

# B

# ugs & Diseases



August 2000

*info note*

## Mountain Pine Beetle Survives Winter in Banff

Mountain pine beetles near Brewster Creek in Banff survived the winter. Due to their late flight in the fall of 1999, it was unclear if they could prepare themselves in time to survive the cold weather. Last fall the insects over-wintered as adults, whereas normally they overwinter as larvae.

In June of this year the following observations were made during the population assessment survey:

- ◆ adult beetles that survived the winter;
- ◆ eggs that had hatched this spring and larvae that were beginning to develop;
- ◆ the larvae were several weeks behind normal development.

### Implications

The larvae must develop to adults before they can fly and attack new trees. Since their development is slowed, the insects must complete development, fly when conditions are suitable, attack new trees, and prepare for winter in a shorter amount of time

than they normally would. Following a cool wet summer, the beetles may not have enough “heat units” to complete development. Conversely, as young larvae, the insects are extremely susceptible to desiccation. Following a dry summer, the beetles may be killed when the tree begins to dry out.

Given this information, it appears that the beetles will not expand to the same degree as they would if they had developed normally. Some insects may complete development, however the population is not expected to expand significantly.

### Conclusion

The reduced development will slow the population growth in Banff. We will still continue to monitor insect activity in the Green Area using pheromone baits, concentrating our efforts to areas that provide flying corridors from known infestations. Aerial surveys will be conducted in the Parkland, Bow and Prairie (PBP) Region; Banff; Waterton Park; and the Flathead Valley of B.C. in September. As well, we will continue to train fire fighting crews, forest industry, forest contractors, and Alberta Environment staff to look for attacked trees. ■

*Dan Lux  
Parkland, Bow and Prairie*

## NWB Spruce Budworm Aerial Survey Results

The spruce budworm overview and detailed aerial defoliation surveys were conducted from mid-July to early August in the Northwest Boreal Region (NWB). Initial results indicate a decrease in budworm defoliation within the region and the absence of visible defoliation in the Hawk Hills and Dunvegan Historical Park areas. Since 1993, consecutive years of defoliation had been recorded within these areas. Cool, wet spring and summer conditions may have had a significant impact on larval survival within these areas this year. The absence of defoliation in the 1999 sprayed areas also contributed to the decline. An estimated 60,549 hectares of white spruce stands were sprayed last year and defoliation was not present in the vast majority of these areas.

A more thorough analysis of the recorded defoliation will be completed in the next couple of months to estimate the total area of defoliation. ■

*Mike Maximchuk  
Northwest Boreal*

## New Forest Health Officer in NEB

Newly arrived in Athabasca, I have assumed the role of Forest Health Officer for the Northeast Boreal (NEB) Region. Originally intending on a career in Fisheries, I attended Malaspina College in Nanaimo and East Kootenay Community College in Cranbrook taking Fisheries and Aquaculture, and biology at the respective institutions. After deciding to make the switch to forestry, I obtained a BSc in

Natural Resource Management majoring in forestry from the University of Northern B.C.

For the past four years I have worked as a forestry consultant in the Robson Valley, based out of McBride, where I performed various forest health and silviculture surveys. Prior to working in McBride, I was the forest health assistant for the Invermere Forest District.

I am looking forward to the challenges of working in the NEB Region, and my knees are really looking forward to the flatter terrain. ■

*Tom Hutchison  
Northeast Boreal*

## Stumps Pulled at Armillaria Trial

On June 12 and 13, the stumps were pulled from the Armillaria research site. All stumps in a two-hectare cutblock were removed using a 320B CAT. The treatment is part of an Armillaria root disease management trial. The regenerating trees from the stumped



Stump removal at Armillaria research site.

area will be compared to the trees growing in the unstumped area. It is expected that the trees growing in the area with no stumps will suffer less mortality and growth loss compared to trees growing in the area where there is still a high concentration of *Armillaria inoculum*. Feel free to visit the site, located down the Fallen Timber Road, west of Cremona. The block is south off the road just before the Gas Plant, but past the Doc Mills Road. If you require any more information, call Dan Lux. ■

Dan Lux  
*Parkland, Bow and Prairie*

## Alien Invasion - Brown Spruce Longhorn Beetle

Recently introduced into Halifax, the brown spruce longhorn beetle (*Tetropium fuscum*) is a non-native woodborer very similar to its native cousin, the northern spruce borer (*Tetropium parvulum*).

Point Pleasant Park, in southern Halifax, Nova Scotia, is the main area of the brown spruce longhorn beetle (BSLB) infestation. Approximately 10,000 of the 60,000 trees are infested in this 75-hectare park. The beetle has been found at 47 other locations in Halifax within 15 kilometers of the park, affecting approximately 300 additional trees. Surveys by the Canadian Food Inspection Agency (CFIA) and the Nova Scotia Department of Natural Resources with assistance from Ontario Ministry of Natural Resources are ongoing to identify additional locations of BSLB attacked trees.

### Control Efforts

All scientists consulted recommend immediate control action, believing that eradication of the beetle is still possible considering the number of infestation sites found. On July 20, 2000, the CFIA began removing and burning infested trees outside the park in areas near continuous forests (currently most infested areas are in urban and semi-urban areas). The removal of trees within the park was planned for the week of July 31, 2000 (CFIA Information Bulletin, July 21, 2000).

On August 15, a Federal Court ordered no further cutting, incineration, removal or destruction of trees in Point Pleasant Park. The Halifax Chronicle said "the controversy is now headed for judicial review, where Stephanie Robertson and Lain Taylor of Friends of Point Pleasant Park will try to convince a judge that the government's plan to cut 10,000 trees in the park is unnecessary...We've won the first battle, we have the rest of the war to worry about now."

I hope the Friends of Point Pleasant Park realize that saving 10,000 dying trees in their neighborhood park may result in millions of dead trees across North America. This situation is ironic considering these so called friends think they are doing the environment a favor.

## Bugs & Diseases



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Tel: (780) 427-8474; Fax: (780) 427-0085

**Editor:** Mike Undershultz

**Assistant Editor:** Sunil Ranasinghe

**Technical Support:** Linda Joy

Bugs & Diseases informs LFS, Industry and other forestry-related personnel about current forest health issues.

*Articles and ideas are welcome!  
Submission deadline is the 15th of the month before publication.*

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Eradication of the BSLB is the most desired outcome. Historically, however, no established exotic forest insect pest has ever been eradicated from natural forests.

For more information on the BSLB visit:  
[http://www.cfia-acia.agr.ca/english/ppc/science/pps/bslb/bslbhp\\_e.shtml](http://www.cfia-acia.agr.ca/english/ppc/science/pps/bslb/bslbhp_e.shtml). ■

*Hideji Ono*  
Forest Health Branch

## An Eye in the Sky

The Forest Health Branch continuously strives to improve technology used to aerially survey damage caused by forest health agents. In view of this, the Forest Health Branch, in collaboration with the Northwest Boreal Region and Phero Tech Inc (B.C.), field-tested new aerial overview digital technology recently acquired by Phero Tech: a multi-spectral four-camera system mounted on the undercarriage of a fixed wing aircraft. This system provides vertical digital images in normal colour as well as in near infra-red. The images are geolocated on the landscape with a built-in GPS receiver providing the latitude and longitude. This combination enables accurate location of aerial images on the earth's surface. The image scale can be calculated within reasonable accuracy once the operating altitude is known. Although these digital images are not orthorectified, they still provide a precise location, extent, and a quantifiable measure of the pest intensity.

This technology has worked well in mapping large-scale, mountain pine beetle-killed stands in B.C. In Alberta, we tested this system to map spruce budworm infested stands in the Upper Hay Forest Area. The test areas included small budworm infestations as well as large infestations with varying damage

intensities. The data are currently being analyzed by Phero Tech to determine how well this technology can be used to map defoliation of conifer stands in the province. We'll keep you posted! ■

*Sunil Ranasinghe*  
Forest Health Branch

## Wet Weather in 1999 Helps Pine Needle Cast

Several pine stands in Kananaskis, from the Bow Valley to the Crownsnest Pass are infected with needle cast disease. Infected trees appear entirely yellow or red in color. In some valleys, all of the trees are diseased, giving the valley an odd appearance from a distance. The causal agent is *Lophodermella concolor*. This fungus attacks all species of two-needled pines.

### Life cycle

Spores travel by wind in July during periods of high humidity. They germinate and penetrate young developing needles. After penetration, the fungus undergoes a period of vegetative growth within the host tissue. There is little external evidence of attack at this time. In May or June of the following year, infected needles turn red-brown and by July change to the color of straw. Once straw colored, the fungus fruiting bodies mature and spores are released. The dead discolored needles fall off the tree after the spores are released giving the branch a "lion's tail" appearance.

### Damage

Significant levels of defoliation can occur in years following periods of moist summer weather. Increment loss and mortality may occur after repeated epidemics, particularly in young trees.

## Implications

This is the first year of widespread infection and the trees will likely recover. Alberta Environment will continue to monitor the infection over the next few years and determine if any tree mortality is occurring. Given the wet year we are experiencing this year, it is likely that the trees will appear red again in 2001. ▣

Dan Lux  
Parkland, Bow and Prairie

## Extensive Aspen Defoliation in Alberta

Following this year's aspen defoliator aerial surveys in three of the four Regions in the Province, large aspen tortrix, Bruce spanworm and forest tent caterpillar were all found.

### NWB Aerial Survey Results

Aspen defoliators were once again the most widespread forest pests within the NWB Region this year. Large aspen tortrix, forest tent caterpillar and the Bruce spanworm collectively defoliated an estimated gross area of 2,540,274 hectares. This was a considerable increase from the previous year (1,359,757 hectares) and was the third consecutive year of increased defoliation within the region.

Large aspen tortrix was the major defoliator present, responsible for 2,186,406 hectares of defoliation. It was recorded throughout the region from as far north as Petitot Tower in the Upper Hay Forest Area to the southern parts of the Smoky River Forest Area, near Economy Creek and Snuff Mountain towers and as far east as Talbot Lake Tower in the East Peace Forest Area. Forest tent caterpillar defoliation was an estimated 349,227 hectares and encompassed the Peace River, Manning and Cadotte Lake areas. Three smaller areas of

defoliation (totalling 4,641 hectares) attributable to the Bruce Spanworm were located approximately 15 kilometers north of Peace River, near Leddy Lake.

### Forest Tent Caterpillar in PBP

A large population of forest tent caterpillars completely defoliated several aspen stands south of Drayton Valley. The area east of the North Saskatchewan River to Medicine Lake was the hardest hit. This is the first year of the outbreak and the trees have already started to reflush leaves. We do not expect any significant damage to the trees unless they are defoliated several years in a row. Maps of the infestation are available from Dan Lux.

### Aspen Take a Hit in the NES

An aerial survey flown on June 30, 2000, revealed the extent of aspen defoliation in the Northern East Slopes (NES). In total, 108,660 hectares were defoliated throughout the region. This is an increase from 63,747 hectares defoliated in 1999.

Most of the damage can be attributed to the large aspen tortrix with a small amount caused by Bruce spanworm. A small patch of forest tent caterpillar was found on the east side of Whitecourt Mountain. ▣

## Forest Tent Caterpillar Pheromone Trap Study

The forest tent caterpillar (*Malacosoma disstria* Hubner) is a major defoliator of aspen in Alberta's forests. To predict the severity of defoliation for the following year it is necessary to perform current year population studies. To complete this task the female sex pheromone of the forest tent caterpillar is placed in a funnel trap and set out to attract male moths. By trapping moths we are able to

establish a population density for that specific site, providing us with an expected prediction of defoliation for the upcoming year.

During the week of June 19-23, 20 sites were established with two traps set up at each site. The sites were located as follows: twelve in areas of severe defoliation (50%-90%), four in areas of moderate defoliation (25%-50%) and four in areas of light defoliation (<25%). These traps will remain in place until early August. Trapped moths will then be bagged and counted. The number of moths at a specific site will provide an indication of defoliation severity in that area for the 2001 season. ▣

*Amanda Brackenreed  
Northwest Boreal*

## Seedlings Survive Black Army Cutworm

Seedlings planted in the Virginia Hills fire area in 1998 survived the infestation by the black army cutworm. These seedlings were planted shortly after the fire and were subjected to the full extent of the feeding by the cutworm. The majority of the seedlings planted in 1999 were planted late enough that feeding had finished. Infested blocks were surveyed for feeding damage and mortality. Feeding damage was evident on many seedlings, however, there was no observable mortality. ▣

*Erica Lee  
Northern East Slopes*

## Farwell to the Queen

It is with great sadness that the Forest Health Branch in Edmonton bids farwell to Maggie Molinari. Following a 10 year career in forest health, spanning from her office in Edmonton to the bogs of Northern Alberta, she will be missed. Maggie will be moving on with plans of a career in public relations. Ci vediamo!

Taking over for Maggie will be Linda Joy, a very qualified individual who we are sure will be a joy to work with. Welcome aboard Linda. ▣

## Grocery Store Exotics

This spring, a grocery store owner in Rocky Mountain House found a large living beetle crawling inside a banana box. The beetle was black, over 4 centemeters long and 2.5 centemeters wide. It was identified at the town's Alberta Environment office as a scarab beetle (dung beetle). Although this insect was not a threat to Alberta's forests, it shows how easily exotic insect species are introduced. ▣

*Dan Lux  
Parkland, Bow and Prairie*

## COMING UP NEXT ISSUE...

- ◆ L2 and pheromone results
- ◆ Forest Health Websites
- ◆ Pest Identification CD-Rom

### Forest Health Officers:

NWB:  
Mike Maximchuk  
Peace River  
780-624-6221  
Mike.Maximchuk@gov.ab.ca

NEB:  
Tom Hutchison  
Athabasca  
780-675-8168  
Tom.Hutchison@gov.ab.ca

NES:  
Erica Lee  
Hinton  
780-865-8267  
Erica.Lee@gov.ab.ca

PBP:  
Dan Lux  
Rocky Mountain House  
403-845-8360  
Daniel.Lux@gov.ab.ca