Directive No. 2013-01 **Date** April 2013

Subject

Mountain Pine Beetle Level 2 Harvest Priorities and Approval Process

Purpose

The Alberta Mountain Pine Beetle Action Plan (2007) outlined both long term (the Pine Strategy) and short term (the Beetle Strategy) strategies to mitigate the spread and impact of mountain pine beetle (MPB). The Provincial prime MPB control objectives are to slow the spread further eastwards into the Boreal forest and to reduce the spread and impact to the major watersheds of the eastern slopes.

The Pine Strategy (later renamed the "Healthy Pine Strategy") was implemented to reduce the amount of timber susceptible to the MPB and thereby reduce the spread of the beetles and the potential impact of the beetles. Forest Management Agreement (FMA) holders amended their management plans to reduce the amount of susceptible pine on their operating landbase.

The Beetle Strategy includes aggressive detection, detailed aerial and ground surveys, single tree treatment, and harvesting and timely processing of currently infested trees, in particular, trees that pose a high risk of spread (high beetle risk). In the simplest terms, high beetle risk is defined as having currently infested trees in clumps of three or more in highly susceptible stands. The Government of Alberta also defines beetle risk through the use of a MPB Decision Support System (DSS) that considers the number of currently infested trees, the susceptibility of the stand, the connectivity of the stand, and other biological measurements.

Block or patch harvesting of MPB infested trees is defined as "level 2 harvest" in the Mountain Pine Beetle Action Plan for Alberta and the Alberta Mountain Pine Beetle Management Strategy. In order to maximize the effectiveness of level 2 harvest in controlling beetles, companies should focus harvest in areas that pose a high beetle risk. Harvesting in low beetle risk areas is not as effective at controlling the beetle population or mitigating the long term potential beetle impacts.

This Directive defines high beetle risk areas, provides direction regarding the priorities for level 2 harvest, and also clarifies the approval process and conditions for harvest approval.

Policy

Level 2 Harvest Vs Healthy Pine Strategy

Companies are directed to continue to plan using their approved spatial harvest sequence (SHS) under the Healthy Pine Strategy. This supports the Provincial Forest Management Planning process, provides companies with some certainty towards the area(s) where they can plan harvesting from year to year, and ensures that harvest is directed to the most susceptible stands. If high beetle

risk areas can be harvested and are already part of the SHS, companies should make adjustments to the year of harvest to log high beetle risk SHS blocks preferentially over low risk SHS blocks. If high beetle risk areas outside of the approved SHS are deemed feasible for harvest by industry, the Department will consider approval of variance from the SHS. All Annual Operating Plans (AOPs) will be reviewed by the Forestry Program Manager considering the following harvest priorities:

1. High beetle risk harvest areas that are included in an approved Spatial Harvest Sequence.
2. High beetle risk harvest areas that are economically feasible to harvest and have acceptable impact(s) to non-timber values outside of an approved Spatial Harvest Sequence.
3. Low beetle risk harvest areas that are included in an approved Spatial Harvest Sequence.

Annual Review of Directive
To reflect the possibility of significant MPB population changes in Alberta over time, the Directive will be reviewed annually by the Department.

Procedure

Defining High Beetle Risk Harvest Areas

High beetle risk harvest areas are:

1. Harvest areas having 3 or more currently infested trees with at least one stand with a susceptibility index (without climate factor) of 63 or greater, or,
2. Harvest areas with at least one high or very high rated beetle patch as calculated using the Department's science based MPB Decision Support System Risk Analysis.

Stand Susceptibility

The Stand Susceptibility Index (SSI) shape files and coverage data are available from the Department. If the actual characteristics of the stand in the field are not truly represented by the Alberta Vegetation Inventory based SSI ranking, the company can request a new susceptibility assessment from the Department. The Department may require the company to provide some basic tree measurement and stand composition data from the company to facilitate this request.

Number of Infested Trees

The number of currently infested trees can be estimated in two ways:

1. The Department will analyze the annual aerial MPB surveys and the green:red data to identify the stands that have a high probability of containing infested trees and will provide an estimated number of infested trees in each harvest area. In areas where the Forest Health Officer is confident the green:red surveys and aerial overview surveys are accurate, the number of infested

trees can be assumed without any field verification.

2. In areas with variable green:red survey results, or in areas where the green:red sampling is not adequate, the estimated number of infested trees may require field sampling to identify the presence of, and the number of, infested trees in a proposed harvest area. The infested trees must be confirmed by a Regulated Forestry Professional. If ground verification is required, the companies shall follow the procedures described in Directive No. 97-05: Calculation of Timber Dues - Marginal Coniferous Saw Timber. All ground survey results must be reported to the Department within 2 weeks of the survey.

For Level 2 planning and approval purposes, MPB are not considered naturally occurring in stands baited with bark beetle aggregation pheromones unless there are more than a total of 5 spill-over attacked trees within 50 meters of any pheromone. A MPB-attacked tree occurring more than 50 meters from pheromone bait is considered to have naturally-occurring MPB.

The Department's science based Decision Support System Risk Analysis results.

Each year, the Department will assign a level of risk to all infested trees in the Leading Edge and Active Holding Zones. Both of these zones are described on Alberta's MPB website at http://www.mpb.alberta.ca/AlbertasStrategy/ShortTermStrategy/Default.aspx. The risk of beetle spread is calculated using science based parameters such as the stand characteristics, the estimated number of infested trees, the connectivity of the stand, and other potential factors such as weather patterns and location. The decision support system results are provided to industry as soon as they are available in the fall once the aerial surveys and ground assessments are completed. This is usually no later than October 15.

Procedure for Approving Level 2 Harvest

The Timber Management Regulation (TMR) section 100(1)(a) governs the harvesting of timber according to an approved Annual Operating Plan (AOP). The Annual Operating Plans are normally submitted to the Department in the spring (March to May). It is recognized that the lifecycle of the MPB does not match the timing of Alberta's harvest approval process and that more information regarding MPB population numbers and survival will become available after the AOP has been submitted and approved. To accommodate this difference, the following process will be used.

1. In March to May, companies will consider the most current data available when preparing AOPs. This includes aerial surveys, green to red ratio surveys, beetle risk assessments (DSS results) from the previous fall, the previous winter's Level 1 and Level 2 control program, and any overwintering success surveys from the current spring (some years these are not available until June and may not be available for AOP development). It is understood that most

companies submit more blocks into their AOP than they actually plan on harvesting.

2. The Forest Health Section completes aerial surveys and green:red surveys in August and September. All surveyed beetle information is assigned a risk of spread using the Department MPB Risk Decision Support System (DSS). The DSS results, red tree locations, and green:red survey results are provided to industry as soon as they are available and usually no later than October 15.
3. The forest tenure holders and the Department will meet each fall once the aerial surveys, green:red surveys, and the DSS analysis is completed.
4. An Annual Action Plan prepared jointly by the Department and the management unit tenure holder(s) should identify any high beetle risk locations and identify opportunities for Level 2 harvest in the high beetle risk areas. The Annual Action Plan will integrate Level 2 harvesting, all other harvesting, and the Level 1 control activities. Where feasible, existing AOPs may be amended to facilitate the latest survey information. At this time companies will identify:
   A. Level 2 blocks in the AOP that it will harvest before break up (no need for level 1)
   B. Level 2 blocks in the AOP that it will not harvest before break up (level 1 control required)
   C. Level 2 blocks in the AOP that are still uncertain.
5. By March 1, the company must notify the Forestry Program Manager in writing if any approved Level 2 harvest areas will not meet the July 1 deadline, identifying the cause (e.g., weather, roads etc).
6. In March to May, companies will begin the new AOP process.

Annual Operating Plan Conditions
All Level 2 AOPs shall clearly identify:

1. All proposed harvest areas that contain infested trees.
2. The method of determining the presence of infested trees (i.e. aerial surveys and green:red ratios/walkthrough detection surveys/other methods) and the estimated number of infested trees in the harvest area.
3. The proposed harvest areas that meet the definition of "high beetle risk".

Any Level 2 Harvest approval outside of the Inactive Holding Zone shall be conditional on the milling and/or debarking of resulting pine volume before July 1, or transportation to an area protected by an approved log management plan before July 1, or transportation to an area with a relatively low risk of beetle damage or spread before July 1, to the satisfaction of the Forestry Program Manager. This is in keeping with section 100(1)(d), which specifies

that timber must be removed and manufactured as it is cut.

By March 1, the company must notify the Forestry Program Manager in writing if any approved Level 2 harvest areas will not meet the July 1 deadline, identifying the cause (e.g., weather, roads etc). If the infested trees pose a significant risk of spread (as determined through DSS analysis), and if funding is available in the Forest Resource Improvement Association of Alberta (FRIAA) Mountain Pine Beetle Program, the Department may require the company to coordinate a Level 1 control or baiting program in these harvest areas using FRIAA funds. If FRIAA funding is not available, the Department may use Level 1 control tactics if funding and suitable timing is available.

All current Department Policies and Directives still apply including the MPB Log Management Directive and the Pesticide, Bark Beetle Pheromone and Biological Control Use Guidelines for Forest Pest Management.

Definitions

Level 2 Harvest - Block or patch harvesting of MPB infested trees.

High Beetle Risk Area – Calculated based on the number of MPB infested trees and the susceptibility of the stand or by the Department's Decision Support System Risk analysis.

Green:Red Surveys (Ratio): A green to red ratio value is a traditional measure that compares green trees attacked during the current year with red fader trees attacked one or several years earlier. In the fall, after beetle flight, ESRD calculates the green:red ratio by comparing the number of new green attacked trees on the ground with the number of red fader trees in the local area. The green to red ratio indicates the overall population trend in any given site and considers both local beetle production and any beetles arriving to the site from long range dispersal events.

Mountain Pine Beetle Infested Tree - Currently infested tree, equal to or greater than 15cm diameter at breast height, with naturally occurring, live MPB larvae and at least 40 beetle attacks. This aligns with the latest science, observations of the Forest Health staff, and the Provincial MPB management strategy.

Healthy Pine Strategy - The Alberta Mountain Pine Beetle Action plan (2007) outlined the Provincial Long-Term Actions: the Pine Strategy to manage MPB. The Provincial Government directed Forest Management Agreement (FMA) holders to amend their current management plans to reduce the amount of susceptible pine on their operating landbase by 75 per cent over the next 20 years. The Healthy Pine Strategy refers to actions taken to reach this goal.

Beetle Strategy - The Alberta Mountain Pine Beetle Action plan (2007) outlined the beetle strategy that included aggressive detection, detailed aerial and ground surveys, single tree treatment, and harvesting and timely processing of currently infested trees, in particular, trees that pose a high risk of spread (high beetle risk).

Authorities	***Environmental Protection and Enhancement Act*** ***Forests Act***
Cross-Reference	Forest Management Policy Directive 2011-04 - Mountain Pine Beetle Log Management Forest Management Policy Directive 2006-06 – Importation of Conifer Logs and Forest Products with Bark Attached Forest Management Policy Directive 2007-02 – Debris Management Standards for Timber Harvest Operations Forest Management Policy Directive 2004-03 - Pesticide, Bark Beetle Pheromone and Biological Control Use Guidelines for Forest Pest Management Forest Management Directive No. 1997-05 - Calculation of Timber Dues - Marginal Coniferous Saw Timber Alberta Forest Management Planning Standard Interpretive Bulletin – Planning Mountain Pine Beetle Operations Mountain Pine Beetle Action Plan for Alberta Mountain Pine Beetle Management Strategy Logyard Management Standards for FRIAA SRD Mountain Pine Beetle Management Guide Timber Harvest Planning and Operating Ground Rules Timber Management Regulation: Section 164.1(3), Section 100(1)(a), Section 100(1)(d). Forest and Prairie Protection Act: Section 28
Contacts	Daniel Lux (Manager, Forest Health Section) – 780-644-2246
Approved	4 APRIL 2013 Darren Tapp Executive Director, Forest Management Branch