Government of Canada
Canadian Forestry Service

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Ministry of Natural Resources
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Jack Pine Budworm

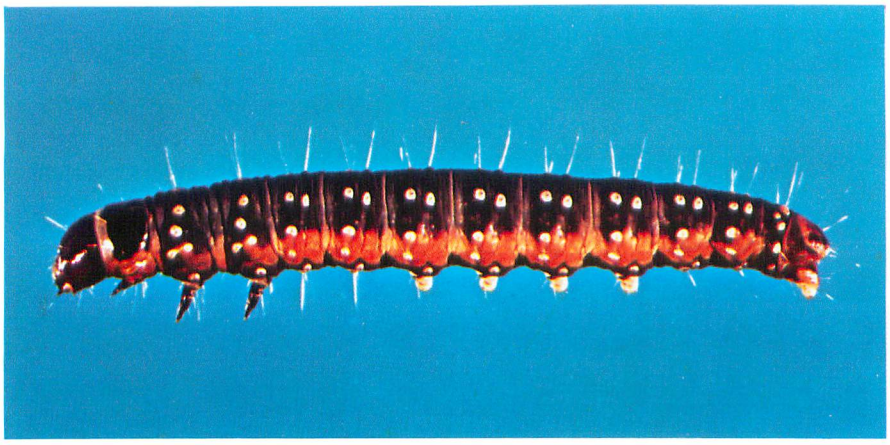
The jack pine budworm, *Choristoneura pinus pinus* Freeman, is a major pest of jack pine, having caused widespread tree mortality in the north-western and central parts of Ontario, as well as in Manitoba and Saskatchewan. In addition, trees that are not killed are often deformed, because the heaviest feeding usually occurs first in the top of trees, and causes top-kill and crooked or multiple leaders. Past outbreaks have not lasted long, but trees are damaged somewhere in Ontario every year. Both red pine and white pine are also damaged, especially when growing in mixed stands with jack pine. Heavy feeding has been reported in Scots pine Christmas tree plantations, where any loss of foliage is serious.

Egg cluster

The tiny budworm overwinters under bark scales or in other protected places and begins feeding in the spring in male flowers or on the developing foliage of the new shoot. Later, the larva feeds under loose, silken webbing spun around the flowers or needles of the new shoot. When mature, the larva is about 21 mm long. The pupa is usually formed on the shoot. Moths emerge in July or early August and, following mating, eggs are laid on the needles in clusters of about 40. Upon hatching, in 2 weeks' time, the tiny larvae, without feeding, spin their silken overwintering shelters.

During the adult stage and under certain weather conditions, mass flights of moths have initiated new infestations far removed from the original site.

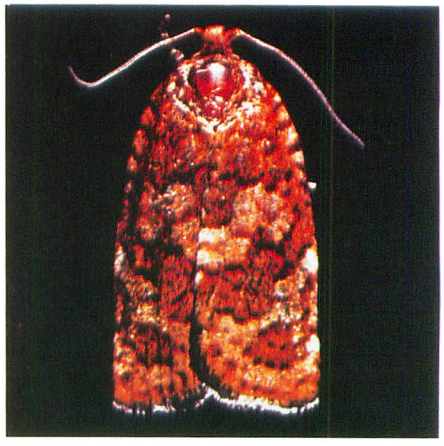
Since jack pine is primarily a forest tree, chemical control measures have been applied by government agencies using aircraft only when valuable stands have been threatened. This demands precise timing and generally involves the coordinated efforts of specialists. In the case of Scots pine Christmas trees, a contact or stomach poison, either a chemical or a more environmentally safe biological one based on the bacterium, *Bacillus thuringiensis*, applied when the pollen is being shed, would reduce foliage destruction to a minimum.



Mature larva

Pupa

Adapted from the text of "Insects of Eastern Pines" by A.H. Rose and O.H. Lindquist, and revised by P.D. Syme, July 1984.



Adult

Information on other insects of pines is given in "Insects of Eastern Pines" (price $6.95 Canada, $8.35 other countries), available from authorized bookstore agents or from the Canadian Government Publishing Centre, Ottawa, Canada, K1A 0S9.

This leaflet is available, in English and in French, from the Information Office of the Great Lakes Forest Research Centre.
Ce dépliant est disponible, en anglais et en français, au bureau de renseignements du Centre derecherches forestières des Grands Lacs.

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