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SECTION 1

INTRODUCTION



1 INTRODUCTION

1.1 Mountain Pine Beetle Epidemic

Western Canada is currently experiencing the largest Mountain Pine Beetle (MPB) epidemic in history. Although MPB is a naturally occurring insect in BC's forests, historical forest management practices (fire suppression in particular) have created an uncharacteristically old forest that is more susceptible to MPB attack. Pine mortality in BC is projected to increase for the next 10 years at which time pine volume loss will total 80% (BC Ministry of Forests, 2004). As such, the MPB pressure on Alberta's forests from the epidemic in BC will continue to increase.

At the Alberta provincial level, findings indicate that a very successful beetle flight took place in 2006. As of November 9, 2006, SRD estimates the number of infested trees in Alberta range between 800,000 and 1.5 million. This represents a significant increase when compared to the approximately 14,000 infested trees identified in 2005-2006. Numerous MPB infestations have been confirmed throughout the ANC FMA area, some dating back to the 2005 flight. Following the initial discoveries over the summer of 2006, numerous surveys both within the ANC FMA area and neighboring FMA areas have been carried out by various agencies with new infestations being identified on a regular basis.

1.2 MPB Management in Alberta

In September, 2006, the Alberta provincial government released the 'Mountain Pine Beetle Action Plan for Alberta' and the 'Interpretive Bulletin: Planning Mountain Pine Beetle Response Operations'. The objectives of the Action Plan are to:

- 1) Effectively detect, accurately survey and aggressively control infested trees;
- 2) Reduce the number of highly susceptible stands;
- 3) Minimize the impact of a major outbreak;
- 4) Establish SRD policies and procedures to facilitate efficient and timely MPB management;
- 5) Conserve all of the long-term forest values and maintain and protect public health, safety and infrastructure;
- 6) Maintain a project management structure that ensures effective planning and implementation of mitigation measures among all land managers and adjacent jurisdictions;
- 7) Communicate to all clients and stakeholders.

Three strategies for MPB control on Provincial lands are presented in the Action Plan:

- 1) Control Strategy (Beetle): Focuses on the treatment of infested trees;
- 2) Prevention Strategy (Pine): Addresses the need to reduce the overall susceptibility of the pine forest;
- 3) Salvage Strategy: Mitigates impacts if a large scale outbreak occurs.

1.3 MPB Management on the ANC FMA

Alberta Newsprint Company (ANC) recognizes the threat MPB poses to their Forest Management Agreement (FMA) area, and as a result they are taking a proactive approach to MPB management. The purpose of this document is to present ANC's pine management strategy (prevention strategy) which:

- 1) Results in a revised Preferred Forest Management Strategy (PFMS) from the current Detailed Forest Management Plan (DFMP) for the ANC FMA;
- 2) Develops a new spatial harvest sequence (PFMS) with the objective of reducing the FMA susceptibility to MPB attack;
- 3) Demonstrates the sustainability of the revised PFMS.



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SECTION 2

ANC FMA DESCRIPTION



2 ANC FMA DESCRIPTION

As outlined in ANC’s DFMP, the ANC FMA area’s east-west boundary is marked by Ranges 5-17 and its north-south boundary is marked by Townships 55-63. The FMA is also subdivided according to areas (called FMUs) that are used for forest management planning: Pine/W8 (38,700 ha), Little Smoky/W1 (225,600 ha), Foothills/E7 (86,200 ha) and Berland/E6 (23,300 ha), to equal approximately 373,900 ha.

The FMA area is also subdivided by 4 natural subregions: central mixedwood (8,800 ha), lower foothills (171,400 ha), upper foothills (179,300 ha) and subalpine (14,400 ha). Included in these areas is a special management area, the Caribou Zone (172,000 ha). The FMA area is comprised of approximately 94% productive forest, 5% non-forested and 1% recreational area.

2.1 Pine Distribution

The ANC FMA is largely composed of pine. Table 2-1 presents ANC’s FMA composition by cover type. Map 2-1 presents the cover type distribution across the ANC FMA.

Table 2-1: ANC FMA Cover Type Distribution

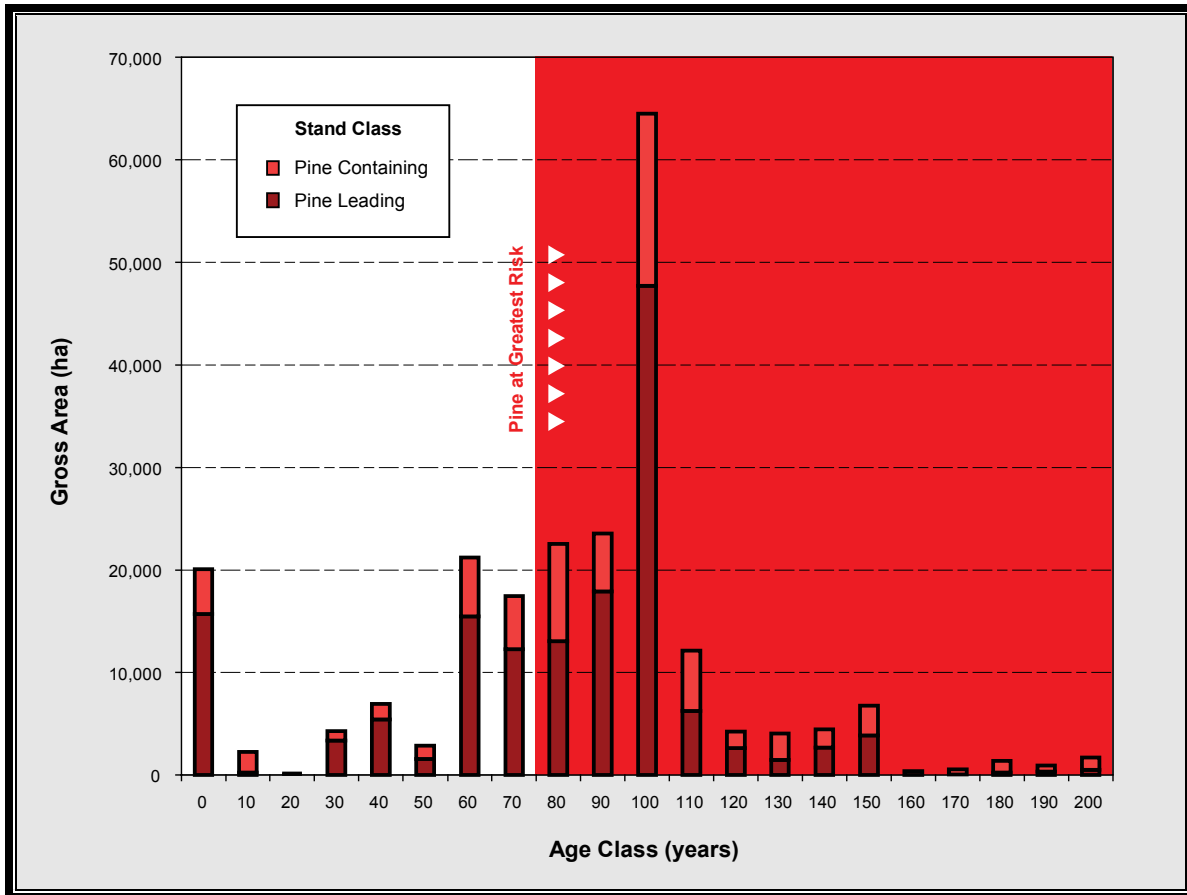
Cover Type ¹	Gross Area (ha)	Percent of Total Area (%)
Softwood – Pine Leading	143,221	38.3%
Softwood	162,879	43.6%
Softwood Dominated Mixedwood – Pine Leading	7,895	2.1%
Softwood Dominated Mixedwood	4,211	1.1%
Hardwood Dominated Mixedwood	12,984	3.5%
Hardwood	25,314	6.8%
Non Forested	17,324	4.6%
Total	373,827	100.0%

¹ Cutblocks were assigned to a cover type based upon the assigned yield curve in the DFMP (Silviculture Declaration).

2.2 Age Class Distribution

At endemic levels, MPB typically does not attack small diameter, young pine; generally, pine stands >80 years in age are deemed more susceptible to attack. As a result, an age class distribution can provide a general indication of the level of MPB susceptibility. Figure 2-1 presents the current age class distribution of pine stands across the ANC FMA. There are currently 96,893 ha of pine leading stands greater than 80 years old and an additional 50,363 ha of pine containing stands greater than 80 years old. Approximately 40% of the ANC FMA area is represented by these types of stands.

Figure 2-1: Pine Age Class Distribution



2.3 MPB Pine Stand Ranking

2.3.1 ANC FMA MPB Pine Stand Ranking Process

The ANC FMA area underwent three separate classifications, from which a Pine Stand Ranking was determined at the stand level. The required steps are outlined within the SRD *Interpretive Bulletin* 'Planning MPB Response Operations, Version 2.6 September 2006'. The three classifications are defined as follows:

- Stand Susceptibility Index (SSI): determined via stand conditions (species composition, density and age) where a higher rating equates to a higher impact that a MPB infestation will have on a stand;

- Climate Factor: developed by Natural Resources Canada's Pacific Forest Centre. It modifies the pine rating based on the negative impacts that climate conditions have on the ability of MPB to survive the overwintering process. Thus, stands experiencing colder winters have the pine rating reduced to a greater extent through the climate factor whereas stands experiencing warmer winters have the pine rating reduced to a lesser extent;
- Compartment Risk: identifies the probability that a compartment will be attacked based on existing MPB populations. This assessment was conducted by the regional Forest Health Officer and all compartments wholly or partially west of the 6th meridian are considered as high risk compartments and all other compartments considered moderate.

These three classifications contribute to calculating the Pine Stand Ranking which is used as a primary input in the determination of the selected PFMS. The rank is categorized in the following order: Rank 1 (greatest risk), Rank 2, Rank 3 and Rank 0 (least risk). Tables 2-2 and 2-3 outline the FMA area by rank class. Map 2-2 and Map 2-3 provides a geographic representation of the Pine Stand Ranking distribution across the ANC FMA (SRD defined caribou habitat quality information is also provided for reference).

Table 2-2: Area and Volume Summary of Gross Landbase and Net Landbase by MPB Pine Stand Ranking: 1999 Effective Date

AREA AND VOLUME BY PINE STAND RANKING; GROSS AND NET FMA AREA (1999 EFFECTIVE DATE)¹						
Pine Stand Ranking	Gross Landbase Area			Net Landbase Area		
	Area (ha)	Conifer Volume² (m³)	Deciduous Volume³ (m³)	Area (ha)	Conifer Volume (m³)	Deciduous Volume (m³)
Rank 1 (greatest risk to MPB)	68,217	11,225,622	515,157	65,053	11,046,186	504,533
Rank 2	120,163	19,502,380	3,130,284	111,763	18,916,369	3,043,740
Rank 3	21	1,578	47	5	1,578	47
Rank 0 (least risk to MPB)	185,426	10,320,396	3,223,490	105,861	9,398,546	3,083,565
Total	373,827	41,049,975	6,868,979	282,683	39,362,678	6,631,886

¹ Rank analysis based on stand conditions and ages at 1999 (the effective date of the DFMP SHS)

² Predicted conifer volume based on DFMP yield curve estimates.

³ Predicted deciduous volume based on DFMP yield curve estimates.

Table 2-3: Area and Volume Summary of Gross Landbase and Net Landbase by MPB Pine Stand Ranking: 2019 Effective Date

AREA AND VOLUME BY PINE STAND RANKING; GROSS AND NET FMA AREA (2019 EFFECTIVE DATE)¹						
Pine Stand Ranking	Gross Landbase Area			Net Landbase Area		
	Area (ha)	Conifer Volume² (m³)	Deciduous Volume³ (m³)	Area (ha)	Conifer Volume (m³)	Deciduous Volume (m³)
Rank 1 (most risk to MPB)	71,260	11,510,184	525,524	68,188	11,330,592	515,049
Rank 2	117,120	19,217,818	3,119,917	108,629	18,631,962	3,033,225
Rank 3	21	1,578	47	5	1,578	47
Rank 0 (least risk to MPB)	185,426	10,320,396	3,223,490	105,861	9,398,546	3,083,565
Total	373,827	41,049,975	6,868,979	282,683	39,362,678	6,631,886

¹ Rank analysis based on stand conditions at 1999, stand ages updated to 2019.

² Predicted conifer volume based on DFMP yield curve estimates.

³ Predicted deciduous volume based on DFMP yield curve estimates.