

Two Beetles from the Bark Scales of Rimu (*Dacrydium cupressinum* Soland.)

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The biologies of *Euderia squamosa* Broun (Bostrychidae) and *Sommatidia antarctica* White (Cerambycidae) are discussed with particular reference to distinguishing their infestations. The information recorded is a result of two years of rearing small numbers of these two species in the laboratory combined with periodic field examinations in Nelson and Westland Forest Conservancies.

Euderia squamosa was described by Broun¹ as an anobiid, but he suggested that morphologically the species seemed to fall somewhere between this family and the Bostrychidae. These two families belong in different sub-orders of the Coleoptera and, if Broun had been correct, a new sub-order would have had to be erected to contain this single species. Its true position was defined by Lesne². Collections by Hudson³ have been made by beating rimu foliage, but hitherto no information of its habits or habitat has been recorded.

The adults emerge from old bark scales of rimu from late October to January, peak emergence being in December. The exits are mainly on the outer surface of the bark, but some occur on the under surface where the bark scale has lifted away from the tree. The holes are round and 1.0-1.2 mm in diameter. The beetles are sedentary during the day and rest on the bark and foliage where mating takes place in the evening. They are well camouflaged for a rimu bark background. The eggs are laid in the rough surfaces of the bark, or within old pupal chambers, and hatch in 14-23 days. The short-legged, white larvae are moderately hairy and typically curl up on removal from their tunnels. They feed for about 10 months, moving in relatively straight lines toward the top of the tree, and construct pupal chambers close to the surface of the bark. The pupal period averages about 19 days, but the beetles remain in the pupal chambers up to 10 days before emerging.

Collections have also been made from *Podocarpus dacrydioides* A. Rich. (Kahikatea), but the insect is more common on rimu. In collecting material to study this species, cerambycid larvae were frequently found occupying the same habitat and doing similar damage. Rearings proved this to be *Sommatidia antarctica* White. The adults of this species also emerge in December and construct round exit holes which, however, are twice the size of those of *E. squamosa*. The eggs are laid in roughened bark, only one or

two being placed together. *E. squamosa* appears to deposit eggs singly, seldom in pairs, though several may be laid in the same bark scale. The incubation periods for both species occupy the same range and the larvae feed about the same length of time. The larvae are markedly different on close examination, though the early stages may be confused at first. Larvae of *S. antarctica* are relatively smooth, creamy-coloured, and taper posteriorly from the thoracic segments. They do not curl up on removal from their tunnels. Whereas their tunnels are oval, those of *E. squamosa* are round, but both pack their frass tightly behind them as they progress through the bark. The pupal chambers of *S. antarctica* are larger in all dimensions. The pupal period for this species is similar to that reported for *Euderia*. From material collected, *E. squamosa* appears to be more common in rimu bark scales than *S. antarctica*. Whereas the latter has been reared from *Pinus radiata* D. Don. also, *Euderia* has only been obtained from the two podocarps mentioned above and seems to be distributed throughout the range of its host plants.

Though the life-cycles of the two beetles are similar, particularly in the timing of major events in development, certain features have been described which permit differentiation of the two infestations. Larvae of both insects have been taken from close proximity within the same bark scale. The larva and pupa of *E. squamosa*, not previously described, have been sent by Mr. E. S. Gourlay to R. A. Crowson, Glasgow, at his request, for description.

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