

species may be vulnerable at different periods of their life-history and at different times of the year.

There has been rather a tendency, unfortunately, on the part of practical lumbermen and foresters to doubt the practicability of measures of control for bark beetles, not to mention other forest insects. Practical demonstrations, however, are now convincing them that the trees can be treated for bark beetles and that large areas can be protected. Excellent demonstration work of this kind is being carried on in the United States by Dr. Hopkins in co-operation with the United States Forest Service, private owners and other bodies. In one locality in Montana 10,000 trees were treated in 1909 with the result that in 1910 instead of the former death-rate of more than 10,000 trees annually, only 2,000 trees required treatment within an area of over one hundred square miles. This control work cost nothing, as the utilization of the treated trees for fuel and lumber more than repaid the cost of treatment. Reviewing the control work in the Rocky Mountain region, Dr. Howard states that since 1902 over 155,400 trees have been treated at an ultimate cost of \$31,211; 114,607 trees having been utilised so as to more than cover the cost of treatment, while 44,519 trees were treated at a direct expense of \$30,925. It is estimated that the timber saved as the direct result of this control work represents a stumpage value of over \$2,000,000. 'It is significant,' Dr. Howard says, 'of the practical nature of the methods of control recommended by the Bureau and of the practical demonstrations that have been carried on that no complaints of depredations have come to the Bureau during the year from the areas in Colorado and Montana, where control work was carried on in previous years according to the instructions of the Bureau.' To those who are acquainted with the extent of the depredations of bark beetles in Canada the fore-

going reports of successful control work under forest conditions not dissimilar from our own are a source of great encouragement in the work before us of controlling these serious destructive agencies. The most important requisite now is the cordial support and co-operation of all who are connected with the forests without which co-operation our work cannot succeed.

The following circular has been drawn up and is being sent to as many as possible of the persons who are engaged in forestry work in Canada. Mr. R. H. Campbell, Director of the Forestry Branch of the Department of the Interior, who is co-operating with the Division of Entomology in this work, is issuing this circular to all the officers of the Branch.

1. The Division of Entomology requests your assistance and co-operation in obtaining information upon the species of insects injurious to our forests, the extent of the injuries caused by them, and other information valuable in their control. We wish to be notified of any outbreaks of forest insects known to, or observed by, you, so that studies may be made of the habits of the beetles, or control measures adopted.

There have been for some years, and are at present, numbers of serious outbreaks of destructive bark-beetles in the United States forests. Such occurrences are to be expected in Canadian forests at any time. We wish to obtain information, essential to obtaining a knowledge of their control, as rapidly as possible.

2. It is particularly important at the present time to obtain all information available upon the species and habits of the bark-beetles (*Scolytidae* or *Ipidæ*) injurious to our forest trees. Special studies are also being made of other bark and wood-boring beetles and caterpillars; and any assistance in obtaining such material, or notes upon the occurrence and habits of such insects, will be very helpful.

The simplest method of collecting and shipping material is to wrap carefully sections of the bark or wood, containing the beetles, and showing their tunnels and borings, in strong paper and ship in a box or as a wrapped package. This should be addressed to 'The Dominion Entomologist, Central Experimental Farm, Ottawa,' and may be mailed 'Free.' Parcels up to 5 lbs. in weight may be mailed

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