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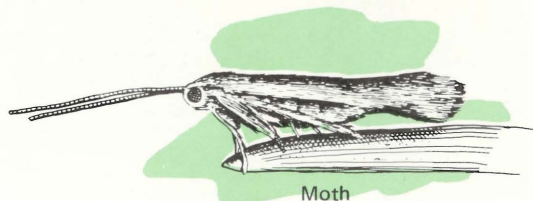


LARCH CASEBEARER

FOLIAGE FEEDER



Larch Casebearer



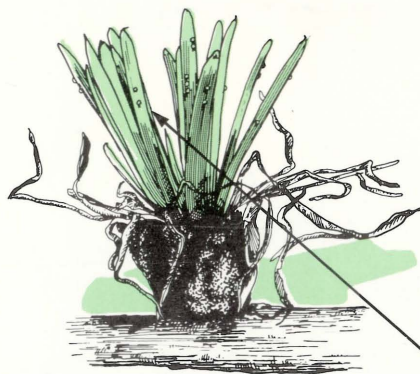
The larch casebearer, a European pest insect of all larches, moved into the western larch stands of British Columbia about 1965. The pest had appeared in the West, in the State of Idaho, during the 1950's, about 70 years after it became established in eastern North America. Introduced European parasites have helped to keep the eastern population under reasonable control, and this prompted initiation of a similar biological control program in the western States and in British Columbia.

Casebearer feeding has produced spectacular foliage discoloration in the larch forests of southern British Columbia, from the Okanagan to the Alberta border, with resultant widespread consternation among the public.

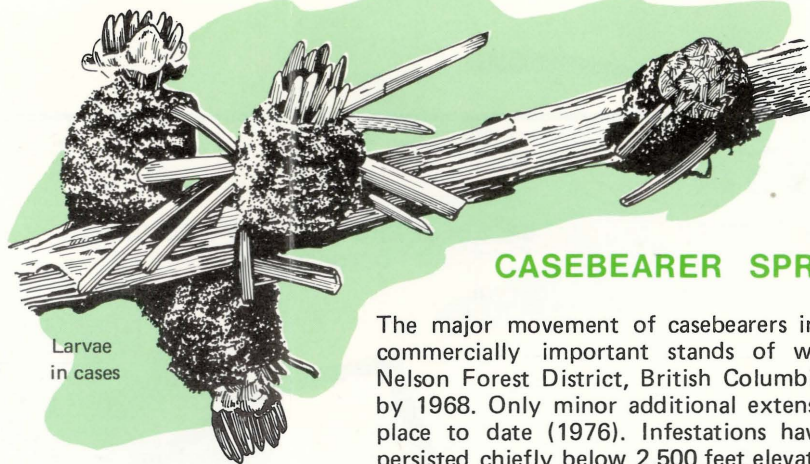
LIFE HISTORY

The tiny silvery casebearer moths fly in June, depositing eggs on green larch needles. On hatching, the larva bores into the needle where it feeds within for a month. It then severs the mined needle and continues to live inside its now mobile sheath-like home. The larva partially emerges from this case whenever it wishes to change its feeding position on the foliage. Between moves, the case is fastened in the feeding place with silk threads.

Before needle drop in autumn, the casebearers cluster on the twigs and fasten themselves in place for winter. As soon as the foliage flushes in spring, each larva resumes feeding, continuing until pupation within the case attached to a twig late in May. The adult, a moth, emerges from the case early in June.



Eggs on
needles



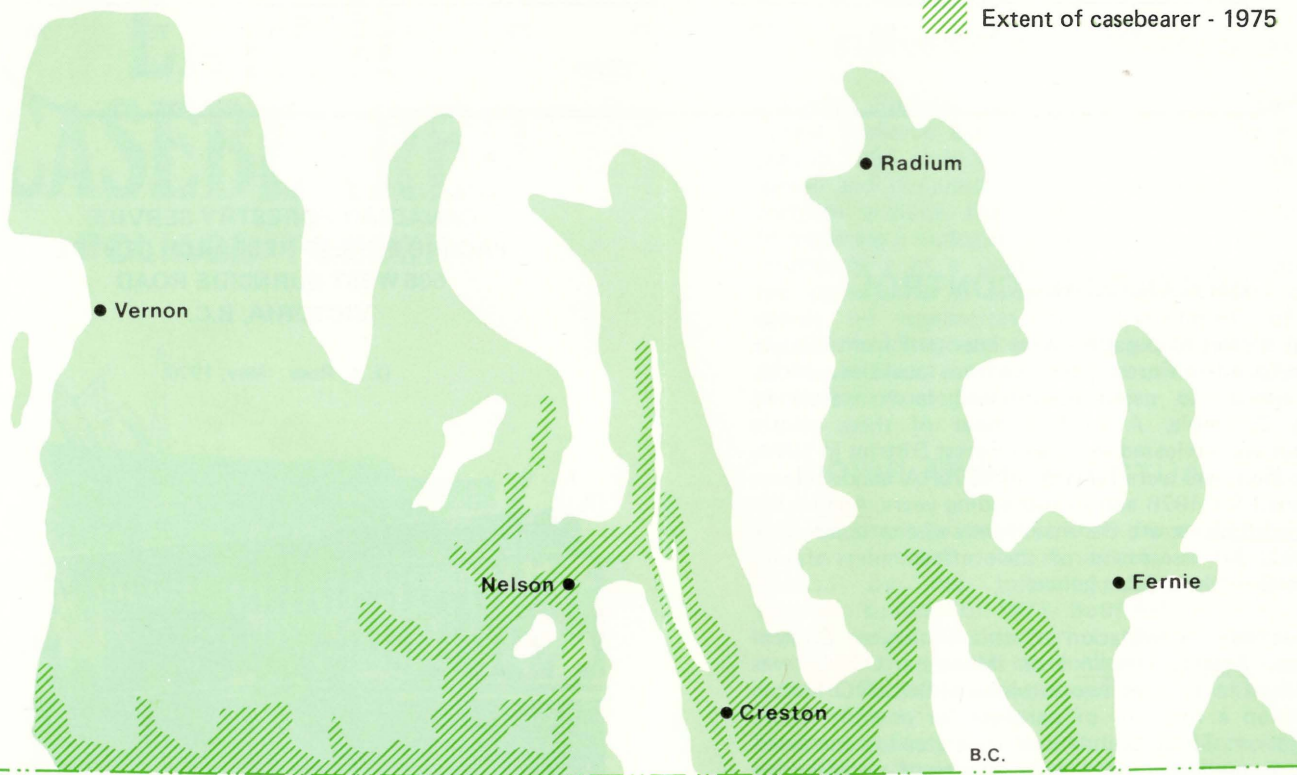
Larvae
in cases



CASEBEARER SPREAD

The major movement of casebearers into most of the commercially important stands of western larch in Nelson Forest District, British Columbia, had occurred by 1968. Only minor additional extensions have taken place to date (1976). Infestations have developed or persisted chiefly below 2,500 feet elevation, presumably because of more favorable weather conditions. The casebearer has not invaded the important larch stands in southeastern British Columbia, along the Flathead and in Kamloops Forest District.

- Range of western larch
- Extent of casebearer - 1975





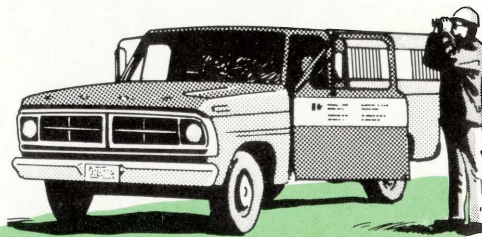
Mined needles

DAMAGE

Feeding by larch casebearer larvae has produced widespread foliage discoloration almost every year from 1967 to 1973, an effect aesthetically displeasing to a discriminating public.

Many larch trees showed severe stress during 1971 to 1973, for trees heavily defoliated during those years produced much adventitious growth in June. This new growth presented a brief greenish coloration which gradually disappeared after the casebearer eggs hatched and larval feeding intensified.

So far, no larch trees in British Columbia have been killed by the casebearer. On the other hand, heavy feeding on foliage has significantly reduced annual wood production in a number of larch stands.



SURVEYS AND RESEARCH

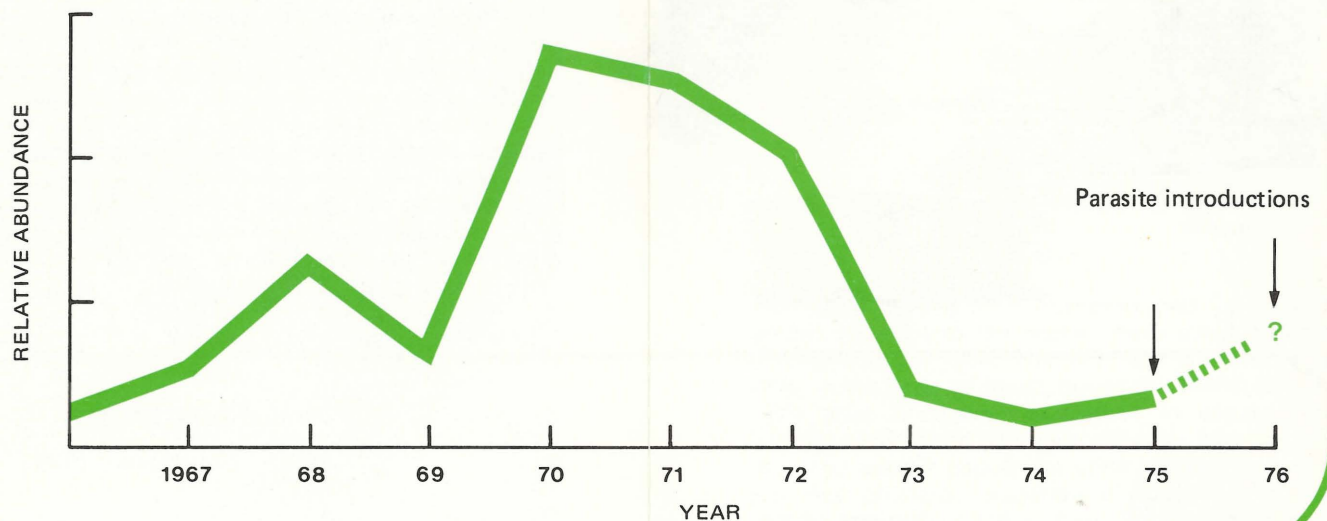
Canadian Forestry Service personnel, at the Pacific Forest Research Centre, detected the presence of the pest in 1966; since then, they have annually monitored spread and fluctuations of the casebearers. Following a problem analysis, studies were conducted preliminary to initiating a biological control program. This included development of a sampling system, determination of the significance of adapted native biological control agents on casebearers, and development of local parasite handling and propagating facilities. A portion of these were contracted to a university and to a professional ecological service.

POPULATION FLUCTUATIONS

The larch casebearer flourished from 1966 to 1968, then was knocked down numerically in 1969. It recuperated by the following fall and flourished until the summer of 1973. Both reductions are attributed to unfavorable weather, the first to extreme winter cold and the second to extreme summer heat and drought. Currently some populations are on the increase.

Native parasites have had little significant effect on population density to date, although there has been a gradual increase in parasitism.

CASEBEARERS SOUTH OF NELSON, B.C. OCTOBER 1966-76



BIOLOGICAL CONTROL

Several species of parasites were imported from Eurasia for the Canadian Forestry Service from localities ecologically similar to casebearer-infested larch stands in British Columbia. A small number of these exotic parasites were **released** in Nelson Forest District in 1974; greater numbers were released in 1975. A major release is planned for 1976 and in succeeding years. Agathis sp. and Diadegma sp. are the main kinds of exotic parasites liberated. An assessment of their effectiveness should begin two or three years hence.

Previous to the initiation of this Biological Control Program, Agathis pumila from Montana, U.S.A., was established in 1969 at two localities in British Columbia to develop a reservoir of parasites for possible future propagation. These populations have steadily increased and now provide an additional source of parasites for transfer to other infested larch stands.

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