

necessary to devise ways and means for the profitable utilization of timber damaged in the course of infestations. Under present conditions, forest entomologists are required to give advice on salvage in connection with almost every infestation of importance. Full information concerning the present and future state of the forest is required as the basis for cutting plans whereby losses due to insects may be reduced to a minimum. To make pronouncements in such matters places a very grave responsibility upon the entomologist and requires a knowledge of all important factors in the development of outbreaks.

In the case of the European spruce saw-fly, for instance, the Forest Service is often asked: whether or not the spruce in a certain area will eventually be killed; how soon the trees will begin to die; what proportion of each species, type, or age class will be killed; how soon cutting operations should be commenced; and what effect these will have on the remaining forest. The answers to these questions cannot be given in a general way; it is necessary to study each area individually and to determine the condition of the spruce, the severity of the attack, the probable rate at which the infestation will develop in the near future, as well as the rate of deterioration of the timber subsequent to death from insect attack. In the collection of data, the co-operation of companies and forest services is indispensable. A regular system of reporting has been developed for this purpose. Special report forms have been prepared for those who wish to avail themselves of this service. Prognostications and recommendations are made on the basis of these reports, but it will be readily understood that exact measurements of probabilities are not always possible.

From the above it will be seen that in the conservation of our forest resources the proper management and control of the insect fauna plays a most important part, and at the same time that the task of the forest entomologist is by no means simple. The organization of an adequate service for the protection of the forests against insect ravages should be developed as rapidly as possible, especially through active and wholehearted co-operation between governments and industries.

Section 5.—Forest Administration.

Subsection 1.—Administration of Dominion and Provincial Timber-Lands.

In Canada the general policy of both the Dominion Government and the Provincial Governments has been to dispose of the timber by means of licences to cut, rather than to sell timber-land outright. Under this system the State retains the ownership of the land and control of the cutting operations. Revenue is derived in the form of stumpage bonuses (either in lump sums or in payments made as the timber is cut), annual ground rent, and royalty dues collected as and when the wood is removed. Both ground rent and royalty dues may be adjusted at the discretion of the Governments so that the public may share in any increase in stumpage values or reductions may be made in the rates if conditions demand them.

The Maritime Provinces did not adopt this policy to the same extent as did the rest of Canada. In Prince Edward Island practically all the forest land has been alienated and is in small holdings, chiefly farmers' woodlots. In Nova Scotia 87 p.c. of the forest land is privately owned; nearly half of this is in holdings exceeding 1,000 acres. In New Brunswick over 50 p.c. has been sold, and 20 p.c. is in holdings exceeding 1,000 acres. The percentage of privately-owned forest land in the other provinces exclusive of National Parks and Indian reserves is as follows: Quebec, 8 p.c.; Ontario, 3.3 p.c.; Manitoba, 9.1 p.c.; Saskatchewan, 7.6 p.c.; Alberta, 7.7 p.c.; and British Columbia, 8.4 p.c. In all cases timber-lands are now