notes are prepared by the Cariboo-Chilcotin Biodiversity Conservation Strategy Committee for purposes of technical clarification or technical additions to the Biodiversity Conservation Strategy report, submitted to the Cariboo-Mid Coast Interagency Management Committee in July 1996. These notes are prepared in response to issues and questions presented to the Biodiversity Committee or recognized by the members of the Committee.

Members of the Biodiversity Conservation Committee include: Robin Hoffos – chair (ILMB), John Youds (MOE), Harold Armleder (MOF), Rick Dawson (ILMB), and Roger Packham (MOE)

Previous Biodiversity Updates include:

Update #1: Key Assumptions and Recommendations For Use of the Inventory Adjustment Factor in the Cariboo Forest Region

Update Note #2: Amalgamation of Small NDT-BEC Units in Relation to Assessment of Seral Objectives and Old Growth Management Area Planning

Update Note #3: Definition of the Fir Group and Pine Group for Purposes of Seral Stage Assessments within NDT 4 of the Cariboo-Chilcotin

Update Note #4: An Approach for Patch Size Assessments in the Cariboo Forest Region

Update Note #5: An Integrated Mountain Pine-Biodiversity Conservation Management Strategy

Update Note #6: Procedures for Implementation of the Mountain Pine Beetle-Biodiversity Strategy to Address Current Attack During the Outbreak Phase

Update Note #7: Integration of the Biodiversity Strategy with a Douglas-fir Beetle Suppression Strategy - Interim Direction. *Note: this 2005 document replaces the earlier note #7.*

Update Note #8: Strategy for Management of Mature Seral Forest and Salvage of Mountain Pine Beetle-Killed Timber

Update Note #9: Strategy for Management of Mature Seral Forest and Salvage of Mountain Pine Beetle-Killed Timber Within TFLs in the Cariboo

Update Note #10: Management of Transition Old Growth Management Areas with a High Lodgepole Pine Component Heavily Attacked by Mountain Pine Beetle

Update Note #11: New Options for Old Growth Management Areas in Ecosystems with Frequent, Stand Destroying Natural Disturbance

Updates are available at:

<http://srmwww.gov.bc.ca/car/planning/cclup/biodiv/>

Introduction

The Biodiversity Guidebook¹ and various other publications have all recommended stand-level retention typically addressed as Wildlife Tree Patches (WTP). Flexibility was allowed in the placement of the WTP either within or along the edges of the cutblock. A maximum inter-patch distance requirement of 500 m was recommended as a way to ensure at least some within-opening retention in larger cutblocks. These were always meant as minimums.

Traditional harvest patterns have placed most WTPs along the edges of cutblocks or even some distance away from the block. This was not the intent of stand-level retention to maintain stand-level biodiversity. Additionally, these minimums are increasingly inadequate as larger cutblocks and amalgamations with existing openings become more common.

Large cutblocks and aggregations of larger very early seral areas (<20 years old) are increasingly common especially as salvage operations proceed during the current Mountain Pine Beetle (MPB) epidemic. Larger blocks are consistent with the pattern of natural disturbance in Natural Disturbance Type (NDT) 3. However, large natural disturbances almost always left substantial remnants of the former stand behind that provided important features for biodiversity. In other NDTs, although disturbances were historically smaller, substantial stand-level retention was also typical of natural disturbance.

In the face of the epidemic level of MPB attack the chief forester has set AAC uplifts in the Quesnel TSA and several Timber Supply Areas and Tree Farm Licences outside the Cariboo. In his determinations he has included an expectation of increased stand-level retention to mitigate the impacts to biodiversity of the increased cut. An increment to 20% retention has been recommended and was used in modelling scenarios leading to the determination. This note provides general direction on the location and distribution of stand level retention whether or not it is additional to current requirements. Specific direction on the additional levels of stand-level retention in various block sizes will be provided through the Ministry of Forests Stewardship Committee.

Several questions have arisen concerning stand-level retention:

- How should the stand-level retention be used, including the incremental retention?
- How should the stand-level retention requirements be distributed within and outside the cutblocks?
- Should the maximum distance criteria for WTP be changed?
- How should windthrow concerns impact the allocation of the WTP requirement?

¹ Forest Practices Code of B.C. 1995. Biodiversity Guidebook. B.C. Environment, Victoria, B.C.

Rationale for Stand-level Biodiversity Recommendations

The following points were considered as the recommendations for stand-level retention were developed².

- As a patch of recently logged forest gets larger there is increased need to have the retention located within the opening as opposed to along the edge.
- Dead trees have value for biodiversity.
- Windthrown trees have value. For example, coarse woody debris inputs from WTP are an important contribution to biodiversity.
- The inter-patch distance is important and was originally based on territory size and dispersal requirements of wildlife³.
- Undisturbed forest floor is a value that WTP provide.
- WTP that include tree species other than pine will provide the best mid to long term wildlife tree habitat
- Unlike retention patches within blocks, retention patches outside of cutblocks must be carefully tracked (at least in the short-mid term) to assure their maintenance.

Recommendations for Stand-level Retention

The following addresses how stand level retention should be distributed.

- All stand-level retention should be located within the cutblock boundary.
- The maximum distance between WTP should not exceed 500 m.
- The minimum WTP size to qualify for the distance between patches is 0.25 ha (these continue to have value even if they experience windthrow).
- For cutblocks over 100 ha a minimum of 33 % of the stand-level retention requirements should be located inside the opening (defined as at least 100 m from the edge of the cutblock boundary) as opposed to along the edge of the opening.

² Additional relevant material can be found in many publications including:

Lindenmayer, D.B., and J.F. Franklin. 2002. Conserving forest biodiversity: a comprehensive multiscaled approach. Island Press, Washington, D.C.

Coates, K.D. and J.D. Steventon. 1995. Patch retention harvesting as a technique for maintaining stand level biodiversity in forests of north central British Columbia. pp. 102-106 in C.R. Bamsey (ed.). Innovative Silvicultural Systems in Boreal Forests, Symposium Proceedings Edmonton, Alberta, October 4-5, 1994. Clear Lake Ltd., Edmonton, Alberta.

Delong, S.C. and D. Tanner. 1996. Managing the pattern of forest harvest: lessons from wildfire. Biodiversity and Conservation 5:1191-1205.

³ Forest Practices Code of B.C. 1995. Biodiversity Guidebook. B.C. Environment, Victoria, B.C. Biodiversity Update #12

WTP Retention Priorities

General: In blocks that have both pine and non-pine tree species, where possible choose the non-pine areas or at least mixed species areas for WTP.

The following list provides direction, in the order of priority, for WTP retention given concerns about windthrow, MPB, and the variety of wildlife tree values.

1. Choose WTP at least 0.25 ha in size to fall within the **maximum inter-patch distance** of 500 m. Choose the lowest windthrow hazard sites for these patches but designate the minimum WTP even if windthrow hazard is HIGH⁴.
2. Choose WTP with the **best wildlife tree attributes**⁵ (e.g., wildlife use, riparian features, creating or enhancing connectivity). For cutblocks over 100 ha ensure that at least 33 % of the WTP area is inside the opening (defined as at least 100 m from the edge of the cutblock). Select WTP that have a windthrow hazard rating of LOW or MODERATE even if that means reducing the area inside the opening as defined above.
3. If selection of a WTP as outlined in #2 results in a windthrow hazard of HIGH, then choose WTP **representative of the stand** that have a LOW or MODERATE windthrow hazard.
4. If all of the block is rated as HIGH windthrow hazard then still designate the required WTP area within or along the edge of the opening but attempt to mitigate the windthrow risk⁶.

Area of Application

The recommendations for the distribution of stand-level retention apply to all of the Cariboo-Chilcotin (Quesnel, Central Cariboo, Chilcotin and 100 Mile House Forest Districts).

⁴ Use the windthrow hazard rating system of:

Mitchell, S.J. 1995. The windthrow triangle: A relative hazard assessment procedure for forest managers. For. Chron. 71:446-450.

⁵ Additional information is available in several sources including:

Forest Practices Code of B.C. 1995. Biodiversity guidebook. B.C. Environment, Victoria, B.C.

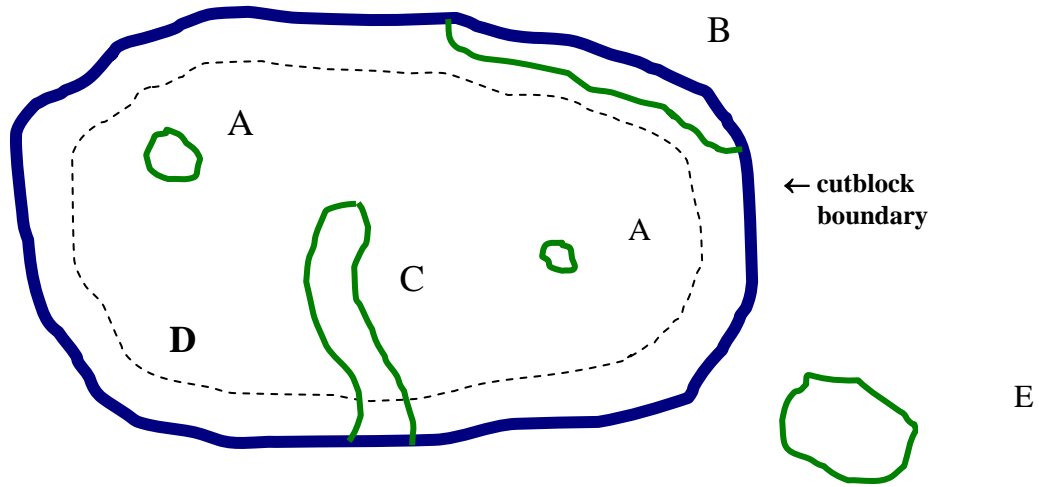
B.C. Environment. 2000. Provincial wildlife tree policy and management guidelines. B.C. Environment, Victoria, B.C.

⁶ See the following reference for available techniques:

Stathers, R.J., T.P. Rollerson and S.J. Mitchell. 1994. Windthrow handbook for British Columbia forests. B.C. Min. For., Victoria B.C. Working Paper 9401.

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Example Cutblock with WTP Delineated



Legend

- A. WTP placed to meet maximum 500 m inter-patch distance and at least 0.25 ha in size
- B. WTP along the edge of the cutblock (i.e., within 100 m of the cutblock boundary)
- C. WTP along the edge of the cutblock (i.e., the part of the WTP within 100 m of the cutblock boundary) and within the cutblock (i.e., the part of the WTP beyond 100 m of the cutblock boundary)
- D. Dashed line indicates 100 m from cutblock boundary (all WTPs within 100 m from the boundary are classed as along the edge of the cutblock)
- E. Not a valid WTP for this cutblock because it is outside the boundary of the block.