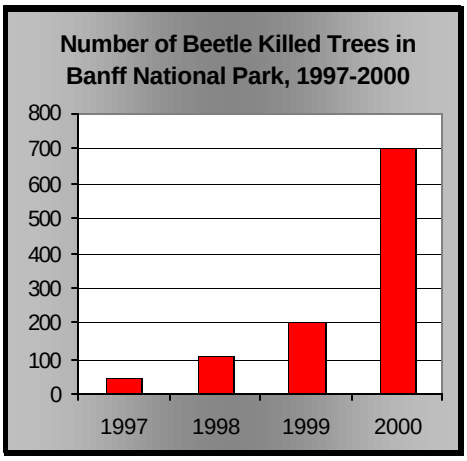
Bugs & Diseases

December 2000

info note

MPB Populations Escalate in Banff

This was a good year for the mountain pine beetle in Banff National Park (BNP). Last year there were two known infestations; one in Brewster Creek and one in Healy Creek. This year, there are two additional infestations located at Mt. Norquay and Stony Squaw. The number of trees attacked has also increased, as illustrated on the graph below.



Alberta Environment is working with Parks Canada towards a co-operative management plan that will find both short term and long term solutions to this problem. Although the details are still being discussed, the management plan may involve a re-sequencing of prescribed burns in BNP (targeting high hazard stands), research on the survivability of the beetles in Alberta, and reducing the beetle hazard of host stands in the Green Area in Alberta. It is hopeful that through the co-operation of several stakeholders, this problem can be addressed on a landscape level over several years.

Currently, all the host stands in BNP and the Green Area are being hazard rated for their susceptibility to mountain pine beetle damage. Once this analysis is completed, we will have a better handle on the best method to manage the beetle. ◘

Dan Lux
Parkland, Bow, Prairie

SBW Conditions in the NWB

As reported in the last issue, spruce budworm (SBW) defoliation in the region decreased from 1999 levels. Within the Upper Hay Forest Area, an estimated 70,000 ha (preliminary estimate) of defoliation were recorded in 2000, compared to an estimated 106,863 hectares defoliated in 1999.

The reduction of SBW defoliation can be attributed to the success of the 1999

spray program. The vast majority of areas sprayed in 1999 did not have visible defoliation in 2000. This was expected, as most of the 1999 L2 counts in the sprayed areas were low. However, some areas of defoliation along the Hay River, north of Zama City, and along the Jackpot Creek near Steen River expanded in 2000.

In the Mackenzie Forest Area, an estimated 10,000 ha (preliminary estimate) were defoliated in 2000, compared to the 18,043 hectares defoliated in 1999. Lower levels of defoliation in the Paddle Prairie Metis Settlement and most notably in the Hawk Hills resulted in the reductions. Annual budworm defoliation in the Hawk Hills had been recorded since 1993. Cool, wet conditions throughout May and early June most likely had an impact on larval survival.

Predictions

Results of the 2000 L2 survey indicate that most of the 1999 sprayed areas should not experience visible defoliation in 2001. The exception will be along the West Sousa Creek where some L2 plots had larval counts that could cause moderate defoliation. Other areas expected to have visible defoliation are in the Paddle Prairie Metis Settlement, along the Hay River and many of its tributaries near Steen River, east of the Chinchaga River, north of Zama City, along the Shekilie River, along the Negus Creek, and along the Cameron Hills. The L2 counts from the Hawk Hills indicate that there should not be any visible defoliation in 2001.

Pheromone Trapping

Within the NWB Region, 107 pheromone trap sites were set up this year. Thanks to those companies (Brewster Lumber, Buchanan Lumber, Canfor Hines Creek, and Manning Diversified Forest Products) that participated in the pheromone monitoring program this year. Your help is appreciated!

Twelve sites had moth counts indicative of a high-risk of an outbreak (>2000 moths) in 2001. These were all located within the Upper Hay Forest Area in the Steen River/Cameron Hills area, near Adair and Amber Towers, near Paddle Prairie Metis Settlement, and along the Hay River near Meander River. ◘

Mike Maximchuk
Northwest Boreal

Alien Invasion Update - Brown Spruce Longhorn Beetle

Evidence seems to show that the brown spruce longhorn beetles (BSLB) (*Tetropium fuscum* Fabr.) in Point Pleasant Park in Halifax, Nova Scotia arrived via ship and dispersed from the adjacent shipping container terminal. Further investigation of specimens collected in the park in 1990 showed that the BSLB was present as early as that year.

To combat the spread of the BSLB, the Canadian Food Inspection Agency (CFIA) formed a 'task force' to initiate an eradication program in Nova Scotia. Task force members include the Canadian Forest Service, the Nova Scotia Department of Natural Resources, the New Brunswick Department of Natural Resources and Energy, the Ontario Department of Natural Resources, the Halifax Regional Municipality, and the CFIA. As well, surveys radiating out from the park will take place to determine how far the beetles might have already spread. ◘

Hideji Ono
Forest Health Branch

Forest Pest Damage Diagnostic System

Finally, the development of the database for the CD-ROM-based Forest Pest Damage Diagnostic System is now in place. The contractor has designed the front-end screen including the layout and artwork of the CD-ROM. Many visuals of pest damage have been scanned. Currently, we are awaiting the Canadian Forest Service to provide us with slides depicting damage by a few more pest species. The descriptive text on pest species is being revised and will be ready shortly. Programming for the CD is complete and needs to be tested once all the visuals and text are in place. This CD will be available sometime in the new year. ◘

Sunil Ranasinghe
Forest Health Branch

Bugs & Diseases *info note*

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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.

MPB Baiting Results

Each year, Alberta Environment places pheromone baits in the Green Area to determine the incidence of beetles within the province. As well, baits are placed in logical beetle flight corridors to determine the relative number of beetles flying into the Province.

Attacks Increase in the PBP

In 2000, 108 baits in 36 locations were placed within the Parkland, Bow, Prairie Region. The results showed 18 of the 36 baited locations with mountain pine beetle attacks this year. This compared to five out of 36 attacked locations in 1999. In 2001, we will place baits in the same locations and continue the monitoring program.

Attacks Decline in the NES for the Second Consecutive Year

Mountain pine beetle bait locations with attacks in the Willmore Wilderness Park decreased again this year. Last year, 31 trees at 11 sites required control action to destroy the beetles, while this year control is necessary for only 21 trees at 11 sites. Control action on these trees will occur in the spring of 2001, allowing for a winter mortality survey to be conducted on the beetles and larvae. ◘

Dan Lux
Parkland, Bow, Prairie
Erica Mueller
Northern East Slopes

Kids Investigate Forest Health

The Forest Health Branch and the Environmental Education Branch are currently preparing an

"Envirokids Investigate Alberta's Forests: Forest Health" activity book targeted at Grades 3- 6, but may also be used for Grades 7-8. This activity book introduces children to basic forest ecosystem concepts and the economic, environmental, and social values of the forest. The health and management of the forest is presented as a very complex and integrated process. Fire, forest insects and diseases are introduced to the children as being natural, yet when out of control devastating to the trees in a forest. This activity book also helps children categorize tree species, and the damage caused by insects, animals and diseases. A more detailed Teacher's Guide with additional related activities will accompany this book. The activity book and teacher's guide will be available in early spring of 2001. If you would like further information, please contact Christine Kominek at (780) 422-8802. ◘

Christine Kominek
Forest Health Branch

Bark Beetle Reflections

Bark beetle, bark beetle,
thou scourge of over-aged stands.
Be not a presence in my neck of the woods.
Have not you sown the foul spores of despair,
from mycangia too often already?
Get back, get back, get back to where you once belonged.
Get back bark beetle! ◘

Tom Hutchison
Northeast Boreal

NWB Integrated Pest Management Working Group

Members of the Integrated Pest Management (IPM) Working Group met in October and November to discuss the development and implementation of a 'pilot project' - the IPM monitoring system. The monitoring system was developed in 1999, through a collaborative agreement with the Canadian Forest Service. It envisages building a network of permanent sampling plots that will be located in a wide range of locations, stand types and stand ages. Through long-term monitoring, we will be able to identify what pests frequent what stands, where they are found, their impacts on growth and yield, and how they influence stand development.

Currently, Alberta Environment, Alberta Plywood, Buchanan Lumber, Canadian Forest Products Ltd., and Daishowa-Marubeni International Ltd. will be participating in the pilot project that will be implemented in 2001. A cost of $55,000 was estimated to implement the pilot project. IPM group members felt it was necessary to initially run a one-year pilot project to more accurately determine costs, methodologies and time lines. ◘

Mike Maximchuk
Northwest Boreal

Monitoring Bruce Spanworm in the NES

Bruce spanworm monitoring sites were established within the Yellowhead and Foothills Forest Areas this fall. Oviposition traps were set north of Edson on Deer Hill and Tom Hill, and west of Hinton near Obed. Each site had five traps placed for female spanworms to lay their eggs. The traps were collected late in November and the average egg count per band for Tom Hill #1, Tom Hill #2 and Deer Hill were 4.0, 0.2, and 61 respectively. Obed had an average egg count per band of 5.4. ◘

Erica Mueller
Northern East Slopes

Forest Health 2000 in the NEB

As the year 2000 comes to a close, it's time to reflect on the happenings of the past season and prepare for 2001. In the Northeast Boreal Region, the forest health program entered a period of transition as I assumed the role of Regional Forest Health Officer in July. Currently, I am still on the steep part of the learning curve, but I am beginning to settle in.

Regarding insect and disease issues, the Northeast Boreal Region experienced a relatively quiet 2000. This may be due to the fact that much of the region experienced a cool, wet summer. Aspen defoliators were not in evidence to any great extent, and spruce budworm defoliation was much less extensive compared to last year. An aerial overview survey showed that most of the severe budworm defoliation occurred in Wood Buffalo National Park, and on islands on the Slave River bordering the park. Throughout the rest of the region the areas of severe or moderate defoliation were greatly reduced. Spruce budworm pheromone trap counts were also down with only one site showing a high rating (>2000) as opposed to eight last year. Second instar (L2) surveys in the NEB showed a slight increase in the percentage of plots with a moderate rating, but a doubling in the percentage of plots with a severe rating. This may be indicative of an increasing population for next season.

2001 Program Direction

In addition to continuing monitoring activities in the NEB, there is a need to work toward greater co-ordination and an expansion of the forest health activities in the region. To co-ordinate activities and increase the flow of information between stakeholders, forest health working groups similar to those existing in other regions will be formed. The initiation of such regional and/or forest area working groups should greatly increase stakeholder participation in forest health issues and help to establish future goals and objectives. ◘

Tom Hutchison
Northeast Boreal

Spruce Budworm in the NES

Spruce budworm pheromone trap counts in the Willmore Wilderness Park ranged from 379 – 2098 moths per trap. This being an even numbered year, these high moth counts were expected due to the presence of two-year-cycle budworm (*Choristoneura biennis*) moths. Aside from the Willmore, moth counts were low (<500) in each of the other forest areas with the highest numbers occurring in the Yellowhead. ◘

Erica Mueller
Northern East Slopes

Pie in the Sky

Preliminary results of using the multi-spectral four-camera system for aerial overview surveys have not lived up to expectations. Although this system detected extensive, severe spruce budworm infestations, it failed to detect the smaller, scattered patches of defoliation. It also was apparent that the camera system was not effective in recording digital images under cloudy conditions, thus limiting its use. The preliminary data collected during this aerial survey are being analyzed further to link the

colour spectrum of the digital images to the intensity of defoliation and host species in the affected forest stands. ◘

Sunil Ranasinghe
Forest Health Branch

Forest Health Websites

For more interesting forest health information visit the following websites:

http://www.rms.nau.edu/mistletoe/ for dwarf mistletoe information, and http://www.invasivespecies.gov for invasive species information. ◘

COMING UP NEXT ISSUE...

- Biological control of weeds in Alberta's Green Area
- 2001 program plans
- SBW haiku from the NEB

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The Forest Health Gang

Back row from left to right: Sarah Schwartz (former NEB Forest Health Officer), Mike Maximchuk, Dan Lux, Sunil Ranasinghe, and Christine Kominek. Front row, from left to right: Mike Undershultz and Erica Mueller. (Missing: Hideji Ono, Tom Hutchison, and Linda Joy).