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Species diversity in the Palaeotropical leaf-litter genus *Apelaunothrips* (Thysanoptera, Phlaeothripinae)

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Abstract

Species of *Apelaunothrips* are fungus-feeders on dead leaves, particularly in leaf-litter, and they are recorded across the Old World tropics from Africa to northern Australia and southern Japan. All species in this genus have the maxillary stylets 4–6 microns in diameter, considerably broader than the 2–3 micron diameter that is typical among Phlaeothripinae. The species are largely uniform in structure, but in four species the larger males have fore femora enlarged with a conspicuous tubercle on the inner margin at the base. In one of these species, the males are dimorphic, with no intermediates between large and small individuals, in contrast to the continuous variation in structure found in many polymorphic Phlaeothripidae. A key is provided to the 37 recognised species of *Apelaunothrips*, including the following: *A. desleyae* **sp.n.** from northern Australia; *A. bogor* **sp.n.** from Java; *A. gombak* **sp.n.** from Peninsular Malaysia.

Introduction

Leaf-litter in some areas of the tropics and subtropics is known to support a high diversity of fungus-feeding Thysanoptera, but the only extensive sampling of such a habitat was carried out in southern Brazil. From those samples, a total of 50 species in eight genera of Phlaeothripinae were described (Mound 1977), with many of these apparently co-existing. A high diversity of similar Phlaeothripinae taxa also occurs in eastern U.S.A. (Mound 1976), but in other parts of the world the fauna of litter-living thrips has rarely been targeted, exceptions being in southern Queensland, Australia (Tree *et al.* 2012), and Japan (Okajima & Urushihara 1992). Moreover, thrips have been collected, and many taxa described, from leaf-litter and dead branches at several sites widely across Southeastern Asia (ThripsWiki 2013—Okajima publications list). Unfortunately, the collecting methods of taxonomists rarely generate data on taxon diversity at specific sites, such as one-metre quadrats, nor suitable data on species-turnover between sites. Despite this, it is clear that related species are sometimes collected together, and at least a few species have wide distributions across S.E.Asia (Table 1). However, it remains unclear why some genera of litter-thrips are so species-rich, with congeneric species apparently co-existing in the same habitat.

In the New World, the fauna of leaf-litter thrips is represented primarily by three genera, *Eurythrips*, *Terthrothrips* and *Tylothrips* (Mound 1977). In contrast, samples taken in the Old World rarely include these genera, whereas species of *Apelaunothrips* and *Adraneothrips* are often abundant, with species of *Psalidothrips* and *Zemiathrips* found commonly in the litter of sclerophyll forests in Australia (Mound 2002; Tree *et al.* 2012). A revision of *Apelaunothrips* was provided by Okajima (1979), with keys to the 19 species then known, all from the Palaeotropics between Africa and northern Australia. Subsequently, Okajima (1984) described a further seven species in this genus from the Philippines and, in two further papers, another five from the island of Borneo (Okajima 1987; Okajima & Reyes 1990). The present author and colleagues collected many specimens of *Apelaunothrips* from leaf-litter in Malaysia and Borneo, and in sorting these it became necessary to prepare the preliminary identification key below to the members of this genus. *This key is based almost entirely on original descriptions*, and thus cannot be considered more than a preliminary analysis. However, the detailed descriptions and excellent line drawings published by Okajima provide an unusually high level of security for identification ensuring the usefulness of this key as a tool. The sculpture on the vertex, whether transverse, reticulate, or completely absent, also the shape of the eighth antennal segment, suggest patterns of relationships amongst the

Apelaunothrips zonatus Okajima & Reyes

(Figs 13, 15)

Described from 11 females and three males taken in the region of Mt Kinabalu, Sabah, the specimens listed below from Mt Mulu in northern Sarawak are here identified from the original description. This species has a particularly elongate head, and both the head and metanotum (Fig. 13) bear a large number of setae. The male fore femur has a large, recurved tubercle at the base on the inner margin (Fig. 15).

Specimens studied. Malaysia, Sarawak, Mulu National Park, 2 females, 1 male in lowland rainforest leaf-litter, 18.ix.–18.x.1977 (B.Bolton) (in The Natural History Museum, London).

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