

The Bureau of Silviculture and Botany, an integral part of the Forest Service, is a research organization. At present it is conducting silvicultural experiments in various areas of the province, in natural forests as well as in plantations, to find solutions to the many problems encountered in the work of improving the forest stand. This work is controlled by a network of permanent study points throughout the province. The Bureau has at its disposal a soil and plant tissue analysis laboratory and a forestry pedologist for the study of problems dealing with mineral foods for plantations, reforestation and silviculture.

Ontario.—The management of the forest resources of Ontario is based upon the Crown Timber Act and the management unit is used as the basic administrative area. For each management unit a plan is prepared according to the Manual of Management Plan Requirements and is submitted to the Minister of Lands and Forests for analysis and approval. All forest activities contemplated during the operating period—cutting, re-establishment and tending—are listed in detail in the operating plan, which is part of and carries out the intent of the management plan. Management plans are revised every 20 years on the up-to-date data of new aerial photographs and a forest re-inventory. The number of management units is subject to change at the time of plan revision owing to abandonment or acquisition of timber licences and to division or consolidation of management units. During 1964, 213 management units, classified by ownership and the rights to timber, were recognized: 81 Crown management units, 71 company management units, 56 agreement forest units, and five nursery forest units. The 81 Crown management units for which the plans are prepared by Department staff occupy 55,999,775 acres; of these, one is operating under a revised plan, 22 are undergoing scheduled plan revision, 56 are operating under the initial plan, and two new units are not under management plans. The 71 company management units for which the management plans are prepared by the licensees occupy 64,304,896 acres; of these, 50 are operating under approved management plans and 21 are either in the process of revision or initial preparation. The plans for the 56 agreement forest units are scheduled for preparation over an eight-year period. The plans for the five nursery forests adjacent to the forest tree nurseries operated by the Department cover approximately 9,000 acres, and will be prepared by the Department staff on completion of the inventory program.

On Crown lands during 1964, 132 stand improvement projects were carried out on a gross area of 33,143 acres. These projects were designed to secure adequate regeneration following cutting operations or to improve growth and quality of young stands of timber. In addition, 26 stand improvement projects, covering 2,394 acres, were carried out by junior rangers during the course of their summer training. During the year, on Crown lands and agreement forests, 34,752,000 trees were planted on 63,507 acres, and a further 3,789 acres were seeded. Stand improvement work was carried out on 7,312 acres of 40 agreement forests, including harvest cutting, cleaning, pruning, thinning and girdling. In addition to normal woods labour, over 7,800 man-days of inmate labour from five minimum security camps (see p. 435) were used on stand improvement projects in Crown and agreement forest units.

Forest research programs in silviculture, site, tree breeding, reforestation, mensuration and mechanics were continued and advances were made in site studies for the classification of forest land which have now been extended to the operations of the Agricultural Rehabilitation and Development Act (ARDA). The success of experiments with the use of plastic tubes of 0.5 in. in diameter for the production of seedlings for outplanting has resulted in large-scale use of this method for pine species and is under investigation for spruce.

The results of work in forest fertilization and in prescribed burning in hardwoods indicate that fertilizing may be an economic way of shortening the rotation or increasing the yield of plantations or natural forest, and that burning may assist in the conversion of low-quality hardwood stands to those of better potential. A new type of aerial seeder to sow tree seeds from a helicopter was designed and successfully tested. The completion of a test of timber cruising and log scaling as a means of measuring the volume of forest