



Two new Australian fungus-feeding thrips in two new Plectrothripini genera (Thysanoptera, Phlaeothripinae)

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Two new genera are erected of plectrothripine Phlaeothripidae from northern Australia, each based on a single species. One has a long stout projection ventrally on the second antennal segment, the other has a unique arrangement of the dorsal facets of the compound eyes. In both of them the thoracic ventral sclerites are extensively eroded.

The tribe Plectrothripini is one of the few apparently discrete lineages within the large and complex subfamily Phlaeothripinae (Dang *et al.* 2014). The species in this Tribe are all fungus-feeders on dead branches, and the group is found in the tropics worldwide. Okajima (1981) provided an extensive, illustrated account of the Plectrothripini, recognising 10 genera and almost 50 species, to which Tyagi *et al.* (2016) added one further species. Six of these genera remain monotypic, with two genera each comprising five or six species, and *Plectrothrips* itself with about 30 species. This asymmetry of taxon distribution, with a high proportion of monotypic genera, is due to the presence of certain characters in unusual autapomorphic states. Phylogenetic relationships within the tribe are further confused here through the diagnosis of two new monotypic genera for species from the tropical north of Australia. One of these new species has a bizarre projection ventrally on the second antennal segment (Fig. 5), whilst the other has the structure of the compound eyes unique amongst Phlaeothripidae (Figs 7, 8).

Membership of the Tribe Plectrothripini is fairly clear, with the species sharing most of the following character states as indicated by Okajima (1981): antennae 8-segmented, segment II with the campaniform sensillum on the basal half, III–IV with a variable number of short, stout sense cones, VIII elongate with narrow base. Head with posterior ocelli close to compound eyes. Pronotum commonly with sclerotised plate eroded and reduced; prosternal basantra absent; fore tarsal tooth large; apex of hind tibiae commonly with stout setae. Pelta wide at base, tergite II eroded laterally; sternites often with reticulate glandular areas.

Kremnothrips gen.n.

Diagnosis. Head twice as long as width across eyes, prolonged in front of eyes over bases of antennae; compound eyes with few and weakly defined facets; cheeks slightly constricted behind eyes, vertex lacking sculpture except weakly reticulate along posterior margin; postocular setae long and finely pointed, maxillary stylets retracted to postocular setae, close together medially, mandible long and robust (Fig. 1). Antennae 8-segmented (Figs 4, 5); segment I the longest; II dorsally with 2 pairs of setae and campaniform sensillum in basal half, ventrally with long apical spur (Fig. 5); III asymmetric with outer margin swollen and base slender, with 3 short stout sense cones, segment IV with 4; V–VI each with 2; IV–VIII bulbous with pedicels narrow. Pronotum with 5 pairs of slender pointed major setae but anteromarginal setae variable in length; notopleural sutures incomplete (Fig. 2); basantra absent but 2 or 3 setae present; ferna narrowing medially and almost meeting (Fig. 3); mesopraesternum and mesoeusternal margin eroded; pair of minute setae medially associated with eroded spinasternum. Mesonotum weakly reticulate on anterior margin; metanotum lacking sculpture with 2 long acute setae medially (Fig. 2). Fore tarsal tooth large and robust, ventro-lateral hamus prominent; mid and hind tibiae without stout setae. Pelta broadly triangular but partly eroded, with weak sculpture (Fig. 6). Tergite II lateral margins not eroded; III–VII with 2 long setae laterally, and anterior pair of wing-retaining setae small but posterior pair long and straight; tergite IX setae slightly longer than tube. Tube shorter than head with straight margins; anal setae shorter than tube. Sternites without reticulate areas.

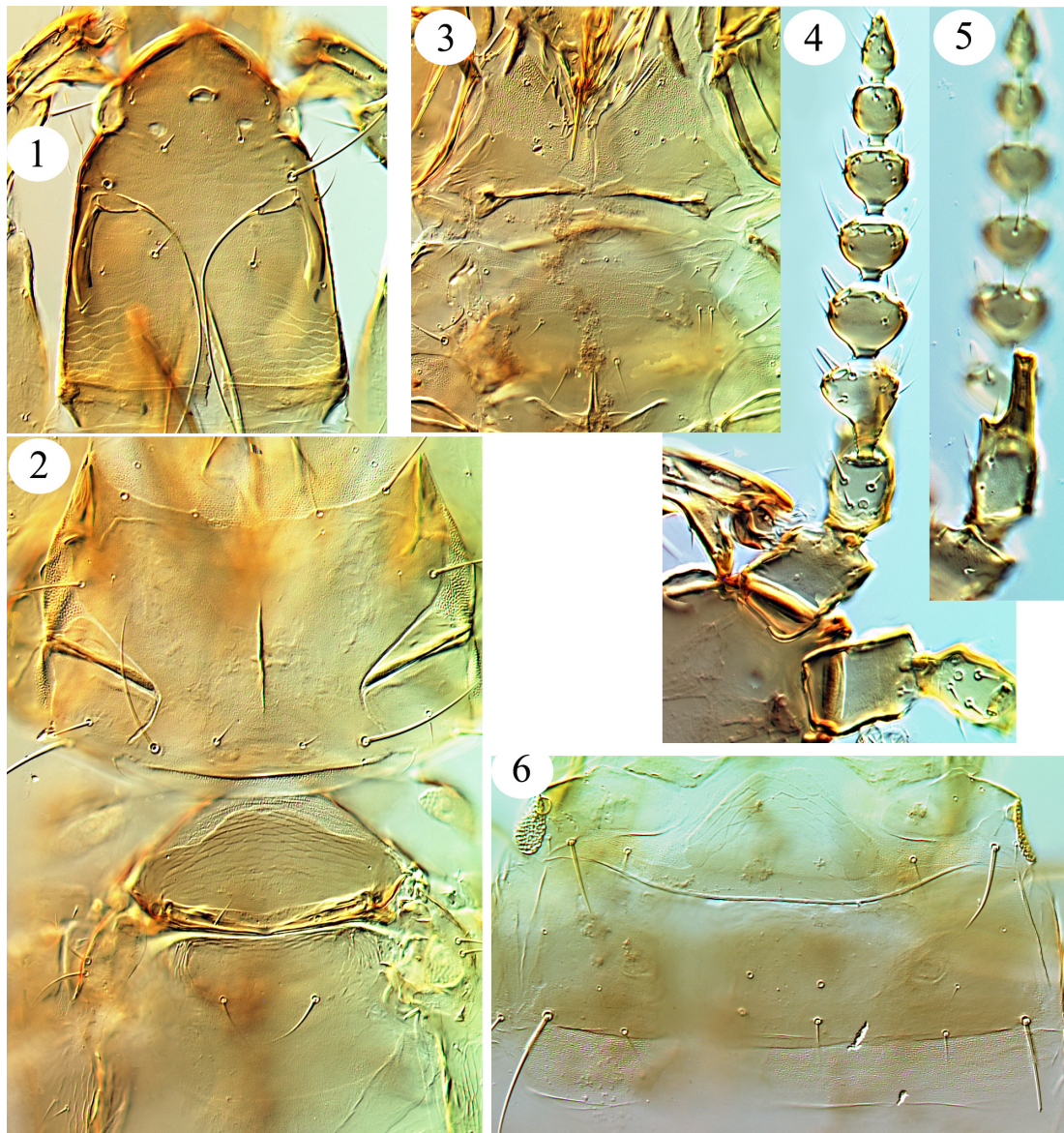
Type species *Kremnothrips epakrus* sp.n.

Comments. The basal position of the campaniform sensillum on the second antennal segment suggests that this new

genus is a member of the Plectrothripini, although the lateral margins of the second abdominal tergite are not eroded, and the sternites lack any glandular reticulation. The head is elongate and similar in shape to that of species in the two plectrothripine genera, *Chiridurothrips* from Japan, and *Mastigothrips* from Java and Fiji (see illustrations in Okajima 1981). However, the available specimens of the new species described below differ from the species in both these genera in having the prosternal ferna (= probasisternum of Okajima 1981) separate instead of fused into a single large plate. Moreover they are micropterous with small compound eyes in contrast to the macropterous members of the other genera with large eyes. Antennal segments I–III of this new species are similar to those found in the single species of *Lonchothrips* from Brazil, but that has a remarkably short tube with an asymmetric apex, and the pronotum largely membranous. The single species placed in *Chiridurothrips* also has antennal segment II strongly asymmetric, but with a much shorter prolongation, and the pronotum with only one pair of major setae. As a result, using the key to genera by Okajima (1981) this genus will not progress beyond the third couplet.

***Kremnothrips epakrus* sp.n. (Figs 1–6)**

Female microptera. Body, legs and antennae golden brown, tarsal apex sclerotized and brown. With the character states in the generic diagnosis. Pronotum with anterior margin slightly eroded medially. Fore wing lobe about 90 microns long each with 2 long fine setae.

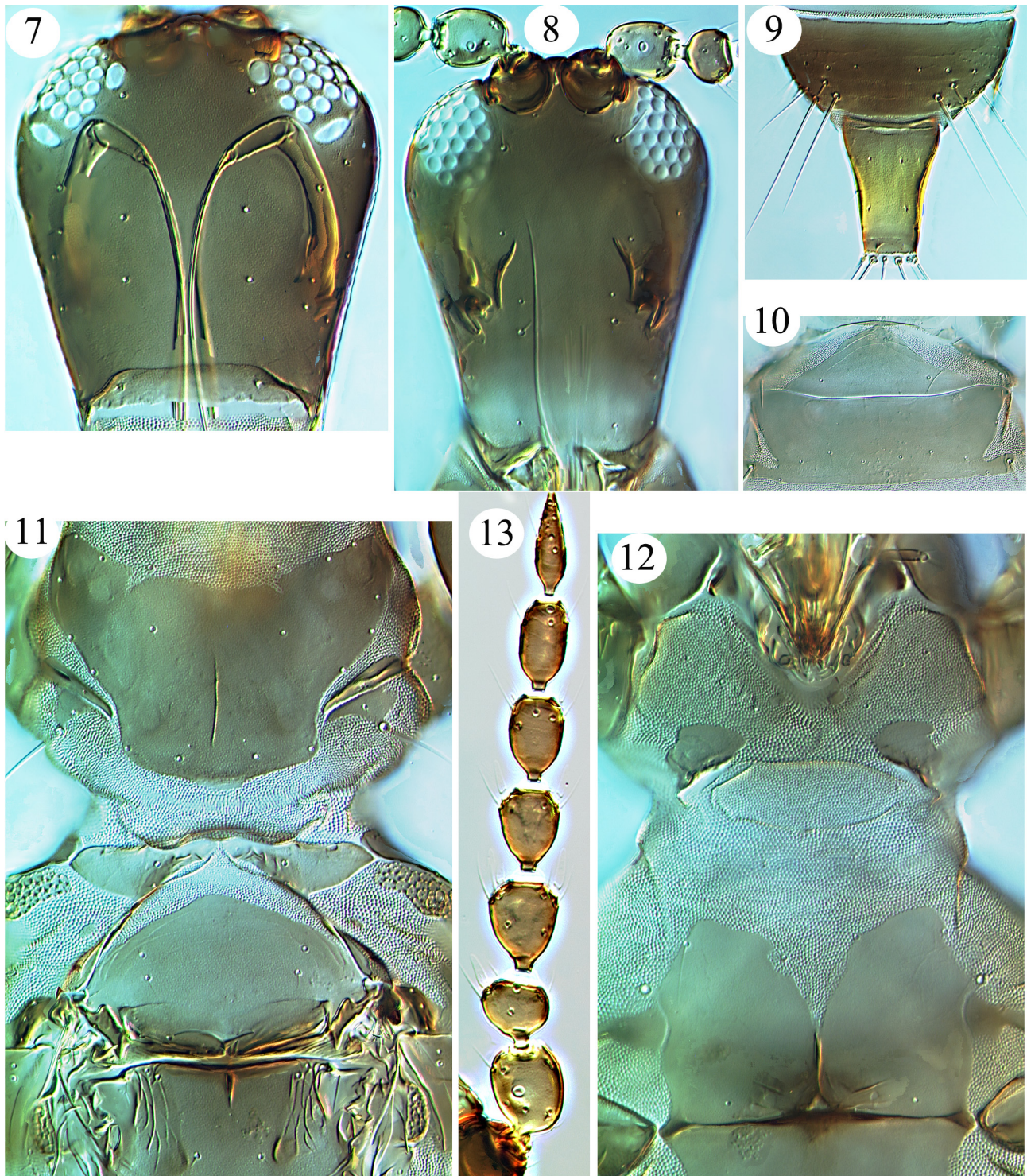


FIGURES 1–6. *Kremnothrips epakrus* sp.n. (1) head; (2) pronotum, meso- and metanota; (3) prosternites; (4) antenna; (5) antennal segment II ventral view; (6) pelta and tergite II.

Measurements (holotype female in microns). Body length 2750. Head, length 300; width medially 200. Pronotum, length 200; width 300; major setae, anteromarginals 40 (12), anteroangulars 75, midlaterals 90, epimerals 120, posteroangulars 100. Tergite VIII lateral setae 150. Tergite IX setae, S1 175; S2 180; S3 180. Tube length 150. Antennal segments I–VIII length, 75, 50 (110 ventrally), 55, 45, 35, 30, 35, 45.

Specimens studied. Holotype female microptera, **Australia, Queensland**, Behana Gorge, Wooroonooran National Park., dead branches & leaves, 3.xi.2008 (D.J.Tree 778), in ANIC.

Paratype. one micropterous female taken with holotype, in QDPC, Brisbane.



FIGURES 7–13. *Argothrips ommatos* sp.n. (7) head, dorsal; (8) head, ventral; (9) tergite IX and tube; (10) pelta and tergite II; (11) pronotum; (12) prosternites; (13) antenna.

***Argothrips* gen.n.**

Diagnosis. Head as long as maximum width, but sharply narrowed to base such that basal width only 0.6 of maximum width (Figs 7, 8); cheeks extending slightly around external margins of compound eyes; eye facets more numerous ventrally than dorsally, but one posterodorsal facet enlarged and separated; anterior margin of head and first ocellus overhanging first antennal segment, posterior ocelli close to compound eyes; postocular setae no longer than minor setae; maxillary stylets retracted to eyes and close together medially. Antennae 8-segmented (Fig. 13), all segments pedicellate; segment II with campaniform sensillum placed medially; III almost spherical with one short stout sense cone; IV with 3 similar sense cones, V with 2 but VI with only one such sense cone; VIII elongate. Pronotum strongly eroded, at anterior and lateral margins, also epimera; only epimeral setae longer than discal setae (Fig. 11); metanotum with no sculpture medially. Prosternal sclerites and anterior margin of mesosternum eroded, only ferna present (Fig. 12); minute setae present in position of basantra. Fore tarsus without tooth; mid and hind tibiae without stout setae (fore wing not seen). Pelta very broadly triangular, tergite II eroded laterally (Fig. 10); II–VII with no sculpture lines and no wing-retaining setae; VIII and IX with posteroangular setae long and finely pointed; tube much shorter than head, lateral margins weakly concave (Fig. 9). Sternites without reticulate areas.

Type species *Argothrips ommatos* sp.n.

Comments. The campaniform sensillum on the second antennal segment is placed almost medially, rather than in the basal half of the segment, and the sternites lack glandular areas. However, the species shares the following character states with typical Plectrothripini species: antennal segment VIII elongate; sense cones on III and IV short and stout; posterior pair of ocelli close to compound eyes; pronotum strongly eroded; second abdominal tergite strongly eroded laterally. In the key to genera (Okajima 1981) this new genus progresses to the last couplet involving *Menothrips* and *Plectrothrips*. However, the maxillary stylets are longer and closer together than in species of either of those genera, the fore tarsus lacks a tooth, and the structure of the eyes is unique amongst Phlaeothripidae. It is not unusual in various unrelated Thysanoptera species for a few ventral eye facets to be enlarged, but the condition in this species of a single enlarged dorsal facet is unique. Although the fore tarsus lacks a lateral tooth, the hamus is well-developed on the ventrolateral external margin of the tarsus.

***Argothrips ommatos* sp.n. (Figs 7–12)**

Female (dealate macroptera). Body, legs and antennae light brown, tarsi and apices of tibiae paler, antennal segment II almost yellow also tube medially. With the character states of the generic diagnosis; macropterous but holotype with wings largely missing, clavus with stout terminal setae, sub-basal setae scarcely 10 microns long.

Measurements (holotype in microns). Body length 1500. Head, length 150; width across eyes 150; width at base 100. Pronotum, length 80; width 135; epimeral setae 35. Tergite VIII lateral setae 85. Tergite IX setae, S1 70; S2 95; S3 130. Tube length 85. Antennal segments III–VIII length, 28, 37, 35, 35, 35, 45.

Specimen studied. Holotype female, **Australia, Northern Territory**, Darwin, East Point vine thicket, from dead wood, 5.v.2014 (D.J.Tree 1809), in ANIC.

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