

# Making Choices About A Hungry Insect

By Walter Fanning

The emergence of the blackheaded budworm in Cape Breton in 2004 has rekindled memories of the budworm problems of the late 1970's and early 1980's throughout Nova Scotia.

Pictures of the damage 25 years ago are difficult to comprehend for those too young to remember the media coverage of that time. Wood roads were seemingly lined for miles with 8-foot lengths of wood from the massive salvage program. Stories of large spruce budworm moth flights out of Maine and Quebec compounded an already difficult situation with high moth numbers. Forest managers struggled with how to reduce the impending damage to balsam fir and spruce trees.

Well, the blackheaded budworm isn't the spruce budworm. It wouldn't even be correct to call them cousins, but the unfortunate reality is that it likes to feed on our natural balsam fir stands too.

Preliminary research by provincial entomologist, Eric Georgeson, had shown that the blackheaded budworm is a native insect and there have been infestations dating back to at least the 1920's.

The present infestation is currently restricted to the Cape Breton Highlands plateau, so it is not nearly as widespread as the spruce budworm infestation that reached across Cape Breton Island, through to Cumberland County, and south to Halifax County. However, the high numbers of eggs and caterpillars within the stands are causing concern.

As you walk through the worst hit stands, the smell of chewed balsam fir needles permeates the air. The foliage on dying trees is gray and you can see through the stand rather than just to the edge of the forest. Where the insect numbers are highest, the illusion of slow moving branches is actually the caterpillars working furiously for the remaining green needles. Several staff have counted as many as 200 eggs and hatching caterpillars on a 45 cm (17.5 in.) branch.

The difference between today and the previous infestations, is that Nova Scotians use today's forests for many purposes....wood fibre, camping and outdoor recreation, scenery pleasing to both tourists and locals, hunting and fishing as well as wildlife habitat protection. The demand on sharing



Blackheaded budworm larva



Blackheaded budworm (*Acleris variana*) pupa.



Blackheaded budworm adult

Nova Scotia's forest resource is large and diversified.

The approach to the current blackheaded budworm situation has been an example of how technology has changed the way we approach this type of situation and our increased desire to learn more about the insect itself.

The ultimate goal is to reduce the damage the insect will cause, while minimizing the impact of any intervention on the natural processes that would eventually reduce the insect population.

The Canadian Forest Service (CFS) was contracted to begin this research to help us make management choices. CFS is using its network of entomological professionals across Canada, and beyond, to assist with research and locating information. This particular native insect exists across most of Canada. Although CFS' research is ongoing, they have reported several breakthroughs:

- Isolation of several potential phermones that the adult female uses to attract male moths. Phermones are critical to

monitoring insect populations before they become a problem.

- Identification of a number of natural predators and parasites. CFS is also looking into natural diseases or viruses within the population. Something exists in nature to take the population down to normal levels.
- Establishment of a number of areas to study the impact on the trees. This may help answer questions on how much the tree can withstand before it becomes unhealthy or dies.
- Administration of a spray trial with the natural biological product Btk to assess its effectiveness on the blackheaded budworm. Preliminary results look good and this research reverses the older technology spray trial which had less successful results in Newfoundland over 15 years ago. (DNR considers spraying to be a last resort



when all other reasonable options have been exhausted.)

Lastly, CFS will be incorporating all of this information into a computer model that will help us make recommendations to assist landowners in deciding what's best for their resource.

The explosion of any insect population always raises questions about what can, or should, be done as well as about the timing of any interventions. However, whatever the insect problem, the final decision will rest with the landowner. The only thing we can be sure of is that the future will bring more challenges to the forefront. For those of us dealing with this issue, we are constantly looking at potential options and new ways to manage and protect a resource that is not only important to individuals and the economy, but significant to the natural beauty and recreational opportunities of the province that we, and visitors, so richly enjoy.

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Blackheaded budworm defoliation on the Cape Breton Highlands