

ARTIFICIAL REGENERATION OF KAHIKATEA.

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The abnormal gale experienced in February, 1936 (1), caused severe damage to a portion of a Forest Reserve (S.F. 89) situated in the Pohangina Valley, some 20 miles from Palmerston North.

Over a small area of 25 acres, 173 kahikatea (*Podocarpus dacrydioides*), 18 totara (*Podocarpus totara*), 10 matai (*Podocarpus spicatus*) and 3 rimu (*Dacrydium cupressinum*) trees were uprooted or broken by the storm. Diameters of these trees were from 16 inches D.B.H. to 64 inches D.B.H. and in almost every case were overmature. The timber obtained from these trees was 386,000 ft. B.M., all of which was hauled from the forest by a 25 H.P. petrol driven Caterpillar tractor by December, 1936.

Almost destitute of remaining commercial species as seed bearers and much of the lower storey smashed, this area presented an interesting regeneration problem.

Within 18 months of the storm, second-growth of *Schefflera digitata*, *Meliclytus ramiflorus*, *Aristolochia serrata*, *Fuchsia excorticata* and *Muehlenbeckia spp.*, having taken advantage of the increased light, was rapidly forming a dominant and dense association.

Admittedly, natural regeneration of kahikatea (in the seedling stage only) was present in parts of this area, but there appears to be small hope of its survival under the dense ground shade now developing.

By a fortunate chance, several thousand 4-year old kahikatea were available from a local nurseryman in the winter of 1937, and it was decided to use this stock for the artificial regeneration of the 25 acre portion of this wind-damaged forest. It may be of interest to record the history of this planting stock. Collected in April, 1933, from mature trees in State Forest No. 98 (2), the seed was sown in protected beds in the following month. In November, 1933, the resultant seedlings were pricked out into trays and kept under glass till September, 1934, when they were transferred to 3 or 4 in. pots and kept in partial shade of a scrub-covered frame-work.

Some 5,000 trees were lined out in nursery rows in August, 1936, and 3,000 trees were left in pots under partial shade.

Of these 8,000 trees, 2,000 of the best lined-out stock and all of the 3,000 potted trees were planted out in 1937. This 4-year old stock averaged 24 inches in height (min. 12 ins. ; max. 48 ins.) and had well developed root systems, although the roots of the potted trees were somewhat congested.

All open spaces, formed by uprooted stumps and logging operations, were planted up ; thus, dense groups of trees were established at irregular intervals. In spite of an abnormally dry period for several

weeks immediately following planting, very few deaths amongst the planted trees have occurred, and a general flush of growth was noticeable in October, two months after planting.

A vigorous growth of Scotch thistle, Yorkshire fog and Cocksfoot are noticeable in the planted-up clearings and the grasses in particular are likely to impede somewhat the development of the young kahikatea. Should, however, competitive vegetation be kept under control for the next 2 or 3 years there is a reasonable chance of establishing a sufficient stocking of kahikatea in an otherwise derelict forest. Probably the first case of artificial regeneration of kahikatea forest, this experiment will be watched with considerable interest.

References.

1. Field, J. F. (1932). *N.Z. Journal of Forestry*. Vol. 3, No. 2, p. 65.
2. Thomson, A. P. (1936). *N.Z. Journal of Forestry*. Vol. 4, No. 1, p. 32.

Hylastes ater Attacking Apples.

The European bark beetle, *Hylastes ater*, is now established in many parts of the Dominion. It breeds in the roots and stumps of pines but in the adult stage attacks and destroys young conifers by feeding upon the bark and outer tissues at and about ground level.

An interesting example of change in the feeding habits of the beetle is afforded by a case occurring in the North Island. Unusual damage to apples being noticed by an orchardist, he forwarded specimens of the damaged fruit to Mr. W. Cottier of the Research Dept. who recovered some beetles from the fruit and sent them to me for examination. They were readily identified as *H. ater*. The beetles damage the apples by first eating the skin in large patches and then boring a tunnel in towards the core.

In the case noted, the insects had evidently bred in a nearby shelterbelt and migrated into the orchard. Fortunately the loss of fruit was not serious. It is not expected that *H. ater* will qualify for a permanent place upon the already lengthy list of orchard pests in this country, as the adults of this bark beetle are not likely to become exclusively frugivorous.

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