

# Forest Health in Alberta

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Alberta

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## Forest Health Vision

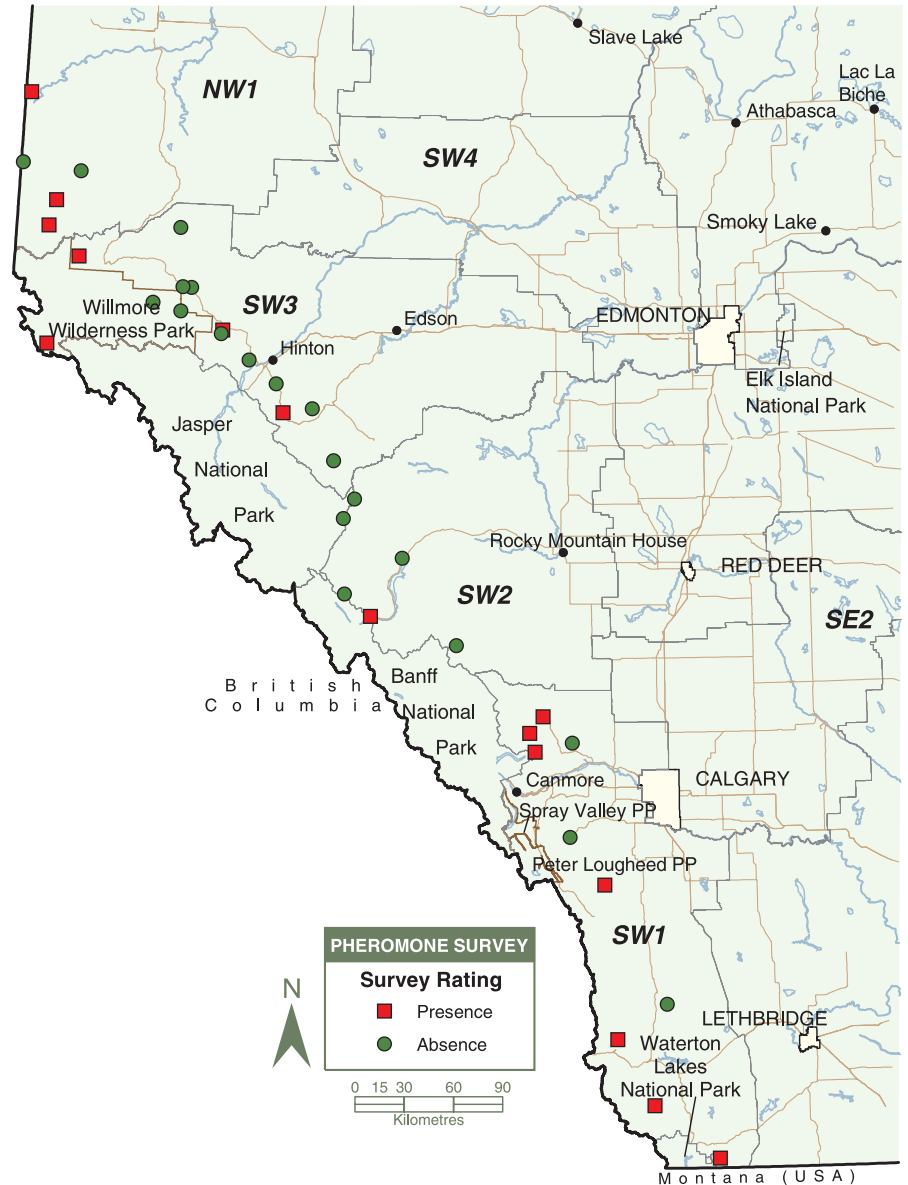
*A healthy forest environment that provides sustainable fibre resources and a diverse forest ecosystem that supports biodiversity and critical wildlife habitats.*



## Mountain Pine Beetle

With unusually mild winter conditions that have prevailed until the end of the year, mountain beetle populations in the province are expected to have better than normal survival. Combined with the availability of susceptible hosts and continued beetle pressure from adjoining jurisdictions, these mild weather conditions are bound to promote new MPB infestations in 2006.

Barring onset of unusually severe cold weather conditions, e.g.,  $-40^{\circ}\text{C}$  for about a week in the winter, new MPB infestations can be expected in 2006 along the Eastern Slopes of the Rockies from Waterton Lake National Park in the south to Kakwa Wildland Provincial Park in the north. As well, beetle infestations are expected to occur further east as indicated by the 2005 detection of beetles in pheromone-baited plots located further east than in 2004 (Figures 7 and 20).



**Figure 20**

Presence/absence of mountain pine beetle hits on trees in pheromone-baited plots located in Alberta, 2005.

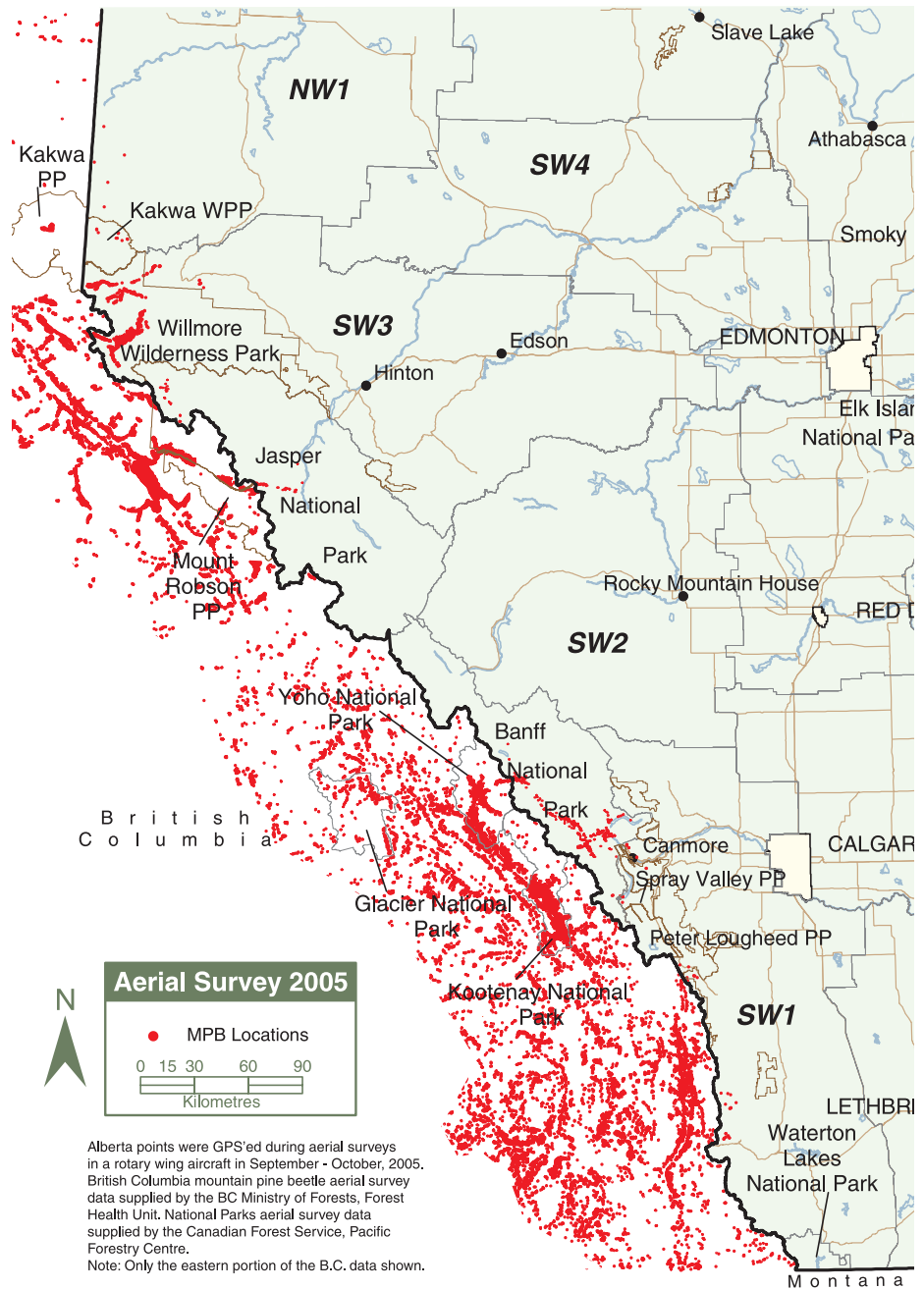


The MPB are expected to occur further north than before. The 2005 fall aerial overview survey map shows occurrence of suspected MPB-killed pines further north and east than before. However, these observations are yet to be verified by ground surveys (Figure 21).

The green:red ratio of infested trees provides an indication of the trend in 2005 MPB populations. A higher ratio indicates potential increase in populations. Given below are the green:red ratios observed in 2005<sup>11</sup>. According to these values the infestations in the south have the highest potential to expand. In the north some MPB populations have adult beetles overwintering and some others are following multi-year cycles (2-3 year) that do not bode well for population expansion.

Location	Green:Red Ratio
Crowsnest Pass	4:1
Spray Lakes	3:1
Bow Valley	1:1
Willmore Wilderness Park	1.6:1
Kakwa Wildland Provincial Park	n/a <sup>1</sup>

<sup>1</sup> (live beetles found in some red trees)



**Figure 21**  
Locations of suspected mountain pine beetle-killed trees detected during aerial surveys carried out in the fall of 2005.

<sup>11</sup> Daniel Lux, Provincial MPB Program Coordinator, pers. communication



## Aspen Defoliators

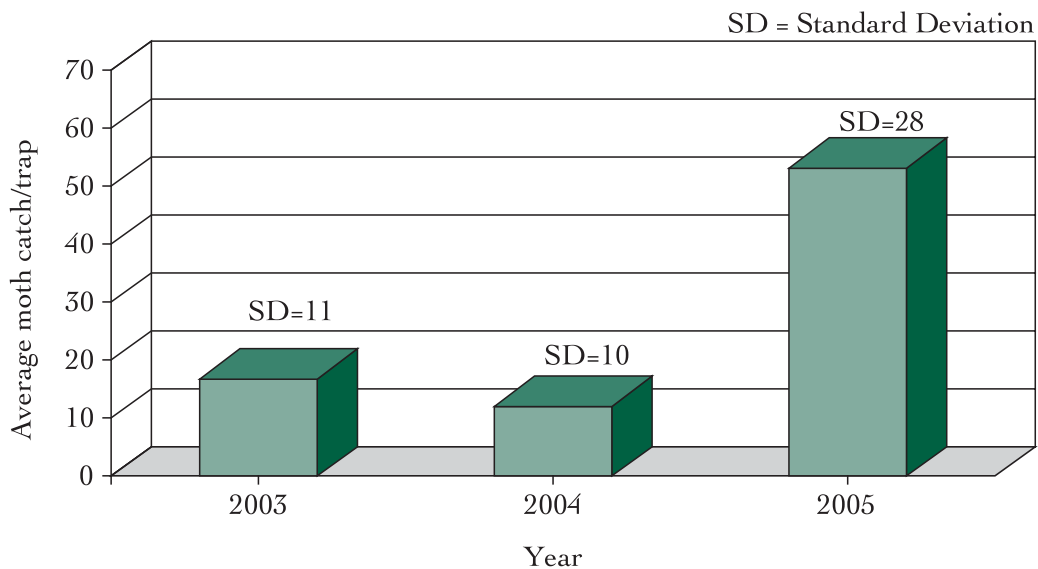
### Forest Tent Caterpillar

**Forest tent caterpillar** (FTC) moth populations in the Northwest Region were monitored by using Unitraps® baited with pheromone lures (Phero Tech Inc., B.C.). A summary of the average trap catches in 10 monitoring plots over three consecutive years is shown on Figure 22.

This figure shows relatively low catches in 2003, no signs of an increase in 2004 and but a major increase of moth catches in 2005. These increases somewhat correspond with increase in severity and extent of

defoliation on the monitoring plots. However, trap catches did not foretell the impending major FTC outbreak before its occurrence.

This perhaps indicates need for a large-scale monitoring program, rather than monitoring local populations, as a key factor in forecasting FTC outbreaks.



**Figure 22**

Average forest tent caterpillar moth catches in 10 Unitraps with pheromone baits deployed in the Northwest Region, 2003 - 2005.



## Exotic Pests

### Gypsy Moth

The Public Lands and Forests Division of the SRD set up 74 traps scattered over the forested Crown land of the province as a part of the annual survey conducted by the Canadian Food Inspection Agency (CFIA). Delta traps baited with Dispalure® were used for this survey. No gypsy moths were found in these traps. Thus, there is no risk of gypsy moth incidence at these 74 trap locations in 2006.



# Research and Development

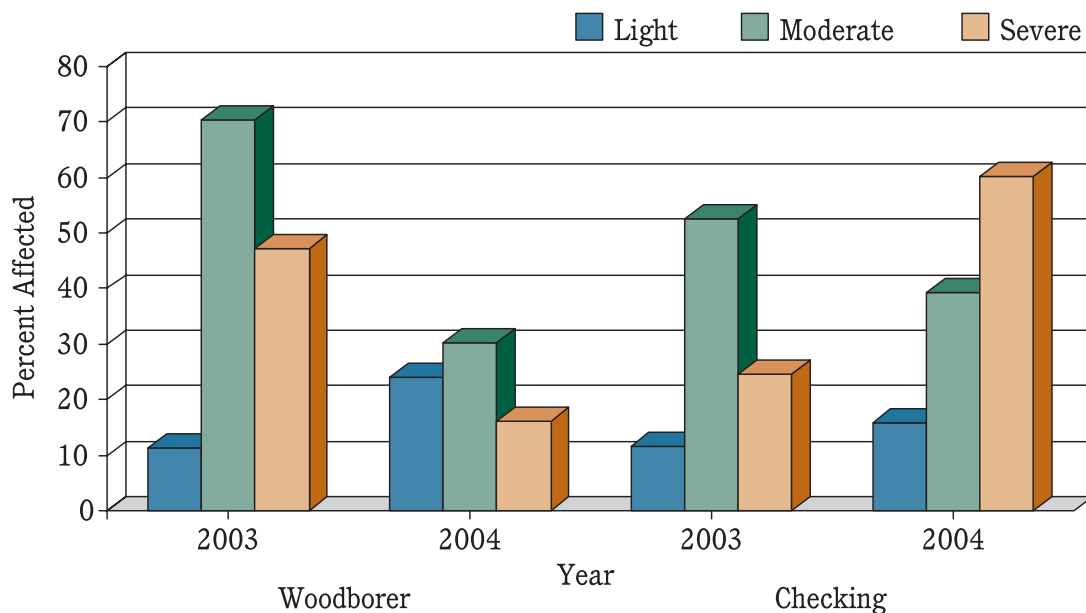
## Woodborer Study

This two-year study to compare the impact of woodborer damage vs. checking in relation to the burn intensity of spring fire killed mature white spruce in northeast Alberta was concluded. The results are summarized on Figures 23 and 24 and the conclusions based on the analysis of data are summarized below:

- Overall, higher percent incidence of woodborer damage occurred in the first year post burn compared to the second; woodborer damage was significantly higher in lumber from moderately burned trees compared to those from either light or severely burned trees.



- Significantly higher incidence of checking occurred in lumber from moderately burned trees compared to lumber from trees with other burn intensities in the first year post-burn; in the second year post burn, most checking damage occurred in timber from severely burned trees (Figure 23).

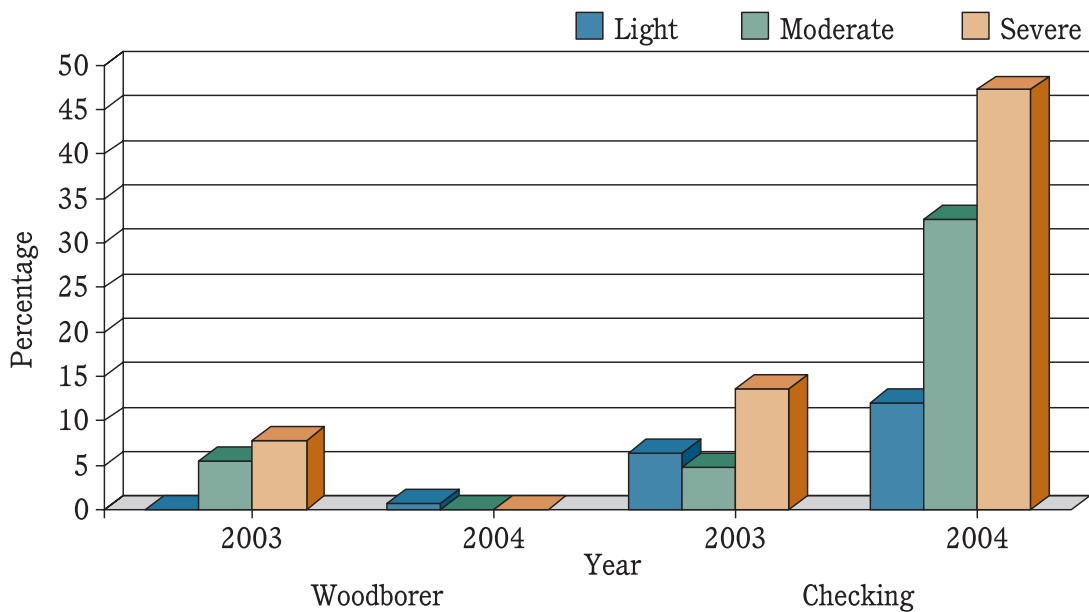


**Figure 23**

Incidence of woodborer damage vs. checking damage on lumber cut from spring wildfire burned mature white spruce in northeast Alberta.



- Overall, woodborer impact on final grade of lumber was lower than the impact of checking. Woodborer damage had no impact on grade of dimension lumber graded according to the current Standard Grading Rules for Canadian Lumber. However, in the first year post-burn, about 5% of boards from moderately and severely burned trees were downgraded due to cosmetic effects of borer damage. In the second year post-burn woodborer impact on lumber grade was negligible (Figure 24).
- Checking downgraded dimension lumber as well as boards especially in the second year post-burn; impact of checking on final lumber grade was most significant in lumber from severely burned trees in second year post-burn compared to similar lumber from first year post-burn (Figure 24).



**Figure 24**

Impact of woodborer damage vs. checking damage on grade of lumber cut from spring wildfire burned mature white spruce in northeast Alberta.



# General Education, Increased Awareness and Training

## Provincial

### Provincial Integrated Forest Pest Management Forum

The ninth annual Integrated Forest Pest Management Forum was held on October 7, 2005. In addition to the updates of forest pest conditions and forest health research in the province, Dr. Staffan Lindgren delivered the keynote speech entitled "Use of pheromones in forestry with special reference to mountain pine beetle management." The proceedings of this forum are posted on the website at: [http://www.srd.gov.ab.ca/forests/health/coop\\_ipm.html](http://www.srd.gov.ab.ca/forests/health/coop_ipm.html)

### Forest Health Web Site

The internal and external forest health web sites were regularly updated. The regular updates included forest health conditions and maps; Bugs and Diseases newsletter; annual report; Integrated Forest Pest Management Forum proceedings and forest health survey data. In addition to the regular updates, the Ministerial Order prohibiting transportation of pine with bark and news releases, updates on mountain pine beetle operations in Willmore Wilderness Park and Bow Valley were included. Legislation and info sheets on invasive plants, and guidelines on pesticide, bark beetle pheromone and biological control use also were posted on this website. The external web site address is: <http://www.srd.gov.ab.ca/forests/health/index.html>



### Alberta/B.C. Intermountain Forest Health Workshop

Sustainable Resource Development hosted the 13th annual workshop in April 20-21, 2005 in Lake Louise. The scope of this workshop was for multiple provincial and federal agencies to share and discuss primary forest health monitoring, research, and management initiatives and/or issues of concern along the Alberta/British Columbia border. Topics included insects and disease as well as invasive plants.



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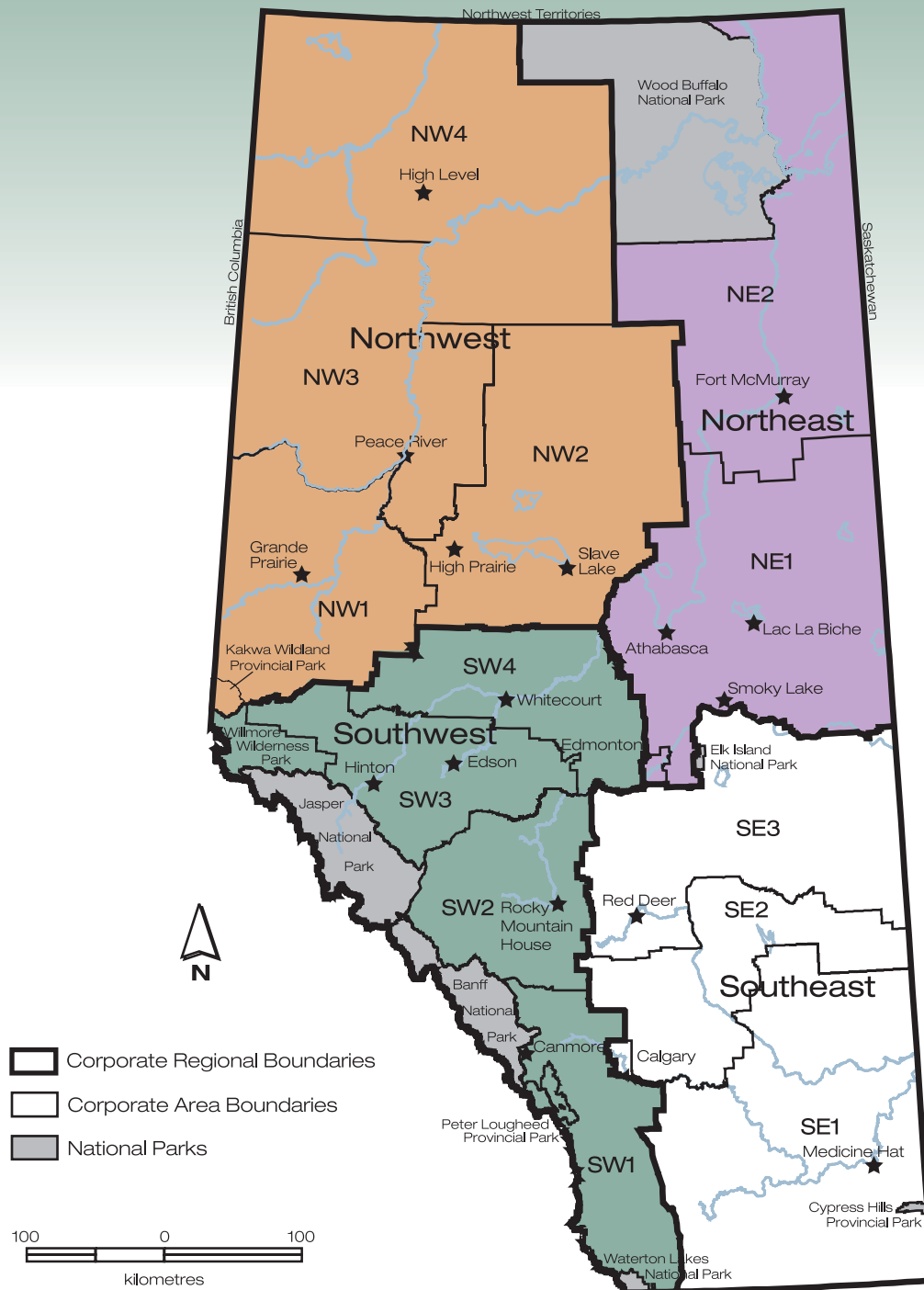
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# Appendixes

## Appendix 1

### Corporate Regions and Areas of Alberta, 2005



## Appendix II

Information on Operational Use of Pheromones in Alberta, 2005

### Forest Tent Caterpillar

Chemical component(s): Z5, E7 - dodecadienal  
 Lure type: Flexlure®  
 Trap type: Uni-trap®  
 Pheromone source: Phero Tech Inc., Delta, British Columbia

### Gypsy Moth

Chemical component(s): (+)cis-7, 8-epoxy-2-methyloctadecane  
 Lure type: Disparlure®  
 Trap: Delta sticky trap  
 Pheromone source: Trécé Inc., Salinas, California (purchased and distributed by Canadian Food Inspection Agency)

### Mountain Pine Beetle

Chemical component(s): trans-verbenol, exo-brevicomin  
 Lure type: Pre-packed tree-bait  
 Trap: not applicable  
 Pheromone source: Phero Tech Inc., Delta, British Columbia

### Spruce Budworm

Chemical component(s): 95% E-11-tetradecenal, 5% Z-11-tetradecenal  
 Lure type: Plastic lure  
 Trap type: Multi-Pher I®  
 Pheromone source: Phero Tech Inc., Delta, British Columbia



## Appendix III

Names of Invasive Plant Species That  
Commonly Occurred in 2005 on Forested  
Crown Land in Alberta

- Bull thistle - *Cirsium vulgare* (Savi.) Ten.  
Canada thistle - *Cirsium arvense* (L.) Scop.  
Common tansy - *Tanacetum vulgare* L.  
Toadflax - *Linaria vulgaris* Hill.  
Field scabious - *Knautia arvensis* (L.) Duby  
Hound's-tongue - *Cynoglossum officinale* L.  
Nodding thistle - *Carduus nutans* L.  
Orange hawkweed - *Hieracium aurantiacum* (L.)  
Oxeye daisy - *Chrysanthemum leucanthemum* L.  
Perennial sow thistle - *Sonchus arvensis* L.  
Scentless chamomile - *Matricaria perforata* Merat.  
Tall buttercup - *Ranunculus acris* L.  
White cockle - *Silene alba* (Mill.) E. H. L. Krause  
Wild caraway - *Carum carvi* (L.)



