

relating to the cutting of kauri on State forests other than Waipoua is being adhered to. Working plans are under compilation for Herekino, Omahuta, and Whirinaki (indigenous) Forests and Maramarua, Balmoral, Rotoehu, and Naseby (exotic) Forests.

In addition to reconnaissance and typing of indigenous bush areas by the national forest survey, assessments have continued in the exotic forests. Field work on 197 compartments covering 59,630 acres, necessitating the survey and cutting of 1,190 miles of assessment lines, was completed during the year; office computation covering this work is in hand. Volume tables were again used extensively to calculate quantities, but for some areas data from sample-tree measurements were used. At both Tairua and Balmoral, sample-tree measurements were taken for the construction of local volume tables for assessment work.

CHAPTER V.—SILVICULTURE

33. *General*.—Labour and accommodation shortages during the period retarded the progress of silvicultural work to a rate below that desired. The areas treated, however, were greater in extent this year on account of the engagement of immigrant labour, which augmented the local supply and proved generally satisfactory. The most important increases were recorded in the area of new land planted and the area high pruned. Details are shown in Appendix II.

34. *Natural Regeneration*.—Insignis pine regeneration continues to make progress on those areas clear-felled during the past years in the Rotorua district, and only in the case of small scattered areas was it found necessary to fill up blanks by artificial means. In those areas in Whakarewarewa Forest clear felled from 1940 onwards, thinning and low pruning of the naturally regenerated stands were carried out and tree stocking reduced to approximately 1,750 trees per acre. At Kaingaroa Forest, where clear felling of insignis pine commenced the previous year, natural regeneration is such as to assure complete restocking. In the Canterbury district, on those areas now cleared from the damage caused by the 1945 gale, insignis pine, lodgepole pine, and prickly-cone pine all show fair regeneration.

An unusually dry summer—the third in succession—in the Auckland district has again had adverse effects on kauri regeneration, particularly in those areas where little shade was available and the seedlings were fully exposed to the sun. In other indigenous forests, regeneration results were poor, beech in particular having a year barren of seed.

35. *Interplanting*.—Ten acres of worked indigenous forest were interplanted, the species used being kauri (9 acres) and Douglas fir (1 acre).

36. *Afforestation*.—A total area of 2,819 acres of new planting on open land was completed and, in addition, 956 acres were blanked and 883 acres replanted. Tree seed collected comprised 3,120 lb. (including 160 lb. of indigenous species), but of this amount a considerable portion was required to fulfil overseas orders. Throughout the Dominion seed crops were, on the whole, poor and the abnormally dry weather resulted in earlier ripening of the cones.

37. *Nursery Operations*.—Seeds sown in nurseries amounted to 2,367 lb. and yielded 12,843,000 seedlings. A total of 5,938,000 trees were lifted for planting, and 2,978,000 were lined out. At the close of the year nursery stocks totalled 25,000,000 (21,340,000). In the Rotorua Conservancy the raising of Douglas fir wildlings under parent stands has proved satisfactory. Such stocks are lifted and lined out in the nursery.

38. *Tending of Indigenous Forests*.—As far as labour was available, the tending of indigenous forests was pursued to the maximum extent. A total of 340 acres was silviculturally treated, the work including underscrubbing and thinning of beech forests and the release of kauri saplings from competing scrub. In addition, 4 acres of exotic trees interplanted in indigenous forests were freed from competing second growth, and, in the case of beech forests, areas were cleared and scarified to assist natural regeneration.