

In Rotorua forests the longhorn, *Navomorpha lineatum* is known to enter Douglas fir in this manner.

Thirteen species of cicada have been recorded by Myers (1) in New Zealand and, with the exception of *Melampsalta cruentata* Fabr., all are endemic. *M. cingulata* Fabr. appears to be the most widespread and common, though it is not known whether it is responsible for the damage here recorded. Little is known of the habits and life cycle of the New Zealand cicadas.

The widespread occurrence of oviposition in situations where there is ample light tends to confirm the opinion that cicadas are light demanders in this respect at least.

The plentiful oviposition marks, both fresh and old, indicate a high normal infestation in the Atuanui Forest, also the high proportion of fresh damage suggests that there was an increased population in the summer of 1948-49.

It seems probable that in some localities at least continual oviposition in regenerating podocarps may present a serious silvicultural problem. Opening of the canopy by logging and later release cuttings may well provide optimum conditions for this insect.

Cicada damage to exotic shade-bearers used to interplant logged indigenous forest in the Taumarunui district has previously been recorded in his journal (2), and is stated to have reached such proportions as to make the advisability of further planting questionable.

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### References

1. Myers, J. G. (1921). A Revision of New Zealand Cicadidae (Homoptera) with Descriptions of New Species. *Trans. N.Z. Inst.* Vol. LIII.
2. Ranger, F. J. (1945). Cicada Damage to Exotic Shade Bearers. *N.Z. J. For.* Vol. V, No. 2.

## COMPRESSION FAILURE IN *PINUS RADIATA* STEMS EXPOSED TO STRONG WIND

In Vol. V, No. 4 (1947) of this Journal an account was given of wind damage to stands of *P. radiata* on coastal country in the Manawatu district. On sand dunes in this locality the species is strongly rooted and damage from the gale of February, 1947, was characterised by stem breakage rather than uprooting.

In damaged stands some trees were left with a lean. Generally this was not due to partial uprooting, but rather to a permanent bend, most pronounced in the first 10 feet, but occasionally present higher in the stem. This bending was caused by compression failure on the side away from the wind. Characteristically the bark had come

away from the cambium (then active) along horizontal or slightly oblique lines. There were often several such lines near the base of the tree and occasionally others upwards as far as the base of the crown. In the wood below there were corresponding irregular lines of rupture and folding in the wood. These lines of failure resembled those normally occurring in compression tests on weak woods.

When trees so affected were sawn, timber from the damaged zone, which often extended well towards the centre of the tree, had to be discarded. Another effect which began to become apparent after about a year was the falling of such trees as the result of wind, usually from a different quarter than the original gale. The buckling of the bark and exposure of the ruptured zone had allowed the entry of rot to further weaken the stem. Examination of the trees which broke off during the gale showed that compression failure had occurred in most before the final rupture of the opposite side in tension.

When examining a damaged stand of *P. radiata* at Tangimoana, Dr. Syrach Larsen commented on similar wind damage to spruce in Denmark. Subsequently Dr. Larsen sent me an account of the phenomenon published by A. Holten in 1911 (1). Holten considered that the more or less horizontal ruptures in spruce stems were due primarily to compression failure, but were probably further developed in tension when the stem recoiled. His illustrations show a much more complete break in the wood, but not so much permanent bending of the stem as occurred in *P. radiata*. The response of spruce to this injury is to develop a bulging callus along the line of failure; this may or may not succeed in bridging the gap and laying down normal growth beyond it. Similar recovery has not so far been observed in *P. radiata*.

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#### Reference

Holten, A. (1911) Brud i Staaende Granstammer. *Det forstlige Forsogsvaesen i Danmark*, II.

### DEER DAMAGE IN A NELSON BEECH FOREST

The attention of foresters was drawn to the menace of deer in indigenous forests by Mr. J. T. Holloway at the last Annual Meeting of the Institute. His paper covered the south-west part of the South Island, and the following note emphasises that deer will probably become as grave a problem in the northern part.

In 1925 Mr. R. B. Steele established two sample plots in Nestor Gully, a tributary of Rainy River, Howard Survey District, Nelson. One plot was enclosed by a 12-wire, six foot high fence, designed to exclude both deer and pigs, while the second was unfenced to serve as a control. The fence was inspected in 1943 and in 1949, and only