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Structural diversity among the leaf-feeding thrips of Australia in the genus *Teuchothrips* (Thysanoptera, Phlaeothripinae) with 20 new species

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Abstract

An identification system, together with illustrated notes, is presented to 34 species of the genus *Teuchothrips* known from Australia, including the following 20 species newly described: *T. agonis* **sp.n.**, *T. aliceae* **sp.n.**, *T. badu* **sp.n.**, *T. bundjalong* **sp.n.**, *T. dodonaea* **sp.n.**, *T. gangurru* **sp.n.**, *T. garrunggam* **sp.n.**, *T. jarowair* **sp.n.**, *T. jukun* **sp.n.**, *T. kaurna* **sp.n.**, *T. kokatha* **sp.n.**, *T. larrakia* **sp.n.**, *T. leptospermum* **sp.n.**, *T. lutruwita* **sp.n.**, *T. mareeba* **sp.n.**, *T. miriwoong* **sp.n.**, *T. monga* **sp.n.**, *T. mooni* **sp.n.**, *T. tolga* **sp.n.**, *T. toowoomba* **sp.n.** Two species from Philippines are removed from *Teuchothrips* as *Liothrips capitulatus* (Reyes) **comb.n**. and *L. pedanus* (Reyes) **comb.n**. The genus *Teuchothrips* is very species rich in Australia, particularly in the northern tropical zone, presumably in association with the richer flora of perennial shrubs in the warmer and more humid north.

Key words: Host-plants, *Liothrips*-lineage, antennal sense cone variation

Introduction

This is part of a project that started 55 years ago, investigating the structural and biological diversity of leaf-feeding Phlaeothripinae in Australia. Parts of that project led to interesting and extensive studies, particularly on the diversity and behaviour of thrips associated with *Acacia* foliage (Crespi *et al*. 2004). This included eusocial behaviour amongst some gall-inducing species of *Kladothrips*, and also invasive or even kleptoparasitic behaviour among species in related genera. Another part of the project investigated the remarkable range of taxa with feeding stylets adapted to living only on *Casuarina* (Mound *et al*. 2022). The following study, of the extensive radiation on native shrubs in Australia of the genus *Teuchothrips*, has been long delayed. This is particularly due to the difficulties in finding suitably stable populations for biological and taxonomic studies. Only a few species in this genus exist as reasonably predictable populations, such as those on the cultivated garden shrubs *Callistemon citrinum* and *Pittosporum phylliraeoides*. These species feed on their young leaves, causing the margins to curl, forming a gall in which they continue to feed and breed, and as a result they are sometimes considered pests. But most *Teuchothrips* species recognised here seem to exist as small, ephemeral populations. Their occurrence, both in space and time, is thus highly unpredictable, and is presumably driven, to some extent, by weather and the production of young leaves on suitable host shrubs. As a result, biological investigations are difficult, and even sampling to establish structural variation within and between populations has proved to be remarkably unproductive over many years, despite the efforts of several collaborators. These species remain known from too few specimens to be sure of precise host associations. Moreover, there are many samples in Canberra at ANIC, particularly from northern Australia, for which no attempt is made here to determine their specific identity. In appearance, members of this genus are usually homogeneous in colour and general body form, with differences between species mainly in the presence or absence of particular pairs of setae or sense cones. Species identification in the genus is particularly difficult, partly due to

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variation amongst individuals within samples in body size and associated character states. There is probably a high degree of host-specificity amongst these thrips, but sampling has been too inadequate to generalise about plant associations. Apart from the pests that are specific to *Callistemon* and to *Pittosporum*, several species have been taken from *Leptospermum* and *Melaleuca* leaves, and three of these are possibly associated with galls induced by Eriococcid species.

The genus *Teuchothrips* is a member of the "*Liothrips*-lineage" (Mound & Marullo 1996). It is possibly derived from the species rich and worldwide genus *Liothrips* which it replaces in much of Australia, south of the tropical zone (Mound *et al*. 2023). The genus was erected for a group of six species from Australia (Hood 1919), and a key to 14 species from Australia described prior to 1930 is available (Mound 2008). Worldwide there are 25 species listed under this name (ThripsWiki 2023). However, two of the 25 were placed in *Teuchothrips* in error (Mound & Tree 2021). These are *T. capitulatus* (Reyes) and *T. pedanus* (Reyes) from Philippines, both of which have the metathoracic sternopleural sutures well developed, in contrast to the species of the genus in which they were originally described, *Gynaikothrips* (Mound & Tree 2021). Neither species has a fore tarsal tooth, and, despite the heads being only about as long as wide, these species are better considered as *Liothrips capitulatus* (Reyes) **comb.n**. and *L. pedanus* (Reyes) **comb.n**. Of the remaining 23 species listed in *Teuchothrips*, 13 are endemic to Australia, with four from New Caledonia, one from New Guinea, two from Java, and three from India or Sri Lanka. The objective of this paper is to review only those species of *Teuchothrips* that have been taken on the continent of Australia. This appears to be an endemic radiation, with 34 species distinguished here including 20 new species. The extra-limital species listed in the genus are not considered further.

Acknowledgements and abbreviations

Many of the names for new species proposed here are derived from the names used by particular Australian First Nations Peoples that are associated with the general area where each new holotype was found. Pairs of pronotal major setae are referred to by the following: am—anteromarginals; aa—anteroangulars; ml—midlaterals; epim—epimerals; pa—posteroangulars. Depositaries are noted as: ANIC—Australian National Insect Collection, CSIRO, Canberra; QDPC—Queensland Primary Industries Insect Collection, Department of Agriculture and Fisheries, Brisbane; QM—Queensland Museum, Brisbane; BMNH—Natural History Museum, London; SMF—Senckenberg Museum, Frankfurt; CalAcad—California Academy of Sciences, San Francisco. Dang Lihong was supported by Natural Science Basic Research program of Shaanxi Province [2023-JC-QN-0178] for a 12-month-period of study in Canberra. We are particularly grateful to Mark Schutze for arranging large loans of slides to Canberra from QDPC, Brisbane. Images 103–106 were kindly provided by Elison Lima during a study period in the Hood Thysanoptera Collection at USNM, Washington. Finally, we are grateful to the *Zootaxa* editor and his two reviewers for their careful comments on the text and images.

Character state problems

In contrast to species treated in the genus *Liothrips*, the Australian species of *Teuchothrips* are particularly uniform in appearance. They are all brown to dark brown, with only the tarsi and some antennal segments occasionally being pale. Similarly, the metanotal sculpture is usually weakly reticulate, rather than linear, the pelta is rarely broad except in wingless morphs, and antennal segments III and IV are never elongate. Some species are known to have both winged and wingless morphs, and associated with this is the usual variation in body structure, particularly the width of the metathorax. Sexual dimorphism occurs in some species, such that males have the fore legs and fore tarsal tooth larger, particularly in the largest males of some species. In addition, these *Teuchothrips* species exhibit interspecific variation in the following characters that can cause problems when distinguishing species and considering relationships. Most of the character states discussed here do not appear to reflect phylogenetic relationships; species diversification in this lineage seemingly having involved recurrent homoplasy.

Number of antennal sense cones: Species that are considered to be members of the *Liothrips*-lineage usually have one sense cone on antennal segment III and three sense cones on segment IV. However, three species of *Teuchothrips* known only from New Caledonia have been shown to have antennal segment IV with either two or

three major sense cones: *T. kraussi*, *T. noumeaensis* and *T. ornatus* (Mound & Goldarazena 2022). This is presumably a derived condition within the *Liothrips*-lineage, due to the failure of one sense cone to develop. Amongst the 34 species from Australia considered here, only *T. melaleucae* has been found to exhibit similar intraspecific variation. However, a further 11 species are likely to consistently have only two sense cones on segment IV, whereas all of the others have the expected three sense cones. Excessive bleaching of specimens prior to slide mounting can result in these sense cones being difficult to see.

Body sculpture: Few species in this group develop any prominent reticulation, in contrast to many Phlaeothripinae that live in the semi-arid areas of Australia. The surface sculpture on the head of *Teuchothrips* species is usually mainly transverse and rather weak.

Postocular setae: One pair of dominant setae behind the compound eyes is typical of most species in the *Liothrips*-lineage, and this is true of most *Teuchothrips* species. However, these postocular setae vary from longer than the eye dorsal length, as is common in *T. ater*, to scarcely distinguished from the minor head setae, as in *T. melaleucae*. Moreover, in *T. burroughsi* the pair of setae medially on the head between the postocular setae is as large as the postoculars, and in some forms of *T. disjunctus* this median pair of setae is also prominent.

Fore wings: Some species exist as micropterae as well as macropterae. However, although macropterae usually have broad wings on which the hind margin bears a row of duplicated cilia, six broad-winged species considered here lack duplicated cilia, including the type species of the genus. Fore wings are subject to damage due to excessive bleaching during slide making.

Tergite IX setae: The paired setae S1 on the ninth tergite, the median dorsal pair, vary in length greatly between species. Their apices are usually weakly capitate to strongly expanded, but in at least two species this pair of setae is sharply pointed. In males, the S2 setae also vary with most species having these shorter and stouter than S1 but others having both pairs of setae equally long.

Male sternal pore plate: This structure, that commonly occurs on sternite VIII of male Phlaeothripinae, varies in its form and presence amongst species of *Teuchothrips*. It is commonly large, extending across much of the sternite, but in some species it comprises a median transverse band, in one it is reduced to a small circular area, and in another it extends broadly across onto the tergite, and in a few species it is not developed at all.

Teuchothrips ater species-complex

This group includes leaf-rolling species that have been found on a wide range of unrelated plants, although *ater* is typically found on species of *Pittosporum* [Pittosporaceae]. The many specimens that are considered to represent *ater* are distinguished as such because the S1 setae on tergite IX are long with acute apices, and the maxillary stylets are close together and usually deeply retracted into the head. Despite this, some populations have been studied that are closely similar in structure to typical *ater* but have the stylets almost one-fifth, or even one-third, of the head width apart. These populations are treated in the final three couplets of the key below, together with *badiipennis* and *disjunctus*. Species recognition amongst these is problematical. It seems that *badiipennis* is associated with the common shrub *Bursaria*, although *ater* has also been found on the leaves of this plant, and some populations of *ater* have rather similar maxillary stylets to those of *badiipennis*. The species to which the name *disjunctus* is usually applied is often a pest on garden *Callistemon* shrubs, and this has the stylets almost one-third of the head width apart. However, populations that are rather similar in structure have been found leaf-rolling on several unrelated plant species. These populations are discussed further under the name *disjunctus*. The body colour amongst these species is constant, but body size is variable in both sexes, and major males may be considerably more robust than small males and females. In general, the lengths of setae and the form of their apices are not correlated with body size, although antennal segments III–IV tend to be relatively longer in males and also in larger individuals.

Teuchothrips Hood

Teuchothrips Hood, 1919: 86. Type species *L. simplicipennis* Hood, by original designation from six species.

Many of the early names erected for species in this genus were based on unsatisfactory slide-mounts of damaged

specimens (Fig. 69), particularly those produced by Bagnall, Girault and Karny (see images in Mound 2008). The identity of several such species, each based only on a single specimen, remains unclear, and their inclusion in the key below must be considered conjectural.

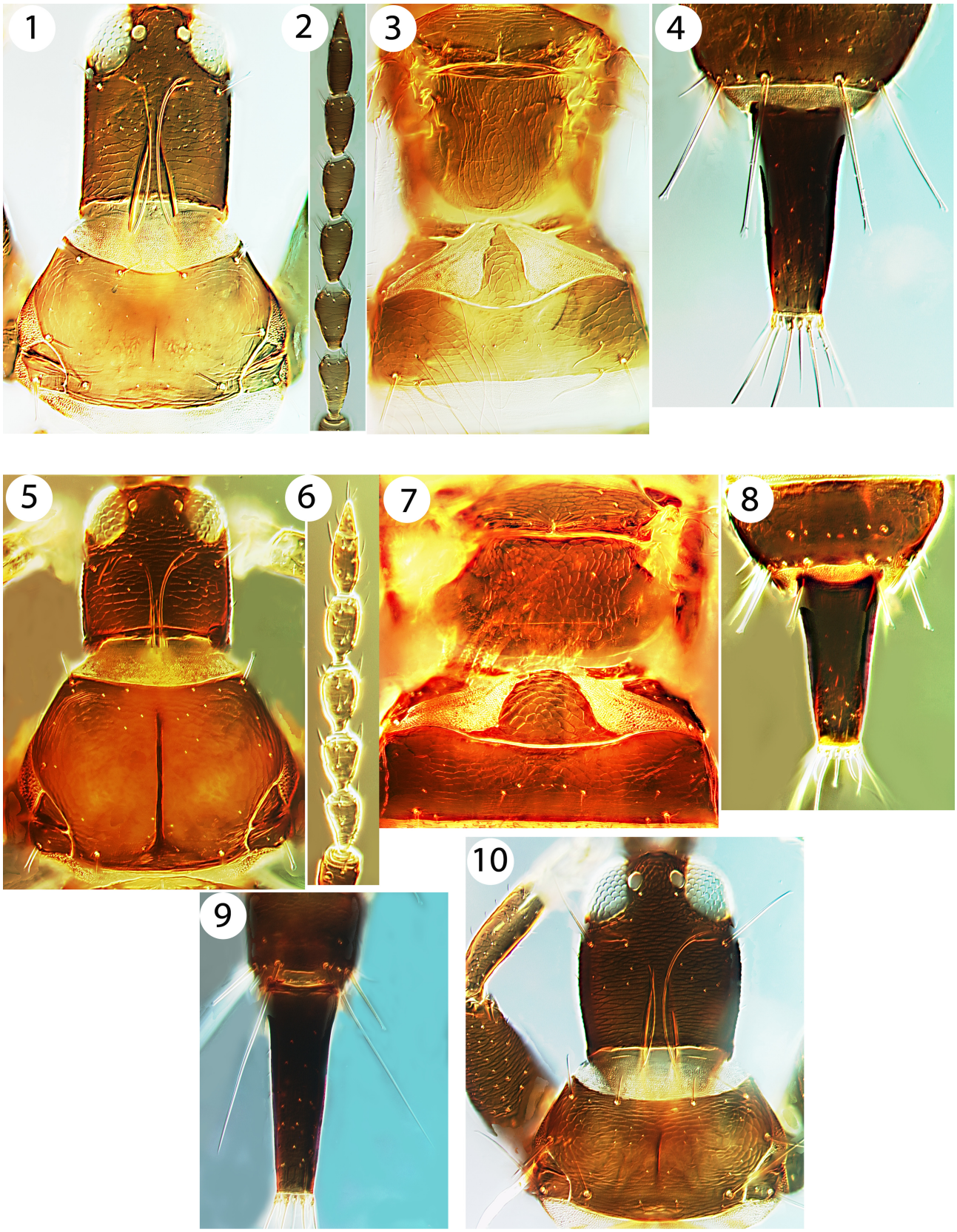
Generic diagnosis: Small to medium sized, dark, macropterous or micropterous Phlaeothripinae with dark or pale setae. Head usually longer than wide, genae weakly convex, postocular setae long (rarely short); maxillary stylets varying, from one-third of head width apart and not retracted as far as postocular setae, to deeply retracted to posterior margin of eyes and close together medially. Antennae 8-segmented; segment III with one sense cone, IV with 3 major sense cones (or less commonly with only 2); VIII usually short and not sharply constricted from VII. Pronotum transverse, with 4 pairs of major setae (rarely 5 or only epimerals present); notopleural sutures complete. Prosternal basantra absent; ferna well developed; mesopresternum usually absent medially; metathoracic sternopleural sutures present, often long but sometimes weak. Fore tarsal tooth usually present in both sexes. Fore wings not constricted medially, with duplicated cilia (6 species without). Pelta essentially triangular; tergites II–VII each with two pairs of sigmoid wing-retaining setae; tergite IX setae S1 and S2 often long and pointed, but commonly capitate and sometimes short. Male tergite IX setae S2 usually shorter and stouter than S1; sternite VIII with or without pore plate.

Teuchothrips species of Australia

1. Antennal IV with 2 large sense cones (rarely with a small sense cone ventrally) 2
- Antennal segment IV with 3 large sense cones 13
2. Metanotum with additional setae anterior to major setal pair (Figs 61, 90). 3
-. Metanotum with no setae anterior to major pair of setae (Figs 25, 30) 4
3. Maxillary stylets almost touching medially in head (Fig. 56); all discal setae on metanotum and pronotum broad and blunt (Fig. 61), major pair unusually long; female with fore tarsal tooth; macropterae with 2 pairs of sigmoid setae on tergites III–VII [on *Melaleuca glomerata*] . . . . . *kokatha* **sp.n.**
-. Maxillary stylets about one fifth of head width apart (Fig. 88); all discal setae on metanotum and pronotum finely acute (Fig. 90); female with fore tarsal inner margin slightly swollen but without a tooth; macropterae and micropterae with only one pair of sigmoid setae on segments III–VI [on *Tephrosia* sp.] . . . . . *miriwoong* **sp.n.**
4. Tergite IX S1 setae with apices finely acute, as long as or slightly longer than tube (Fig. 9) 5
-. Tergite IX setae with apices expanded or capitate, shorter than tube (Figs 4, 47). 6
5. Fore wing with several duplicated cilia [on *Acacia linifolia* and *Melaleuca*] . . . . . *longiseta*
-. Fore wing with no duplicated cilia [on *Callistemon* and *Melaleuca salicina*]. . . . . *froggatti*
6. Maxillary stylets close together, retracted to postocular setae (Fig. 5) 7
-. Maxillary stylets separated by one fifth to one third width of head (Figs 31, 32, 84) 11
7. Tergite IX setae S1 no longer than basal width of tube, and less than 0.5 as long as tube (Fig. 8) [antennal segments III–VI almost yellow] [on *Melaleuca*]. . . . . *aliceae* **sp.n.**
-. Tergite IX setae S1 longer than basal width of tube, and more than 0.5 as long as tube 8
8. Macroptera with pelta more than 2.0 times as wide as long and anterior margin almost transverse (Fig. 105); pronotal am and aa setae broadly capitate; tube less than twice as long as basal width [metanotum strongly reticulate] . . . . . *soror*
-. Micropterа or macroptera, pelta less broad (Figs 111, 112); pronotal am and aa setae weakly capitate; tube twice as long as basal width. 9
9. Macroptera with median reticles of metanotum longer than wide (Fig. 102); pelta narrowly bell-shape [head about 1.25 as long as wide] [on *Melaleuca*] . . . . . *sodalis*
-. Metanotal reticles equiangular or scarcely developed (Fig. 66); pelta broadly bell-shaped or triangular, 1.5–1.8 as wide as long 10
10. Tube about 1.8 times as long as basal width (Fig. 110); macropterous, fore wing with no duplicated cilia; pelta triangular (Figs 111–112); male tergite IX setae S2 as long as setae S1 [on *Melaleuca viridiflora*]. . . . . *tolga* **sp.n.**
-. Tube about 2.2 times as long as basal width; micropterous; pelta broadly bell-shaped (Fig. 66); male tergite IX setae S2 short and stout [on *Leptospermum* sp.] . . . . . *leptospermum* **sp.n.**
11. Fore tarsal tooth small in male, minute and scarcely visible in female; fore wing with duplicated cilia . . . *melaleucae* [in part]
-. Fore tarsal tooth large in both sexes, at least half as long as tarsal width; fore wing without duplicated cilia 12
12. Tergite IX setae S1 about 0.8 as long as tube; macropterous, fore wing deeply shaded in basal half with numerous robust minute surface denticles, sub-basal setae at least 0.5 as long as wing basal width; postocular setae extending well beyond posterior margin of eyes, sometimes about half as long as dorsal eye length (Fig. 32) [on *Dodonaea*]. . . . . *dodonaea* **sp.n.**
-. Tergite IX setae S1 scarcely 0.4 as long as tube, about as long as tube basal width; micropterous, if macropterous, fore wing pale, sub-basal setae about 0.2 as long as wing basal width, scarcely three times as long as their apical width (Fig. 87); postocular setae vary from very short to extending beyond posterior margin of eyes (Fig. 84) [on *Callistemon saligna* and *Melaleuca*]. . . *minor*
13. All tibiae yellow; anal setae about twice as long as tube [on *Lophostemon suaveolens*] . . . . . *badu* **sp.n.**
-. Mid and hind tibiae brown at base at least; anal setae no more than as long as tube. 14

14. Pronotum with only epimeral setae well developed (Figs 45, 114) 15
-. Pronotum usually with at least 4 pairs of major setae (Fig. 37) 17
15. Micropterous, pelta much wider than long (Fig. 53); maxillary stylets retracted almost to eyes; female fore tarsal tooth minute and directed forwards; apices broadly expanded of pronotal epimeral and tergite IX setae [on *Calytrix*] . . . . . *kaurna* **sp.n.**
-. Macropterous, pelta triangular or elongate (Fig. 46); maxillary stylets less deeply retracted (Figs 44, 113); female fore tarsal tooth massive; pronotal epimeral and tergite IX setae slender and capitate. 16
16. Tube almost twice as long as head; pelta broadly triangular (Fig. 115); maxillary stylets very low in head; postocular setae small and distant from eye margins . . . . . *toowoomba* **sp.n.**
-. Tube slightly shorter than head; pelta slightly longer than wide (Fig. 46); maxillary stylets retracted to postocular setae; postocular setae extending to eye margins [male sternite VIII with small subcircular pore plate (Fig. 48)]. . . . . *jarowair* **sp.n.**
17. Maxillary stylets either almost touching medially or scarcely one-fifth of head width apart, separated rarely by 0.25 of head width (Figs 37, 96) 18
-. Maxillary stylets at least one-third of head width apart (Figs 31, 83) 33
18. Mouth cone pointed and extending to mesopresternum; metanotum with narrow, almost striate, reticles [fore tarsi with no tooth; fore wing with about 7 duplicated cilia] . . . . . *acripilus*
-. Mouth cone not extending beyond prosternal ferna (Figs 12, 74); metanotal reticles almost equiangular 19
19. Macropterae, but fore wing with no duplicated cilia 20
-. Macropterae and fore wing with at least 4 duplicated cilia, or micropterae 21
20. Male sternite VIII with pore plate median and transverse (Fig. 100); male tergite IX setae S2 shorter than S1 [on *Leptospermum*, *Cassinia*, *Melaleuca* and *Kunzea*] . . . . . *simplicipennis*
-. Male sternite VIII fully occupied by pore plate (Fig. 39); male tergite IX setae S2 equal to S1 [on *Melaleuca*]. . . . *gangurru* **sp.n.**
21. Pronotal am setae pointed to bluntly pointed, and scarcely larger than discal setae 22
-. Pronotal am setae at least weakly capitate but varying in length from short to as long as pronotal aa setae 25
22. Tergite IX setae S1 long and finely pointed (Fig. 19) 23
-. Tergite IX setae S1 varying in length and at least weakly capitate (Fig. 75) 24
23. Fore wing with only two small sub-basal setae; male sternite VIII posterior third with irregular transverse pore plate involving discal setae (Fig. 20) [head at least 1.5 times as long as wide (Fig. 17)] [on *Tetrastigma*] . . . . . *bundjalong* **sp.n.**
-. Fore wing with three large sub-basal setae; male pore plate occupying most of sternite VIII. . . . . *ater* [in part]
24. Fore wings pale; tarsi brown; antennals VII & VIII confluent (Fig. 71); mesopresternum of 3 sclerites (Fig. 74); male sternite VIII with narrow pore plate close to posterior margin [on *Leptospermum*]. . . . . *lutruwita* **sp.n.**
-. Fore wings uniformly light brown; tarsi yellow; base of antennal segment VIII sharply narrower than VII apex; mesopresternum reduced to 2 lateral sclerites; male sternite VIII with large pore plate [on *Prostanthera*]. . . . . *monga* **sp.n.**
25. Antennal segments IV–VI almost uniformly light yellow 26
-. Antennal segments IV–VI with base pale but apex brown 28
26. Postocular setae as long as dorsal eye length (Fig. 27) . . . . . *clavipilus*
-. Postocular setae no more than 0.6 of dorsal eye length 27
27. Fore tarsal tooth reduced to a small hump in both sexes (Fig. 50); head and pronotum with weak sculpture; male with pore plate occupying almost all of sternite VIII as well as tergite VIII (Fig. 52) [on *Terminalia* sp.] . . . . . *jukun* **sp.n.**
-. Fore tarsal tooth sharply acute in both sexes (Fig. 64); head and pronotum with reticulate sculpture (Fig. 63); male pore plate occupies anterior third of sternite VIII but without extending onto the tergite [on *Planchonia careya*] . . . . . *larrakia* **sp.n**.
28. Fore wing sub-basal setae with bases arranged almost in a straight line 29
-. Fore wing sub-basal setae S2 close to S3, bases often arranged in a triangle (Fig. 43). 31
29. Maxillary stylets retracted to postocular setae, about 0.25 of head width apart (Fig. 28) [on *Eremophila deserti*] . . . . *connatus*
-. Maxillary stylets retracted to eyes and close together medially (Figs 1, 93) 30
30. Tube with straight lateral margins, length about 2.2 times basal width (Fig. 4); pelta unusually slender, clearly longer than wide (Fig. 3) [from *Eremococcus* gall on *Agonis linearifolia*] . . . . . *agonis* **sp.n**.
-. Tube with weakly convex lateral margins, length about 1.8–1.9 times basal width (Fig. 95); pelta basal width about 1.2 times as long as median length (Fig. 94) [from Eriococcid gall on *Melaleuca*] . . . . . *mooni* **sp.n**.
31. Anal setae much shorter than tube; male sternite VIII with no pore plate [on *Pyrethrum*] . . . . . *mareeba* **sp.n.**
-. Anal setae about as long as tube or a little longer; male sternite VIII with a transverse pore plate. 32
32. Tergite IX setae S1 and S2 of both sexes as long as tube or longer, sharply acute at apex; po setae as long as dorsal eye length, more than 0.5 as long as distance between their bases. . . . . *ater* [in part]
-. Tergite IX setae S1 and S2 of both sexes a little shorter than tube, capitate at apex; po setae a little shorter than eyes, less than 0.5 as long as distance between their bases (Fig. 41) [on *Pittosporum phylliraeoides*]. . . . . *garrunggam* **sp.n.**
33. Metanotum anteromedially with several minute additional setae (Fig. 22); head with two pairs of postocular setae longer than eye length (Fig. 21); mid and hind legs uniformly dark brown including tarsi . . . . . *burroughsi*
-. Metanotum with no additional setae anteromedially; head with postocular setae shorter, scarcely as long as eye length (rarely with two pairs); mid and hind tarsi yellow. 34
34. Postocular setae no larger than minor setae on head; fore tarsal tooth small and directed forwards. . . . . *melaleucae* [in part]
-. Postocular setae clearly larger than minor setae, apices usually capitate; fore tarsal tooth well-developed, usually large. . . . 35
35. Tergite IX setae S1 as long as tube and acute (rarely bluntly pointed) (Fig. 9); postocular setae often longer than dorsal eye length, but shorter in some populations (Fig. 10); antennal segment IV usually 1.8–2.0 times as long as wide; macropterous [on *Pittosporum* & rarely *Bursaria*, *Geijera* & *Myoporum*] . . . . . *ater* [in part]
-. Tergite IX setae S1 with apex capitate, rarely more than 0.6 as long as tube; postocular setae shorter than dorsal eye length (Fig. 31); antennal segment IV shorter, 1.6–1.8 times as long as wide; macropterous, rarely micropterous. 36

36. Stylets retracted into head at least to po setae; sometimes wingless [on *Bursaria*] . . . . . *badiipennis*
-. Stylets usually retracted into head scarcely half-way to postocular setae (Fig. 31); macropterous [female often with postocular setae shorter than eye width] [on *Callistemon*] . . . . . *disjunctus*



FIGURES 1–10. *Teuchothrips* of Australia. *T. agonis* 1–4: **(1)** head & pronotum; **(2)** antenna; **(3)** metanotum & pelta; **(4)** tergites IX–X. *T. aliceae* 5–8: **(5)** head & pronotum; **(6)** antenna; **(7)** metanotum & pelta; **(8)** tergites IX–X. *T. ater* 9–10: **(9)** tergites IX–X; **(10)** head & pronotum.

Teuchothrips acripilus (Karny)

Horistothrips acripilus Karny, 1920: 39.

The only known specimen of this species, a single female without antennae, was collected at Malanda in northern Queensland. The head, with maxillary stylets very close together, was illustrated by Mound (2008), and the unusually long pointed mouth cone extends to the mesopresternum. The fore wing is shaded throughout its length and bears seven duplicated cilia, the metanotum is closely striate, and the fore tarsi apparently lack a tooth. This tarsal condition suggests that *acripilus* is possibly a species of *Liothrips*, but it does not seem to be one of the species of that genus known from Australia (Mound *et al*. 2023).

Teuchothrips agonis sp.n.

(Figs 1–4)

Female macroptera. Body and legs brown, tarsi light brown to yellowish brown; antennal segments I–II and VII–VIII brown, III yellow shading to light brown distally, IV–VI brown with pale transverse band sub-basally; major setae pale; fore wings pale. Head clearly longer than wide, genae straight; vertex with weak reticulate sculpture; postocular setae capitate, extending beyond posterior margin of eyes; eyes slightly longer dorsally than ventrally; maxillary stylets close together medially, retracted to eyes; mouth cone bluntly pointed (Fig. 1). Antennal segment III almost twice as long as apical width; IV with 3 short major sense cones, VIII small and distinct from VII (Fig. 2). Pronotum transverse, with 5 pairs of capitate setae; surface weakly reticulate at anterior and posterior thirds. Fore tarsal tooth shorter than half of tarsal width, fore femora not enlarged. Fore wing with about 6 duplicated cilia; sub-basal setae long and capitate, arising in straight line. Mesonotum transversely reticulate, lateral setal pair capitate. Metanotum reticulate, major setal pair slender (Fig. 3). Mesopresternum of paired lateral triangles, metathoracic sternopleural sutures long. Pelta slender, longer than basal width; tergites VII–VIII lateral setae long and capitate, tergite IX setae S1 and S2 long and capitate; tube lateral margins straight (Fig. 4).

Measurements (holotype female in microns). Body length 2520. Head, length 235; maximum width 180. Pronotum, length 165; width 290; epimeral setae 50. Fore wing, length 890; sub-basal setae S1 50, S2 50, S3 55. Tergite VIII posterolateral setae 85; tergite IX setae S1 140, S2 110; tube, length 190, basal width 90. Antennal segments I–VIII length (width): 40 (40), 50 (35), 65 (30), 75 (35), 75 (35), 65 (30), 60 (25), 30 (15).

Specimens studied. Holotype female, **Western Australia**, Fitzgerald River N.P., in *Eremococcus* gall on *Agonis linearifolia*, 5.x.2002 (Lyn Cook), in ANIC.

Paratypes: six females taken with holotype.

Comments. This species has a rather slender head and the pelta clearly more slender than most species. It is also one of the few species with antennal segments largely brown, and the tarsi brown to yellowish brown.

Teuchothrips aliceae sp.n.

(Figs 5–8)

Female microptera. Body and legs brown, all tarsi yellow, all tibiae with extreme apices briefly yellow; antennal segments II–II and VII–VIII brown, III–V mainly yellow, VI light brown distally; major setae pale; fore wing lobe pale. Head longer than wide, genae convex; vertex with reticulate sculpture; postocular setae softly capitate, extending to posterior margin of eyes; eyes longer dorsally than ventrally; maxillary stylets close together medially, retracted to eyes; mouth cone bluntly pointed (Fig. 5). Antennal segment III less than twice as long as apical width; IV with 2 small major sense cones, VIII small but distinct from VII (Fig. 6). Pronotum transverse, with 4 pairs of short capitate setae, am also capitate but scarcely larger than discal setae; surface with weak reticulate sculpture except medially. Fore tarsal tooth stout, at least half as long as width of tarsus, fore femora slightly enlarged. Fore wing lobe with 3 capitate sub-basal setae arising in straight line. Mesonotum transversely reticulate, lateral setal pair small. Metanotum transverse, evenly reticulate, major setal pair slender (Fig. 7). Mesopresternum paired lateral triangles weakly connected medially, metathoracic sternopleural sutures long. Pelta broadly triangular to D-shaped,

with wide base; only tergites IV–VI with 2 pairs of sigmoid setae, lateral setae short, tergite IX setae S1 and S2 capitate; tube lateral margins straight narrowed distally (Fig. 8).

Measurements (holotype female in microns). Body length 1980. Head, length 185; maximum width 170. Pronotum, length 185; width 275; epimeral setae 35. Fore wing, length 120; sub-basal setae S1 15, S2 15, S3 20. Tergite VIII posterolateral setae 45; tergite IX setae S1 60, S2 60; tube, length 145, basal width 70; anal setae, length 120. Antennal segments I–VIII length (width): 35 (30), 45 (30), 40 (30), 40 (30), 50 (30), 50 (30), 50 (25), 25 (15).

Male microptera. Similar to female in colour and sculpture but pronotum and fore legs stouter and postocular setae longer; sternite VIII largely occupied by pore plate; tergite IX setae S2 capitate, slightly shorter than setae S1.

Measurements (paratype male in microns). Body length 1700. Head, length 160; width 155. Pronotum, length 190; width 290. Tergite IX setae S1 60, S2 40. Tube, length 130, basal width 65; anal setae, length 120.

Specimens studied. Holotype female, **Australian Capital Territory**, Weston, in gall on *Melaleuca styphelioides*, 14.ii.2012 (LAM5551), in ANIC.

Paratypes: 2 females, 2 males, also larvae, taken with holotype. **A**.**C**.**T**., Black Mountain: 1 female from *Melaleuca* sp., 13.iv.2003; CSIRO gardens, 5 females, 3 males from *Melaleuca styphelioides*, 22.x.2023 (LAM 6563).

Comments. The three female and two male micropterae from Weston were taken from galls on a garden plant. The series of paratypes from CSIRO gardens includes one female in which antennal segment VI is shaded brown and V is also very weakly shaded. The remaining specimens of both sexes all have segments III–VII yellow. The females of this species have antennal segment IV short, and also short tergite IX S1 setae. It is otherwise a typical member of this genus, although it is one of the species with antennal segment IV bearing only two major sense cones.

Teuchothrips ater (Girault)

(Figs 9–10; 23–26)

Liothrips ater Girault, 1927: 2.
Androthrips niger Girault, 1927: 2. Synonym in Mound & Houston, 1987: 17.
Teuchothrips bursariicola Priesner, 1928: 647. Synonym in Mound & Houston, 1987: 17.
Teuchothrips pittosporiicola Bagnall, 1929: 191. Synonym in Mound, 2008:47.
Smerinthothrips fuscipennis Moulton, 1968: 93. Synonym in Mound & Houston, 1987: 17.
Teuchothrips ater (Girault, 1927); Mound & Houston, 1987: 17.

There is considerable variation within and between the available samples that are here identified as this species, as discussed by Mound (2008). The most common form of the species induces leaf-roll galls on *Pittosporum revolutum* and *P. undulatum*. It has long and closely spaced maxillary stylets, the postocular setae are often very long with the apices softly pointed to weakly capitate (Fig. 10), and tergite IX setae S1 are long and pointed (Fig. 9). However, in any one population a rare individual may be found in which one of the two S1 setae is pointed but the other shorter and capitate. Similarly, although the fore wing sub-basal setae are usually arranged into a triangle, with seta II close to and slightly behind seta III, within a population showing this condition individuals may occur with seta II almost in line with the other two setae. The type specimens of *ater*, *pittosporiicola* and *fuscipennis* all have the tergite IX S1 setae long and pointed, whereas in the types of *niger* and *bursariicola* these setae are bluntly pointed to slightly expanded (Mound 2008). Smaller individuals of *ater* have the major setae shorter than in large individuals, with the postocular setae shorter than the dorsal eye length in contrast to the typical very long postocular setae. Moreover, males have the pronotal anteromarginal setae shorter than the anteroangulars; this setal pair is particularly small in larger males. Specimens taken from *Bursaria* (Figs 23–26) tend to have the stylets rather further apart, about one fifth of head width apart. These are here identified as *ater* because of the long and almost pointed setae on tergite IX. However, a separate species, *badiipennis*, with shorter and capitate setae on tergite IX seems to be specific to *Bursaria*. It is possible that some inter-breeding occurs between these species.

Type specimens studied. Holotype female of *ater*, **Australia, Victoria**, Melbourne, from *Eucalyptus*, xii.1925 (R.Kelly), in QM. Holotype female of *niger*, **Queensland**, Tara [20km west of Brisbane], brigalow, 12.ii.1924, in

QM. Lectotype male of *pittosporiicola* (Mound 1968), **New South Wales**, Sydney, Botany, 14.iii.1900 in BMNH. Syntypes of both sexes of *bursariicola*, **Victoria**, Healesville, 15.iv.1926 in SMF. Holotype female of *fuscipennis*, **South Australia**, Port Lincoln, no date, in CalAcad.

Other specimens studied. In ANIC: From *Pittosporum***: Victoria**; Melbourne Botanic Gardens, 14.v.2005; Montmorency, 12 females, 12 males, 15.xii.1995. **New South Wales**; Sydney, 2 females, 4 males, 5.xii.1925; Epping, 9 females, 11.viii.1928. **A.C.T**., Weston, 3 females, 2 males, 13.v.2012. **South Australia**, Adelaide, Glen Osmond, 1 female, 1 male, 4.i.1950; Crafers, 8 females, 2 males, xii.1995; Adelaide Botanic Gardens, 4 females, 2 males, 21.x.2004. **Queensland**, Lamington, 6 females, 2 males, 14.iii.2007. **From *Geijera***: **New South Wales**, Gilgandra 100km NE, 15 females, 3 males, vii–viii.1959; **Queensland**, Dalby, 4 females, 4 males, 19.x.1985 and 8.iii.2006. **From *Auranticarpa***: **Queensland**, Brisbane, The Gap, 1 female, 2 males with larvae, 28.x.2007.

In QDPC: **Queensland:** Brisbane, The Gap, 6 females, 4 males from *Auranticarpa rhombifolia* leaf galls, 20.xi.2007; Carnarvon, Blue water Springs, 2 females, 2 males from *Pittosporum* sp, 14.x.2014; Mt Glorious rainforest, 3 females, 1 male from *Clerodendron* sp., 18.i.2006; Brisbane Forest Park, Boombana, 1 female, 2 males from *Pittosporum undulatum*, 16.i.2006; Cooloola N.P., 2 females, 1 male from *Pittosporum revolutum*, 11.ii.2006.

Teuchothrips *badiipennis* **Hood**

(Figs 11–12)

Teuchothrips badiipennis Hood, 1919: 87.

Described from three females taken at Brooklyn [Sydney] by "sweeping" in November, 1914, these syntypes were compared to the series listed below from Canberra taken in 1995. This series, from small leafy galls on *Bursaria spinosa*, comprised numerous winged and wingless morphs of both sexes, together with larvae. The pelta is broad (Fig. 11) and quite similar between the two morphs, but body size in this series varies considerably. Macropterous female body length varies from 2.0 to 2.5mm, and the length of postocular and pronotal setae is positively associated with body size. Large males have the fore legs and fore tarsal tooth much larger than small males. The maxillary stylets tend to be slightly further apart than in *ater*, and the original description is generally satisfactory. However, the colour of antennal segments IV–VI is best described as bicoloured. The fore wings are deeply shaded, but the major setae are remarkably pale for such a dark brown species. Curiously, many micropterae in this species might best be considered as hemimacropterae because the fore wings are slightly longer than the thorax width. Most of the available specimens were taken from *Bursaria*, but three specimens are listed below that are recorded as having been taken on *Pittosporum* about 200km east of Perth, Western Australia.

Specimens studied. In ANIC: **Australian Capital Territory**, Canberra, Black Mountain, many specimens of both sexes with larvae from small leafy galls on *Bursaria spinosa*, 22–23.iv.1995; same locality and host, 4.i.1960 and 19.xi.2004. **New South Wales**, Bungonia, 2 female macropterae, 2 female, 2 male micropterae, 2 male hemimacropterae from *Bursaria*, 29.i.2012. **Victoria**, Nelson, 4 females, 2 males from *Bursaria*, 5.x.2013. **Tasmania**, Buckland, 1 female, 1 male macropterae, 4 female micropterae from *Bursaria spinosa*, 27.xi.2010. **South Australia**, Tankallila, 1 female, 1 male microptera from terminal leaf rolls on *Bursaria spinosa*, 4.xii.1967. **Western Australia**, Tammin, 1 female, 2 male macropterae from *Pittosporum angustifolium*, viii.2006.

In QDPC: **New South Wales**, Bungonia, 3 female 2 male micropterae, 2 female hemimacropterae from *Bursaria*, 14.iv.2012. **Victoria**, Nelson, 2 female 2 male micropterae, 2 female macropterae from *Leucopogon* flowers, 2 females from *Bursaria*, 5.x.2013.

Teuchothrips badu **sp.n.**

(Figs 13–16)

Female macroptera. Body and femora brown, all tibiae and tarsi clear yellow; antennal segments I and VII–VIII brown, II yellow distally, III yellow, IV–VI yellow but increasingly light brown on apical half; major setae pale; fore wings uniformly pale. Head about as long as wide, genae convex; vertex with weak reticulate sculpture laterally

and on posterior third; postocular setae capitate, extending beyond posterior margin of eyes; eyes slightly longer dorsally than ventrally; maxillary stylets close together medially, retracted to eyes (Fig. 13); mouth cone pointed (Fig. 15). Antennal segment III more than twice as long as apical width; IV with 3 major sense cones, VIII small and distinct from VII (Fig. 16). Pronotum transverse, with 5 pairs of capitate setae; surface weakly reticulate at anterior and posterior thirds. Fore tarsal tooth small or very small and pointed, fore femora not enlarged. Fore wing with about 6 duplicated cilia; sub-basal setae capitate, arising in straight line. Mesonotum transversely reticulate, lateral setal pair small but capitate. Metanotum median area longitudinally reticulate, major setal pair slender (Fig. 14). Mesopresternum paired lateral triangles with slender connection medially, metathoracic sternopleural sutures long. Pelta broadly triangular with broad base; tergites VI–VIII lateral setae long and capitate, tergite IX setae S1 and S2 long and capitate; tube lateral margins straight, some anal setae longer than tube.

Measurements (holotype female in microns). Body length 2140. Head, length 200; maximum width 190. Pronotum, length 165; width 265; epimeral setae 50. Fore wing, length 680; sub-basal setae S1 35, S2 25, S3 35. Tergite VIII posterolateral setae 55; tergite IX setae S1 65, S2 85; tube, length 135, basal width 70; anal setae, length 235. Antennal segments I–VIII length (width): 65 (35), 50 (30), 60 (25), 60 (35), 55 (30), 50 (25), 35 (20), 25 (15).

Male macroptera. Similar to female in colour and sculpture; sternite VIII with large transverse pore plate; tergite IX setae S2 capitate, shorter than S1.

Measurements (paratype male in microns). Body length 1400. Head, length 160; width 155. Pronotum, length 130; width 190. Tergite IX setae S1 65, S2 35. Tube, length 90, basal width 55; anal setae, length 200.

Specimens studied. Holotype female, **Torres Strait**, Boigu Island, taken in trap, 8.ii.2008, in ANIC.

Paratypes: **Torres Strait**, Badu Island, 1 female, 1 male from *Lophostemon suaveolens*, 18.xi.2009.

Non-paratype: **Queensland**, Brisbane, The Gap, Mt Cootha, 1 female from dead wood, 29.x.2008, in QDPC.

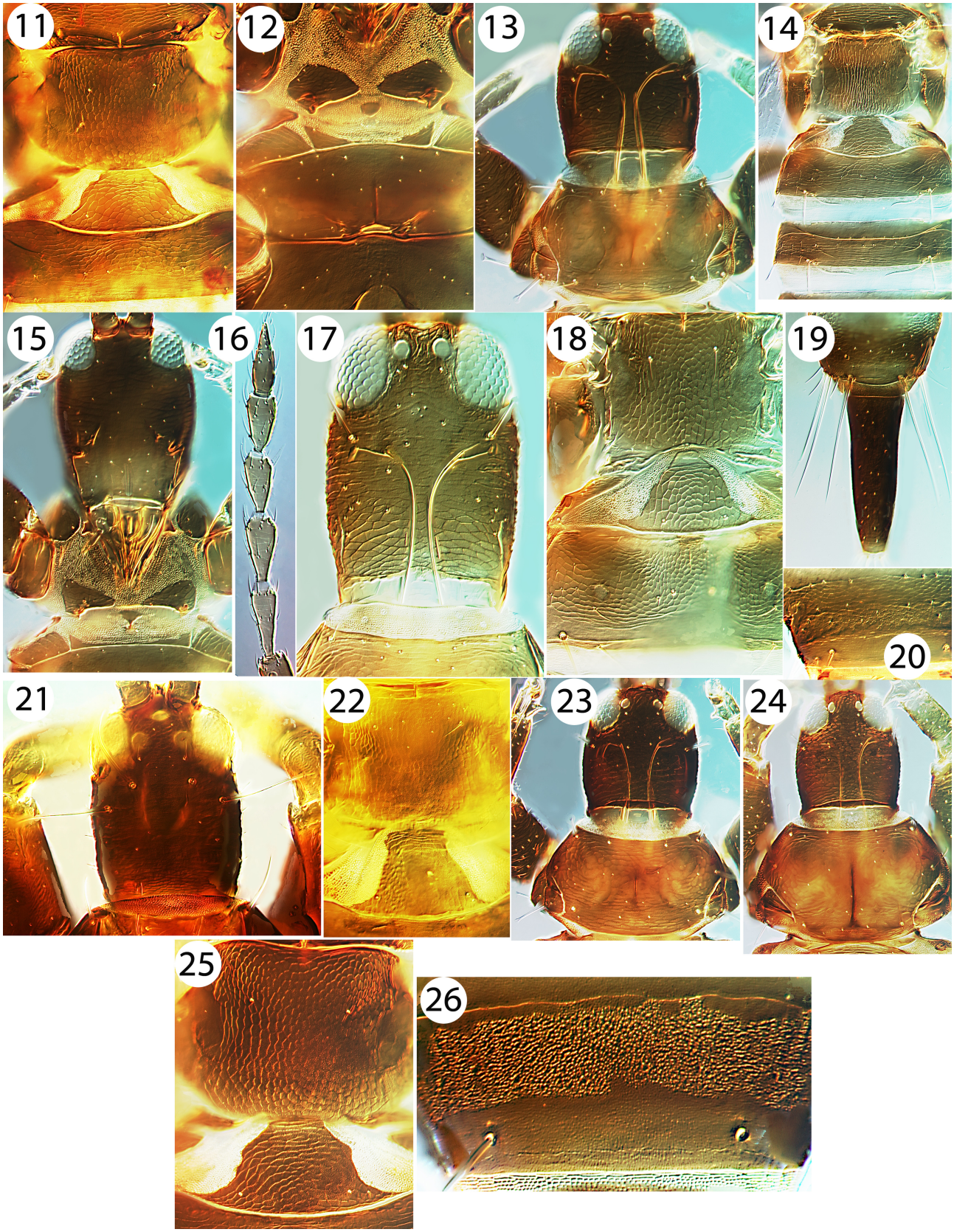
Comments. The two islands in the Torres Straits on which the type specimens were taken are close to the southern border of the island of New Guinea, the island of Boigu being scarcely six kilometres from that territory. This new species is remarkable amongst *Teuchothrips* in having all tibiae and tarsi clear yellow, but is typical of the genus in structure.

Teuchothrips bundjalong **sp.n.**

(Figs 17–20)

Female macroptera. Body and legs brown when mature (holotype slightly teneral), mid and hind tarsi light brown, fore tarsi yellow, fore tibiae with yellow areas; antennal segments I and VIII brown, II yellow on distal half, III–IV mainly yellow, V–VI increasingly light brown on apical half, VII brown with base pale; major setae on head and pronotum pale; fore wings pale on basal half but shaded on distal half. Head longer than wide, genae convex; vertex with weak reticulate sculpture laterally and on posterior third; postocular setae softly pointed to weakly capitate, extending beyond posterior margin of eyes; eyes longer dorsally than ventrally; maxillary stylets close together medially, retracted to level of postocular setae; mouth cone rounded (Fig. 17). Antennal segment III more than twice as long as apical width; IV with 3 small major sense cones, VIII small and distinct from VII. Pronotum transverse, setae am scarcely larger than discal setae, aa and ml setae slightly larger, epim long but pa variable in length; surface with weak sculpture lines. Fore tarsal tooth pointed, at least half as long as width of tarsus, fore femora not enlarged. Fore wing with about 14 duplicated cilia; no more than two sub-basal setae present, one of which is much smaller than the other arising in straight line. Mesonotum transversely reticulate, lateral setal pair minute. Metanotum evenly reticulate, major setal pair slender (Fig. 18). Mesopresternum paired lateral triangles often complete medially, metathoracic sternopleural sutures long. Pelta broadly triangular to D-shaped, base not flared; tergites VI–VIII lateral setae long, tergite IX setae S1 and S2 long and pointed; tube lateral margins straight narrowed distally (Fig. 19).

Measurements (holotype female in microns). Body length 3150. Head, length 300; maximum width 235. Pronotum, length 250; width 360; epimeral setae 70. Fore wing, length 1190; sub-basal setae S1 5, S2 30, S3 35. Tergite VIII posterolateral setae 110; tergite IX setae S1 240, S2 215; tube, length 280, basal width 105; anal setae, length 225. Antennal segments I–VIII length (width): 60 (45), 60 (40), 95 (40), 90 (40), 80 (40), 70 (35), 60 (25), 40 (15).



FIGURES 11–26. *Teuchothrips* of Australia. *T. badiipennis* 11–12: **(11)** metanotum & pelta; **(12)** prosternites. *T. badu* 13–16: **(13)** head & pronotum; **(14)** metanotum & pelta; **(15)** prosternites; **(16)** antenna. *T. bundjalong* 17–20: **(17)** head; **(18)** metanotum & pelta; **(19)** tergites IX–X; **(20)** male sternite VIII. *T. burroughsi* 21–22: **(21)** head & pronotum; **(22)** metanotum & pelta. *T. bursariicola* (=*ater*) 23–26: **(23)** head & pronotum, Female; **(24)** head & pronotum, Male; **(25)** metanotum & pelta; **(26)** male sternite VIII.

Male macroptera. Similar to female in colour and sculpture but smaller; sternite VIII with irregular transverse pore plate on posterior third covering transverse row of discal setae (Fig. 20); tergite IX setae S2 short and stout.

Measurements (paratype male in microns). Body length 2910. Head, length 300; width 215. Pronotum, length 260; width 350. Tergite IX setae S1 225, S2 60. Tube, length 280, basal width 100; anal setae, length 230.

Specimens studied. Holotype female, **New South Wales**, Murwillumbah, Crystal Creek, from rolled leaves of *Tetrastigma*, 24.xii.2006 (LAM4998), in ANIC.

Paratypes: 5 females, 5 males and larvae taken with holotype.

Comments. Although similar to *ater* in general appearance and with the stylets quite close together medially (Fig. 17), this species has far shorter setae on the pronotum and head, and the fore wing sub-basal setae are fewer in number.

Teuchothrips burroughsi **(Girault)**

(Figs 21–22)

Dichaetothrips burroughsi Girault, 1929: 29.

Described from an unspecified number of specimens taken in "leaf galls" at Boonah in south-east Queensland, this species has not been collected since. The original specimens were mounted by Girault onto a single slide, but two syntypes have been remounted onto two further separate slides. Judging from these two syntypes the species is distinctive with two pairs of long postocular setae, the head constricted behind the eyes, and the genae bear a number of small stout setae (Fig. 21). The maxillary stylets are low in the head and wide apart, the fore tibia bears a small apical tubercle in both sexes. Tergite IX setae S1 are pointed and 0.7 as long as the tube, and setae S2 of the male are similar but about 0.7 as long as setae S1. The fore wing sub-basal setae arise in a straight line, and there are more than 20 duplicated cilia. Antennal segment III bears one sense cone, and IV bears three sense cones. The head shape, stylets and postocular setae distinguish this species from other species of *Teuchothrips*, and the metanotum is unusual in bearing a group of minute setae anterior to the median major setae (Fig. 22).

Specimens studied. Syntype male and female, **Queensland**, Boonah [50km southwest of Brisbane, Queensland], November, 1928, in ANIC.

Teuchothrips clavipilus **(Karny)**

(Fig. 27)

Horistothrips clavipilus Karny, 1920: 39.

Described only in a key to species and based on a single male said to have been collected in northern Queensland at "Cedar Creek", this specimen was discussed by Mound (2008). The identity of this named species remains in doubt. Specimens from *Geijera* at Dalby that were considered in 2008 to possibly represent *clavipilus* are here identified as *garrunggam* **sp.n.** The holotype has not been re-examined during the current studies, but the following are the only available specimens that will run to *clavipilus* in the key provided here based on Mound (2008): **New South Wales**, Graman, 2 female hemimacropterae from Boobialla [*Myoporum insulare*], 28.iv.1959, in ANIC.

Teuchothrips connatus **(Hood)**

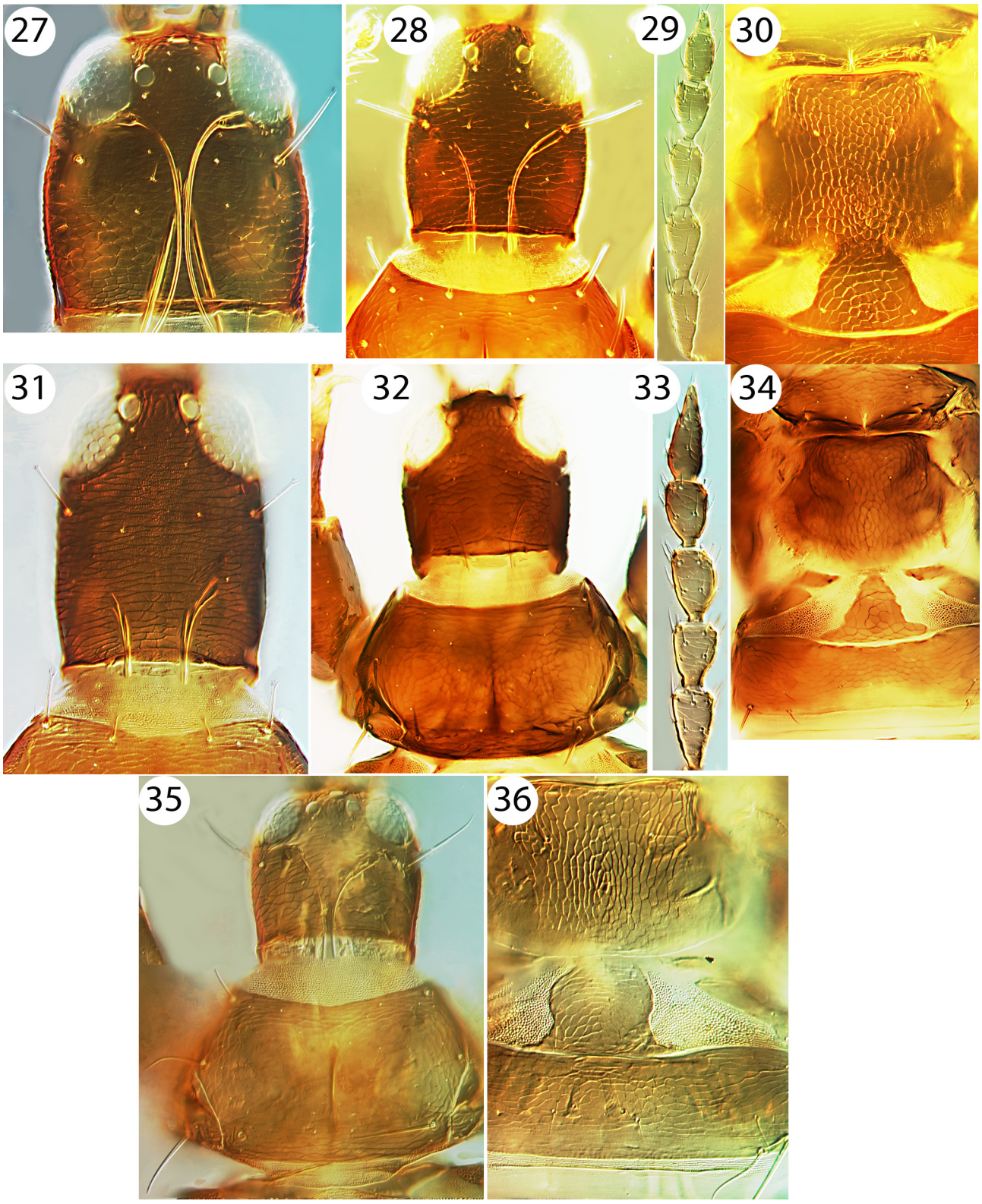
(Figs 28–30)

Liothrips connatus Hood, 1918: 135.
Cryptothrips nigronympha Girault, 1928: 3.

Hood described *connatus* from a single female taken by sweeping at Pentland [near Charters Towers], North Queensland, 24.xii.1912. Girault described *nigronympha* from "Females, brigalow, Wallumbilla, 17th October,1923", and his slide bearing this data has three females, of which one has a distinctive maxillary bridge and can be recognised as *Klambothrips walsinghami* (Mound 2008). The maxillary stylets of *connatus* are about one fifth of the head

width apart (Fig. 28), the fore wing sub-basal setae arise in a straight line, and tergite IX setae S1 have very weakly capitate apices and are not quite as long as the tube.

Specimens studied. Queensland, Brigalow, Wallumbilla [500km west of Brisbane], two syntype females of *nigronympha*, 17 October 1923, in QM. **Queensland**, Taroom, 3 females from *Eremophila deserti*, iv.2007, in ANIC. **Queensland**, Carnarvon Station, 1 female from dead *Acacia harpophylla*, 15.x.2015, in QDPC.



FIGURES 27–36. *Teuchothrips* of Australia. **(27)** *T. clavipilus* head. *T. connatus* 28–30: **(28)** head & pronotum anterior margin; **(29)** antenna; **(30)** metanotum & pelta. *T. disjunctus* **(31)** head. *T. dodonaea* 32–34: **(32)** head & pronotum; **(33)** antenna; **(34)** metanotum & pelta. *T. froggatti* 35–36: **(35)** head & pronotum; **(36)** metanotum & pelta.

Teuchothrips *disjunctus* **(Hood)**
(Fig. 31)

Liothrips disjunctus Hood, 1918: 134.

Described from one female taken on Thursday Island, Torres Strait, Hood stated that antennal segments III–VI are lemon yellow with VI "infuscated at apex". Specimens (in ANIC) that are closely similar in colour and structure to this holotype female have been studied from *Alyxia spicata* in Queensland, Horn Island (adjoining Thursday Island), also Mareeba, and from Northern Territory, Litchfield Park (140km south of Darwin) and Nhulenbuy. Moreover, in QDPC there is a series of very similar specimens taken from *Alyxia spicata* at Kuranda, northern Queensland. In contrast, the name *disjunctus* is applied to a thrips that damages the leaves of *Callistemon* species, including cultivars, and has antennal segment III largely yellow, VI almost entirely dark brown, and segments IV–V brown in the apical half. This horticultural pest form is found widely in southern Australia as well as in New Zealand (Mound & Walker 1986). The form on *Callistemon* has the head usually slightly longer than the specimens from *Alyxia*, but otherwise they are closely similar in structure.

Populations with specimens that are closely similar in structure to the interpretation of *disjunctus* adopted here have been studied (in ANIC) from the leaves, and usually within galls, on the following plant genera, arranged by plant family: Apocynaceae (*Alyxia*); Escalloniaceae (*Polyosma*); Myrtaceae (*Callistemon*, *Decaspermum*); Oleaceae (*Chionanthus*); Phyllanthaceae (*Antidesma*; *Glochidion*); Proteaceae (*Stenocarpus*); Vitaceae (*Tetrastigma*). However, there is variation within each population in character states, including head shape and sculpture of the vertex, also setal lengths and apices. A form found at more than one site in galls on *Tetrastigma* leaves has the head clearly longer than specimens from *Callistemon*, and the mid-dorsal setal pair on the vertex slightly more robust (Fig. 31). A rather similar form found in a leaf gall on *Polyosma*, has this pair of setae on the vertex even larger. It is possible that many of these various forms that are referred to under the name *disjunctus* may represent distinct species, each of which is associated with a particular host plant. Currently, and without far more extensive sampling, it is not possible to satisfactorily distinguish these differing populations on structural characters.

Specimens studied. In ANIC: **Australian Capital Territory**, Canberra, CSIRO Gardens, 2 males, 3 females and larvae from *Callistemon* rolled leaves, 8.v.2002; National Botanic Gardens, 1 male, 1 female in *Callistemon* rolled leaves, 12.vi.1981; Black Mt., both sexes from *Callistemon* leaves, 10.x.2002 and 15.iii.2003; Yarralumla Nursery, 8 females, 1 male from *Callistemon* cultivar galled leaf, 16.iii.2003. **New South Wales**, Dubbo, 4 males, 6 females from rolled leaves of seedling *Callistemon*, v.2002; Gosford, 1 female, 1 male from *Callistemon*, 1983. **Queensland**, Brisbane, Mt Glorious, 4 males from *Callistemon saligna*, 9.vii.2003. **South Australia**, Adelaide, 8 females, 5 males from *Callistemon citrinum*, iii–iv.1996. **Western Australia**, Albany, 3 females, 2 males from *Callistemon*, 15.x.2005. **NEW ZEALAND**, Auckland, both sexes from *Callistemon* citrinum rolled leaves, viii. 1968 and iii, 1972.

In QDPC: **Australian Capital Territory**, Botanic Gardens, 5 females, 2 males from *Callistemon citrinum* leaf galls, 20.ii.2012. **Queensland**, Kuranda, 3 males, 3 females from *Alyxia spicata*, 2.xi.2008. Karumba, Carpentaria, 3 males, 4 females from *Antidesma ghaesembilla* leaves, 27.v.2009.

Teuchothrips dodonaea **sp.n.**
(Figs 32–34)

Female macroptera. Body and legs brown, mid and hind tarsi light brown, fore tarsi yellow; antennal segment I–II and VII–VIII brown, III–IV mainly yellow, V–VI increasingly light brown; major setae on head and pronotum shaded to deeply shaded, on tergites VII–IX pale; fore wings light brown on basal half but paler distally. Head slightly wider than long; vertex with reticulate sculpture; postocular setae capitate, extending beyond posterior margin of eyes; eyes longer dorsally than ventrally; maxillary stylets about one-third of head width apart, not retracted to level of postocular setae; mouth cone rounded (Fig. 32). Antennal segment III less than twice as long as apical width; IV with 2 small major sense cones, VIII small and closely joined to VII (Fig. 33). Pronotum transverse with 4 pairs of capitate major setae, setae am scarcely larger than discal setae and often posterior to margin; surface with extensive, rather weak, reticulate sculpture. Fore tarsal tooth pointed, at least half as long as width of tarsus, fore femora not

enlarged. Fore wing with no duplicated cilia; sub-basal setae capitate, arising in straight line. Mesonotum reticulate, lateral setal pair small. Metanotum evenly reticulate, major setal pair slender (Fig. 34). Mesopresternum divided into 2 small triangles, sometimes extending medially, metathoracic sternopleural sutures long. Pelta irregularly triangular with base strongly flared; tergites VI–VIII lateral setae long and capitate, also tergite IX setae S1 and S2; tube lateral margins straight narrowed distally.

Measurements (holotype female in microns). Body length 2500. Head, length 200; maximum width 215. Pronotum, length 190; width 310; epimeral setae 80. Fore wing, length 900; sub-basal setae S1 40, S2 45, S3 50. Tergite VIII posterolateral setae 50; tergite IX setae S1 140, S2 120; tube, length 200, basal width 100; anal setae, length 160. Antennal segments I–VIII length (width): 50 (40), 55 (35), 60 (35), 50 (35), 55 (35), 50 (35), 50 (30), 35 (15).

Male macroptera. Similar to female in colour and sculpture but smaller; sternite VIII with irregular transverse pore plate anterior to row of discal setae; tergite IX setae S2 varying in length from as long as to rather shorter than S1 setae.

Measurements (paratype male in microns). Body length 2000. Head, length 175; width 200. Pronotum, length 215; width 325. Tergite IX setae S1 150, S2 80. Tube, length 175, basal width 90; anal setae, length 150.

Specimens studied. Holotype female, **Australia, Northern Territory**, Erldunda, from *Dodonaea viscosa*, 1.iii.1996 (D. Morris), in ANIC.

Paratypes: 19 females, 9 males with larvae collected with holotype; same site and date, 3 females, 2 males on *Acacia* sp. **South Australia**, Loxton, 6 females, 3 males from *Dodonaea viscosa* galls, 5.vi.2002.

Comments. This species is similar to *minor*, from which it is distinguished in the key above, and particularly by the deeply shaded major setae on the pronotum and the shaded fore wings. It is one of six species in the genus sharing with the type species, *simplicipennis*, the absence of duplicated cilia on the fore wing.

***Teuchothrips froggatti* (Bagnall)**

(Figs 35–36)

Mesothrips froggatti Bagnall, 1924: 637.

Collected near Sydney in 1893 from leaf-bud galls on a species of *Callistemon*, this species was described from an unspecified number of both sexes. It remains known only from those specimens and the ones listed below. As noted by Mound (2008), the maxillary stylets are long and close together, mouth cone broadly rounded; postocular and four pairs of pronotal setae long and pale, pronotal anteromarginal setae scarcely longer than discal setae (Fig. 35); fore tarsal tooth well developed and acute in both sexes; fore wing without duplicated cilia; tergite IX setae S1 finely acute, male setae S2 short and acute; male sternite VIII apparently lacking pore plate.

Specimens studied. In ANIC: **New South Wales**, Penshurst [Sydney], syntypes 1 female, 1 male from terminal leaf buds on *Callistemon*, 15.vii.1893 (W.W.Froggatt); Pipers Creek [50km northeast of Newcastle], 9 females with larvae from stem gall on *Callistemon salignus*, 8.x.2003. In QDPC: **New South Wales**, Bellangry Forest [Port Macquarie 20km west] 4 females, 3 males from galls on *Melaleuca salicina*, 1.vi.2014.

***Teuchothrips gangurru* sp.n.**

(Figs 37–40)

Female macroptera. Body and legs brown, all tarsi yellowish brown; antennal segment I and VII–VIII brown, II paler at apex, III light brown with basal third paler, IV–VI increasingly brown beyond pale base; major setae on head and pronotum shaded, on tergite IX pale; fore wings light brown on basal half but pale distally. Head about as long as wide, genae convex; vertex with reticulate sculpture; postocular setae capitate, extending beyond posterior margin of eyes; eyes longer dorsally than ventrally; maxillary stylets less than one-fifth of head width apart, retracted to eyes; mouth cone pointed (Fig. 37). Antennal segment III scarcely twice as long as apical width; IV with 3 small major sense cones, VIII small and closely joined to VII (Fig. 38). Pronotum transverse with 5 pairs of rather short, capitate major setae; surface with extensive reticulate sculpture on anterior and posterior thirds. Fore tarsal tooth

scarcely one-third as long as width of tarsus, fore femora not enlarged. Fore wing with no duplicated cilia; sub-basal setae short and capitate, S2 slightly closer to S3 than to S1. Mesonotum transversely reticulate, lateral setal pair small and capitate. Metanotum evenly reticulate, major setal pair slender (Fig. 40). Mesopresternum divided into 2 triangles slightly extending medially, metathoracic sternopleural sutures long. Pelta triangular with apex transverse and base weakly flared; tergite IX setae S1 and S2 long, apices capitate; tube lateral margins straight narrowed distally.

Measurements (holotype female in microns). Body length 1910. Head, length 175; maximum width 190. Pronotum, length 140; width 270; epimeral setae 60. Fore wing, length 730; sub-basal setae S1 60, S2 60, S3 70. Tergite VIII posterolateral setae 40; tergite IX setae S1 110, S2 90; tube, length 150, basal width 80; anal setae, length 135. Antennal segments I–VIII length (width): 35 (30), 45 (30), 55 (25), 55 (30), 55 (30), 50 (30), 45 (25), 25 (15).

Male macroptera. Similar to female in colour and sculpture, fore tarsal tooth slightly larger; sternite VIII fully occupied by pore plate (Fig. 39); tergite IX setae S2 similar to S1 setae.

Measurements (paratype male in microns). Body length 1600. Head, length 165; width 160. Pronotum, length 230; width 120. Tergite IX setae S1 85, S2 75. Tube, length 110, basal width 65; anal setae, length 125.

Specimens studied. Holotype female, **South Australia**, Kangaroo Island, Cape Linois, from *Melaleuca*, 4.x.2007 (LAM5103), in ANIC.

Paratypes: 2 females, 1 male taken with holotype.

Comments. Taken only on Kangaroo Island, the females of this new species are closely similar to those of the type species of the genus, another southern Australian species. However, the male pore plate on sternite VIII and the setae on tergite IX are different from that widespread species.

Teuchothrips garrunggam **sp.n.**

(Figs 41–43)

Female macroptera. Body and legs brown, all tarsi yellow also apices of tibiae; antennal segment I and VII–VIII brown, II paler at apex, III yellow but shaded on distal third, IV–VI increasingly brown beyond pale base; major setae pale; fore wings pale, with base weakly shaded. Head longer than wide, genae convex; vertex with extensive reticulate sculpture; postocular setae capitate, extending to mid-point of eyes; maxillary stylets scarcely one-fifth of head width apart, retracted to postocular setae (Fig. 41); mouth cone not elongate. Antennal segment III slightly less than twice as long as apical width; IV with 3 major, stout sense cones, VIII small and distinct from VII (Fig. 42). Pronotum transverse with 5 pairs of capitate major setae; surface with extensive reticulate sculpture. Fore tarsal tooth about one-third as long as width of tarsus, fore femora not enlarged. Fore wing with about 12 duplicated cilia; sub-basal setae long and capitate, S2 arising close to and slightly posterior to S3 (Fig. 43). Mesonotum transversely reticulate, lateral setal pair capitate. Metanotum reticulate, major setal pair slender. Mesopresternum divided into 2 triangles slightly extending medially, metathoracic sternopleural sutures long. Pelta broadly triangular with base strongly flared; tergite IX setae S1 and S2 long, apices weakly capitate; tube lateral margins straight.

Measurements (holotype female in microns). Body length 2360. Head, length 220; maximum width 210. Pronotum, length 165; width 290; epimeral setae 105. Fore wing, length 930; sub-basal setae S1 55, S2 60, S3 60. Tergite VIII posterolateral setae 70; tergite IX setae S1 140, S2 175; tube, length 165, basal width 80; anal setae, length 215. Antennal segments I–VIII length (width): 35 (40), 50 (35), 70 (35), 65 (40), 60 (35), 55 (30), 50 (25), 30 (15).

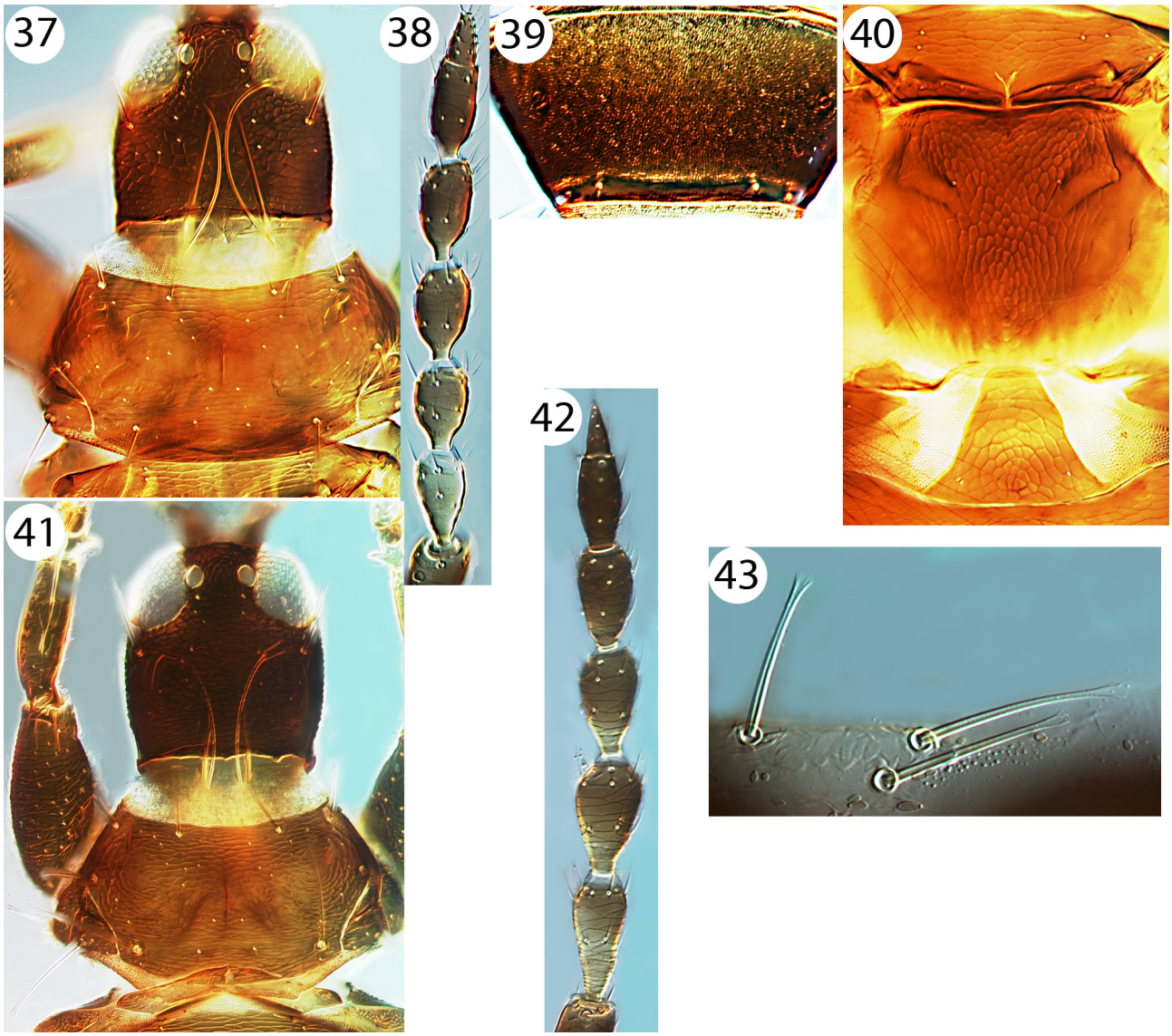
Male macroptera. Similar to female in colour and sculpture; fore femora enlarged; fore tarsal tooth stout, more than half as long as tarsal width; sternite VIII with broad pore plate across sternite; tergite IX setae S2 similar to S1 setae.

Measurements (paratype male in microns). Body length 2280. Head, length 230; width 190. Pronotum, length 175; width 275. Tergite IX setae S1 150, S2 50. Tube, length 180, basal width 75; anal setae, length 210.

Specimens studied. Holotype female, **Queensland**, Dalby, Broadwater Lake, ?*Geijera*, 19.vii.1995 (LAM2780), in ANIC.

Paratypes: 6 females, 2 males taken with holotype; **South Australia**, Glenelg [Adelaide], 1 female, 1 male from *Pittosporum phylliraeoides*, 1.i.1968 (LAM438).

Comments. This species is one of the *ater*-complex in having the fore wing sub-basal setae S2 close to or even posterior to seta S3 (Fig. 43). The paratype from Adelaide has the major setae on tergite IX more obviously capitate than the specimens from west of Brisbane.



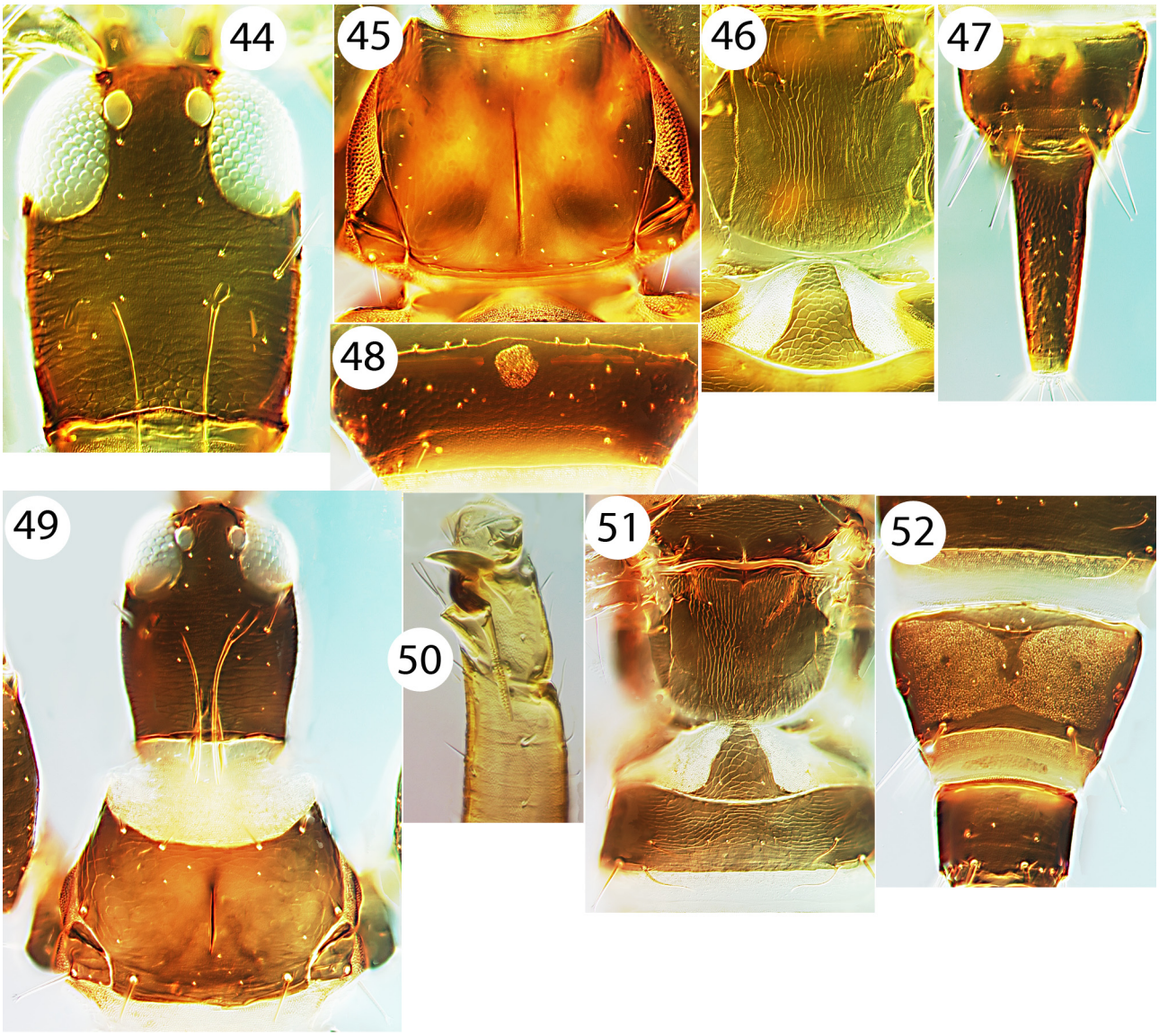
FIGURES 37–43. *Teuchothrips* of Australia. *T. gangarru* 37–40: **(37)** head & pronotum; **(38)** antenna; **(39)** male sternite VIII; **(40)** metanotum & pelta. *T. garrunggam* 41–43: **(41)** head & pronotum; **(42)** antenna; **(43)** fore wing sub-basal setae.

Teuchothrips jarowair **sp.n.**

(Figs 44–48)

Female macroptera. Body and legs brown, mid and hind tarsi pale brown, fore tarsi yellow also much of fore tibiae; antennal segment I and VII–VIII brown, II yellow at apex, III almost clear yellow, IV–VI increasingly shaded beyond pale base; major setae pale; fore wings pale, including base. Head longer than wide, narrowing to base; vertex mainly weakly sculptured but with strong transverse band of reticulation at posterior; postocular setae weakly capitate, extending almost to posterior margin of eyes; eyes longer dorsally than ventrally; maxillary stylets almost one-third of head width apart, retracted almost to postocular setae (Fig. 44); mouth cone not elongate. Antennal segment III about twice as long as apical width, with distinct ridge near base; IV with 3 major, moderately long sense cones, VIII small and distinct from VII. Pronotum relatively elongate, with few sculpture lines, only epimeral setae large (Fig. 45). Fore tarsal tooth almost as long as width of tarsus, fore femora moderately stout. Fore wing with about 18 duplicated cilia, sub-basal setae S1 and S2 developed, expanded at apex, S2 longer, S3 small, acute

at apex. Mesonotum reticulate, lateral setal pair capitate. Metanotum with elongate reticulation, major setal pair slender (Fig. 46). Mesopresternum divided into 2 triangles that extend medially, metathoracic sternopleural sutures long. Pelta irregularly triangular, tergite VII wing retaining setae scarcely developed; tergite IX setae S1 and S2 apices blunt to weakly capitate; tube lateral margins straight (Fig. 47).



FIGURES 44–52. *Teuchothrips* of Australia. *T. jarowair* 44–48: **(44)** head; **(45)** pronotum; **(46)** metanotum & pelta; **(47)** tergites IX–X; **(48)** male sternite VIII. *T. jukun* 49–52: **(49)** head & pronotum; **(50)** fore tarsus; **(51)** metanotum & pelta; **(52)** tergite VIII, male.

Measurements (holotype female in microns). Body length 2840. Head, length 260; maximum width 210. Pronotum, length 275; width 315; epimeral setae 65. Fore wing, length 1070; sub-basal setae S1 30, S2 50, S3 25. Tergite VIII posterolateral setae 70; tergite IX setae S1 90, S2 90; tube, length 250, basal width 100; anal setae, length 100. Antennal segments I–VIII length (width): 60 (35), 55 (35), 70 (30), 65 (35), 65 (30), 65 (30), 55 (25), 25 (15).

Male macroptera. Similar to female in colour and sculpture; sternite VIII with small subcircular pore plate medially (Fig. 48); tergite IX setae S2 similar to S1 setae.

Measurements (paratype male in microns). Body length 2650. Head, length 250; width 190. Pronotum, length 210; width 275. Tergite IX setae S1 80, S2 70. Tube, length 205, basal width 70; anal setae, length 115.

Specimens studied. Holotype female, **Queensland**, Toowoomba, Redwood Park, from barkspray of trees and logs, 18.xi.2011 (G.Monteith), in ANIC.

Paratypes, taken with holotype: in ANIC 2 males; in QDPC 1 female, 1 male.

Comments. This species seems to be unique in the genus for the small, subcircular pore plate on sternite VIII in males. The structure of the pronotum is remarkably similar to that of *toowoomba* **sp.n**. but the tenth abdominal segment is far shorter. These two species were taken together in the same barkspray sample in southern Queensland.

Teuchothrips jukun **sp.n.**

(Figs 49–52)

Female macroptera. Body and all femora brown, all tarsi yellow, mid and hind tibiae brown with apex yellow, fore tibiae yellow except light brown near base; antennal segment I brown, II yellow distally, III–VII yellow, VIII weakly shaded; major pronotal setae light brown; fore wings uniformly pale, including base. Head longer than wide, genae convex, vertex with transverse sculpture, postocular setae capitate and extending well beyond posterior margin of eyes; eyes longer dorsally than ventrally, mouth cone long and pointed; maxillary stylets retracted to eyes, close together medially, maxillary guides stout (Fig. 49). Antennal segment III a little more than 2.0 times as long as wide; segment IV with 3 major sense cones; VIII short and distinct from VII. Pronotum with few sculpture lines but median longitudinal apodeme stout; with 5 pairs of capitate major setae. Fore femora not enlarged, tarsal tooth small and blunt, less than one-third as long as tarsal width but hamus elongate (Fig. 50). Mesonotum transversely reticulate, lateral setal pair capitate. Metanotum with irregular longitudinal reticulation, major setal pair slender (Fig. 51). Fore wing with 10–11 duplicated cilia. Mesopresternum 2 lateral triangles extend medially; metathoracic sternopleural sutures stout. Pelta irregularly triangular with base flared; tergite IX setae S1, S2 and also S3 capitate; tube margins straight.

Measurements (holotype female in microns). Body length 2470. Head, length 230; maximum width 210; compound eye dorsal length 85. Pronotum, length 175; width 325; epimeral setae 60. Fore wing, length 910; subbasal setae S1 55, S2 60, S3 60. Tergite VIII posterolateral setae 70; tergite IX setae S1 135, S2 125; tube, length 195, basal width 80; anal setae, length 140. Antennal segments I–VIII length (width): 50 (35), 55 (35), 70 (35), 75 (40), 65 (35), 60 (30), 55 (25), 35 (15).

Male macroptera. Similar to female in colour and sculpture, fore tarsal tooth slightly smaller; sternite VIII fully occupied by pore plate that extends across tergal surface as two large areas (Fig. 52); tergite IX setae S2 short and capitate.

Measurements (paratype male in microns). Body length 1950. Head, length 210; width 160. Pronotum, length 150; width 260. Tergite IX setae S1 110, S2 50. Tube, length 165, basal width 75; anal setae, length 140.

Specimens studied. Holotype female, **Western Australia**, Broome, from *Terminalia* buds, 28.ii.2005 (LAM4641), in ANIC.

Paratypes: 2 females, 2 males taken with holotype; same locality, 1 female, 1 male from *Terminalia ferdinandiana*, 4.iii.2005.

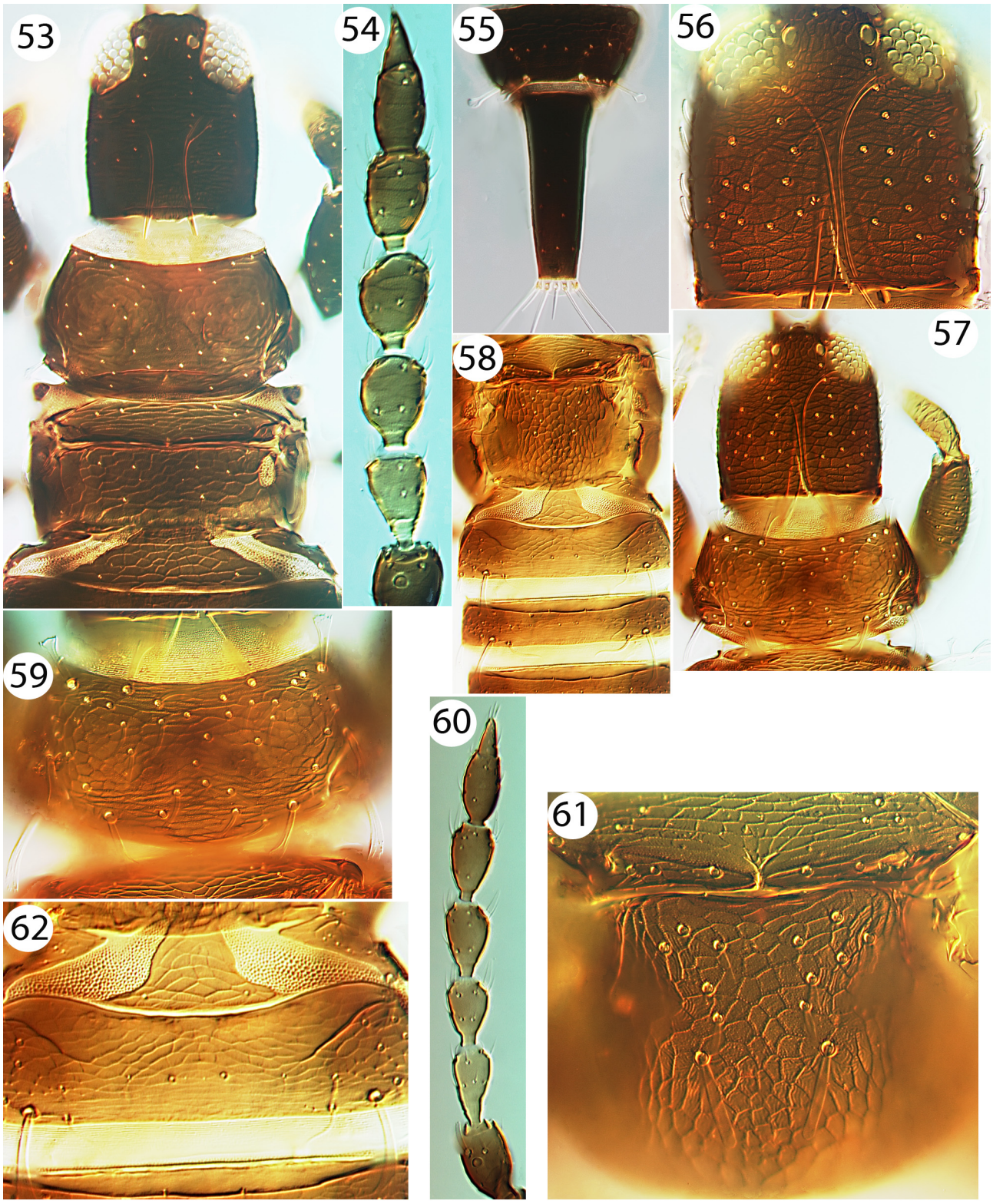
Comments. This species is remarkable amongst *Teuchothrips* for the extreme reduction in size of the fore tarsal tooth in both sexes (Fig. 50). Also, for the development in males of a large pair of pore plates on tergite VIII as well as across sternite VIII. It is one of only few *Teuchothrips* species to have the antennae largely yellow, although the pronotal major setae are all shaded.

Teuchothrips kaurna **sp.n.**

(Figs 53–55)

Female microptera. Body and legs brown, fore tarsi yellowish brown, mid and hind tarsi light brown; antennal segments I–II and VII–VIII brown, III brownish yellow, IV–VI increasingly light brown; major setae pale. Head longer than wide, genae convex, vertex with transverse reticulation; postocular setae no larger than minor setae on head; eyes longer dorsally than ventrally; maxillary stylets retracted almost to eyes, about one quarter of head width apart medially (Fig. 53). Antennal segment III about 1.5 times as long as wide; segment IV with 3 major sense cones; VIII broadly joined to VII (Fig. 54). Pronotum with epimeral setae broadly capitate, remaining major setae minute. Fore femora not enlarged, tarsal tooth very small and at inner apex of fore tarsus. Mesonotum transversely

reticulate, lateral setal pair minute. Metanotum reticulate, major setal pair small. Mesopresternum with 2 lateral triangles weakly joined medially; metathoracic sternopleural sutures well-developed. Pelta very broadly triangular across anterior margin of tergite II; all tergal setae small or minute; tergite IX setae S1 and S2 capitate, shorter than basal width of tube; tube margins straight (Fig. 55).



FIGURES 53–62. *Teuchothrips* of Australia. *T. kaurna* 53–55: **(53)** head, thorax & pelta; **(54)** antenna; **(55)** tergites IX–X. *T. kokatha* 56–62: **(56)** head; **(57)** head & pronotum; **(58)** metanotum & pelta; **(59)** pronotum; **(60)** antenna; **(61)** metanotum; **(62)** pelta.

Measurements (holotype female in microns). Body length 1490. Head, length 170; maximum width 155; compound eye dorsal length 65. Pronotum, length 120; width 210; epimeral setae 20. Tergite IX setae S1 30, S2 25; tube, length 150, basal width 65; anal setae, length 90. Antennal segments I–VIII length (width): 30 (25), 35 (30), 35 (25), 35 (25), 35 (30), 40 (30), 30 (25), 25 (15).

Male microptera. Similar to female in colour and sculpture; fore tarsal tooth longer than half tarsal width, fore tibia inner apex with distinct tubercle; sternite VIII with narrow transverse pore plate on posterior third of sternite; tergite IX setae S2 capitate, as long as setae S1.

Measurements (paratype male in microns). Body length 1460. Head, length 175; width 150. Pronotum, length 160; width 235. Tergite IX setae S1 40, S2 35; tube, length 150, basal width 60; anal setae, length 85.

Specimens studied. Holotype female, **South Australia**, Aldinga, from *Calytrix*, 15.i.2008 (Alice Wells), in ANIC.

Paratypes: 2 females, 1 male taken with holotype.

Comments. Known only from four micropterae, this species is unusual in having only one pair of major setae on the pronotum (Fig. 53). It is also one of the few species in the genus with the postocular setae not elongate, and the major setae on tergite IX are unusually short (Fig. 55).

***Teuchothrips kokatha* sp.n.**
(Figs 56–62)

Female macroptera. Body and legs brown, all tarsi yellow also apex of fore tibiae (Fig. 57); antennal segment I–II and VI–VIII brown, III yellow, IV–V increasingly light brown; major setae pale; fore wings uniformly pale, including base. Head longer than wide, genae convex with several pairs of rather broad pale setae, vertex covered with reticulate sculpture, all setae broad and pale including postocular setae; maxillary stylets retracted to eyes, close together medially (Fig. 56). Antennal segment III twice as long as wide; segment IV with 2 major sense cones; VIII short and distinct from VII (Fig. 60). Pronotum covered with irregular reticulate sculpture, with 5 pairs of broadly capitate pale major setae, surface with all setae broad, blunt and pale (Fig. 59). Fore femora not enlarged, tarsal tooth almost half as long as tarsal width. Mesonotum transversely reticulate (Figs 58, 61). Metanotum reticulate, with 6–10 broad pale discal setae, major setal pair long, blunt and pale (Fig. 61). Fore wing without duplicated cilia, sub-basal setae broadly capitate. Mesopresternum reduced to 2 triangles; metathoracic sternopleural sutures long. Pelta irregularly triangular with broad base (Fig. 62); tergites II–VII each with 2 pairs of sigmoid setae, major setae all long, broad and pale; tergite IX setae S1 and S2 capitate, about half as long as tube; tube margins straight.

Measurements (holotype female in microns). Body length 1550. Head, length 185; maximum width 175; compound eye dorsal length 55. Pronotum, length 120; width 215; epimeral setae 50. Fore wing, length XX; sub-basal setae S1 30, S2 35, S3 60. Tergite VIII posterolateral setae 55; tergite IX setae S1 50, S2 65; tube, length 100, basal width 50; anal setae, length 70. Antennal segments I–VIII length (width): 30 (20), 50 (25), 45 (20), 40 (25), 45 (25), 45 (25), 40 (20), 15 (10).

Male macroptera. Similar to female in colour and sculpture, fore tarsal tooth larger; sternite VIII with transverse pore plate occupying most of sternite; tergite IX setae S2 slightly longer than setae S1.

Measurements (paratype male in microns). Body length 1540. Head, length 165; width 165. Pronotum, length 160; width 265. Tergite IX setae S1 50, S2 65. Tube, length 110, basal width 55; anal setae, length 85.

Specimens studied. Holotype female, **Australia, Northern Territory**, Palm Valley, from *Melaleuca glomerata*, 22.x.1967 (LAM278), in ANIC.

Paratypes: 1 female, 1 male taken with holotype. **South Australia**, Coober Pedy 100km south, 1 female, 1 male from *Melaleuca glomerata*, 27.x.1967.

Comments. The broadly blunt, pale setae of this species are unique amongst species of this genus, although most of its character states are found in other species considered here. The unusual lack of fore wing duplicated cilia is shared with the type species of the genus, and the presence of only two sense cones on antennal segment IV is recorded here in 12 of the 34 recognised species.

***Teuchothrips larrakia* sp.n.**
(Figs 63–64)

Female macroptera. Body and all femora brown, all tarsi yellow, mid and hind tibiae brown with apical fifth yellow, fore tibiae yellow except brown at base; antennal segment I brown, II yellow distally, III–VII yellow, VIII weakly shaded; major setae pale; fore wings uniformly pale, including base. Head longer than wide, genae convex, vertex covered with reticulate sculpture, postocular setae capitate and extending to posterior margin of eyes; maxillary stylets retracted almost to eyes, close together medially (Fig. 63). Antennal segment III a little more than 2.0 times as long as wide; segment IV with 3 major sense cones; VIII short and almost confluent with VII. Pronotum covered with reticulate sculpture, with 5 pairs of rather short capitate major setae. Fore femora not enlarged, tarsal tooth sharply pointed and no more than one-third as long as tarsal width. Mesonotum irregularly reticulate, lateral setal pair small. Metanotum irregularly reticulate, major setal pair small and slender. Fore wing with 4 or 5 duplicated cilia. Mesopresternum reduced to 2 small triangles; metathoracic sternopleural sutures not long. Pelta broadly triangular with base flared; tergite IX setae S1 and S2 capitate, less than half as long as tube; tube margins straight.

Measurements (holotype female in microns). Body length 2250. Head, length 215; maximum width 215; compound eye dorsal length 85. Pronotum, length 165; width 300; epimeral setae 90. Fore wing, length 800; subbasal setae S1 15, S2 20, S3 20. Tergite VIII posterolateral setae 55; tergite IX setae S1 65, S2 75; tube, length 165, basal width 75; anal setae, length 150. Antennal segments I–VIII length (width): 40 (40), 50 (30), 60 (30), 60 (35), 55 (35), 50 (30), 40 (25), 25 (15).

Male macroptera. Similar to female in colour and sculpture, fore tarsal tooth slightly larger (Fig. 64); fore wing with 3 to 5 duplicated cilia; sternite VIII with transverse pore plate across median area of sternite; tergite IX setae S2 short and capitate.

Measurements (paratype male in microns). Body length 1700. Head, length 175; width 175. Pronotum, length 140; width 240. Tergite IX setae S1 85, S2 30. Tube, length 130, basal width 60; anal setae, length 150.

Specimens studied. Holotype female, **Australia, Northern Territory**, Darwin, from leaf gall on *Planchonia careya* [Lecythidaceae], 22.x.1997 (G. Bellis), in ANIC.

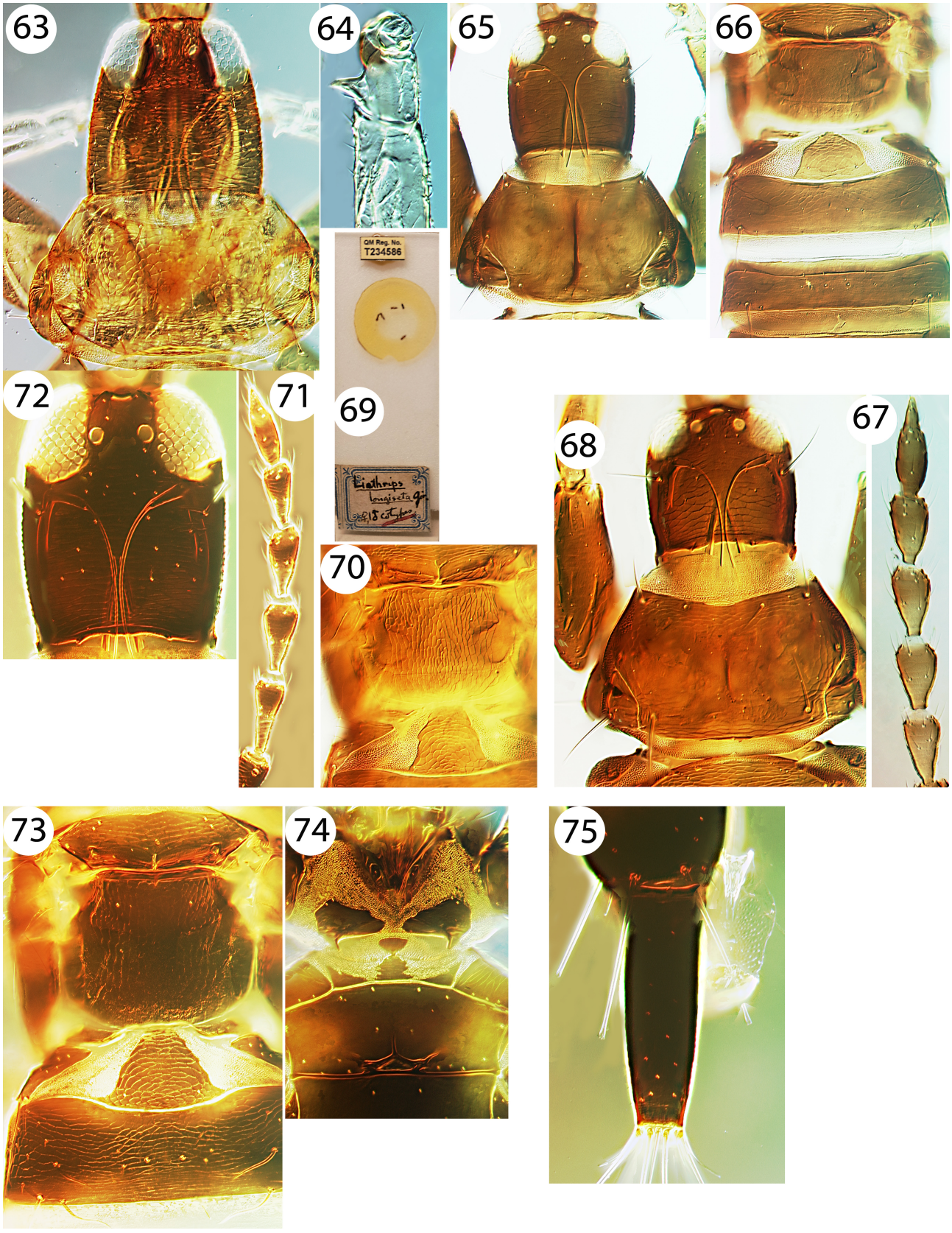
Paratypes: 7 females, 4 males taken with holotype.

Non-paratypes: **Northern Territory**, Humpty Doo, 1 female from *Melaleuca* flowers, 29.xii.1995. Coburg Peninsula, Victoria Settlement, 4 females from curled leaf of *Choricerus tricorne* [Picrodendraceae], 28.i.1999.

Comments. This species is one of the unusual members of the genus in having antennal segments III–V (or even VI) largely yellow. All specimens of the type series are mounted in Euparal, and thus rather distorted and with the body sculpture accentuated. The non-paratypic female from Humpty Doo has the femora and antennal segment II pale, and the sculpture on the head is less obvious than in the Euparal-mounted type series. The non-paratypes from Coburg Peninsula are similar in sculpture and colour to the type series, but have the fore wings shaded, and all the major setae distinctly longer, particularly laterally on the abdomen. It is possible that a series of similar species exists, each living on a different plant species in the tropical forests of northern Australia.

***Teuchothrips leptospermum* sp.n.**
(Figs 65–67)

Female microptera. Body and legs brown, mid and hind tarsi usually brown or yellowish brown, fore tarsi particularly variable to almost yellow; antennae brown, III paler at base (specimens from Queensland with III–V more extensively pale); major setae pale; fore wings uniformly pale, including base. Head longer than wide, genae convex, vertex almost without sculpture, postocular setae capitate and extending well beyond posterior margin of eyes; maxillary stylets retracted almost to eyes, close together medially (Fig. 65). Antennal segment III about 1.5 times as long as wide; segment IV with 2 major sense cones; VIII short and almost confluent with VII (Fig. 67). Pronotum with 5 pairs of capitate major setae but am setae small only weakly capitate. Fore femora not enlarged, tarsal tooth about half as long as tarsal width. Mesonotum transversely reticulate, lateral setal pair small. Metanotum very weakly reticulate, major setal pair small and slender (Fig. 66). Mesopresternum with 2 lateral triangles or these weakly joined medially; metathoracic sternopleural sutures long. Pelta broadly D-shaped with base weakly flared; tergite IX setae S1 and S2 capitate, usually two-thirds as long as tube; tube margins mainly straight.



FIGURES 63–75. *Teuchothrips* of Australia. *T. larrakia* 63–64: **(63)** head & pronotum; **(64)** fore tarsus, male. *T. leptospermum* 65–67: **(65)** head & pronotum; **(66)** metanotum & pelta; **(67)** antenna. *T. longiseta* 68–70: **(68)** head & pronotum; **(69)** type slide; **(70)** metanotum & pelta. *T. lutruwita* 71–75: **(71)** antenna; **(72)** head; **(73)** metanotum & pelta; **(74)** prosternites; **(75)** tergites IX–X.

Measurements (holotype female in microns). Body length 2110. Head, length 200; maximum width 200; compound eye dorsal length 60. Pronotum, length 185; width 290; epimeral setae 50. Fore wing, length 150; subbasal setae S1 40, S2 50, S3 70. Tergite VIII posterolateral setae 50; tergite IX setae S1 125, S2 110; tube, length 165, basal width 80; anal setae, length 140. Antennal segments I–VIII length (width): 45 (30), 50 (35), 60 (30), 55 (30), 60 (30), 60 (30), 60 (25), 30 (15).

Female macroptera. Closely similar to microptera in colour, structure and sculpture; fore wing with about 6 duplicated cilia.

Male microptera. Similar to female in colour, structure and sculpture except major setae rather longer; large male with pronotum and fore legs enlarged, fore tibia inner apex with distinct tubercle; tarsal tooth about two-thirds of tarsal width; sternite VIII with large pore plate occupying much of sternite; tergite IX setae S2 capitate, less than half as long as setae S1.

Measurements (paratype male in microns). Body length 2000. Head, length 200; width 180. Pronotum, length 200; width 290. Tergite IX setae S1 125, S2 40; tube, length 175, basal width 80; anal setae, length 170.

Specimens studied. Holotype female, **Australia, Tasmania**, Mt Anne, Condominium Creek, from *Leptospermum scoparium*, 2.v.1982 (LAM1693), in ANIC.

Paratypes: in ANIC: 1 female, 2 males taken with holotype; **Tasmania**, Meander Forest Reserve, 2 females with larvae from *Eremococcus* galls on *Leptospermum lanigerum*, 19.ii.2004; Little Fisher River, 2 female hemimacropterae, 3 female micropterae, beating, 14.xi.1993. **South Australia**, Wottons Scrub [10km southeast of Adelaide], 1 female macroptera from *Leptospermum*, 10.i.2006. **New South Wales**, Fitzroy Falls, 2 female, 1 male micropterae from *Leptospermum* fruits, 14.iv.2001. **Australian Capital Territory**, Brindabella, Piccadilly Circus, 3 female micropterae, 3 male micropterae, 1 female macroptera. on *Leptospermum* sp., 26.viii.2023.

In QDPC: **New South Wales**, Brooklyn [north of Sydney], 3 female macropterae, 2 female micropterae, 1 male microptera from *Eremococcus* gall on *Leptospermum* sp., 23.ii.2013 (Lyn Cook). **Queensland**, Brisbane, Griffith University, 1 male, 2 females from *Eremococcus pirogarus* galls, 18.v.2008

Comments. This is one of three *Teuchothrips* species that have been taken in association with Eriococcidae galls. The paratypes in QDPC have slightly shorter tergite IX setae S1 and antennal segment III paler than in the specimens in ANIC, but otherwise cannot be distinguished. Two female paratypes from Tasmania are interpreted as hemi-macropterae, the wings are not as long as is expected in fully winged adults. Taken together with *lutrowita* **sp.n.** at more than one site, the most obvious difference is the complete absence of sculpture on the metanotum in *leptospermum* **sp.n.**, together with the presence of only two major sense cones on the fourth antennal segment. Other differences are discussed under *lutrowita* **sp.n.**

Teuchothrips longiseta (Girault)

(Figs 68–70)

Horistothrips longiseta Girault, 1926: 1.

Girault states that this species was described from specimens taken at Brisbane, Queensland, from twig galls on *Acacia linifolia*. The slide that he labelled with the name and "Types" bears no other labels, but under two separate coverslips it includes rather more than 20 variously damaged females and one male (Fig. 69). The species is closely similar in colour and structure to *froggatti*, with deeply retracted and closely spaced maxillary stylets (Fig. 68), and the fourth antennal segment with only two sense cones. However, the only available fore wings on these *froggatti* specimens lack any duplicated cilia.

Specimens studied. Syntype females and male, **Queensland**, Brisbane, from twig galls on *Acacia linifolia*, in QM. **Queensland**, Brisbane, 4 females, 1 male from *Melaleuca* galls, 10.xi.1962, in ANIC.

Teuchothrips lutruwita sp.n.

(Figs 71–75)

Female macroptera. Body, legs and tarsi brown, fore tarsi paler; antennal segments I–II and VII–VIII brown, III–VI yellow at base but progressively darker to include apical two-thirds brown; major setae pale; fore wings uniformly

pale, including base. Head longer than wide, vertex transversely reticulate, postocular setae capitate and extending well beyond posterior margin of eyes; maxillary stylets retracted almost to eyes, close together medially (Fig. 72). Antennal segment III about twice as long as wide; segment IV with 3 stout sense cones; VIII short and confluent with VII (Fig. 71). Pronotum with 4 pairs of capitate major setae, am setae small and acute. Fore femora not enlarged, tarsal tooth about one-third as long as tarsal width. Fore wing broad, with about 10 duplicated cilia, sub basal setae S1 and S2 expanded at apex, S3 the longest, but slender and acute. Mesonotum transversely reticulate, lateral setal pair small but weakly capitate. Metanotum weakly reticulate medially, major setal pair slender (Fig. 73). Mesopresternum with median lobe distinct from 2 lateral triangles and extending to spinasternum (Fig. 74); metathoracic sternopleural sutures long. Pelta broadly triangular with base weakly flared; tergite IX setae S1 and S2 capitate, two-thirds as long as tube; tube margins mainly straight (Fig. 75).

Measurements (holotype female in microns). Body length 2410. Head, length 250; maximum width 200. Pronotum, length 150; width 270; epimeral setae 50. Fore wing, length 830; sub-basal setae S1 30, S2 35, S3 45. Tergite VIII posterolateral setae 75; tergite IX setae S1 125, S2 135; tube, length 210, basal width 75; anal setae, length 210. Antennal segments I–VIII length (width): 45 (35), 50 (35), 75 (35), 70 (40), 65 (30), 60 (30), 50 (25), 25 (15).

Male macroptera. Similar to female in colour; large male with pronotum and fore legs enlarged, tarsal tooth about two-thirds of tarsal width; sternite VIII with slender narrow pore plate close to posterior margin of sternite; tergite IX setae S2 capitate, more than half as long as setae S1. The mesopresternum is sexually dimorphic, with the lateral lobes elongate and pointed and the anterior margin of the mesoeusternum sharply angulate.

Measurements (paratype male in microns). Body length 2370. Head, length 240; width 195. Pronotum, length 205; width 320. Tergite IX setae S1 150, S2 90; tube, length 200, basal width 75; anal setae, length 205.

Specimens studied. Holotype female, **Australia, Tasmania**, Mt Anne, from *Leptospermum nitida*, 2.v.1982 (LAM1695), in ANIC.

Paratypes: 1 female, 1 male, taken with holotype; same locality and date, 1 male from *Leptospermum scoparium*. **New South Wales**, Fitzroy Falls, 1 male from *Leptospermum* fruits, 14.iv.2001 (in ANIC); Brooklyn, 1 male from *Eremococcus* sp on *Leptospermum*, 23.ii.2013 (Lyn Cook) (in QDPC). **Australian Capital Territory**, Brindabella, Piccadilly Circus, 1 female, 4 males on *Leptospermum* sp., 26.viii.2023.

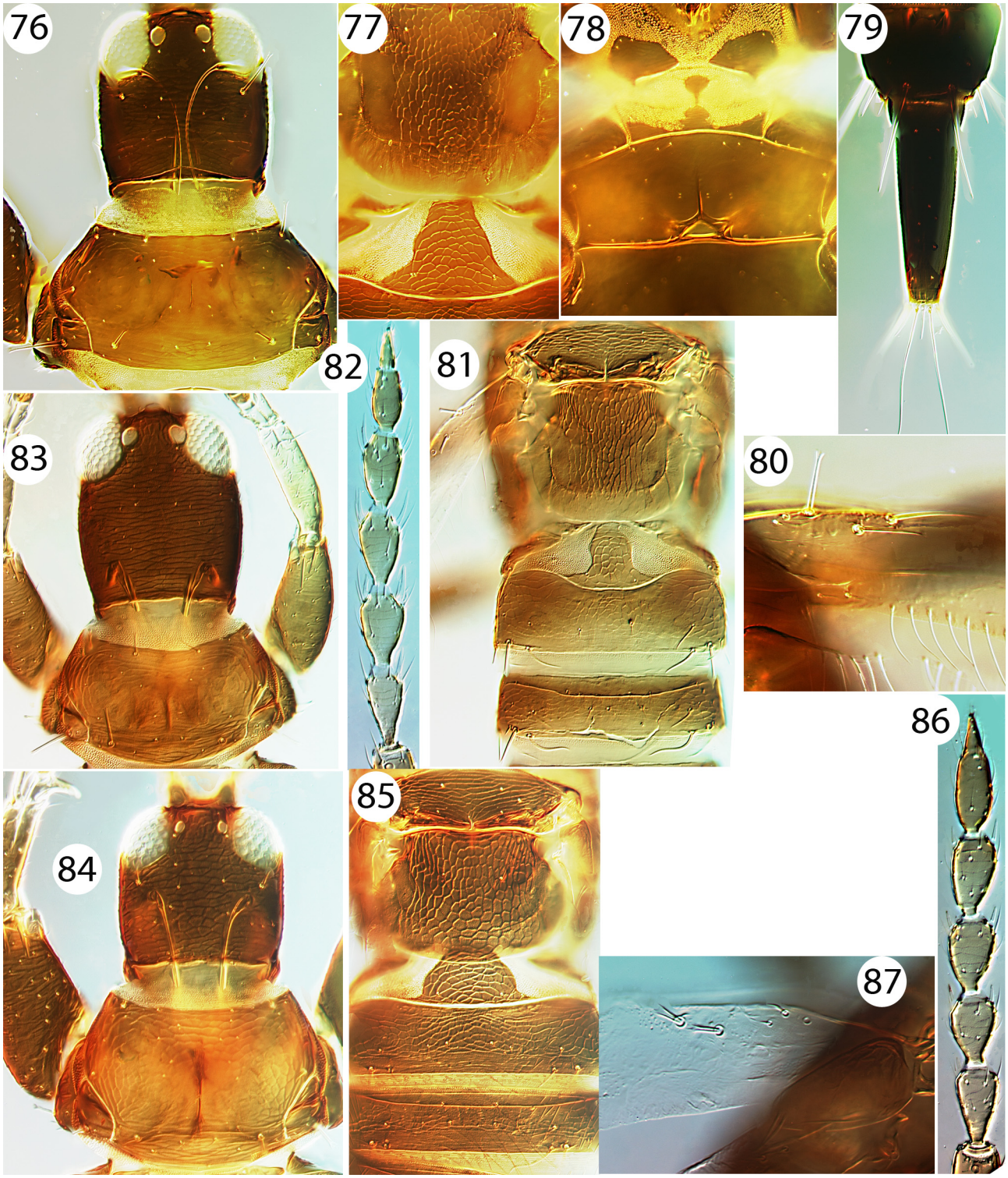
Comments. This species has been taken together with *leptospermum* **sp.n.** at two widely separate localities. However, it differs from that species not only in the number of sense cones on antennal segment IV, but the mesopresternum has a separate median lobe (Fig. 74), the metanotum is reticulate, antennal segment III is considerably longer, the male has a slender pore plate on sternite VIII and tergite IX setae S2 are longer.

Teuchothrips mareeba sp.n.

(Figs 76–80)

Female macroptera. Body and legs brown, fore tibiae yellowish brown, all tarsi yellow; antennal segments I–II and VII–VIII brown, III uniform yellow, IV–VI brown, but yellow at base; major setae shaded; fore wings uniformly light brown. Head about as long as wide, vertex weakly reticulate, postocular setae capitate, shorter than eyes; maxillary stylets retracted to eyes, close together medially (Fig. 76). Antennal segment III about twice as long as wide; segment IV with 3 stout sense cones; VIII short and almost confluent with VII. Pronotum with 5 pairs of capitate major setae, am and pa setae short. Fore femora slightly enlarged, fore tarsal tooth small. Fore wing broad, with about 15 duplicated cilia, sub basal setae capitate, S2 closer to S3 than to S1 (Fig. 80). Mesonotum transversely reticulate, lateral setal pair well-developed, capitate at apex. Metanotum reticulate medially, major setal pair slender and acute (Fig. 77). Mesopresternum with median lobe distinct from 2 lateral triangles and extending to spinasternum; metathoracic sternopleural sutures long (Fig. 78). Pelta trapezoid with base weakly flared, reticulate; tergite IX setae S1 and S2 bluntly pointed, about half as long as tube; tube longer than head (Fig. 79); anal setae much shorter than tube.

Measurements (holotype female in microns). Body length 2600. Head, length 210; maximum width 210. Pronotum, length 160; width 310; epimeral setae 65. Fore wing, length 1050; sub-basal setae S1 40, S2 45, S3 65. Tergite VIII posterolateral setae 70; tergite IX setae S1 120, S2 100; tube, length 235, basal width 85; anal setae, length 150. Antennal segments I–VIII length (width): 35 (35), 50 (30), 75 (35), 70 (40), 65 (30), 55 (30), 50 (25), 25 (15).



FIGURES 76–87. *Teuchothrips* of Australia. *T. mareeba* 76–80: **(76)** head & pronotum; **(77)** metanotum & pelta; **(78)** prosternites; **(79)** tergites IX–X; **(80)** fore wing sub-basal setae. *T. melaleucae* 81–83: **(81)** metanotum & pelta; **(82)** antenna; **(83)** head & pronotum. *T. minor* 84–87: **(84)** head & pronotum; **(85)** metanotum & pelta; **(86)** antenna; **(87)** fore wing sub-basal setae.

Male macroptera. Similar to female in colour; fore legs enlarged, fore tibiae with a small tubercle on inner apical margin, fore tarsal tooth about two-thirds of tarsal width; sternite VIII without pore plate; tergite IX S2 acute, about one-third as long as S1.

Measurements (paratype male in microns). Body length 2500. Head, length 215; width 210. Pronotum, length 190; width 320. Tergite IX setae S1 125, S2 35; tube, length 250, basal width 80; anal setae, length 145.

Specimens studied. Holotype female, **Australia, Queensland,** Hann Tableland [20km northwest of Mareeba], rainforest, from *Pyrethrum* fogging of trees and logs, 13.xii.1995 (Montieth *et al*.), in ANIC.

Paratypes: taken with holotype, 4 females, 3 males in ANIC, 5 females, 3 males in QDPC.

Comments. Unfortunately, there is no host association for this species. It is similar to *ater* in having setae S1 on tergite IX almost pointed but these are scarcely half as long as the tube. They are also similar in the arrangement of the fore wing sub-basal setae, but the males lack a pore plate on sternite VIII, and the fore wings are more deeply and uniformly shaded than in *ater*.

Teuchothrips melaleucae (Girault)

(Figs 81–83)

Liothrips melaleucae Girault, 1926: 1.

The original description comprises only these words: "Spur present; thoracic bristles unequal, mainly an unequal pair caudal corner. 7 accessory fringes each margin. Male, female ex galled leaves *Melaleuca leucodendron*, Brisbane". The type slide (image in Mound 2008) has no further data, and includes 16 specimens under three broken cover slips. However, nine of these specimens are micropterae and apparently represent *minor*, with the remaining six female and one male macropterae considered syntypes of *melaleucae*. This species is otherwise known only from the four specimens listed below. Of these four, two females have three sense cones on antennal segment IV (Fig. 82), one male has two sense cones, and one male has the left antenna with two sense cones but the right antenna with three. The syntypes are damaged and difficult to study, but one of them has two sense cones on antennal segment IV. The maxillary stylets are wide apart and low in the head, the pronotal anteromarginal setae well-developed, but the fore tarsal tooth small to minute (Fig. 83).

Specimens studied. **Queensland**, Syntypes on slide labelled "male female Types" but with no further data, in QM Brisbane. **Queensland**, Mt Glorious, 2 females, 2 males from leaf rolls on *Callistemon saligna*, 9.vii.2002, in ANIC.

Teuchothrips minor Bagnall

(Figs 84–87)

Teuchothrips minor Bagnall, 1929: 193.

The original description was based on both sexes taken in New South Wales "in spirally curled leaf galls on *Melaleuca* sp.". However, Mound (2008) pointed out that this plant was probably misidentified, as *minor* has been found widespread between Canberra and Brisbane inducing rolled leaves on *Callistemon saligna*. This is one of the species with only two sense cones on antennal segment IV. It has the setae on tergite IX unusually small, and has the postocular setae variable and sometimes scarcely larger than the minor setae on the head (Fig. 84). Antennal segments III–VI are largely yellow (Fig. 86), and larger individuals of both sexes have a small tubercle at the inner apex of the fore tibia.

Specimens studied in ANIC: Syntypes female and male, **New South Wales**, Port Macquarie, 3.ii.1900. **Australian Capital Territory**, Black Mt., both sexes macropterae and micropterae from *Callistemon saligna* rolled leaves, 12.x.2004; O'Connor, both sexes macropterae and micropterae in curled leaves of *Myoporum*, 8.xii.1989. **New South Wales**, Sydney, Boxhill, 1 female from *C. saligna*, 1997; Lismore, 20km north, both sexes macropterae and micropterae from *C. saligna*, 18.vii.1997. **Queensland**, Brisbane, both sexes macropterae and micropterae from *C. saligna* galls at Mt Nebo, 11.vii.2002, and at Mt Glorious, 9.vii.2002.

Specimens studied in QDPC: **Queensland**, Dalveen, one female from green wattle, 11.xi.2009; **Australian Capital Territory**, Canberra, from *Melaleuca*? in a garden, 20.ii.2012;

***Teuchothrips miriwoong* sp.n.**
(Figs 88–90)

Female microptera. Body and legs brown, all tarsi yellow, extreme apices of tibiae yellow (Fig. 88); antennal segments I–II and VII–VIII brown, III–IV largely yellow, V brownish yellow, VI light brown with base paler (Fig. 89); major setae pale to very weakly shaded. Head longer than wide, vertex with weak transverse markings; postocular setae small, capitate but just extending to posterior margin of eyes; maxillary stylets retracted almost to eyes, less than one-fifth of head width apart medially (Fig. 88). Antennal segment III less than twice as long as wide; segment IV with 2 stout sense cones; VIII distinct from VII with base slightly narrower than apex of VII (Fig. 89). Pronotum with 2 pairs of capitate, major setae, am, aa and ml setae small and acute. Fore femora not enlarged, fore tarsal inner margin slightly swollen but without a tooth. Fore wing lobe about as long as metathorax width. Mesonotum transversely reticulate, lateral setal pair minute. Metanotum reticulate medially, with about 4 fine discal setae (Fig. 90). Mesopresternum divided into 2 weak, irregular triangles, metathoracic sternopleural sutures present. Pelta irregular in shape, base weakly flared; tergites III–VI each with only one pair of large sigmoid setae (II and VII each one one small pair); tergite IX setae S1 and S2 capitate, half as long as tube; tube margins straight.

Measurements (holotype female in microns). Body length 1800. Head, length 175; maximum width 185. Pronotum, length 120; width 240; epimeral setae 45. Tergite VIII posterolateral setae 40; tergite IX setae S1 65, S2 65; tube, length 125, basal width 70; anal setae, length 120. Antennal segments I–VIII length (width): 40 (30), 45 (30), 55 (25), 50 (25), 55 (25), 50 (25), 50 (25), 25 (15).

Female macroptera. Very similar to microptera in colour and structure; fore wing without duplicated cilia.

Male microptera. Similar to female in colour; fore tarsal tooth length about 0.3 of tarsal width; fore wing lobe smaller; tergites without sigmoid setae; sternite VIII with no pore plate; tergite IX setae S2 at least 0.5 as long as S1 setae.

Measurements (paratype male in microns). Body length 1380. Head, length 140; width 140. Pronotum, length 100; width 200. Tergite IX setae S1 55, S2 55; tube, length 110, basal width 65; anal setae, length 90.

Specimens studied. Holotype female microptera, **Australia, Northern Territory**, Kunnunurra 179km east, from *Tephrosia* sp. leaves, 19.ix.2009 (LAM5220), in ANIC.

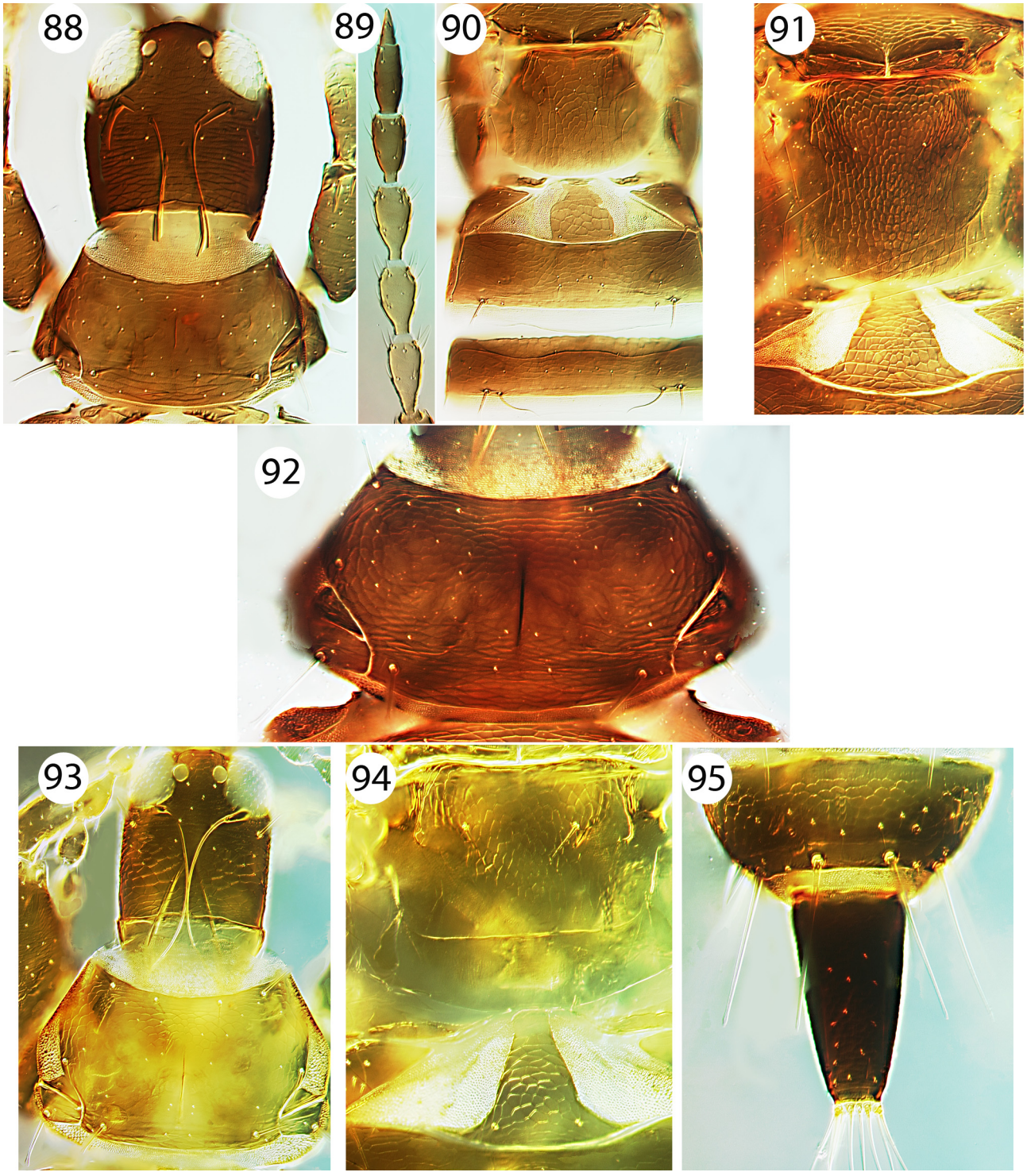
Paratypes: 2 female, 3 male micropterae, 1 female macroptera taken with holotype; same locality and date, 2 female, 2 male micropterae from distorted bud on Fabaceae plant.

Non-paratypes: **South Australia**, Maree 80km north, 2 female, 1 male microptera from ?*Cassia* leaves, 8.iv.1998.

Comments. This species is most unusual amongst *Teuchothrips* in having fore tarsi of females without a prominent tooth but only with the inner margin slightly swollen. It is also one of only two species known to have prominent discal setae on the metanotum. Moreover, antennal segment IV bears only two sense cones, and the fore wing apparently lacks duplicated cilia.

***Teuchothrips monga* sp.n.**
(Figs 91–92)

Female macroptera. Body and legs brown, all tarsi yellow, fore tibial apex yellow; antennal segments I–II and VII–VIII brown, III largely yellow or shaded in apical third, IV–VI yellow with apical third to two-thirds brown; major setae pale to very weakly shaded; fore wings uniformly light brown. Head longer than wide, vertex moderately reticulate, postocular setae capitate and extending well beyond posterior margin of eyes; maxillary stylets retracted to eyes, close together medially. Antennal segment III slightly more than twice as long as wide; segment IV with 3 stout sense cones; VIII shorter than but distinct from VII. Pronotum with 4 pairs of major, capitate, setae, am setae small and acute (Fig. 92). Fore femora stout, tarsal tooth about one-third as long as tarsal width. Fore wing broad, with 10–12 duplicated cilia. Mesonotum transversely reticulate, lateral setal pair small and weakly capitate. Metanotum reticulate medially, major setal pair slender (Fig. 91). Mesopresternum divided into 2 triangles, metathoracic sternopleural sutures long. Pelta elongate and irregularly triangular, base flared; tergite IX setae S1 and S2 weakly capitate, two-thirds as long as tube; tube margins straight.



FIGURES 88–95. *Teuchothrips* of Australia. *T. miriwoong* 88–90: **(88)** head & pronotum; **(89)** antenna; **(90)** metanotum & pelta. *T. monga* 91–92: **(91)** metanotum & pelta; **(92)** pronotum. *T. mooni* 93–95: **(93)** head & pronotum; **(94)** metanotum & pelta; **(95)** tergites IX–X.

Measurements (holotype female in microns). Body length 2640. Head, length 240; maximum width 220. Pronotum, length 190; width 335; epimeral setae 90. Fore wing, length 970; sub-basal setae S1 45, S2 50, S3 50. Tergite VIII posterolateral setae 80; tergite IX setae S1 135, S2 130; tube, length 225, basal width 90; anal setae, length 170. Antennal segments I–VIII length (width): 40 (35), 55 (35), 70 (30), 65 (35), 65 (30), 60 (30), 55 (30), 30 (15).

Male macroptera. Similar to female in colour; fore legs more massive, tarsal tooth about half length of tarsal width.; sternite VIII with extensive pore plate, apparently occupying most of sternite; tergite IX setae S2 short and stout.

Measurements (paratype male in microns). Body length 2220. Head, length 200; width 190. Pronotum, length 190; width 325. Tergite IX setae S1 140, S2 60; tube, length 210, basal width 75; anal setae, length 175.

Specimens studied. Holotype female, **Australia, New South Wales**, Braidwood 30km east, Monga Forest, from *Prostanthera lasianthes* leaves, 2.iv.1995 (LAM2636), in ANIC.

Paratypes: 17 females, 13 males with larvae, taken with holotype; same host and locality, 1 female, 2 males, 16.v.1989. **Australian Capital Territory**, Canberra, 2 females, 1 male overwintering under bark, 1982.

Comments. One of the *ater*-complex, with three sense cones on antennal segment IV and stylets close together in the head, but with the pronotal am setae pointed, the fore wing sub-basal setae arranged in a straight line, and the male sternite VIII pore plate large. It is presumably host-specific, but frequent searches on *Prostanthera* have failed to find another colony.

***Teuchothrips mooni* sp.n.**

(Figs 93–95)

Female macroptera. Body and legs brown, all tarsi yellow, fore tibiae yellowish brown distally; antennal segments I and VII–VIII brown, III largely yellow, IV–VI brown with base pale; major setae all pale; fore wings very weakly shaded. Head longer than wide, with large polygonal reticulation on lateral thirds, postocular setae capitate and extending to posterior margin of eyes; maxillary stylets retracted to eyes, close together medially, maxillary guides stout (Fig. 93). Antennal segment III almost twice as long as wide; segment IV with 3 stout sense cones; VIII short and distinct from VII. Pronotum with 5 pairs of major, capitate, setae, am setae smaller than aa setae. Fore legs stout, tibia inner apex slightly prolonged or with small tubercle, tarsal tooth stout and almost as long as tarsal width. Fore wing broad, with 10–15 duplicated cilia. Mesonotum transversely reticulate, lateral setal pair small and weakly capitate. Metanotum reticulate medially, major setal pair slender (Fig. 94). Mesopresternum divided into 2 triangles weakly connected medially, metathoracic sternopleural sutures long. Pelta elongate and irregularly triangular, base flared; tergite IX setae S1 and S2 weakly capitate, almost as long as tube; tube margins slightly convex (Fig. 95).

Measurements (holotype female in microns). Body length 2340. Head, length 220; maximum width 200. Pronotum, length 200; width 325; epimeral setae 70. Fore wing, length 830; sub-basal setae S1 40, S2 60, S3 60. Tergite VIII posterolateral setae 100; tergite IX setae S1 135, S2 125; tube, length 170, basal width 90. Antennal segments I–VIII length (width): 45 (40), 40 (35), 65 (35), 65 (40), 60 (35), 60 (25), 60 (25), 25 (15).

Male macroptera. Similar to female in colour; pronotum longer; fore legs even larger than in female with tubercle on inner apex of tibiae; sternite VIII with no pore plate; tergite IX setae S2 short and stout, expanded at apex.

Measurements (paratype male in microns). Body length 2750. Head, length 250; width 195. Pronotum, length 310; width 390. Tergite IX setae S1 150, S2 50; tube, length 125, basal width 75.

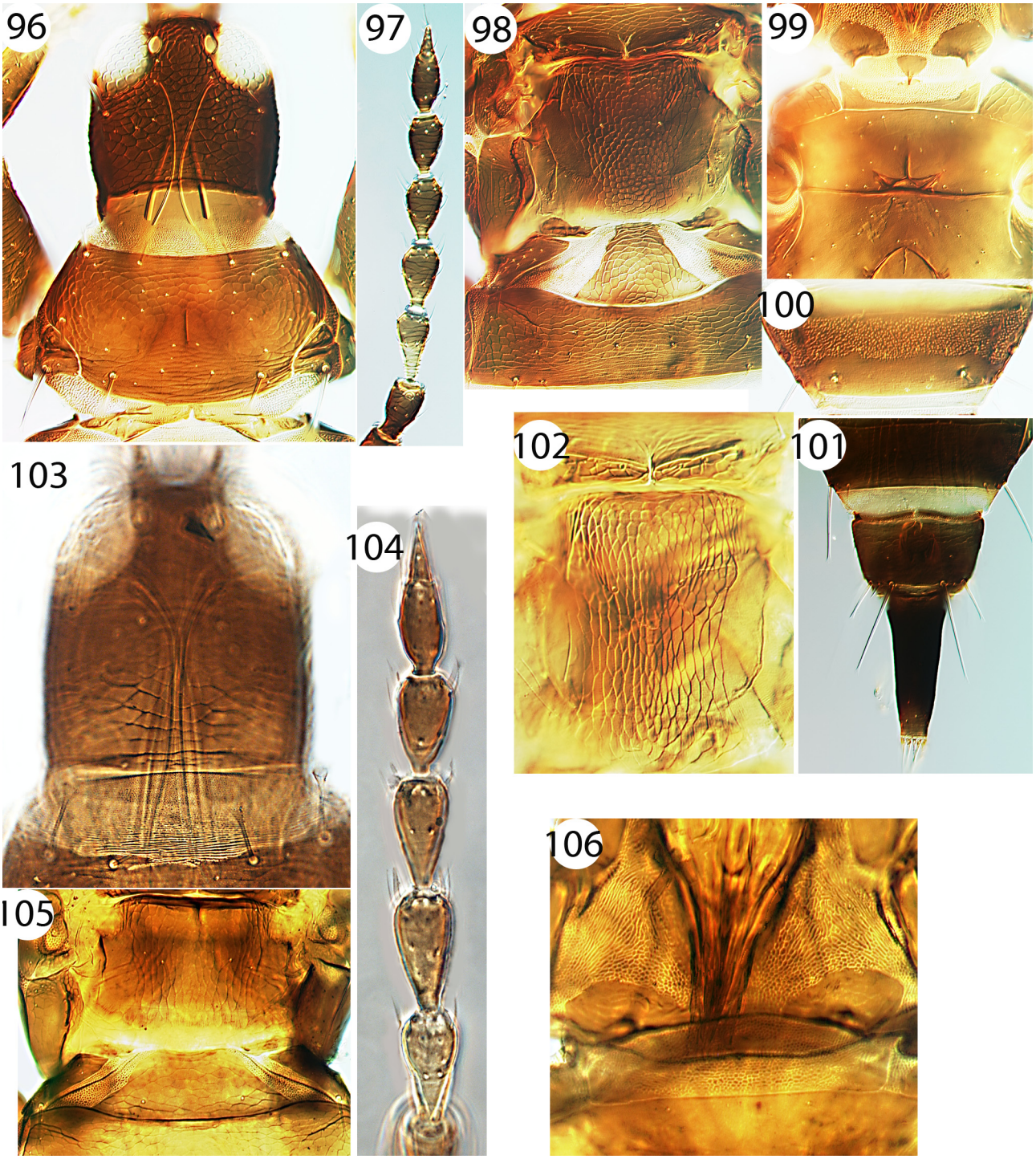
Specimens studied. Holotype female, **Queensland**, Southwood Park, 400km west of Brisbane, from gall of undescribed eriococcid on *Melaleuca pubescens* (=*lanceolata*), 8.xi.2009 (Lyn Cook), in ANIC.

Paratypes: taken with holotype, 1 male, 1 female in ANIC, 2 females in QDPC; **Queensland**, 68km east of Inglewood, 300km southwest of Brisbane, 1 female from gall on *Melaleuca* ?*decora*, 1.x.2010 (Lyn Cook), in QDPC.

Comments. Another member of the *ater*-complex, with three sense cones on antennal segment IV and stylets close together in the head, but with the pronotal am setae small and capitate. The fore wing three sub-basal setae are almost equidistant from each other and arranged almost in a straight line, but the male sternite VIII lacks a pore plate. However, abdominal segment X, the tube, is particularly unusual in having the lateral margins weakly but distinctly convex.

***Teuchothrips simplicipennis* Hood**
(Figs 96–101)

Teuchothrips simplicipennis Hood, 1919: 86.
Mesothrips insolens Bagnall, 1924: 638.



FIGURES 96–106. *Teuchothrips* of Australia. *T. simplicipennis* 96–101: **(96)** head & pronotum; **(97)** antenna; **(98)** metanotum & pelta; **(99)** prosternites; **(100)** male sternite VIII; **(101)** tergites IX–X. **(102)** *T. sodalis* metanotum. *T. soror* 103–106: **(103)** head; **(104)** antenna; **(105)** metanotum & pelta; **(106)** prosternites.

Described originally as the type-species of *Teuchothrips*, a genus for which Hood described two further new species as well as adding a further six species he had previously described from Australia. He described *simplicipennis* from two females taken at Brooklyn [just north of Sydney], New South Wales, in November, 1914. These specimens were restudied in 1998 and compared with syntypes of *insolens* that Bagnall had described from Victoria (Mound 2008), as well as with the macropterae and micropterae listed below from Aldinga, South Australia. Larger males have a distinct tubercle on the inner apex of the fore tibiae that is not present in the smaller males, and sternite VIII has a broad, transverse pore plate (Fig. 100). In both sexes, the basal half of the fore wing is light brown, and the sub-basal setae are rather short and arise in a straight line.

Specimens studied. **Australia, Victoria**, Healesville, Syntypes of *insolens*, 4 females, 1 male from *Leptospermum myrsinoides*, 1917, in ANIC. **Victoria**, Nelson, 3 females, 3 males from *Melaleuca* leaves, 5.x.2013; Bendigo, 1 female from *Cassinia arcuata*, i.2014. **South Australia**, Aldinga, Kursa Road, 3 females from *Leptospermum myrsinoides*, 3.xii.1967; Renmark 14km north, 2 females, 1 male from *Melaleuca lanceolata*, 30.x.1967; Coonalpyn, 2 females, 1 male from *Melaleuca lanceolata*, 3.xi.1967; Adelaide, Crafers, 2 females, 3 males from *Kunzea ericoides*, iv.2005. **Australian Capital Territory**, Mulligans Flat, 2 females, 1 male from dead branch, 6.xiii.2003, in ANIC.

***Teuchothrips sodalis* Bagnall**

(Fig. 102)

Teuchothrips sodalis Bagnall, 1929: 190.

Recognition of a species to which this name might be applied is particularly difficult. The name is based solely on a single damaged male, and the original description is not helpful, the species being distinguished from its congeners by "size smaller" and "head 1.2 times as long as broad" (in contrast to only slightly longer than broad). The original slide bears the same collecting data as *Teuchothrips minor*; Port Macquarie, from *Melaleuca*, 1900. No further specimens are available, apart from the female listed below. This lacks antennae, although these were described by Bagnall as segments 3 to 6 yellow. The specimen is from the Froggatt collection but bears a different date and collector to that of the holotype. The following details of the holotype male were provided by Mound (2008): postocular setae capitate, about 0.5 as long as distance between compound eyes; antennal segment III apparently with one sense cone, IV apparently with two; pronotal epimeral setae capitate, almost as long as distance between compound eyes; fore tarsal tooth long and slender; fore wing with seven duplicated cilia, the sub-basal setae in a straight row; tergite IX setae S1 capitate, about 0.8 as long as the tube, setae S2 about half as long. The illustration (Fig. 102) is of the specimen listed here.

Specimens studied. **New South Wales**, Port Macquarie, 1 female from *Melaleuca*, 1901 (Brown), in ANIC.

***Teuchothrips soror* (Hood)**

(Figs 103–106)

Rhynchothrips soror Hood, 1918: 138.

This species was transferred to the genus *Teuchothrips* in an account of the *Liothrips* species from Australia (Mound *et al*. 2023). It is known only from a single female that was collected by Girault in 1913, near Cairns in northern Queensland. Hood described this specimen as bearing a long, hooked tooth on the fore tarsus. Although macropterous, the pelta and metanotum of the holotype are unusually broad (Figs 105), such as would be expected in a micropterous individual. The images (Figs 103-106) are of the holotype in the USNM, Washington, and were kindly prepared by Elison Lima.

***Teuchothrips tolga* sp.n.**
(Figs 107–112)

Female macroptera. Body and legs brown, all tarsi yellow, fore tibiae yellow distally; antennal segments I and VII–VIII brown, III–IV yellow, V–VI increasingly light brown toward apices; major setae all pale; fore wings pale, scarcely shaded at base. Head longer than wide, surface very weakly sculptured, postocular setae capitate and extending to posterior margin of eyes; maxillary stylets retracted to eyes, close together medially, with very stout maxillary guides (Fig. 107). Antennal segment III about 1.5 times as long as wide; segment IV with only 2 sense cones, the sense cones on III and IV unusually short and stout; VIII short and slender (Fig. 108). Pronotum transverse, with 5 pairs of major, capitate, setae. Fore legs stout, tibia inner apex with prominent tubercle, tarsal tooth stout and about half as long as tarsal width. Fore wing broad, with no duplicated cilia. Mesonotum transversely reticulate, lateral setal pair short but capitate. Metanotum medially very weakly reticulate, major setal pair slender. Mesopresternum divided into 2 triangles, metathoracic sternopleural sutures present (Fig. 109). Pelta broadly triangular, base slightly flared (Fig. 111); tergite IX setae S1 and S2 almost as long as tube; tube unusually stout (Fig. 110).

Measurements (holotype female in microns). Body length 2350. Head, length 240; maximum width 210. Pronotum, length 180; width 325; epimeral setae 70. Fore wing, length 910; sub-basal setae S1 55, S2 60, S3 50. Tergite VIII posterolateral setae 110; tergite IX setae S1 145, S2 145; tube, length 175, basal width 100; anal setae, length 200. Antennal segments I–VIII length (width): 45 (45), 55 (40), 55 (35), 50 (40), 60 (35), 60 (30), 60 (25), 25 (15).

Male macroptera. Similar to female in colour and structure, pelta slightly broader (Fig. 112); sternite VIII largely occupied by pore plate; tergite IX setae S2 as long as setae S1, tube slightly more slender than that of female.

Measurements (paratype male in microns). Body length 2240. Tergite IX setae S1 130, S2 150; tube, length 150, basal width 80.

Specimens studied. Holotype female, **Queensland**, Mt Emerald west of Tolga [40km southwest of Cairns], from *Melaleuca viridiflora*, 13.ix.2014 (Lyn Cook), in ANIC.

Paratypes, taken with holotype, 1 male in ANIC, 1 female in QDPC.

Comments. One of the *Teuchothrips* with only two sense cones on antennal segment IV, this species is remarkable for the unusually stout maxillary guides (Fig. 107), and for the elongate setae S2 on tergite IX of the male (Fig. 110).

***Teuchothrips toowoomba* sp.n.**
(Figs 113–115)

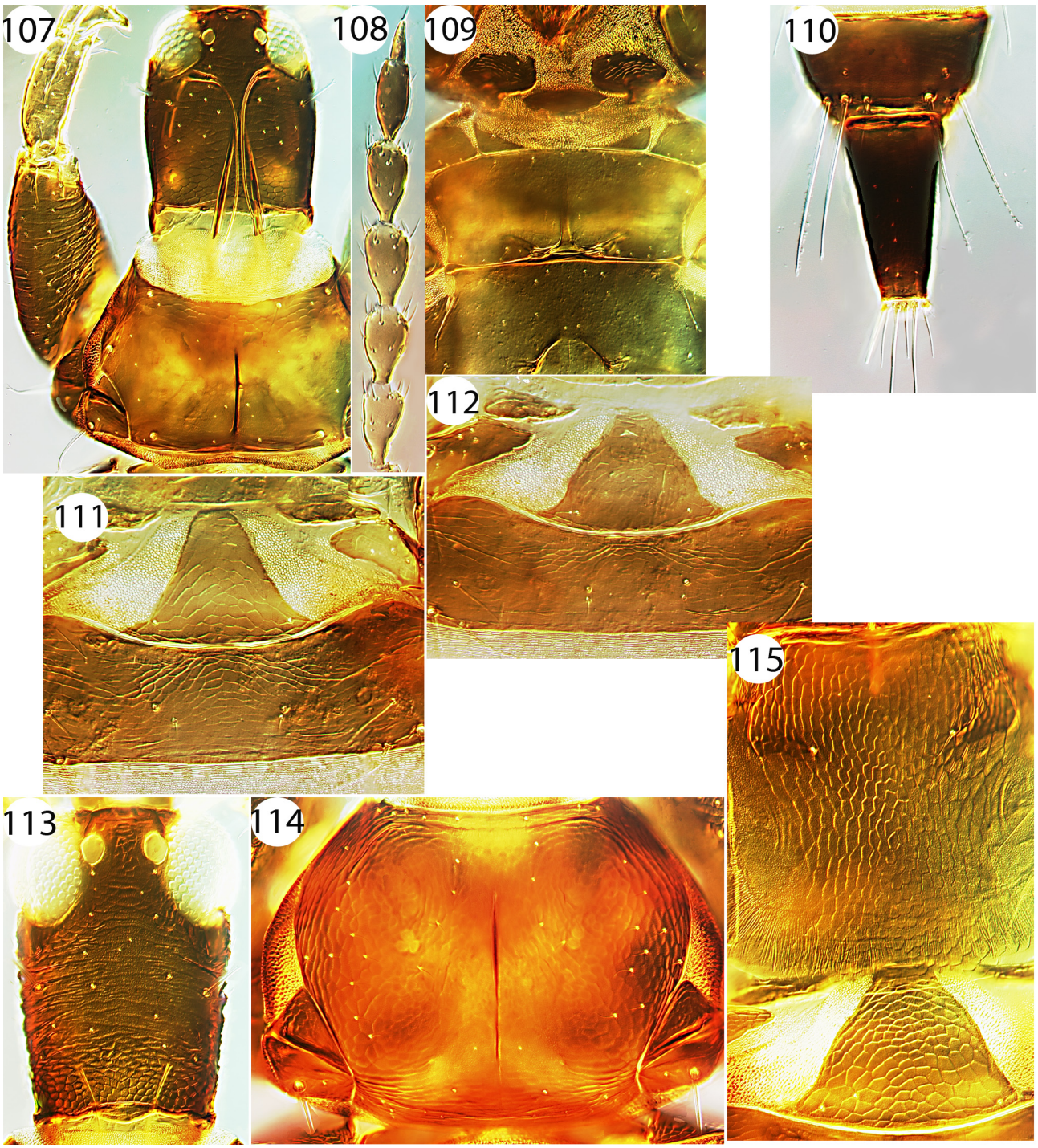
Female macroptera. Body and legs dark brown, fore tarsi and much of fore tibiae yellow; antennal segments I and VII–VIII brown, III almost clear yellow, IV–VI increasingly shaded at apex; major setae pale; fore wings pale, scarcely shaded near base. Head longer than wide, narrowing to base, genae rugose; vertex weakly reticulate but with strong transverse band of reticulation at posterior; postocular setae small, distant from eyes; maxillary stylets retracted only half-way to postocular setae; mouth cone not elongate (Fig. 113). Antennal segment III slender, almost 2.5 times as long as apical width; IV with 3 major sense cones, VIII small and close to slender VII. Pronotum relatively elongate, with many small setae laterally, only epimeral setae large (Fig. 114). Fore legs stout with tarsal tooth almost as long as width of tarsus. Fore wing with about 30 duplicated cilia, sub-basal setae S1 slightly shorter than S2, expanded at apex, S3 small, acute at apex. Mesonotum reticulate, lateral setal pair similar to fore wing sub-basal seta S1. Metanotum reticulate, major setal pair slender (Fig. 115). Mesopresternum divided into 2 triangles, metathoracic sternopleural sutures long. Pelta broadly triangular, apex truncate; all tergal lateral setae much shorter than length of their tergite; tergite IX setae S1 and S2 shorter than basal width of tube; tube about 5 times as long as basal width, lateral margins without obvious setae.

Measurements (holotype female in microns). Body length 4600. Head, length 360; maximum width 250. Pronotum, length 350; width 440; epimeral setae 70. Fore wing, length 1700; sub-basal setae S1 40, S2 50, S3 35. Tergite VIII posterolateral setae 60; tergite IX setae S1 80, S2 90; tube, length 750, basal width 160; anal setae, length 180. Antennal segments I–VIII length (width): 75 (45), 65 (40), 110 (40), 85 (40), 85 (35), 80 (25), 70 (25), 15 (15).

Specimens studied. Holotype female, **Queensland**, Toowoomba, Redwood Park, from barkspray of trees and logs, 18.xi.2011 (G. Monteith), in ANIC.

Paratypes: taken with holotype, 1 female in ANIC, 2 females in QDPC.

Comments. The type specimens of this species were taken in the same barkspray sample as the type specimens of *jarowair* **sp.n.** and included no host plant identification. The species is remarkable within the genus *Teuchothrips* for the elongate tube, abdominal segment X, that is almost five times as long as the basal width. However, the other character states, including the divided mesopresternum and the elongate metathoracic sternopleural sutures, exclude it from other genera in the *Liothrips*-lineage.



FIGURES 107–115. *Teuchothrips* of Australia. *T. tolga* 107–112: **(107)** head & pronotum; **(108)** antenna; **(109)** prosternites; **(110)** tergites IX–X; **(111)** pelta of female; **(112)** pelta of male. *T. toowoomba* 113–115: **(113)** head; **(114)** pronotum; **(115)** metanotum and pelta.

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