

35. *Interplanting Indigenous Forests*.—Five acres only of worked indigenous forest were interplanted, the species used being hoop pine (4 acres) and kauri (1 acre).

36. *Afforestation*.—New planting on open land totalled 834 acres, 685 acres were blanked, and 925 acres were replanted. Tree seed amounting to 3,284 lb. (including 69 lb. of indigenous species) was collected, a considerable portion of it being sold overseas.

37. *Nursery Operations*.—The sowing of 2,312 lb. of seed resulted in a nursery stock of 13,963,000 seedlings. Trees lifted for planting totalled 3,442,000, and 2,969,000 trees were lined out. At the close of the year, nurseries held a total of 21,343,000 trees, compared with 11,985,000 at the end of the previous year.

In the Rotorua Conservancy, Douglas fir reproduces abundantly and many natural seedlings of advanced growth are now lifted from the forest and lined out in the nursery for future planting stock. This operation has proved successful. At Reefton a break of red-beech wildings was lined out similarly for a year's hardening off under nursery conditions.

38. *Tending of Indigenous Forests*.—A total of 185 acres was treated, the work including the cutting-out of competing scrub in order to release kauri saplings and the thinning and cutting-out of over-mature and diseased trees in silver- and red-beech forest. Produce from the silver-beech operation was sold as mine props. In addition, 26 acres of exotic trees interplanted in indigenous forest were freed from competing scrub and undergrowth. Owing to shortage of labour, work had to be curtailed, but in several instances camps and access ways were established preparatory to commencing work on a larger scale during the present year.

39. *Tending of Exotic Forests*.—Release cuttings covered 677 acres, low pruning 6,556 acres, and high pruning 932 acres. A total of 1,055 acres were thinned and 412 acres were clear-felled. In addition, salvage and extraction were carried out over 189 acres of wind-thrown and snow-damaged stands.

40. *Silvicultural Investigations*.—A layout plan was prepared and initial plantings were made towards the establishment of a northern arboretum at Waipoua. In all, 2,220 trees were planted, consisting of kauri raised in the nursery from New Zealand seed and from Queensland and Dutch East Indies seed, *Araucaria* from New South Wales, tanekaha (locally collected wildings), and slash pine for shelter belt.

41. *Experimental Plots and Statistical*.—The development of kauri natural seeding on experimental plots in the Auckland Conservancy was closely watched. The seedling density continues on the increase. In 1941 the density averaged 11.4 per square yard, and now shows an average of 24.7. Many of the seedlings will not survive, but it is satisfactory to record that natural seedlings on one plot over 6 in. in height increased from nil in 1941 to 2,500 per acre in 1947. Seedlings of that size and bearing secondary leaves can be deemed to be established. Remeasurement of insignis-pine study plots in this conservancy was also continued.

In the Wellington Conservancy, investigations were continued concerning the natural regeneration of red-beech forests under varying conditions of shade and ground cover.

In the Rotorua Conservancy, natural regeneration studies were continued on clear-felled insignis-pine areas. A further 23 plots were established during 1946, making a total of 68 study plots in all. Counts of these plots show good regeneration. On an area burnt out in 1944, seedlings now exceed 50,000 to the acre. *Macrocarpa* cypress underplanted several years ago under a eucalyptus stand now show a height of 17 ft. under light cover, compared with a height of 4 ft. under heavy cover.

42. *Forest Botany*.—The collection and summarizing of data relating to current phenological projects for the main exotic and indigenous forest tree species have continued as part of a long-term investigation.