



Impact Note CFS Atlantic - making a difference

Blackheaded Budworm

The Canadian Forest Service (CFS) is heading up a research team to respond to the sudden infestation of the eastern blackheaded budworm in Nova Scotia. With the infestation now affecting 114 000 ha, and over 40% of this area considered moderately to highly infested, there may be serious economic and forest health consequences in the Cape Breton Highlands.

The eastern blackheaded budworm (BHB), *Acleris variana*, population in Nova Scotia is increasing quickly, and CFS scientists are researching safe control options for this defoliating pest of softwood forests. The BHB is native to North America, and coniferous forests across Canada are subject to periodic outbreaks. In the highlands of Cape Breton Island, an extensive infestation irrupted in 2004, in association with two other species. This infestation now affects 114 000 ha, almost 38 000 ha of which are classified as having moderate or high population levels; this raises concerns about the health of forest stands on Cape Breton Island, an area devastated by the spruce budworm (*Choristoneura fumiferana*) in recent decades. Research is necessary to gain a better understanding of this problem, and to seek solutions for reducing the threat to forest stands.

The Cape Breton Highlands are expected to suffer significant defoliation in 2005, with some tree mortality. The BHB is thought to be in the first year of a 4-year cycle.

Currently, there are no pest management products registered and available to combat this pest; however, results of experimental trials conducted in Newfoundland 15 years ago indicate that *Bacillus thuringiensis* (*Bt*) products may work against the BHB. Unfortunately, the BHB is not included on the label of any registered *Bt* product in Canada.

Part of the CFS research effort will involve assembling a team to conduct aerial application efficacy tests of three *Bt* products (that are currently registered for a number of forest pests) on early and late-instar BHB in the young balsam fir forest of the Cape Breton Highlands. These trials will refine the timing for application and provide sufficient efficacy data to have the BHB included on the product labels.

Significant effort will be made to evaluate the economic impact of this insect on wood supply, tree growth, and tree mortality. We are currently trying to synthesize the BHB pheromone, which will be tested as a BHB population-monitoring tool and early warning system.



Photo R. West, CFS



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The typical life cycle of the BHB is as follows. It overwinters in the egg stage. Eggs hatch from May to early June and larvae, protected within webbed shelters they have spun on needles, feed on the new foliage until late July–early August. They then pupate on twigs within a web made of dead needles. Adults emerge 2 to 3 weeks later, and lay eggs singly on the underside of needles. During outbreaks, the BHB will feed on old foliage once the new foliage is consumed.

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Photo B. Guscott, NSDNR



Blackheaded budworm defoliation in Nova Scotia

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