

THE SPRUCE BUDWORM AND LARCH SAWFLY

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During this convention forest conservation has been fully discussed, but this discussion has been more or less limited to the consideration of one factor in forest destruction—fire. What has struck me is the fact that except for two references, in almost as many words, there has been no mention of another great destructive agency, namely insects. This seems peculiar when you think of one insect which when it appeared first (1882-6) destroyed all the mature tamarack from Nova Scotia to Winnipeg. When we have such an insect spreading more destructively than any fire, because it is selective in its destruction, it is quite unintelligible to me why there should be this apparent neglect of this factor. You will observe that I say apparent neglect, because I do not think there is any real neglect on the part of those interested.

In this matter we cannot consider one factor to the exclusion of the others. The three factors chiefly responsible for the destruction of our forests—fire, insects and plant diseases, are all closely interrelated. Possibly the reason that insects are not generally mentioned is because, working as they do quietly and insidiously, they carry on their destruction unnoticed except by the expert who is trained to detect them; whereas a fire can be observed by the smallest child and its ravages cover a large area in a very short space of time.

I believe that in Canada we suffer quite as much in the aggregate from insects as from fire. It has been estimated by the United States Department of Agriculture that the annual loss in the forests of that country through destructive insects amounts to over \$65,000,000. This is figured from actual observations in the forests covering a period of at least ten years. You can thus realize the enormous loss caused by insects which we shall have to consider as affecting first, the growing timber; secondly, timber products; and thirdly, the second growth upon which the perpetuation of the forest depends.

Twelve months ago at the first meeting of the Commission of Conservation I called attention to the important relation that insects bear to forestry in Canada and to the conservation of our forests, and the urgent necessity of studying all the facts possible concerning insects bearing upon this relation. I am now addressing a body of men most of whom are concerned in the practical aspect of forestry, and to you I repeat with increased emphasis that as insects play so large a part in the destruction of forests, the increasing importance of our forests as sources of timber, for regulating the water supply, for preventing erosion and for the other objects with which you are all familiar, will make it increasingly essential that, by careful scientific investigation, we shall be in possession of these facts concerning the life-histories, habits and natural means of control and other factors upon which alone any measures of control can be based and recommended.

It is not my intention to retrace my steps over the ground which was traversed in my previous address. I was requested to speak to you upon two insects which have had and are at present exercising a serious influence upon some of our important forest trees: the sawfly which is attacking the larch or tamarack, and the spruce budworm whose attacks upon the spruce and balsam in the province of Quebec have been the cause of much alarm on the part of those interested in the timber and pulpwood limits.

Both of these insects belong to a class which is destructive by reason of the larvae defoliating the trees, and this class of insects is not so serious in its results as the group of bark beetles, which are responsible for enormous damage to coniferous trees as the records of the investigations in the United States show. Nevertheless, I shall be able to show you that under certain conditions defoliating insects may be the primary cause of most serious losses.