

A TRUNK FULL OF PREDATORS (COLEOPTERA)

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Demetrius carinulatus is a very rare Tenebrionid, known from about 6 specimens in collections, all from the northern South Island, except for the type, which was collected near Invercargill. Recently I found another specimen in the N.Z. Arthropod Collection amongst unsorted Colydiidae, collected by Dr R.W. Bull at Taihape, Oraukura Gorge, 14 Oct [year illegible], under loose bark of dead white pine [kahikatea, Podocarpus dacrydioides].

In September 1982 I stayed two nights in Taihape especially to search for this species, and particularly its unknown larva. Unfortunately I was unsuccessful, but several other interesting beetles were found. These included a large, black, undescribed Chaetosoma (family Chaetosomatidae), also previously known only from the South Island.

The search concentrated on dead standing kahikatea, but as there seemed no particular reason why a Tenebrionid should be confined to this species, other dead trunks were examined as well. On 18 September a standing dead trunk of Hoheria sexstylosa (lacebark) was examined in the Oraukura Gorge. This trunk was in the middle of a clearing covered with masses of dead or dormant Clematis vitalba ("old man's beard"), which has killed numerous trees on the fringes of forest remnants near Taihape, and may have been responsible for the death of the lacebark.

The trunk (diameter breast height about 40 cm) had lost almost all of its bark, and was in a partly decayed condition. Numerous circular entrance and emergence holes of the pit weevil Psephenolax coronatus (Curculionidae) were evident: 3 live adults of this species were found later, plus extensive gallery systems, but no live larvae.

By far the largest biomass comprised larvae of a Thoramus (probably laevithorax) (Elateridae), with the smaller, bright salmon-pink larvae of Chaetosoma n.sp. the next most important in terms of biomass. Also present were 3 adults of Hypodacne rubripes (Cerylidae), remains of an adult giraffe weevil Lasiorhynchus barbicornis (Brentidae), and 6 adults of Pentarthrum zealandicum (Curculionidae). The only other insects found in the trunk were a few pupae of an Ichneumonid in cocoons in the P. coronatus galleries.

All available information indicates that larvae of both Thoramus and Chaetosoma are obligate predators. The question which immediately occurred to me was: "on what could these predatory larvae be feeding, considering that the biomass of predators greatly exceeds that of non-predators?". The most likely answer is that they are eating each other: with Chaetosoma presumably losing most inter-specific encounters because of its smaller size. However, most of the larvae of both species were apparently at or near maturity, and could be expected to pupate soon, possibly without needing to feed again before pupation.

Clearly, Psepholax coronatus larvae and pupae had been the main food of Thoramus, before they all emerged or died because the condition of the wood had become unsuitable. The Chaetosoma larvae probably subsisted on immature stages of the smaller beetles (it is chastening to speculate that these may have included Demetrius carinulatus).

The larva of Chaetosoma n.sp. closely resembles that of C. scaritides described by Crowson (1964). It is easily distinguished in the field by its bright pink colour and its hairiness. Hudson (1934) illustrated this Chaetosoma (plate 5, figs 1, 1a), incorrectly identified under the name Chaetosoma scaritides: the adult of this latter species is smaller on average, with the base of each elytron red. New Zealand Chaetosomatidae are at present being studied by Dr Ginter Ekis (Carnegie Museum, Pittsburgh, Penn., U.S.A.), who recently recorded the family from Madagascar.

The Taihape area does not seem to have received much attention from entomologists in the past. There are indications that it may be an important refugium for relatively cold-adapted species characteristic of Podocarp-broadleaf forest, which perhaps did not survive volcanism elsewhere in the North Island.

REFERENCES

- Crowson, R.A., 1964: A review of the classification of Cleroidea (Coleoptera), with descriptions of two new genera of Peltidae and of several new larval types. Transactions of the Royal Entomological Society of London 116 (12): 275-327, pl. 1.
- Hudson, G.V., 1934: New Zealand beetles and their larvae. Ferguson & Osborn Ltd, Wellington, 236 pp, 17 pls.