

CONDITION OF THE PLANTATIONS AT WHAKAREWAREWA AND WAIOTAPU.

[By the Biologist to the Department of Agriculture.]

In the early part of this year I paid a visit of inspection to the forest plantations in the North Island of the Forestry Branch of the Lands and Survey Department. This work was undertaken to ascertain the condition of the trees so far as any diseases were concerned. An investigation of a similar nature was undertaken the previous year, and a report submitted that was included as an appendix to the annual report of the Forestry Branch.

WHAKAREWAREWA.

The plantations at Whakarewarewa were the first of any extent that were planted by the Department in the North Island. Some of the trees are now upwards of fourteen years old, and it is but natural to expect that these would be the first to show any signs of any serious disease that might be liable to affect mature trees.

The condition of the plantations at the present time is excellent; it is more than doubtful if any forestry operations in any part of the world have been so free from diseases as have those undertaken in New Zealand.

Acting on my suggestion in the last report, the blue-gums near the nursery which were badly affected with the Australian weevil (*Oxyops concreta*) have been cut down. A careful watch should be kept on all the eucalyptus plantations to ascertain what varieties are in the least subject to attack, and the planting of any that are liable to infestation should be discontinued in future plantings. So far the blue-gum appears to be the only one that is seriously attacked by this insect. This bears out my observations with regard to this insect in other parts of New Zealand. A careful examination was made for the larch leaf-cast fungus and larch-canker, but it is pleasing to note that no trace of these diseases is present. The pine plantations are here and there affected with the white blight (*Chermaphis laricina*). This insect (except on *Pinus sylvestris*) rarely appears to persist in any serious numbers on the trees after they have reached a certain age. It is an interesting biological fact that this insect completely prohibits the cultivation of the Scotch pine in New Zealand, while its effects on any other pines grown here is comparatively harmless. This is all the more peculiar when it is considered that the pine-white blight is a native of the same countries to which the Scotch pine belongs. In examining plantations, especially those of the Austrian pine (*Pinus Austriaca*) and Monterey pine (*Pinus radiata*) I was struck with the fact that certain trees appear to be more susceptible to the attacks of the white blight than others. Trees were seen completely free from this disease while adjoining ones, apparently quite as vigorous, were quite badly infested. It would be interesting to collect seed from quite healthy and diseased trees, and sow it to ascertain whether the immune character is hereditary. The presence of this insect, although not actually very serious, must naturally retard to a certain extent the growth of affected trees, and the use of seed producing only healthy trees would certainly be advantageous. As, in time to come, all the seed necessary for future planting will be secured from the plantations themselves, selection experiments appear to be worth undertaking. In this connection, apart from disease, I was struck with the great variation existing amongst individual trees in the larch plantations. This appears to suggest that valuable work could be done in seed-selection.

WAIIPA.

The Waipa plantations are almost entirely composed of larch, and are in an excellent state of health, there being no sign of disease amongst them.

WAIOTAPU.

These plantations were also inspected, and, with the exception of a little white blight amongst the pines, are very healthy and vigorous. In certain places trees have died, but in every case these are near hot springs or boiling mud-holes, which abound, and in all probability the roots have penetrated into the hot substratum.

CONCLUSION.

The general good condition of the plantations, so far as any diseases are concerned, is most satisfactory. The trees are, however, all comparatively young, and it is too soon to say with any degree of certainty that they will remain until maturity in a clean condition. I would advise the careful examination of the plantations from time to time, so that if any serious disease does make its appearance steps for its repression can be taken in hand before it has been able to obtain a serious foothold.

REPORT ON THE AFFORESTATION OPERATIONS IN THE NORTH ISLAND, 1911-12.

[By the Superintending Nurseryman, Rotorua.]

The afforestation work during the past year has not been up to the usual standard of success, owing chiefly to adverse weather-conditions occurring during the planting season and causing a higher death-rate amongst the newly planted trees. At Waiotapu the records of rainfall and temperature disclose the fact that the months of July and August were unusually dry—3.9 in. fell in fifteen days—while the number of days on which frost occurred during these two months was thirty-eight. Stormy winds, too, were prevalent. While frosts may always be expected at Waiotapu, they are not usually so frequent or so severe, nor is the rainfall in July and August