

Goats are reported to be plentiful in some of the North Auckland forests, but unfortunately attempts to arouse the interest of local settlers in reducing the herds were unsuccessful, apparently due to the fact that some farmers do not yet realize the great damage these animals do to the young growth. Goats appear to be increasing also in Wellington and Westland Conservancies.

The number of opossums killed by forest employees was 581. These animals are most prevalent in Southland and Westland, and in the latter conservancy their attacks on the young leaders of *Thuya plicata* were again in evidence, although little damage to the indigenous forests was noticeable.

Further details of animal-destruction will be found in Appendix VII.

#### SECTION C.—FROM INSECTS AND FUNGI.

44. A general ecological survey was continued, whenever opportunity offered, of all factors operating upon the trees in the forests, with the object of selecting salient factors for more intensive study and to correlate the various climatic, edaphic, physiographic, and biotic factors with any observed pathological condition of the trees. In kauri forests the factors found to require attention were soil conditions, heart-rot fungi, bark beetles, and damage caused by gum-bleeders; in podocarp forest heart-rot fungi and *Armillaria* received attention; while in beech forest heart-rot fungi, *Cytaria gunnii*, *Armillaria mellea*, the buprestid *Nascioides ensyii*, defoliators, *Platypus* beetles and other borers, the wood-boring moth *Charagia virescens*, and climatic factors were studied. In exotic forests the most important appear to be soil and climate factors and pathological conditions resulting from abnormally severe climatic conditions acting upon accumulated suppressed trees in unthinned plantations, particularly on poor sites.

Milling is still being continued in the area of indigenous forest burnt in December, 1937, on the central volcanic plateau. Insect damage is only now becoming at all severe and is caused by *Platypus douei*. There has been no new growth of burnt or scorched trees, although many are still alive in the butts and trunks. Attack by *Armillaria mellea* from the roots to a height of at least 20 ft. in some cases and by *Stereum* in the upper parts of the trees has resulted in the decay of the sapwood in the majority of all species. There is also attack by *Schizophyllum commune* and *Polyporus*. As a result of the destruction of sapwood rimu, kahikatea and miro are now practically non-millable, but the heartwood of matai and totara is still sound and there are also patches of bush which escaped the fire.

45. (a) Termite investigation received considerable attention during the year, and with the co-operation of the Australian Council for Scientific and Industrial Research the position with regard to the introduced termites has been considerably clarified. Mr. F. N. Ratcliffe, of the C.S.I.R., an entomologist specializing in termites, visited New Zealand by arrangement between the C.S.I.R. and the State Forest Service, and as a result appropriate control measures are receiving urgent consideration. In the meantime regular inspections of incoming shipments of Australian hardwoods have been instituted throughout the Dominion, and although no infested material was located amongst the first twenty shipments examined, suitable arrangements have been made for dealing with any such material which may be located in the future, and much information was secured as to the prevalence of termite pipe and tunnels and other defects in the timber.

(b) The known distribution of *Hylastes ater* has been extended through investigation during the past year. It is now known to extend from Bankside, Hororata, and Greendale in Canterbury, where it occurs in the Selwyn Plantation Board's plantations, to Waipoua Forest in the North. Between these localities it is to be found wherever suitable conditions occur. None of the introduced predators, *Rhizophagus* spp., has so far been recovered, but the accidentally introduced Australian beetle, *Metricorrhynchus rufipennis*, which is reputed to be a predator, is frequently found associated with *Hylastes* larvæ. The fungus *Armillaria mellea* exercises some control by occupying the stumps and destroying the cambium, rendering