

47. *Animal Damage*.—No reports have been received of serious damage from deer or pigs to planted areas, though goats are stated to be damaging Douglas fir in Nelson Conservancy. Nevertheless, the increase in the animal population in both indigenous and exotic forests is alarming. Animals killed in State forests were: Rabbits and hares, 14,604 (16,317); deer, 627 (904); pigs, 502 (1,062); goats, 0 (77); rats, stoats, ferrets, &c., 955 (2,534). Opossum damage has been reported from planted areas in Southland, Westland, and Wellington, and those destroyed under special Ministerial warrant totalled 1,803 (1,210).

48. *General Ecology*.—The collection of data and the investigation of all insects and diseases of potential silvicultural importance have been continued as essential to the protection of our forest resources. The recorded geographical occurrence of the pine-bark beetle, *Hylastes ater*, was extended southward, from mid-Canterbury to the Waitaki River.

49. *Insects*.—The negotiations with the Australian Commonwealth (referred to in last year's report) for preventing the export of insect-infested timber to the Dominion were brought to a satisfactory conclusion by the enactment of regulations by the Commonwealth authorities prohibiting the export of timber unless, *inter alia*, it has been examined by an officer of the Forestry Commission or other State authority and marked or branded as being free from termite or other insect infestation. The regulations became operative on the 1st December, 1942, and continue for one year, after which they will be reviewed and any disclosed deficiencies remedied. This Service gratefully acknowledges the co-operation it received from the Australian Trade Commissioner, the Commonwealth Department of Trade, and the State Forestry authorities in a matter which so greatly concerns hardwood-timber importers and consumers. Check inspections of hardwood shipments show the timber to have been exported in conformity with the regulations.

Recently reports were received from the Rotorua Conservancy that freshly-felled larch and Douglas fir poles were being attacked by borer. The beetle was identified as *Pachycotes ventralis* Sharp, a common native bark-beetle living normally in dead forest trees and had also been reported as attacking freshly sawn timber. The adult is particularly abundant from November to February, and to minimize and control attacks, all freshly cut timber during these months was sprayed with Diesel oil and creosote. This treatment appeared to be fully effective.

The *Hylastes* attack of *Pinus radiata* appears to have decreased in intensity in Whakarewarewa Exotic Forest. The plots established in clear-felled areas show that though this pine-bark beetle is still present, the number of plants killed is not significant, the stocking of seedlings per acre having increased from 4,810 in March, 1942, to 9,400 in October, 1942.

50. *Plant Pathology*.—No serious outbreaks of disease have occurred in indigenous or exotic State forests through the year. Diseases reported have been investigated and are being kept under observation. Among those which have received attention are: Discoloured heart of poplar thinnings from Dusky and Conical Hill Forests, from which was isolated a fungus resembling *Stereum purpureum*; a rot of *Pinus taeda*, Waipoua, together with attack by *Sirex noctilio*, though the pathogen does not appear to be *Stereum sanguinolentum*, which is most commonly associated with the steel-blue sawfly; dying seedlings from Ashley State Forest (damping-off by *Fusarium* sp.), &c., and heart rots of larch and totara ("kaikaka" yielding a fungus other than the previously isolated *Fomes robustus*). Two saprophytic species of *Dasyscypha* have been identified from larch in Southland, one being *D. calycina*, the well-known saprophyte which sometimes occurs with the larch-canker fungus, and can only be distinguished from it microscopically. The larch-canker fungus, *D. wilkommii*, has not been found in New Zealand.

51. *Damage from Natural Causes*.—Only minor wind damage of localized occurrence was recorded during the year, including, however, one cold saline southerly in June which severely damaged and in some cases killed ngaio, lacebarks, and other indigenous shrubs in the South Wellington area. Heavy snow in October damaged larch in three Naseby forest compartments (Otago Central) and also indigenous beech forests growing on sidelining slopes in Glenorchy district, where large numbers of trees in the pole stage were bent over, broken, or actually uprooted. The damaged poles are being converted into mine-props for local use. A severe January frost at Tongariro Forest, on the plateau of Central North Island (altitude, 2,900 ft.), destroyed experimental plantings of Douglas fir and *Pinus radiata*, and very seriously damaged *P. laricio* planted in 1940 and 1941. Larch and macrocarpa were but slightly affected, and the hardiest species at that high altitude are *Pinus ponderosa* and *P. murrayana*. At Longwood Forest (Southland) unusually heavy frosts occurring in May and June following a mild autumn killed and damaged large numbers of newly planted exotic trees and actually killed numbers of indigenous silver beeches up to 8 ft. in height, a rare occurrence worthy of record.

During an electrical storm in December over Kaingaroa Forest 15 pine trees were destroyed and 3 others damaged. One acre of *Pinus jeffreyi* in Waitapu Forest, planted in mixture with *Cupressus lawsoniana* in 1918, became thermally active and the pines had to be felled, yielding sawlogs and mine-props. The Lawson cypress, which predominated in the mixture, is so far unaffected. The soil temperature 2 ft. down is 80° F.

52. *Forest Offences*.—Offences against the Forests Act were considerably fewer than in the previous year, but convictions were secured in 18 cases (29), made up as follows: Theft of timber, 1 (0); attempted bribery, 1 (0); fires, 6 (6); timber trespass, 5 (2); trespass and hunting, 5 (21). In one flagrant case of timber trespass a company and its manager were each fined the maximum sums (£100 and £50 respectively).