Cariboo-Chilcotin
Land Use Plan

Regional Biodiversity Conservation Strategy

UPDATE NOTE # 7b

An Integrated Strategy for Management of Biodiversity and Bark Beetles in Douglas-fir and Spruce Stands

Prepared by:
Biodiversity Conservation Strategy Committee

Prepared for:

The interagency Cariboo Manager's 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 by the interagency Cariboo Manager's Committee.

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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: Update 7b (2006) replaces this Update 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 Biodiversity

Update Note #13 Integration of the Biodiversity Strategy with a Spruce Bark Beetle Strategy – Interim Direction *Note: Update 7b (2006) replaces this Update 13.*

Updates are available at:
http://ilmbwww.gov.bc.ca/ilmb/lup/lrmp/northern/cclup/biodiv/index.html#biodiv

Introduction

Beetle management in constrained areas is designed to balance the needs to suppress beetle populations that pose a significant risk outside the constrained area with the need to maintain the special values in the constrained area. This update addresses suppression treatments in: 1) selected "no-harvest" areas designated in Cariboo-Chilcotin Land Use Plan **(**CCLUP) Sub-regional Plans and 2) mature or old stands outside of no-harvest areas in landscape units not meeting mature plus old seral targets. The CCLUP sub-regional plans identify several larger no-harvest types including: Permanent, Transition and Rotating OGMAs, Critical Fish areas, and 200 meter Class A lake lakeshore management zones. **Beetle suppression treatment options and practices described in this document apply to OGMAs, Critical Fish Areas, and Class A lakeshore management zones. Wherever the term OGMA is used in this document, it refers to all OGMA types as well as Critical Fish Areas, and Class A lakeshore management areas.** CCLUP **c**aribou no-harvest and modified harvest areas are not covered by this document because they are subject to specific General Wildlife Measures.

This guidance was developed jointly by the Cariboo-Chilcotin Land Use Plan (CCLUP) Biodiversity Committee and MOFR forest health staff from the Southern Interior Region and from several of the forest districts in the Cariboo-Chilcotin. It has built on the interim guidance released by the Cariboo Manager's Committee in 2005 and incorporates refinements resulting from monitoring and review of the 2005/06 suppression program. The guidance in this update replaces the interim guidance in Updates 7 and 13.

This new guidance places a greater reliance on the use of trap trees for suppression in and around OGMAs and other constrained areas. In this document, sanitation harvesting is defined as harvest of currently attacked trees before the next beetle flight for the purposes of controlling bark beetle populations. "No-harvest" suppression methods refer to beetle control methods where no trees are removed from the stand. In comparison with sanitation harvesting, bark beetle suppression using trap trees is less dependent on perfect inventory, has less ecological impact on old forest values, creates less new access and reduces collateral loss of green and dead trees.

A. Suppression Options in OGMAs

Selection of recommended suppression options for infestations within OGMAs is based on the following factors:

1. Treatment options available for OGMAs will depend on the level of beetle management to be applied at the landscape level

Before any harvest or trap tree treatments within an OGMA can take place, firm written commitments to the MOFR Distrcit Manager should be in place to:

1) address 80-100% of the "known" beetle infestations on crown provincial forest land within the Beetle Management Unit (BMU) and,
2) address all known infestations on crown provincial forest lands within 500 m of the infested OGMA

No harvest within an OGMA should take place unless these commitments are in place. "Known" beetle infestations include those identified in current detailed aerial surveys and all verified ground survey information received from management partners. Where the current inventory within a BMU is of insufficient quality to provide the basis for adequate planning to address 80-100 % of the actual beetle infestations, no sanitation harvest should be applied within OGMAs. But, in this situation, well designed trap tree programs can be used at the discretion of MOFR District Manager.

2. Recommended suppression treatment options for Douglas-fir bark beetle will depend on Infestation Size

Where commitments are in place to meet the 80-100% level of suppression within a BMU, the following treatments within OGMAs are recommended suppression of Douglas-fir beetle infestations. Treatment options depend on the number of current attack trees within a contiguous infestation.[1]

Infestation Size (Based on ground assessment of current attack)	**Applicable treatment for Douglas-fir Beetle**
Less than 15 trees*	Use non-harvest control methods within the OGMA or trap trees outside the OGMA. No sanitation harvest recommended in OGMA.
15* – 75 trees	Use trap trees outside OGMA wherever possible and effective. Trap trees can be used within OGMA where required for effective suppression to minimize impact to surrounding susceptible forests. See section B for direction on use of trap trees in OGMAs. No sanitation harvest recommended in OGMA.
>75 trees	Careful sanitation harvest and/or other suppression methods. See section C for direction on application of sanitation harvest in OGMAs. A detailed ground survey of current beetle attack is required.

* infestations of 5 trees or greater can be managed with trap trees within OGMAs, if the projected R values supplied by the MOFR Regional Entomologist indicate increasing or epidemic Douglas-fir bark beetle populations.

3. Trap trees or no-harvest treatments are recommended for spruce bark beetle suppression in OGMAs

Where commitments are in place to meet the 80-100% level of suppression within a BMU, trap tree sites can be included within an OGMA. Trap tree programs should be focussed outside of OGMAs but can also include trap tree sites inside OGMAs, at the discretion of MOFR District Manager, if required to provide adequate coverage. Trap tree practises in section B are applicable.

4. Proximity to Susceptible Stands

Despite any direction above, sanitation harvest for both spruce or fir beetles should only be considered where significant areas of susceptible non-OGMA stands are located within 500 m of the infestation centre in the OGMA.

[1] A contiguous infestation includes all currently infested trees separated by no more than 50m from any other currently infested tree or trees.

5. Windthrow patch treatment - Windthrow patches[2] within OGMAs of greater than 5 spruce or Douglas-fir trees should be treated as trap tree sites if they are a threat to surrounding forests. After they fill with beetles, the trees should be removed, following the direction in section B. Smaller patches of windthrow should be treated using the non-harvest beetle control methods.

B. Use of Trap Trees for Suppression within OGMAs and other Constrained Areas

- Whenever possible, place trap tree sites outside of OGMAs. Trap tree sites can be located inside the OGMA, subject to the treatment restrictions in section A, where required to place the trap trees within 250m of the infestation centre.
- Where possible, place trap tree sites along existing roads or skid trails. Helicopter removal or fall and burn treatments are preferred where no existing road are skid trail exists
- Non-target volume removal of trees greater than 27.5 cm DBH for access and damage must be limited to 10% or less of the trap tree volume felled within an OGMA.
- Use 4:1 ratio of current attack trees to trap trees except where directed by MOFR forwest health staff to use a higher proportion in situations where very high bark beetle densities justify a higher trap tree density.
- Use small, well distributed trap tree sites wherever possible. It is usually preferable to use more small well distributed sites than fewer large sites.
- If possible, fall trap trees within the two months before the beetle flight. Never fell Douglas-fir trap trees before January 1st or Spruce trap trees before November 1.
- Ensure that all felled beetle trap trees are mapped and GPS locations recorded and submitted to MOFR district forest health staff by June 15.
- Ensure removal or on-site burning of all trap trees before the next beetle flight.
- Within mule deer winter range, when possible, locate trap tree sites in areas zoned for a low crown closure objective before locating them in areas zoned for moderate and high crown closure objectives.
- Intense sanitation should be incorporated into trap tree programs with no long-butting or topping in the bush. Large pieces of debris (> 2m long and >20 cm in diameter) containing beetles must removed and/or burned. Stumps must be less than 30cm in height on the uphill side. Post-harvesting debris piles must be burned before the next beetle flight.
- Where available, trap trees should be between 35-50 cm.
- Select, fall and remove trap trees carefully to minimize damage to residual trees.
- Spill-over trees currently infested with Douglas-fir bark beetles can be removed at the same time as trap trees are removed. Harvest operations for spill-over trees must meet the harvesting practises in section C.

[2] Windthrow patches are defined as groups of windthrown trees that are all within one mature tree length of each other.

C. Practices for Douglas-fir Beetle Sanitation Harvesting in OGMAs

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 detailed ground based survey must be completed before harvesting
3. A mark-to-cut system must be used.
4. Use equipment and techniques that will minimize the harvest or damage of non-target trees.
5. Keep skid trails as narrow as possible and use existing trails where they are present.
6. No new landings can be constructed within the OGMA. Roads can only be constructed within an OGMA where no other practicable option exists.
7. Within OGMAs, old attack (grey or red non-infested trees) must be left on site even when they are required to be felled due to safety concerns.
8. Mature green and 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.
9. Non-target harvesting of trees greater than 27.5 cm DBH for general access/development must be less than 10% of total volume of current attack harvested for each site in OGMAs and other no-harvest areas.
10. All harvesting and removal must be completed before the first possible beetle flight date.
11. Report the following information to the MOFR by June 15:
    a) the number and location, by OGMA, of all trap trees felled before the past beetle flight;
    b) the volume and location, by OGMA, of all sanitation harvesting
12. Current regeneration and residual trees should be carefully protected from damage.
13. Anti-aggregation pheromones (when licenced) and/or trap trees should be used in conjunction with harvesting to disperse or absorb any surplus beetles. Use of trap trees outside of OGMAs may also be useful to help “mop-up” any remaining beetles.
14. If the sanitation harvest is expected to significantly increase windthrow risk, then the stand should not be harvested and should be treated with trap trees or non-harvest control methods.
15 Stumps must be 30 cm or lower on the uphill side.
16 All large fresh debris (>2m long and > 20 cm in diameter) that could attract or harbour bark beetles must be removed, de-barked or burned.

D. Recommended Suppression Options for Infestations in Seral Constrained Landscape Units

This section applies to Mature or Old stands, outside of no-harvest areas, in Landscape/BEC units that do not meet mature plus old seral targets.

Beetle suppression options and stand level practises are the same as for OGMAs except for the following:

- Addressing all infestations within 500 m is **not** a prerequisite for implementing sanitation harvest or trap tree treatments described in sections A2 and A3.
- At the discretion of MOFR District Manager, trap tree sites can be applied without reference to infestation size. Non-hravet methods are preferred for very small infestations.
- At the discretion of MOFR District Manager, Douglas-fir beetle sanitation harvest using the practises in section C can be applied in the Interior Douglas-fir biogeoclimatic zone, without reference to infestation size. Use of trap trees is strongly preferred over sanitation harvesting for smaller infestations, especially where new skid trails need to be built to remove the infested trees.
- Restrictions on the use of sanitation harvesting or trap trees in Landscape Units with Mature plus Old seral constraints do not apply to small, area based tenures such as woodlots. However, sections B and C on stand level practises are still applicable.

E. Monitoring of Bark Beetle Suppression Activities

Monitoring will be required to determine:

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

The implementation of this strategy should be monitored 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. It should include 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 over short and longer time frames. Monitoring reports should be submitted to the applicable MOFR District and the Cariboo Managers Committee.