Regional Biodiversity Conservation Strategy

UPDATE NOTE #7

Integration of the Biodiversity Strategy with a Douglas-fir Beetle Suppression Strategy
-Interim Direction -

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 (MOFR), Rick Dawson (ILMB), Roger Packham (MOE), Darcy Peel (ILMB)

Previous CCLUP Biodiversity Strategy 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

**Update Note #12**: Stand Level Retention for Biodiversity

**Update Note #13**: Integration of the Biodiversity Strategy with a Spruce Beetle Suppression Strategy – Interim

Updates are available at:

http://srmmwww.gov.bc.ca/car/planning/cclup/biodiv/
Introduction

This document addresses management of Douglas-fir bark beetle (FBB) infestations within and adjacent to Old Growth Management Areas (OGMAs). OGMAs are no-harvest areas which are intended to maintain old forest values and natural successional processes. They are an essential element in management of biodiversity at the landscape level. OGMAs are deemed to meet the old forest seral requirement under the Cariboo-Chilcotin Land Use Plan (CCLUP), and are therefore excluded from the annual allowable cut. Careful management to control Douglas-fir bark beetle is essential to maintain sustainable, intensive forest management in the unconstrained land base. This update seeks to balance and integrate conservation and forest health objectives in areas within the Cariboo-Chilcotin affected by Douglas-fir bark beetle.

This update provides for special access to specifically identified portions of OGMAs for careful sanitation harvest. This harvest access is justified based on use of the process described in this document to ensure that FBB treatment decisions within OGMAs are based on good landscape level information that is carefully considered at landscape and stand scales to integrate forest health and conservation objectives. The process incorporates: 1) detailed beetle inventory, 2) a confirmation of capacity to manage in specific beetle management units to a suppression level of management, 3) an assessment of each infested OGMA for relative risk to the OGMA from harvesting versus risk to the surrounding landscape from Douglas-fir bark beetle and, 4) specific monitoring questions. It also assumes the availability to the forest health program of effective non-harvest suppression options for smaller FBB infestation centres.

This update replaces the previous Update #7 which also provided interim direction on the management of FBB infestations within Old Growth Management Areas. Because of the many uncertainties around implementation of Douglas-fir bark beetle management, this update will remain as interim guidance, pending a review of its effectiveness for both beetle management and maintenance of ecological values of OGMAs. The management process described here for Douglas-fir bark beetle is similar to that for Spruce bark beetle described in Update #12, but has a number of important differences based on significant differences in ecology and available management tools. The main differences are summarized in Appendix 1.

To effectively suppress Douglas-fir bark beetle outbreaks, a coordinated effort between government and licensees and BC Timber Sales (BCTS), must be in place. This document describes a four step process for making decisions on management options for OGMAs affected by Douglas-fir bark beetle and clarifies roles and responsibilities around this process. The first two steps simply reflect a method of implementing the provincial bark beetle suppression strategy, but these steps are also fundamental in determining the most appropriate management options for FBB infestations in OGMAs. They provide the essential landscape context required to direct effective suppression efforts. Harvest access should only be considered in OGMAs where suppression of beetle outbreaks in the surrounding landscape is adequate meet provincial suppression requirements. The approach described here is intended to apply only to currently attacked trees and only where these trees pose a serious risk to forest stands outside of the OGMA. No harvest of Douglas-fir within OGMAs is recommended under any other circumstances. The results of the process will be maps that clearly show which OGMA areas are available for sanitation harvest and which are best treated using non-harvest suppressions methods within the OGMA.
Management Procedures for Treatment of Douglas-fir Bark Beetle in OGMAs

The following four step process will be used to determine treatment options for FBB attacked trees within OGMAs.

1. Annual Review to Identify Priority Landscape Units for Treatment

MOFR Forest Health personnel will annually inventory and map beetle infestations and assess current beetle population trends. They will use this work to develop a ranked list of high priority Beetle Management Units (BMUs) requiring attention due to increasing or persistent Douglas-fir bark beetle infestations and to direct control activities. The BMUs will often have the same boundaries as landscape units but in some cases may be made larger or smaller at the discretion of MOFR Forest Health staff. These assessments of priority units, maps of detected FBB infestations and assessments of population trends form the input for steps 2 and 3. They will be completed by mid-October. Licensees are strongly encouraged to provide any inventory data they have to MOF before this date.

2. Assessment of Capacity

Potential harvesting access to OGMAs for Douglas-fir bark beetle is dependant upon implementation of a Suppression Strategy, as defined in the MOFR Regional Forest Health Plan. A Suppression Strategy requires that 80-100% of all known infestations within the treatment unit are treated prior to the next beetle flight. Firm written commitments to treat 80% or more of known outbreaks in a BMU will be required before sanitation harvest will be considered as a treatment option within OGMAs in that BMU.

Capacity will be assessed through discussions, chaired by MOFR, with the appropriate licensee’s or their representatives to develop implementation plans for beetle control in each BMU. The goal will be to direct the combined efforts of government and industry to maximize control of FBB in priority areas while minimizing unnecessary impact to OGMAs.

The result of this step would be firm written commitments by licensees and MOFR to treat specific known outbreaks in high priority units before the next beetle flight and to implement a trap tree program outside of OGMAs with a sufficient number and distribution of trap tree sites to suppress undetected infestations. In suppression BMUs, all infestations outside of OGMAs, but within 400m of the OGMA boundary, must have firm treatment commitments in place before harvest proposals within the adjacent part of the OGMA should be considered for harvest treatments.

If excess sanitation harvesting capacity is available after addressing suppression BMUs, effort should be made to address infestations outside of OGMAs, within 400m of the OGMA in other BMUs.

This step will be completed by the end of October. Beetle management units which meet the requirements for the Suppression Strategy will be considered in step 3 to determine appropriate treatment options within OGMAs.

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1 “Known infestations” are defined as those detected in the annual MOFR detailed FBB aerial survey or surveyed in the field by MOFR Forest Health staff. Other sites located by licensees may be included as determined by MOF.
3. Government Review of Old Growth Management Areas within Suppression Beetle Management Units

The interagency CCLUP Biodiversity Conservation Committee, which includes specialists from ILMB, MOE and MOFR, will have the primary responsibility for this step. MOFR Forest Health staff will provide advice as required. It is assumed that firm treatment commitments for known infested areas within 400m outside of OGMA boundaries will be in place before cutting approval will be granted for sanitation harvest in adjacent portions of an OGMA. The product from this step will be a map showing where harvest and non-harvest and treatment options can be used. OGMA's may be subdivided for application of different treatments where appropriate.

Each OGMA with known infestations in Suppression FBB units will be reviewed to assess the most appropriate treatment options for each portion of the OGMA. OGMA's in non-suppression BMUs and OGMA's areas with no infestations identified in the MOFR detailed inventory will not be assessed and will not be available for harvest treatments. To meet conservation objectives, non-harvest suppression treatments are almost always preferable in OGMA's and should always be considered first. The review will produce maps of OGMA areas in Suppression BMUs delineating application of the following two treatment options:

A. **Sanitation harvest.** Sanitation harvest treatments must be designed and implemented to meet the requirements described in Appendix 2. *Infested sites are only available for harvest within the specific areas mapped for the sanitation harvest option.* Other OGMA sites found in the field, away from the mapped infestations, are not available for harvest but should be reported to MOFR Forest Health staff. Factors used to identify areas for this treatment include:

- **Infestation size and distribution** – sanitation harvest will be allowed for most infestations of more than 15 current attack trees noted in the detailed aerial survey\(^2\) in suppression BMUs. Exceptions may be made to allow sanitation harvest in smaller infestations based on high density of outbreaks or considerations around quality of access or distance to OGMA edge.
- **Irreplaceable values** – sanitation harvest will not be allowed in parts of OGMA's with known irreplaceable values that would be seriously affected by harvesting.
- **Nature of surrounding forest** – sanitation harvest will not usually be allowed in areas where surrounding forests within 400 m of the OGMA infestation have low susceptibility to FBB or where there is a limited extent of susceptible forest surrounding the OGMA.

B. **Non-harvest suppression.** Suppression treatments including use of anti-aggregation pheromones and trap trees outside of the OGMA are strongly recommended. Harvest treatments are not allowed. This designation would include any known infestations within OGMA's not mapped for the Sanitation Harvest option. Generally these would be sites with smaller, lower density infestations, farther from the edge of the OGMA or in sites with irreplaceable values or sites surrounded by low susceptibility forests. Implementation will be directed by the MOFR forest health staff.

\(^2\) This number takes into account the probability that the actual number of infested trees will usually be greater than the number observed in the aerial survey.
The result of step 3 will be provided to MOFR forest health staff by mid November for final mapping and distribution to forest licencees.
4. Monitoring of Douglas-fir beetle suppression activities

Monitoring will be required to determine:

A. if treatment commitments were carried out;
B. if stand prescriptions and implementation followed the stand level recommendations in Appendix 2
C. the effect the treatments had on Douglas-fir beetle populations and;
D. the effect of harvest treatments on ecological values within OGMAs and other constrained areas

The implementation of this strategy will be monitored annually by government agencies.

MOFR will be responsible for monitoring treatment commitments, effectiveness of beetle suppression, stand level prescriptions and implementation, and post-harvest blow down. The assessment of whether treatment commitments were carried out is critical. This will be done by the MOFR with input from licencees and BCTS. It should be completed and reported by June 30 including separate assessments of percent completion of commitments for each Suppression BMU.

MOE, with input from the Interagency CCLUP Biodiversity Committee, will be responsible for monitoring the ecological impact of the treatments. The results of the monitoring will be used to make any required refinements to the interim strategy.
Appendix 1

Ecological and Management Differences Between Spruce and Douglas-fir Bark Beetle and Resulting Differences in Suppression Strategy in OGMAS

Differences in the management approach to Douglas-fir bark beetle and Spruce bark beetle infestations are based on differences in ecology, and in the management tools available.

Ecological differences include:
- The mixed age structure of many mature Douglas-fir stands that results in a lower proportion of susceptible trees in these stands.
- The very high ecological value of dead, standing Douglas-fir trees.
- The ecological value fine scale patchiness associated with the typical pattern of most historical FBB infestations.
- The greater effect of soil moisture on the susceptibility of Douglas-fir to FBB resulting in the potentially higher probability of infestations collapsing on their own when drought conditions abate.
- Shorter average flight distances for FBB and a generally slower rate of spread.

Differences in available management tools include:
- Availability of an effective FBB anti-aggregate pheromone treatment for small infestations
- Generally more abundant road network allowing easier access for trap tree and pheromone treatments
- Generally better detectability of FBB infestations

These differences lead to the following differences in the recommended suppression strategies for constrained areas infested with Spruce bark beetle versus Douglas-fir Bark Beetle:
- The FBB strategy adds a requirement to treat known infestations surrounding the OGMA before harvesting is considered within the constrained area.
- The SBB strategy puts more emphasis on the use of a regular grid of trap tree sites to “mop-up” beetles from undetected infestations.
- The FBB strategy strictly limits the OGMA harvest to those sites approved by the process and does not allow for the licencees or small scale salvagers to harvest additional sites.
- Small FBB infestations in OGMAs are expected to be treated with alternative methods.
Appendix 2

Direction for Douglas-fir Beetle Sanitation Harvesting in OGMAs

Any FBB sanitation harvest operations in OGMAs must meet the following direction:

1. Only contractors who understand the management goals of the constrained area and have a record of good performance with partial harvesting should harvest within these areas.
2. A mark-to-cut system should be used. If special/unique features exist they should be identified to ensure protection.
3. Use equipment and techniques that will minimize the harvest or damage of non-target trees.
4. Skid trails should ideally be kept under 3 metres wide, 3.5 metres wide maximum.
5. No new landings or roads should be constructed.
6. Only current attacked trees can be targeted for harvest. Old attack (grey or red attack) should be left on site; even when old attack trees are required to be felled due to safety concerns they should be left on site.
7. Mature Douglas-fir, including dead standing trees, should be avoided wherever possible when laying out skid trails. Skid trails through non-fir types or young forest are strongly preferred.
8. Non-target harvesting for general access/development should be less than 5% of total volume of current attack harvested for site.
9. Ideally, all harvest operations should be complete by February 28. All harvesting must be completed at least 2 weeks before the first possible beetle flight date.
10. Report the number of trees and volume removed from each OGMA or constrained area to MOFR.
11. On-site inspection by the signing professional to confirm the current attack status of trees to be harvested and to confirm that skid trails are laid out to meet non-target harvest and damage requirements is mandatory.
12. Current regeneration and residual trees should be carefully protected from damage.
13. Where possible, use anti-aggregate pheromones in conjunction with harvesting in OGMAs to disperse any beetles that may have been left behind or that may be attracted by the logging disturbance. Use of trap trees outside of OGMAs may also be useful to help “mop-up” any remaining beetles.
14. A sanitized OGMA stand must be windfirm after the sanitation harvest is completed. If the sanitation harvest is expected to significantly increase windthrow risk, then the stand should not be harvested and should be treated with non-harvest suppression treatments.