

CHAPTER VI.—FOREST-PROTECTION.

43. *Fire Protection*.—The results of intensified recording of fires adjacent to exotic State forests show that 3,591 were seen and reported from lookouts, although many were land-clearing and rubbish fires and did not endanger standing forest. With a wetter season than the average, fires were fewer in State forests, and only 24 were recorded, covering a total area of 730 acres, or 3,000 acres less than the previous year. The only serious one occurred at Waitangi National Endowment Area (Auckland Conservancy) where a "burning off" fire lit by an inexperienced temporary workman contrary to orders got out of control and scorched in all 118 acres mainly of Southern pines, many of which, fortunately, have an excellent chance of recovery; no other damage was done. Fires reported on outside State forest numbered 44 and burned an area of 5,980 acres, mainly fern, scrub, &c., but in one case in Southland a picnic fire got out of control and destroyed 3,000 acres of commercial flax and pine shelter-belts owned by the Invercargill County Council.

Included in the recorded fires were four sawmills—owned by New Zealand Railways (Mamaku), Messrs C. S. McCully, Ltd. (Christchurch), Messrs. Kilkelly Bros., Ltd. (Motu), and Marton Sash, Door, and Timber Co., Ltd. (National Park).

44. *Fire-hazard Stations*.—Records were kept at established stations in key areas of both indigenous and exotic forests. Though danger periods were generally short-lived during the season under review, the fire-hazard readings proved useful in economizing fire patrols. The location of fire-hazard stations at hill-top lookouts has not been entirely satisfactory, as hazards existing at lower levels even in the immediate vicinity have proved to be much higher. Local instances have been confirmed by American experience.

45. *Fire Districts*.—One new fire district covering an area of 23,000 acres was constituted for the protection of Herekino State Forest, Auckland Conservancy. Sixty-one fire districts with a total area of 3,454,508 acres have been constituted to date; these figures include 39 State forest districts covering 2,676,505 acres, 8 private ones covering 368,639 acres, and 14 others covering 409,364 acres administered by other Government Departments and local authorities.

A review of the administration of private fire districts during the year revealed that private-forest owners are still relying too much on the salutary effect of the fire district law, and are not taking sufficient practical measures for the protection of their forests from fire. It is not in the national interest that private forests should be exposed to serious fire damage or destruction simply through indifference or neglect by the owners, and it is necessary for this Service to secure appropriate powers to direct private-forest owners to carry out essential fire-prevention measures.

Burning by occupiers of land in fire districts pursuant to written permits by Forest Officers showed that the majority of the permittees were conversant with their lawful obligations and exercised reasonable care to ensure that fires did not spread, but isolated instances occurred where occupiers were careless or took unjustifiable risks while burning and menaced the safety of adjoining properties. Occupiers must recognize that a permit to burn, even though the conditions laid down are observed, does not relieve the permittee from any liability for damage caused by the fire.

46. *Forest (Fire prevention) Regulations*.—The 1941–42 fire season was the first full period during which the Forest (Fire-prevention) Regulations 1940 operated, and reports disclose that their enactment has materially strengthened the administrative machinery in respect to forest-fire protection. Several weaknesses were naturally revealed, the principal one being the overreliance placed upon the use of approved spark-arrester equipment upon locomotives. Although efficient spark-arresters assist materially in reducing fire risk, even the best cannot eliminate the danger from locomotive sparks, and supplementary protection by way of a following patrol seems essential. The regulations are also defective in respect to the use of gas-producers on motor-vehicles. A number of grass fires during the 1941–42 fire season originated from this source, one of them spreading into a pine plantation, and an extension of the regulations in order to control further the use of gas-producer vehicles is under consideration.

47. *Animal Damage*.—Deer and pigs have increased enormously in the Rotorua Conservancy, due mainly to more cover and fewer hunters; the increase in deer has resulted in damage to young planted trees both in Wellington and Canterbury Conservancies. Goats are more numerous in Auckland Conservancy, and, owing to fewer hunters, threaten to become a serious pest. Animals killed in State forests were as follows (last year's figures are in parentheses): Rabbits and hares, 16,317 (16,696); deer, 904 (620); pigs, 1,062 (261); goats, 77 (11); rats, stoats, ferrets, &c., 2,534 (29).

Opossums continue to do considerable damage to *Pinus laricio* and *P. ponderosa* in Southland, *Thuya plicata* in Westland, and *Pinus echinata*, *P. taeda*, and *P. palustris* in Auckland, and to beech-regeneration in Nelson. Opossums destroyed under special Ministerial warrant show an increase of 660 on last year's figures. Of the 1,210 so killed, 76 were in the Auckland Conservancy, which indicates that northward migration is proceeding. Figures supplied by the Department of Internal Affairs show that 259,639 opossums were taken during the 1941 season; of this total 63,860 were trapped in State forests.

48. *General Ecology*.—The accumulation of data and the investigation even during wartime of all insects and diseases of potential silvicultural significance are emphasized as essential to the adequate protection of the entire forest resource and have been actively pursued.

49. *Insects*.—Considerable progress has been made in negotiations with the Commonwealth authorities whereby regulations will be invoked in Australia to prevent the export of hardwoods to New Zealand unless free from termites and other forest and timber insects. No termites were discovered in hardwood shipments examined during the year. Some bamboo tent-poles imported from India were found to be heavily infested with borer, including both pinhole borer (*Dinoderus minutus*) and a species of auger beetle (*Synoxylon anale*). A number of predators and parasites were also observed. The poles were either destroyed or suitably treated to destroy all insects.

The position regarding *Hylastes* attack of *Pinus radiata* is more promising than last year. The plots established in clear-felled areas in Whakarewarewa Exotic Forest showed that though the pine-bark beetle, *Hylastes ater*, was found in all the plots, sufficient insignis-pine regeneration to ensure adequate stocking still survives. In spring, 1941, the stocking of seedlings per acre ranged from 20 to 4,220; by autumn, 1942, the net stocking had increased to a range of 200 to 4,810.