

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



Regeneration of red and silver beech within deer-proof enclosure and absent without ;  
near Rainy River, Nelson.

*Photo : National Publicity Studios.*



minor repairs were needed on each occasion, there being no evidence of pigs or deer having gained entry.

The earliest record of the liberation of deer, and of their breeding, in the Nelson Province is 1861, but deer were not present in large numbers in this particular locality until the beginning of this century and more especially the last thirty years. The control plot fairly represents the condition of a large block of forest between Korere and Tophouse, known as "The Big Bush." In this predominately beech forest, overmature red and silver beech form a canopy over an understorey of suppressed pole-size beech, with but sparse regeneration in the thicket and sapling stage. This regeneration is almost exclusively silver beech of poor form, while there is virtually no seedling beech. In addition, other palatable species such as broadleaf and *Coprosma* spp. are absent or heavily browsed; so much so that in places the forest has a park-like appearance. Within the fenced plot regeneration is not prolific because of heavy canopy, but in small areas where light is available there is ample growth, almost wholly of red beech up to 15 feet high and of excellent form. Some silver beech is present in the more moist and shaded sites and is of much better form than that subject to browsing outside. Recent regeneration of both species is to be found. It is very noticeable that where a break in the canopy extended over the fence there is beech regeneration, with *Coprosma*, lawyers and broadleaf inside the plot, but not outside. Moreover, branches which protruded through the fence were eaten back.

It is evident that deer damage in this area is much more serious than previously believed. This set of plots provides factual and visual evidence of the gradual effect of deer in 25 years. The composition of the forest is being altered for the worse and its survival as a manageable proposition is being made a matter of speculation in the event of the deer population increasing, or even remaining at its present high level.

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## BEETLE DAMAGE TO BEECH FOREST

As early as 1923 damage to *Nothofagus* species by a buprestid beetle was reported at Pokaka, near Mt. Ruapehu in the North Island. This insect was subsequently identified as *Nascioides enysi*, and has since been found in other beech forests, notably in the Maruia Valley of the Nelson Conservancy.

The larva is about 17mm. long, whitish-yellow to pale brown, and readily distinguished by its very small head but greatly enlarged prothorax. The first indications of larval attack are black ramifying lines in the inner bark, where the larvae feed, forming flattened tunnels which end in pupal chambers in the wood. In the chamber the imago expands, the change from pupa to adult taking some ten days. The adult is approximately 10 mm. long, of a greenish metallic colour