

Mountain Pine Beetle in Alberta

The New Frontier

FRI Workshop

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Dan Lux P.Bio
Manager of Forest Health
Alberta Sustainable Resource Development



Review of Events prior to 2009

1975 until 1985 – large outbreak in Southern Rockies
did not spread north of the Bow River

1985 until 2000 – no naturally occurring beetles on Provincial land

2002 until 2006 – small beetle populations in pine corridors from British Columbia
We strived to control 100% of known infested trees

2006 – massive in-flight from British Columbia
Smoky and Peace River

2007 and 2008 – some in-flights from British Columbia
Smoky and Peace River

Updated Forecast from BC

<u>Forest District</u>	<u>Current attack Level</u>	<u>Expected Year Peak of Population</u>	<u>Cumulative percent pine expected to be killed by 2015</u>
Dawson Creek	2.7 million m ³	2010 (4.0 million m ³)	71%
Robson Valley	0.3 million m ³	2009 (0.5 million m ³)	64%
Golden	0.1 million m ³	2011 (0.4 million m ³)	61%
Cranbrook	0.2 million m ³	2012 (2.5million m ³)	63%

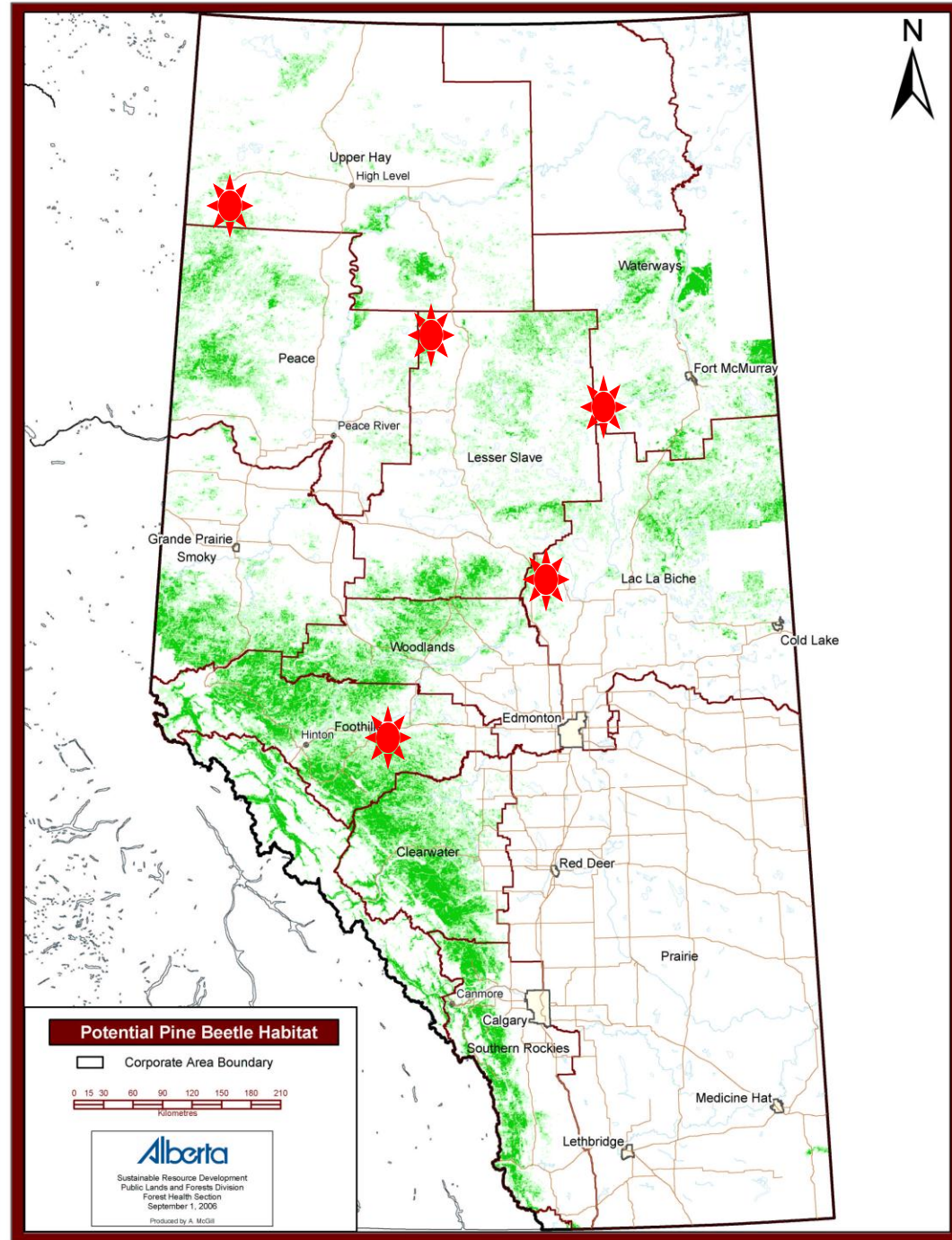
No funding for spread control in BC this summer!

Events over the summer

- In late July, we began to detect a large in-flight of beetles.
- The in-flight occurred in the Peace, Smoky, Woodlands, and LLB, and Foothills Areas

Based on early Dispersal
Bait site monitoring.

These are baited sites and
may not result in natural attacks.





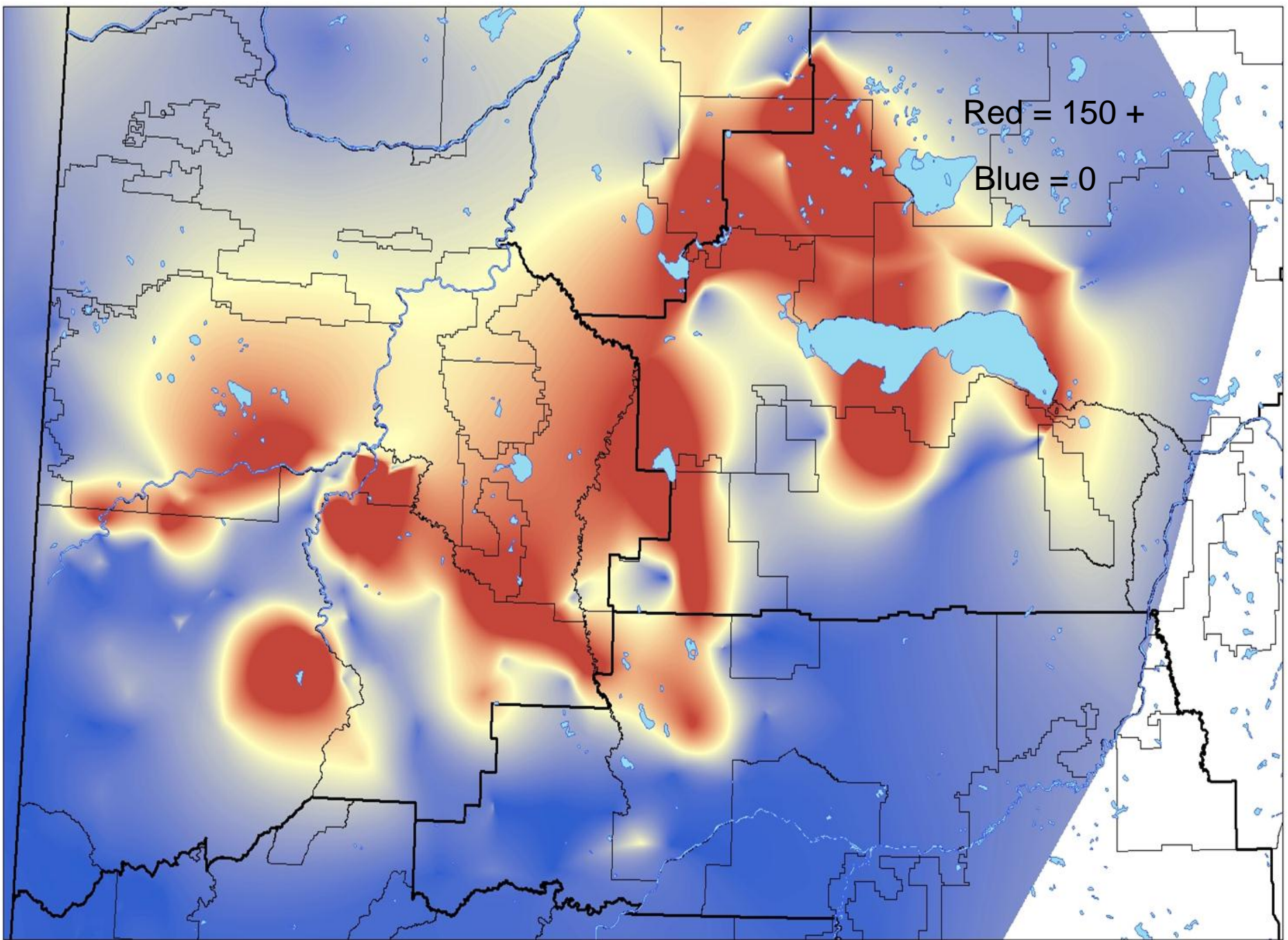
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- The in-flight occurred in the Peace, Smoky, Woodlands, and LLB, and Foothills Areas
- In Mid to late August, during our normal aerial overview surveys, Dale Thomas and Seena Handel reported seeing fading trees as a result of this years attack.
- We delayed our Aerial Surveys 2-3 weeks to allow more trees to fade and to be able to map the current MPB distribution



Red = 150 +

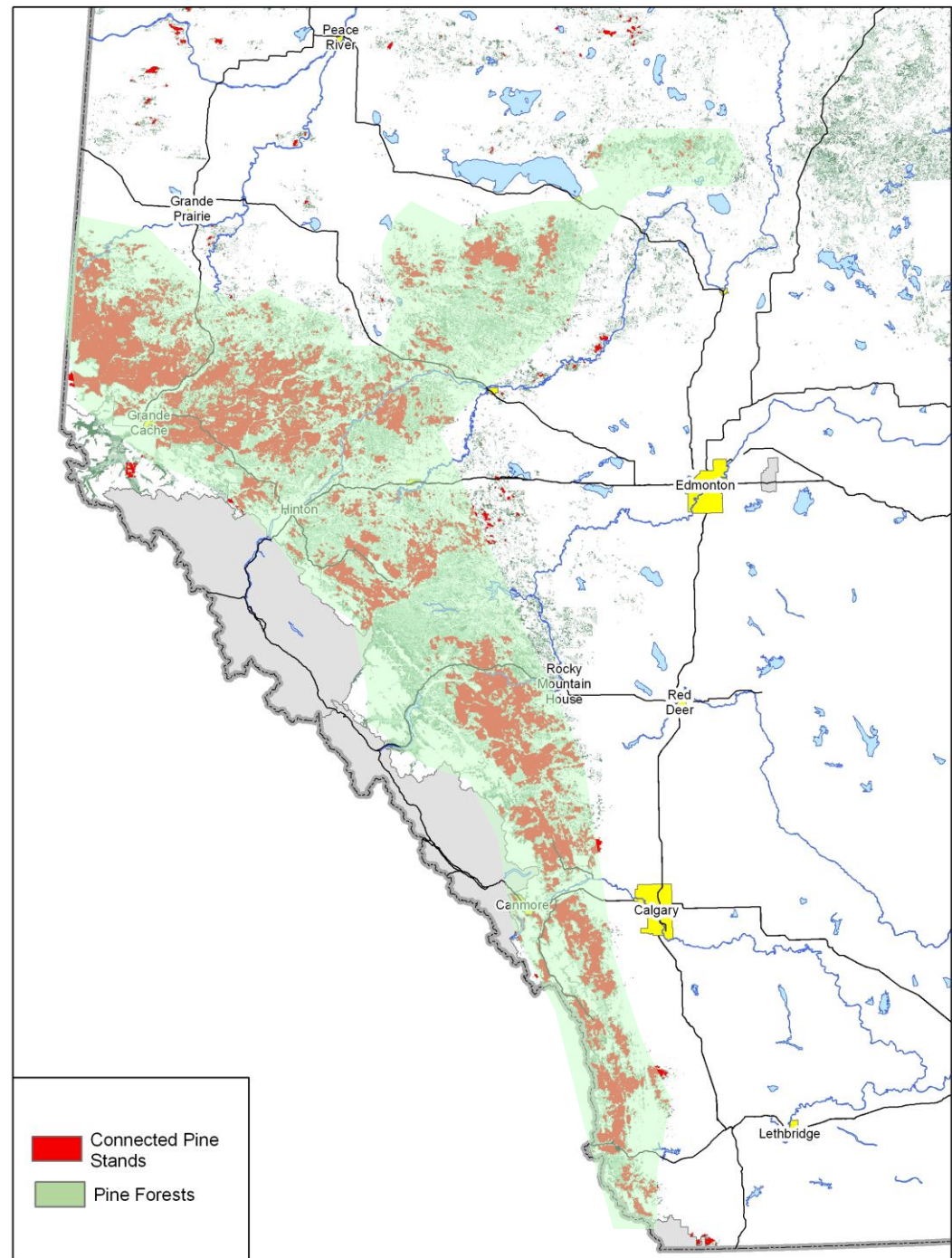
Blue = 0

Principals of Beetle Control

The stands must be a direct threat to the Prime Objectives.

Red indicates highly connected MPB susceptible Stands

Any build-up of beetle populations in this area will threaten the Prime Objectives



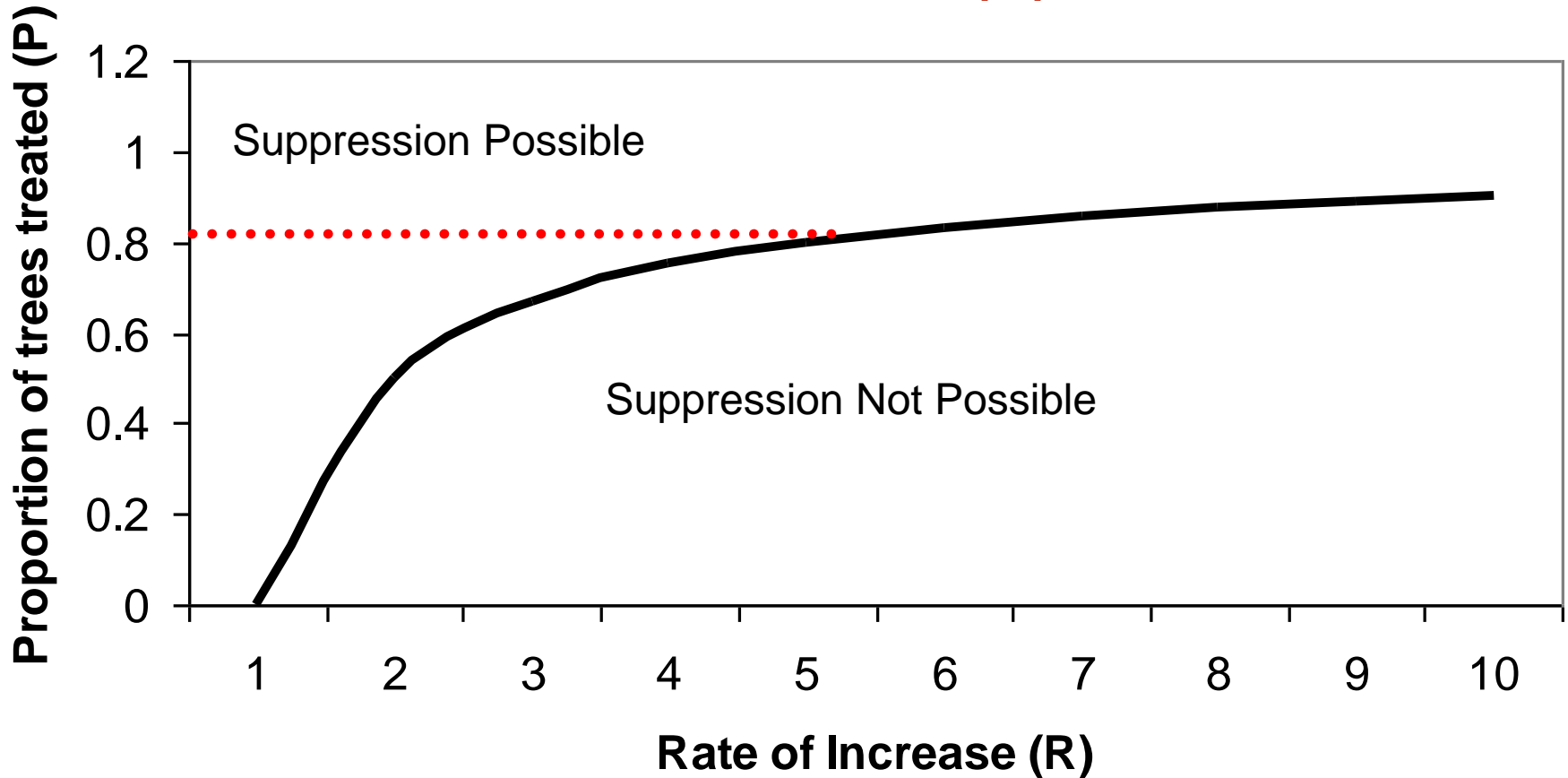
Principals of Beetle Control

The stands must be a direct threat to the Prime Objectives.

80% of the high risk infested trees must be controlled or suppression is not possible. We will only target the areas where 80% control is possible using Level 1 control.

Potential Suppression Success

For suppression to be possible, we need to control over 80% of the population



Principals of Beetle Control

The stands must be a direct threat to the Prime Objectives.

80% of the high risk infested trees must be controlled or suppression is not possible. We will only target the areas where 80% control is possible using Level 1 control.

Only high risk trees are treated.

High number of trees

High Susceptible stands

Highly connected stands (within 5 km radius)

Management Zones

Red = Leading Edge

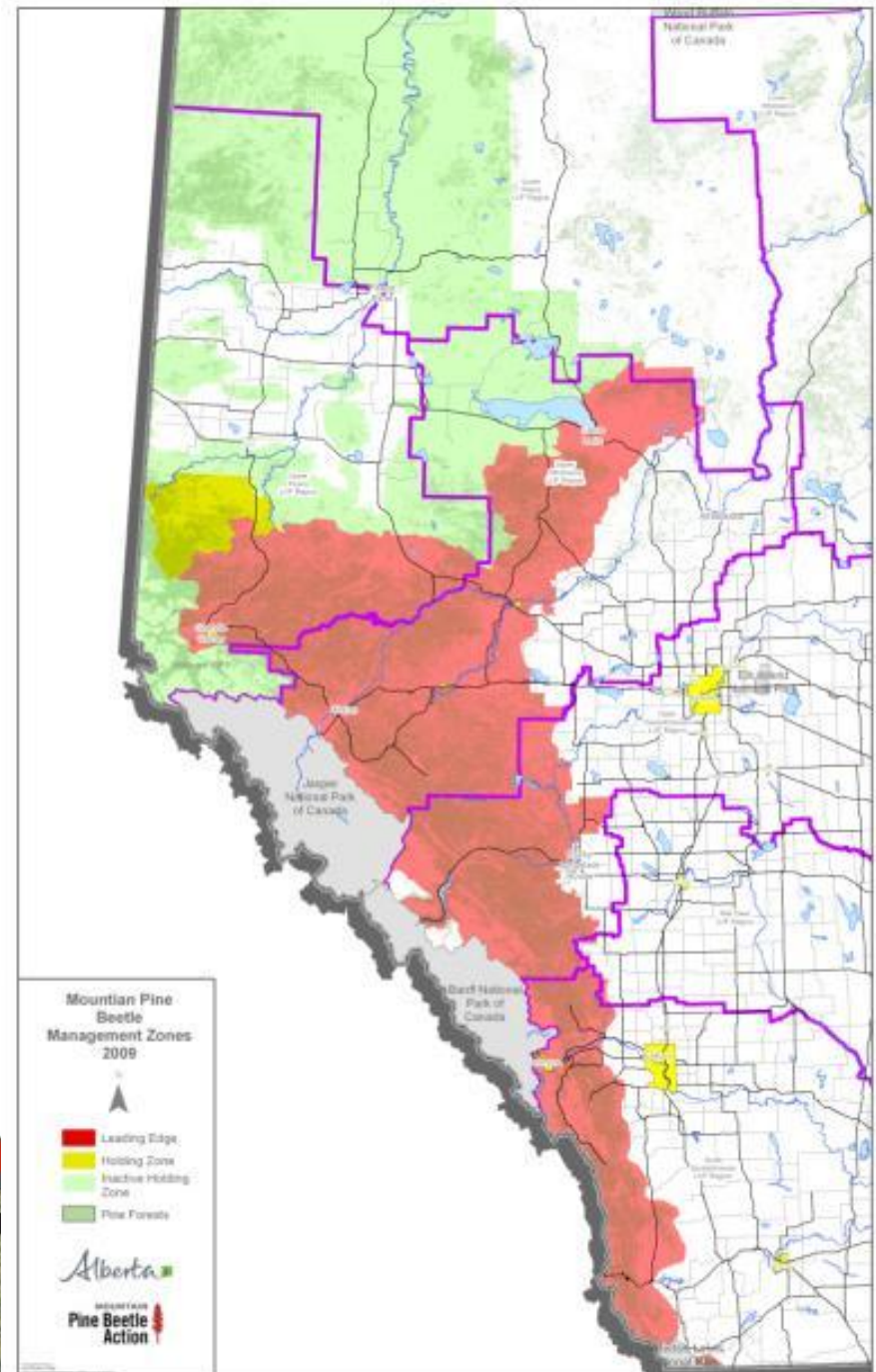
Treat High Risk Patches of 3 trees or more

Yellow = Active Holding Zone

Treat all High Risk Patches of 10 Trees or more

Green = Inactive Holding Zone

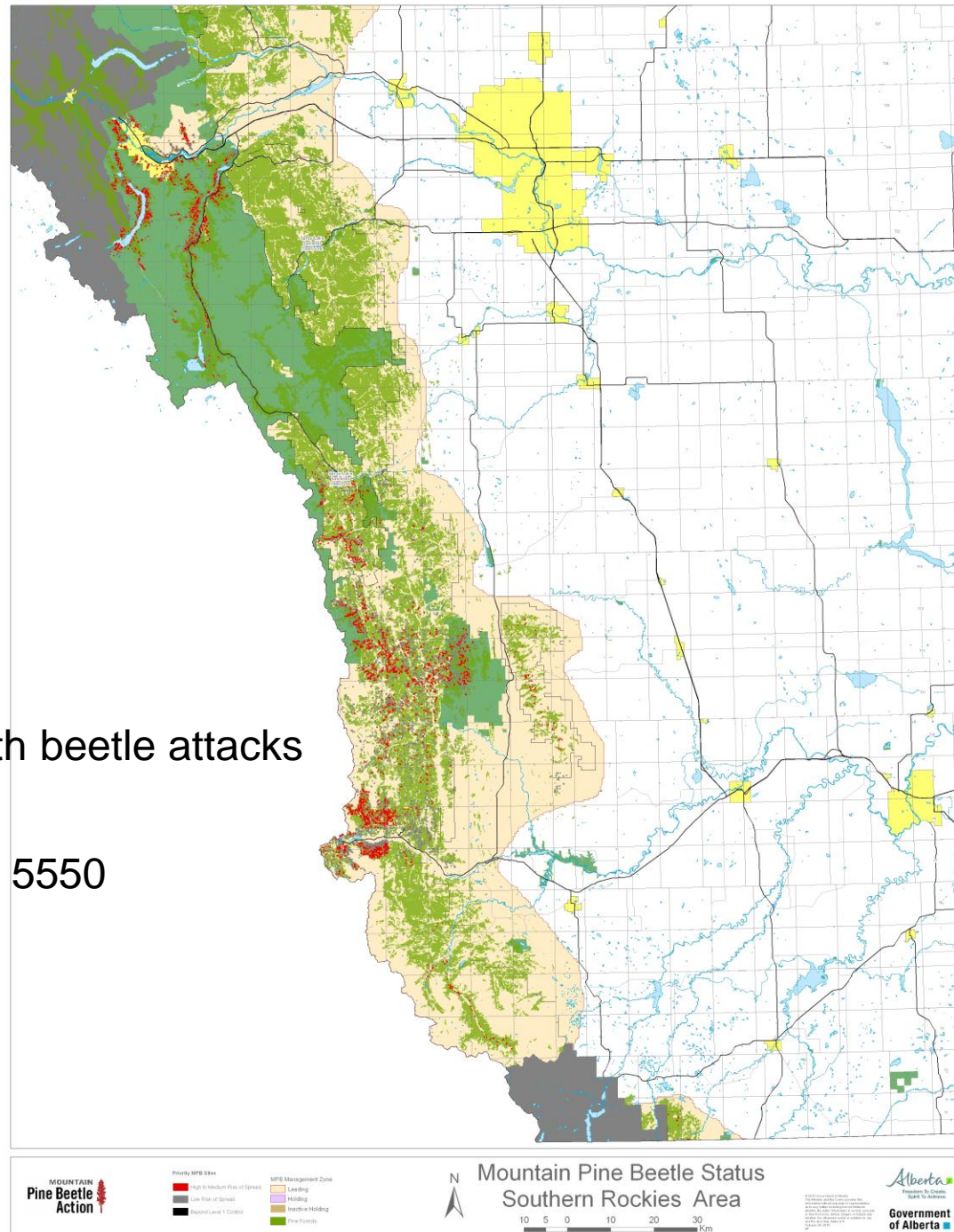
No Level 1 Resources



It is all leading edge

We ground surveyed 15,638 trees with beetle attacks

We will Fall and Treat Approximately 5550



Smoky Forest Area

Estimated
295,590
Trees

Inactive Holding
Zone

Holding Zone

Number of Trees Ground Surveyed = 121,164

Estimated number of Trees to be Felled and Treated =
86,675

Leading Edge

Estimated 7699
Trees

Inactive Holding
Zone

The remaining surveyed trees were not attacked heavily enough to warrant Falling and Treating, or were found in patches of 1 or 2 trees and are a lower risk of spread.

N
Mountain Pine Beetle Status
Smoky Area

9 4.5 0 9 18 27 Km

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Spirit To Achieve.
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Foothills Forest Area

Inactive
Holding Zone

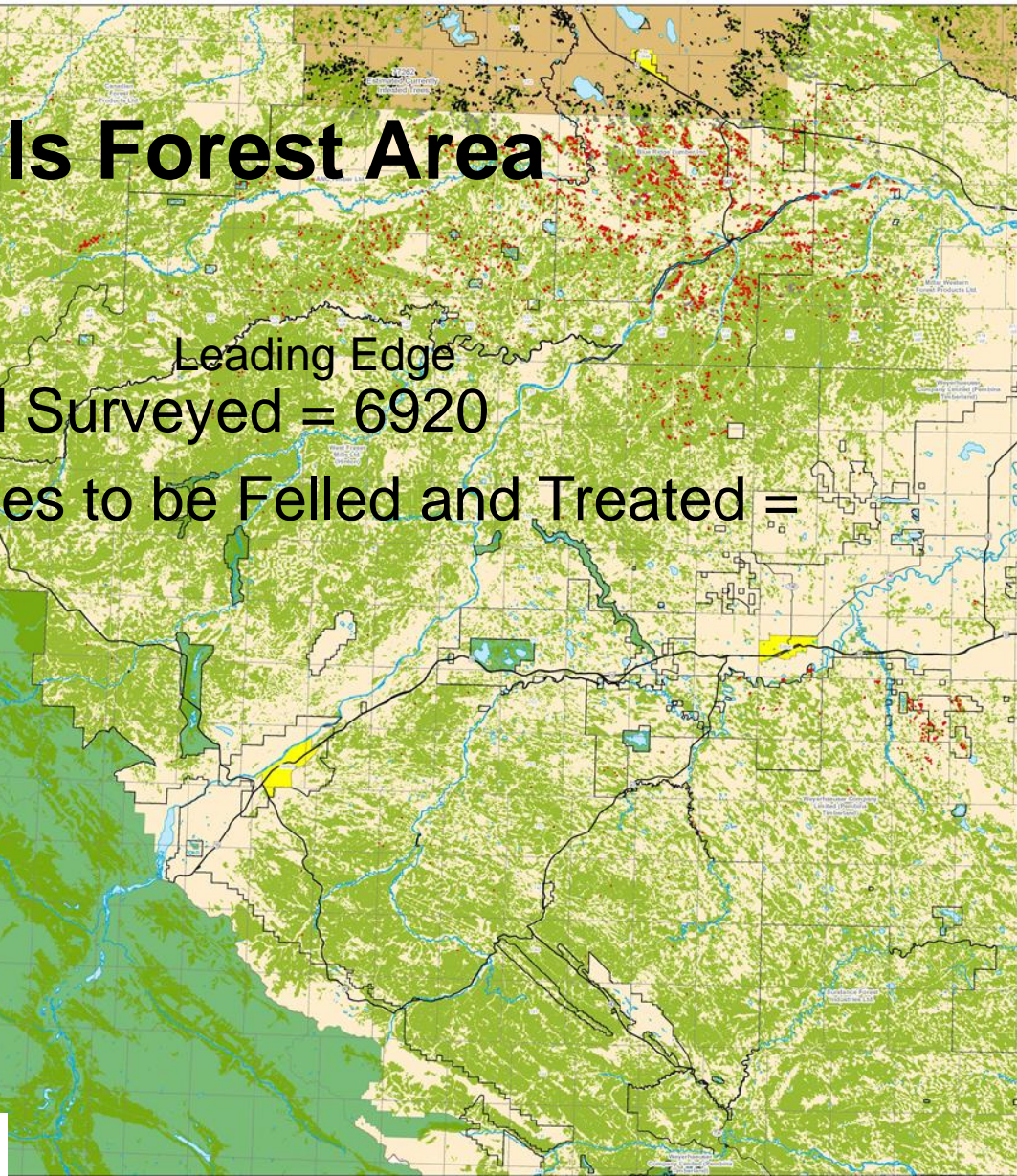
More than 5500
Trees

Leading Edge

Number of Trees Ground Surveyed = 6920

Estimated number of Trees to be Felled and Treated =
3025

The remaining surveyed trees were not attacked heavily enough to warrant Falling and Treating, or were found in patches of 1 or 2 trees and are a lower risk of spread.



Mountain Pine Beetle Status
Foothills Area

10 5 0 10 20 30 Km

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Inactive Holding
Woodlands Forest Area
Estimated 767,354 Trees

Number of Trees Ground Surveyed = 98,706

Estimated number of Trees to be Felled and Treated =
41,035

Leading Edge

The remaining surveyed trees were not attacked heavily enough to warrant Falling and Treating, or were found in patches of 1 or 2 trees and are a lower risk of spread.



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Inactive Holding Slave Lake Forest Area

Estimated 2,883,131 Trees

Inactive Holding
Zone

Number of Trees Ground Surveyed = 25,184

Estimated number of Trees to be Felled and Treated =
17,525

Leading Edge

The remaining surveyed trees were not attacked heavily enough to warrant Falling and Treating, or were found in patches of 1 or 2 trees and are a lower risk of spread.



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Clearwater Forest Area

- There are over 2000 trees along the burn edge of the North Sask Prescribed burn.
- The beetles are showing high mortality and poor development.
- The plan is to complete r-values in the spring, and bait and hold if required.

Provincial Summary

Trees Ground Surveyed = 270,995

Trees Single Tree Treatment (est) = 175,000

- not including Level 2

Estimated number of trees in Inactive Holding Zone (South of Grande Prairie)

= 3,959,274 – very rough guess

Next Steps

Complete r-value surveys across the Province in April. Also gain r-value information (and green:red) information in the BC side along our border to assess risk for this summer.

Install dispersal baits south of Hinton, west of Rocky Mtn House, Peace River, and Lac La Biche to detect any long range dispersal this summer.

Place traps at fire towers to track beetle flight timing.

Aerial Surveys next fall

Other Initiatives

Aerial Surveys using fixed wing aircraft and photography

Fixed Wing Survey Imagery
25cm pixel size

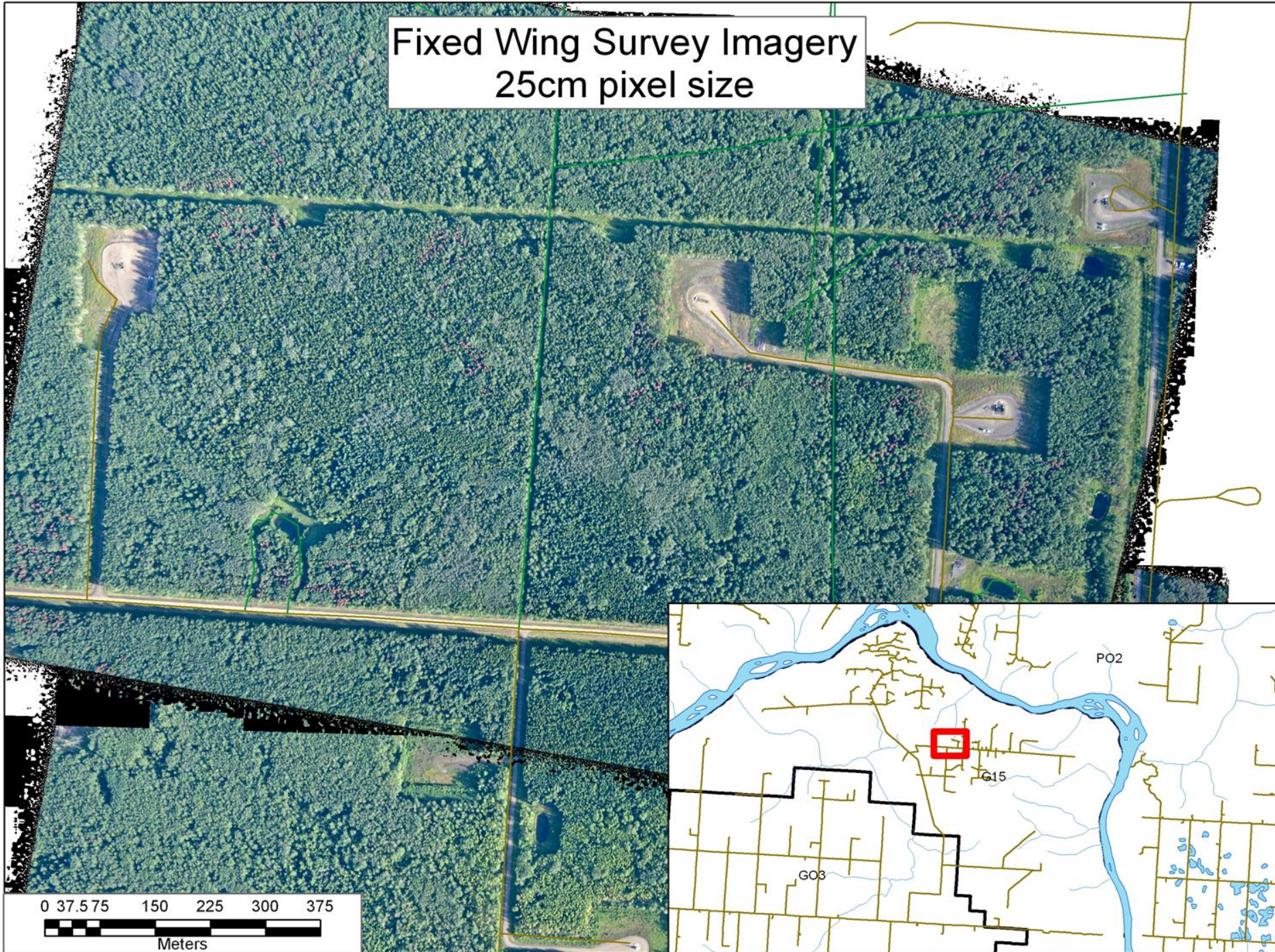
Fairly accurate in
detecting MPB trees
on flat terrain

Quick turn around of
results

Safer than heli-GPS



Fixed Wing Survey Imagery
25cm pixel size



0 37.575 150 225 300 375



Meters

Other Initiatives

Aerial Surveys using fixed wing aircraft and photography

Stands at risk assessment. Time till Death Models

The Future

- We must begin the transition from beetle control to rehabilitation.
- The single tree treatment program is only useful in small populations.
- We need to understand the impacts of a high pine mortality on
 - Habitats
 - Fire behavior
 - Regeneration
 - Timber supply etc.



Dan Lux MPM P.Bio
Alberta Land and Forest Division
Daniel.Lux@gov.ab.ca
(403) 845-8272

Check out our Website:
<http://www3.gov.ab.ca/srd/forests/health/>