

Blackheaded Budworm

Acleris variana (Fern.)

Life History

This native moth is very similar in appearance to the spruce budworm moth. It has a wingspan of approximately 15 mm and it has a mottled grey and brown pattern on the wings. The adults begin to fly from mid August to the first of October. The main flights usually end by mid September. There is only one generation per year. Females lay their oval shaped eggs, singly on the underside of fir needles to overwinter. The yellow to light-orange eggs are 0.9 mm long by 0.5 mm wide.

Hatching begins mid-May and peaks in early June. Upon hatching, the young larvae move to opening buds where they build a shelter which allows them to feed in safety. Older larvae leave their shelter to feed on the current shoots and, if current foliage is scarce, the more mature larvae will feed on old foliage. Pupation occurs in their feeding chamber on the foliage.

Hosts

Found all across Canada, the budworm feeds on 20 different conifer tree species. In Nova Scotia, most favoured is the balsam fir, with white spruce and black spruce running second and third. The larvae are defoliators. They are responsible for the partial or total destruction of the current year's foliage. Feeding on the previous year's growth will occur when there are high numbers of larvae. Red foliage, an early symptom of an infestation, can be seen from a distance. Major outbreaks will result in significant tree growth loss and tree mortality.

History of Outbreaks

Before the late 1920's, outbreaks in the Maritimes were thought to have been caused by the spruce budworm. The first outbreak that was positively attributed to the blackheaded budworm in Nova Scotia was in 1929. From 1945 to 1950, a series of outbreaks swept through the Maritimes. Since then, there have been localized outbreaks in Nova Scotia occurring every 10 to 15 years, usually in maturing stands with a high balsam fir content.

Problem

A heavy infestation can completely defoliate trees, reduce growth, and may cause widespread mortality. Defoliation is usually noted first at the top of the more mature trees. The blackheaded budworm first feeds on the new growth of fir trees until the foliage is depleted, after which it will feed on older needles. Under large population conditions, balsam fir of all age classes can be defoliated in a single season.

Based on an egg survey, Department of Natural Resources staff believe this insect is in the first year of a possible four-year cycle. Since the devastation in the mid-1970s, the Highlands area has regenerated. Considerable planting and silviculture were conducted in the 1980s. The forest being threatened is a 9 to 12 m (30- to 40-foot) high, well-stocked, vigorously growing balsam fir forest.

According to results of the egg sampling survey, 114 000 ha are affected, with almost 40 000 ha seriously affected.

Control

Department of Natural Resources' staff are working with the Canadian Forest Service to determine the best methods for controlling the insect. They believe the blackheaded budworm is a precursor to the spruce budworm. Information gathered by the Federal Insect and Disease Surveys over the years has found there are 14 species of parasites and predators that attack the blackheaded budworm larvae here in Canada. There have also been population collapses in Quebec that were apparently caused by the action of a disease. Weather also plays a role in the western Canada populations.

Larva Stage



Photo: Connecticut Agricultural Experiment Station Archives
www.forestryimages.org

Adult Moth



Photo: NRC, CFS, Laurentian Forestry Centre

Life Cycle

Stage	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Adults												
Eggs												
Larvae												
Pupae												

Visit us on the web at: <http://www.gov.ns.ca/natr/protection/ipm/>

or contact:

Integrated Pest Management

Nova Scotia Department of Natural Resources
PO Box 130, Shubenacadie, Nova Scotia B0N 2H0
Phone (902) 758-2232 Fax (902) 758-3210


NOVA SCOTIA
Natural Resources

Information Leaflet IPM-7

rev. 12/05/2005