

Cone Collection Opportunity Mapping April, 2011

Potential Cone Collection Opportunities

Seed Planning Impact and Opportunity mapping provides new tools to assist clients with seed planning and cone collection activities in Mountain Pine Beetle (MPB) impacted stands. Spatial data relevant to seed planning and cone collection (elevation bands) has been integrated with the overarching Mountain Pine Beetle Impact and Opportunity and Impact geodatabase (MPBBIO) and map products. This information is intended to be used at the strategic level to identify potential opportunities for undertaking Interior lodgepole pine cone collections.

Potential **Cone Collection Opportunities** have been mapped for two timber supply areas, the Quesnel TSA and Williams Lake TSA. It is our intention to map additional management units and/or consider other potential opportunities related to Genetic Resource Conservation and Management (GRM) and seed use as funding becomes available.

Pine mask

The model identifies potential opportunities for cone collection within pine stands (**see Figure 1**) identified as having **greater than or equal to 30% pine** in the management unit (i.e., TSA). The pine mask includes Vegetation Resource Inventory (VRI) polygons with $\geq 30\%$ lodgepole pine (Pl and Pli), and/or ponderosa pine (Py), whitebark pine (Pa), Western white pine (Pw), jack pine (Pj), and limber pine (Pf).

Scoring system

These maps amalgamate Seed Planning spatial data with MPB impact mapping and, through the application of a rating system, are used to develop derivative map results and queries (**see Figure 2**) to assess potential cone collection opportunities as **LOW, MODERATE or HIGH**. The collection opportunities are based on a scoring system that assigns a relative ranking based on the following parameters and assumptions:

- **Mountain Pine Beetle Attack Status** – Sites are assigned to one of three MPB attack status classes: red, new grey, and green. The older the attack status (e.g., new grey), the lower the potential for cone collection opportunity.
 - New Grey (attacked 4-7 years ago) = **Low** Opportunity
 - Red Attack (attacked 1-3 years ago) = **Moderate** Opportunity
 - Green Attack (none/trace) = **High** Opportunity
- **Age Class** – Only stands with an age class of 2 to 5 (21 to 100 years) are considered to provide opportunity for cone collection.
- **Elevation** – Opportunities are classified into three elevation bands that group potential cone collection sites into low, mid and high elevation seedlots as follows : 800-1000 metres, 1000-1300m, and 1300-1600m.

Mapping Example

Maps identifying potential opportunities associated with cone collection were generated for two Timber Supply Areas - Quesnel and Williams Lake. These maps are too large to be effectively displayed in an 8.5" x11" page format. **Figure 1** provides an example of a small portion of a cone collection opportunity map. **Figure 2** illustrates how the opportunities map data can be summarized for a TSA or specific area of interest.

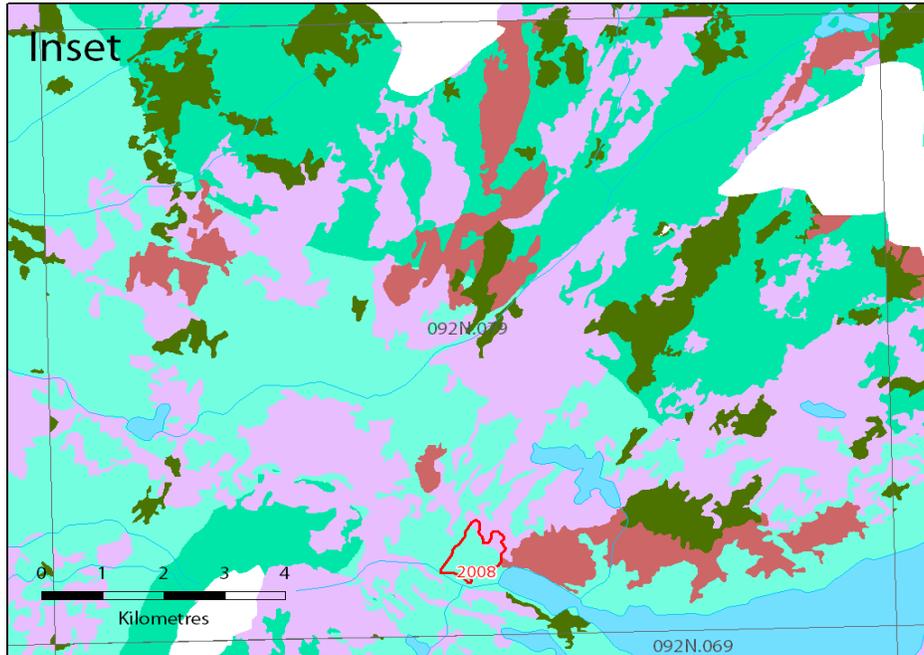


Figure 1. Example of a Cone Collection Opportunity Map

Potential Cone Collection Opportunities in MPB Affected Pine Forests Area by Opportunity Score

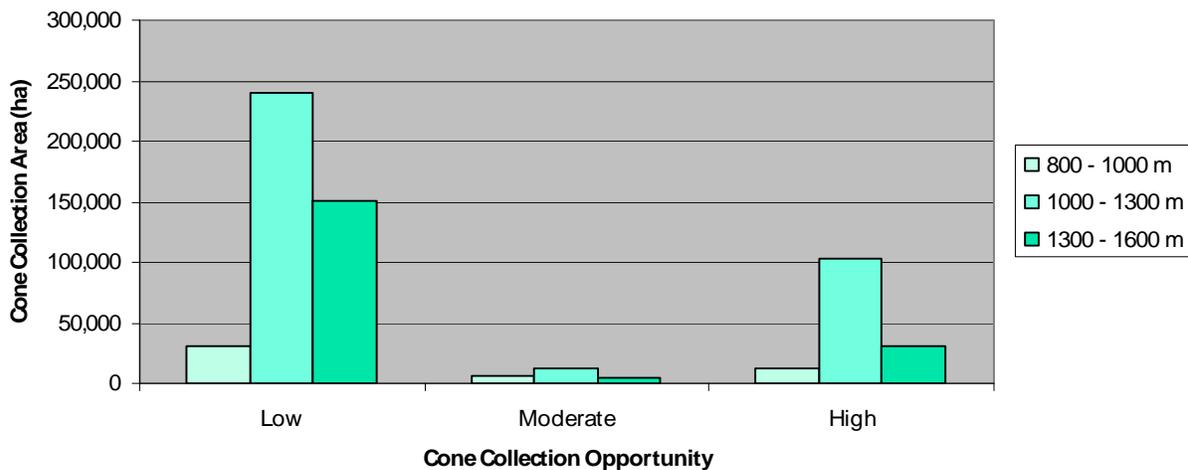


Figure 2. Example of a Potential Cone Collection Summary

Data Limitations

The following limitations are associated with the source and/or derivative data layers:

- These maps are not intended to replace on-the-ground verification; or negate the need to look at current or forecast seed inventories.
- The data were developed for province-wide and regional scale assessment purposes. The scale limitations with the data should be considered if they are to be used for local scale applications.
- The Western larch climate change Seed Planning Zones are based on a raster dataset which results in a stepped or blocky appearance along boundaries.
- The natural stand seedlots are based on current inventories identified in the Seed Planning and Registry system (SPAR). In some cases, particularly with older seedlots, the spatial accuracy may be limited or unconfirmed.
- The year-of-death change detection analysis, and the resultant MPB attack status, attack severity and opportunity attributes, are based on a LandSat-based classification and, while the results are accurate at the management unit-wide (i.e., Timber Supply Area) level, it should be understood that significant inaccuracies may potentially occur in portions of a MU.
- The pine mask is a function of the accuracy of the species assignments within the VRI dataset.
- While efforts were made to update the VRI where possible (i.e., by integrating recent cutblocks and small scale salvage polygons) there are potentially temporal issues with the VRI because in some portions of the study area this dataset is based on photos taken over ten years ago.
- The VRI dataset is updated on an ongoing basis to incorporate temporal changes and to improve the accuracy of the dataset. The pine mask is derived from the VRI and, as a result, it varies according to the VRI from year to year.

For more information

Your participation and feedback is welcome. Please contact us if you would like access to the spatial data files (geodatabase); more information on the interactive PDF maps; or, if you would like to participate in the development of additional GRM / Seed Planning impact and opportunity mapping projects for your operating area.

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For more information, see the **MPB Mapping Methodology – Overview (2008 update) Report** and the **Seed Planning Mapping, Summary Report, March 2011** available on the MFLNRO, Forest Analysis and Inventory Branch, Remote Sensing web page at: http://www.for.gov.bc.ca/hts/rs/mpb_impact/mpb_impact2009.html; or follow the links on the:

MFLNRO, Tree Improvement Branch, Seed Planning web page at: <http://www.for.gov.bc.ca/hti/seedplanning/seedplanning.htm>.