

(4) *Deer*.—Deer show a slight increase in indigenous forest, but continual shooting is keeping their numbers in check. In some of the high country in Southland, however, their incidence is serious enough to endanger the well-being of certain areas of protection forest.

(5) *Insect Damage*.—*General*: With the exception of that caused by the steel-blue sawfly (*Sirex noctilio*), insect damage has been slight, as in the past, and most local attacks reported have been of limited extent and brief duration.

A leaf moth (*Epichorista persecta*) caused defoliation of kauri seedlings in a nursery at Waipoua. Arsenic spraying was effective. The bronze beetle (*Eucolaspis brunneus*) attacked young Douglas fir underplants in a larch stand in Rotorua Conservancy, causing a general set-back to the trees and some mortality. The cicada, *Melampsalta cingulata*, has been very numerous and damage to leaders of Douglas fir and *Cupressus macrocarpa* may be expected. A parasitic fungus, *Isaria* sp., appears to afford some measure of control by destroying large numbers of nymphs.

The Douglas-fir seed chalcid fly (*Megastigmus spermatrophus*), previously confined to Otago, has been found abundantly in Rotorua Conservancy. Transfer of Douglas-fir seed from the South Island to the North has been banned within the Forest Service for over fifteen years, and the reason for the insect establishing itself in the Rotorua forests is not known. The forest pathologist reports that examination of seed in other localities has failed to reveal additional centres of infestation.

(6) *Steel-blue Sawfly*: Appearances of *Sirex noctilio* have been reported from most conservancies, brief periods of high incidence being experienced in Nelson, Rotorua, and Auckland. The most serious spectacular outbreak occurred in Rotorua district, where an investigation made in the spring revealed that many trees had been killed by a fungus associated with the insect, young to middle-aged stands of insignis pine in both State and private forests being mainly affected. The forest pathologist reports (Chapter V) that the epidemic probably arose from climatic factors which were favourable to the insect.

Climatic conditions this year have been mild, no extremes being experienced. In the Rotorua Conservancy high temperatures at the end of October encouraged the emergency of many insects, but no high temperatures were recorded between 1st November and 9th December, and there was considerable rainfall. These conditions are of extreme importance in regulating the insect population, and also the susceptibility of trees to attack and their capacity for recovery if attacked. Compared with last year there have been few days ideal for *Sirex* oviposition, and it may be expected that damage from this cause will be reduced.

(7) *Damage by Fungi*.—*General*: No serious outbreak of fungal disease was reported and State forests suffered little damage during the year. The honey fungus (*Armillaria mellea*) was observed in Whakarewarewa Forest, where some naturally regenerated insignis pine suffered attack. In Wellington Conservancy this fungus continues to cause mortality amongst the more susceptible species used for interplanting indigenous forest. Sample plots in *Cupressus lawsoniana* at Taurewa show mortality rates at 8 per cent. to 9 per cent. in four and a half years.

In the area of *Pinus radiata* near Lake Taupo burnt in 1946, some damage to the dense regeneration which has appeared was caused by *Diplodia* following frost injury, and by *Armillaria mellea* spreading from dead trees. Timber being salvaged in Pureora State Forest from the area burnt in 1946 showed damage to the sapwood by ten species of fungus, in addition to sap-stain. *Stereum hirsutum*, *Coriolus cinnabarinus*, *Merulius* sp., and *Stereum* spp. caused most of the damage. An uncommon heart-rot of kauri found at Waipoua, and a fungus causing wilt on seven-year-old *P. laricio* at Golden Downs Forests, have been submitted for examination.

(8) *Manuka Blight*: The "manuka blight," which has aroused interest in North and South Canterbury recently, is particularly abundant near Ashley Forest. Its effect on exotic forest trees has so far not been found to be in any way detrimental. This