

Fighting Bark-Beetles in Balsam

Ravages of Spruce Bud-Worm in valuable Forest Areas

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IN this article it is intended to present several features in respect to the general spruce budworm situation in eastern Canada and to

Has Two Phases

Briefly, the history of the dying trees has two distinct phases. First the budworm invades the country for

support of surrounding balsam often goes down. The photograph shown above presents a good conception of the devastation in what, ten years



Devastation in Balsam Grove, wrought by Beetles

describe briefly a beetle control operation conducted by Price Brothers, Limited.

The losses from the recent budworm outbreak in Quebec have been variously estimated. Accurate reports and examinations are available from too few areas to compile these losses with any degree of accuracy. Mr. Barnjum's recent statement probably comes as near representing the conditions as any. He says "The hundred and fifty million cords of pulpwood that have been destroyed by the budworm in the Province of Quebec means more than fifty years' supply for our Pulp and Paper industry at present rate of consumption. This amount of wood manufactured into paper at today's price represents a loss to Canada of seven billion dollars,—in fact, more than this figure, as one hundred and fifty million cords of wood would make more than one hundred million tons of paper which today is selling at seventy dollars per ton."

several years, stripping the foliage from the trees and greatly lowering their vitality. This feeding is the inciting cause. Coincident with it and for some years following several species of bark beetles or borers, which we call secondary insects, and a root rot attack these weakened trees and kill them. The extent of the deadening depends on the ability of the trees to recuperate from the budworm feeding. In younger forests a return to normal vitality may be established shortly after the feeding stops with only a loss of the suppressed or weaker trees. In old forests, especially on poor soils, all the balsam may finally succumb, the deadening extending over a period of 5-10 years. The combined effects of borers in the sapwood and heart rotting fungi make the trees very susceptible to wind throw. The final condition of these deadenings is a tangled mass of fallen trunks and tops with scattered birch still standing, even the living spruce under such condition losing the

ago, was a healthy green forest.

On sample plots in virgin balsam-spruce type in western Quebec, which was invaded by the budworm in 1920, already 42 per cent of the trees are dead. By next fall this number will have increased to 50 or 60 per cent after which those trees remaining will die more gradually for the next few years. These plots are typical of hundreds of square miles covered in an air survey last summer.

The expression, the budworm has passed, is very misleading. The forest may look quite green, except for isolated dead grey trees or scattered red tops, a year or two after the budworm has passed. But the host of secondary beetles which work more slowly and less conspicuously are just getting fairly started under such conditions. Five years later 90 per cent of the trees may be dead.

Must Face the Danger

No human agency can prevent these losses from increasing for the next