Bugs & Diseases

August 1997

info note

Spruce budworm spray crews busy

The Upper Hay District's spruce budworm aerial spray project ran from June 7 to June 21. Spray operations were conducted out of the Zama Lake air strip about 16 km south west of Zama City. The spray block locations ranged from north of Paddle Prairie to west of Zama City.

A total of 12,715 ha were sprayed with two B.t. applications (Thuricide® 48LV ®) and 7,353 ha were sprayed with one B.t. application. An additional 755 ha were sprayed with two applications of MIMIC®240LV and 927 ha were sprayed with one application of the same, to test the operational feasibility of this product. Two AT-502 Air Tractors each equipped with a SAT LOC Forestar GPS Guidance System were used for the program.

It was decided that LFS would not conduct a postspray survey right after the spray program because residual effects of B.t. are not observed until the next generation of spruce budworm. Therefore, prespray plots will be sampled again in the second instar (L2) survey that will be conducted this fall. These results should give a good indication of the effectiveness of the spray program.

Mike Maximchuk (Forest Health Officer, Northwest Boreal Region) was the project manager for the 1997 spray program. Rupert Hewison (FO, Rainbow Lake Ranger Station) was the Opperations Supervisor and *Rick Horne* (FO IV, East Peace District) was the LFS Navigator. *Christine Kominek* (Technologist, PFFC) was responsible for the data entry of all the new Insect and Disease portion of the Fires program. *Hideji Ono* (Insect and Disease Manager, PFFC) and *Mark Storie* (FO III, Wapiti District) were on site for part of the project to provide additional technical and operational assistance. Thanks to all other District/Regional/Provincial staff who made the 1997 spray program a success! ◘

Rupert Hewison
Operations Supervisor

Forest tent caterpillar on the decline in NWB

A forest tent caterpillar aerial survey was completed within the region on June 25 and 26 to record the extent of aerially visible, defoliated deciduous stands. The survey was completed in a fixed-wing aircraft and was supervised by *Howard Gates*, a Forest Health Monitoring Technician, with the Canadian Forest Service.

Training was also provided to staff members of Alberta Land & Forest Service (LFS) as this survey will be completed by LFS personnel as of next year. The majority of the survey was concentrated in the Wapiti River, Mackenzie, East Peace, Lakeshore and Smoky River Districts.

Alberta
ENVIRONMENTAL PROTECTION

Initial results have shown a significant decrease in forest tent caterpillar populations within the region in comparison to last year. This is probably attributable to a second consecutive year of cooler and wetter spring conditions, unfavorable to forest tent caterpillar populations. ◘

Mike Maximchuk
NWB Forest Health Officer

NWB spruce budworm populations down

A similar survey was completed with the Upper Hay, Mackenzie and East Peace districts to record the extent of aerially visible, budworm-defoliated white spruce stands. This survey was completed in a fixed-wing aircraft from July 8-11, and was suprervised by LfS personnel.

Results from this survey indicate a significant decrease in budworm damaged areas in the Upper Hay District in comparison to 1996. Most importantly, areas sprayed in 1996 did not show any visible signs of damage this year. Significant areas of severe defoliation within the district are in the Negus Creek area, Steen River-Yates River areas and John D'or Prairie area. Within the Mackenzie District, significant areas of severe defoliation were found in the Hawk Hills area and in the Paddle Prairie Metis Settlement. Within the East Peace District, no budworm damaged areas were found. ◘

Mike Maximchuk
NWB Forest Health Officer

Insect surveys also take flight in NEB Region

The forest tent caterpillar survey for the region was flown on June 24 and 25, 1997. There were no areas of severe defoliation identified. However, some areas of light to moderate defoliation were observed in the Lakeland district.

Spruce budworm surveys were flown on July 15 and 16. An area of severe defoliation was identified in the valley of the House River where it meets the Athabasca River. Areas of moderate defoliation were identified in the Athabasca River valley, and moderate to severe defoliation was found north of Fort Chipewyan along the Slave River. Surveys were supervised by *Jim Weber* (FAH Technician, CFS), and training was provided to LFS staff. ◘

Rob Stronach
Athabasca District Forester

Forest tent caterpillar pheromone: field-tested

Commercial sex pheromone formulation of forest tent caterpillar was field-tested in the Northeast Boreal Region (NEBR) and the Northwest Boreal Regions (NWBR) during this summer. This pheromone was supplied by the Research and Productivity Council in Halifax, Nova Scotia. In the NWBR, three different types (Multi-Pher I, Pherocon and Delta) of traps with pheromone-impregnated rubber stoppers were deployed at fifteen sites. Five sites were set up for each expected defoliation category; i.e. light moderate and severe. In the NEBR, similar traps were deployed at five sites where nil-light defoliation was expected in the summer. Overall, forest tent caterpillar infestations have declined following two consecutive wet years.

In the NEBR, an aerial survey showed a drastic decline in the defoliated stands. Similar trend was observed in the NWBR. *Mike Maximchuk* (FHO, NWBR) and *Rob Stronach* (Forest Health Officer, NEBR) are coordinating these field trials. ◘

Sunil Ranasinghe
Forest Entomologist

Groups support decision support system

On April 18, 1997 a workshop was held in Peace River to discuss the development of a spruce budworm decision support system for northern Alberta. Representatives of industry and government (provincial and federal) from the Northwest and Northeast Boreal Regions and Edmonton, attended the workshop. A presentation was made by *Dr. David MacLean* and *Kevin Porter* of the Canadian Forest Service (CFS, Fredricton, NB) discussing the components of the system and the benefits and costs of using the system.

The system integrates models and GIS-based tools so that forest managers can use harvest scheduling and silviculture to reduce the impacts of budworm infestations; minimize the need for insecticide use; and set priorities for forest protection (insecticide use). The Alberta Land & Forest Service and High Level Forest Products have both agreed to support the development of this system for Alberta and will be initiating the work with members of CFS in the near future. ◘

Mike Maximchuk
NWB Forest Health Officer

Bugs & Diseases *info note*

Vol. 8 No. 2 ISSN. No. 1499-5867

Published quarterly (Feb, May, Aug, Nov)
by Alberta Land and Forest Service (LFS)
Department of Environmental Protection
Forest Protection Division
Insect and Disease Branch
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Bugs & Diseases informs LFS, Industry and other forestry-related personnel about current insect and disease issues.

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

Monitoring plot system being developed

April 24, 1997, was the last meeting date for the Northwest Boreal Regional Working Group. The main focus of the meeting was the development of a monitoring plot system for the region. This system would provide information on the effects of various agents (biotic and abiotic) on forest sustainablility. Critical elements of the system would include a permanent sample plot design, establishment of plots in varying stand types, ages and locations, measurement of plots every five years and a cooperative database and analysis tools.

The Canadian Forest Service has agreed to be involved in the development of this system with our working group and the first meeting date has been set for the end of July. As of this date, Daishowa-Marubeni Inc., Manning Diversified Forest Products, Canfor (Grande Prairie), Weyerhauser (Grande Prairie), Slave Lake Pulp Corporation, Vanderwell Contractors and Alberta Land & Forest Service have each committed $5,000 to the development of this project. ◘

Mike Maximchuk
NWB Forest Health Officer

Silviculture reducing vulnerability of spruce stands

The spruce budworm defoliates stands and ultimately causes growth loss, top kill and tree mortality. The insect also appears to favor the most

productive and most valuable stands for damage. Currently, the only effective treatment for this insect is the aerial application of *Bacillus thuringiensis var. kurstaki* (Btk). While this gives some relief from damage by the budworm, nothing fundamental is changed in attacked stands and the underlying cause for the outbreak may not be altered by spraying.

In addition, alternative means of managing spruce budworm populations, which do not require repeated interventions, are attractive if they provide long-term relief from budworm-caused defoliation. It is proposed to evaluate various silvicultural treatments as a means to reduce the vulnerablility of stands to budworm defoliation.

The proceeding is an excerpt from the research proposal developed by *Dr. Jan Volney*, a research scientist with Canadian Forest Service in Edmonton. It accurately describes the work being funded by High Level Forest Products Ltd., a division of Daishow-Marubeni International Ltd., and Alberta Land and Forest Service in partnership with Canadian Forest Service.

Research proposal:

The research is being conducted in F21 management unit north of Zama City in Northwest Alberta. This fully replicated experiment is designed to assess the response of the budworm to different cutting levels, but the different cutting patterns used will also be evaluated. Five treatments are being proposed:

1. Uniform shelterwood
2. Narrow strip cutting
3. Clearcutting with feathered edges
4. Standard clearcutting
5. Untreated control

Two different levels of overstorey removal (25 and 50%) will be tested in the first three treatments listed above. Crews are currently collecting preharvest measurements and preparing for the harvest, which is scheduled to take place this winter. For further information, contact *Barry Gladders* at High Level Forest Products Ltd. 926-2989 or *Dr. Jan Volney* at Canadian Forest Service at 435-7210. ◘

Steve Luchkow
Daishow-Marubeni International Ltd.

NEB spruce budworm monitoring continues

The monitoring program for the spruce budworm was increased this spring because of the participation of Millar Western Industries. An additional 15 sites (30 pheromone traps) were established to collect information on the adult moth populations. A combined L2 survey program is also in the works. ◘

Rob Stronach
Athabasca District Forester

Weather affected disorders of stands in ES Regions?

This year, the weather seems to have influenced several disorders in the East Slopes (ES) Region.

Needle cast in lodgepole pine

Needle cast is widespread in the Castle area south of Blairmore. There is noticeable thinning of tree crowns in some stands that are in their second year of infestation. Wet weather in early summers of recent years has probably aided in release of spores and subsequent infection of new needles.

Red belt in lodgepole pine

Extensive areas of red belt have been reported in the eastern slopes. Many of the affected stands are visible from the forestry trunk road. A helicopter survey in the Weldwood FMA at Hinton confirmed red belt as the cause of needle discoloration in pine

stands in their management area. Affected stands in the FMA were confined to the 1,200 - 1,400 metre elevation band. Interestingly, codominant white spruce in the same stands were apparently unaffected. Although there is no winter weather data in these areas, there was one period of unseasonally high temperatures (>10°C) in February 1997, in the Edson Area.

Climatic damage in aspen

From Sundre to as far north as Hinton many aspen stands have failed to leaf out. The most likely cause appears to be the late spring storm in early May. This storm brought a couple of days of extremely cold weather which would have caught the buds in a vulnerable stage. A few of the trees in an affected stand in the Weldwood FMA were examined. In each case, the terminal and lateral buds had not developed but some adventitious buds were beginning to leaf out.

Albert Sproule
Eastern Slopes Forest Health Officer

Incidental pest occurances

Two insect and disease species have been recently identified in the East Slopes Region.

Bruce spanworm

Local sporadic occurrence of Bruce spanworm has been reported by *Frank Vandriel* of Sundre Ranger Station. Frank believes these isolated occurrences are the remnants of a spanworm outbreak in the early 1990's.

Stalactiform blister rust

Stalactiform blister rust disease centres, with accompanying mortality, have been identified in two regenerating blocks of the Weldwood FMA. The presence of two disease centres is not a reason for concern. However, previous reports have never indicated more than isolated affected trees, with no mention of mortality.

Albert Sproule
Eastern Slopes Forest Health Officer

ES workshops a hit.

Most of our workshops this year have been attended by groups taking the pre-harvest assessment and silviculture prescription training course. These have been well received as they are strategically important at this time in the life of the stand.

Albert Sproule
Eastern Slopes Forest Health Officer

PHSPW plays a role in insect management

Pre-harvest silvicultural prescription workshops (PHSPW) were held at AlPac site in Grassland and at the local legion in Rocky Mountain House. The importance of silvicultural techniques in managing some important forest pests was emphasised during these workshops.

Sunil Ranasinghe
Forest Entomologist

Good attendance at I & D Workshop in NEB Region

An insect and disease identification workshop was held in Lac La Biche on June 16 and 17. The participation from the companies and district staff in the region was good. ALPAC, Millar Western, Northlands and Ezra consulting were all represented. The speakers were *Sunil Ranasinghe* and *Ken Mallet*. The goal of the workshop was to

increase the awareness and knowledge base of field staff in identifying the common insects and diseases that cause damage to trees. The presentations were excellent. Dwarf mistletoe and *Armillaria* root rot were identified during the field tour. However, in the insect category, only leaf rollers and loopers were identified! A meeting of the regional insect and disease working group will be scheduled for early fall.

Rob Stronach
Athabasca District Forester

Breeding like rabbits in Lac La Biche

Hare populations may be on the rise in the Lac La Biche District. During a recent field visit to the Lac La Biche District, a noticeable increase in hare population was observed. Hare populations are cyclic and it appears that we are heading into an upswing in hare population in the near future.

Sunil Ranasinghe
Forest Entomologist

New entomologist hired

The Insects & Disease Management Branch at PFFC has hired *Jennifer Lukianchuk* to assist with data management and the development of training material. Jennifer obtained a M.Sc.degree in forest entomology from the University of Toronto. She studied the searching behaviour of *Trichogramma minutum* (parasitic wasp) for spruce budworm egg masses, in Ontario. Welcome Jennifer!

Farewell to Albert

Southern East Slopes' Forest Health Officer, *Albert Sproule*, will be leaving at the end of July 1997. He will be starting a new position as an instructor in the forestry program at the Grande Prairie Regional College. His wit and charm will be missed by all. Best of luck, Albert!

More WWW bug stuff

Library of information

A wealth of information is at this site. It features a compilation of links and various entomological information from all areas (universities, societies, etc.), mostly from the US with some Canadian links.

http://www.colostate.edu/Depts/Entomology/www_sites.html

All Canadian information

This site contains a variety of information of entomology in Canada, including people, groups and upcoming meetings and events sponsored by the Entomological Society of Canada.

http://www.biology.ualberta.ca/esc.hp/homepage.htm

Change in website

The website noted on page 4, in the February 1996 edition of Bug & Diseases:

http://mofwww.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/health/healtoc.htm

has been changed to:

http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/health/healtoc.htm

COMING UP NEXT ISSUE...

- L2 results
- New video programs
- Summary of pheromone programs