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Endemism among Lord Howe Island Thysanoptera, with new species of *Baenothrips* (Phlaeothripidae) and *Scirtothrips* (Thripidae)

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Abstract

The Thysanoptera diversity of Lord Howe Island comprises 39 known species, of which 13 are considered likely to be endemic to this tiny remnant of an ancient submarine volcano. Three new species are described in *Baenothrips*, a small but widespread genus of wingless, fungus-feeding species in the Old World tropics. Two new species of *Scirtothrips* are described that are members of a species-group breeding on the youngest fronds of tree ferns.

Key words: leaf-litter fauna, tree ferns, checklist

Introduction

Lord Howe Island is biologically and geologically quite distinct from the Australian continent, despite being politically part of the eastern Australian State of New South Wales. Situated in the Pacific Ocean 780km northeast of Sydney, this crescent-shaped island is about 10km long and 2 km wide. It represents the eroded remnant of a 30km wide volcanic cone that apparently erupted 6.9–6.3 million years ago from a Seamount Chain, the Lord Howe Rise, extending north from New Zealand to west of New Caledonia. There is no evidence of any human occupation on the island prior to the second and third decades of the 19th century. None of the archetypal Australian land mammals are found there, such as kangaroos and wallabies, and according to a 2003 report in the Australian Museum about 50% of the almost 2000 invertebrate species recorded from the island are endemic (Cassis *et al*. 2003). Floristically, it shares none of the dominant elements of the Australian flora, such as species of *Acacia*, *Callistemon*, *Casuarina* and *Eucalyptus*; almost 50% of the 250 recorded plant species are also considered to be endemic to this tiny island. Most notably, these plant endemics include four species of *Cyathea* tree ferns, also four species of palm tree [Arecaceae] of which two represent monobasic genera. An initial list of the Thysanoptera fauna of Lord Howe Island (Mound 1998) included 21 named species in 17 genera representing three families, plus a series of undescribed species in several other genera. With the addition of five new species described here, 39 species in 30 genera of Thysanoptera are now listed from this island.

Of the 39 listed species, 12 are clearly introduced to the Australian region from some other part of the world. Fourteen species are Australian endemics, although a few of these are now more widely dispersed. Finally, thirteen species are considered likely to be endemic to Lord Howe Island. Six of these are Phlaeothripinae, of which five are fungus-feeding species in leaf-litter or on dead branches, plus one that is possibly leaf-feeding. The other seven species are leaf-feeding Thripidae in the subfamilies Dendrothripinae, Sericothripinae and Thripinae. This 35% of endemics contrasts with the 20% of endemics recorded for Norfolk Island (Mound & Wells 2015), a similarly small isolated territory about 900km north of Lord Howe Island.

The objective here is to describe from Lord Howe Island three new species of fungus-feeding Phlaeothripinae in the genus *Baenothrips* that live in leaf-litter and at the bases of grasses, and two new species of Thripinae in the genus *Scirtothrips* that live on the young fronds of ferns including *Cyathea* species. The radiation within both of these genera seems likely to have occurred on the island, rather than the result of separate invasions. Keys are provided to the five species of *Baenothrips* now known from Australia, also to the three species of *Scirtothrips* known from Lord Howe Island. A list of Thysanoptera known from this isolated Pacific island is also provided.

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Suborder Tubulifera

Only a single family of extant species is recognised in this suborder the Phlaeothripidae, and 19 species of this family are listed here from Lord Howe Island. Four of these are spore-feeding members of the Idolothripinae, and although three are native to Australia, *Nesothrips lativentris* possibly came originally from some other Pacific territory (Eow *et al*. 2014). The other 15 species are members of the Phlaeothripinae. One of these is the widespread Oriental flower-living species, *Haplothrips ganglbaueri*, and three (*Hoplothrips orientalis*, *Karnyothrips melaleucus*, *Macrophthalmothrips argus*) are Asian species commonly associated with dead branches (Mound & Tree 2022). Five species, all fungus-feeding on dead branches or in leaf litter, are part of the Australian mainland fauna, and six are considered endemic to Lord Howe Island. Again, these endemics are all associated with dead plant tissues, presumably feeding on fungal hyphae. However, the habits of *Haplothrips howei* remain unknown: it could be leaf-feeding, fungus-feeding or even predatory. The only known radiation on the island within any of the Tubulifera genera concerns the genus *Baenothrips*, and this genus is discussed here in greater detail.

Baenothrips Crawford

This genus was erected for a single species known only from a single specimen reputed to be from Guatemala. Subsequently two further species from the Neotropics were placed in this genus, but the remaining six species in *Baenothrips* are all from the Old World tropics or subtropics (ThripsWiki 2022). They belong to a group of genera that is often referred to as the Urothripines, and species of these genera are usually wingless, and have the tenth abdominal segment long and parallel-sided (Figs 12–13). Variation in colour is commonly reported between samples of such wingless species, and in drawing attention to this situation in Australia, Mound (1972) decided not to consider as separate species each of the colour variants of *Urothrips reedi* (Stannard). There is currently no satisfactory explanation for the colour diversity amongst samples of such wingless leaf-litter thrips. However, it may be significant that no males have been found of *B. bulbosus* **sp.n.,** although both sexes have been seen of the other two species described below.

In mainland Australia, only two species of *Baenothrips* are found commonly. One of these, *caenosus* (Stannard), has been studied only from southeastern localities. In contrast, *moundi* (Stannard) has been found widely across the continent south of Brisbane including Tasmania, and has also been studied from Lord Howe Island, Norfolk Island and New Zealand. Although over 100 slide-mounted apterae of this species have been studied, only three macropterae have been seen (two from Tasmania; one from Canberra). These macropterae of *moundi* have each compound eye narrowed ventrally to a row that is only two facets wide. However, three damaged macropterae have been seen from northern Queensland that are essentially similar to *moundi* but have the ventral part of the compound eyes consisting of a broad row that is three or four facets wide. Two further unidentified apterae of *Baenothrips* have been studied, one from Western Australia (Barrow Island) and one from Tasmania, and although both are essentially similar to *caenosus* they have all three pairs of anal setae almost equally elongate. The significance of the above five specimens remains in doubt.

Key to *Baenothrips* species in Australia

1. Metathoracic epimera each with prominent lateral seta (Fig. 1); mesosternal furca present medially; [mid-dorsal pair of anal setae about 0.5 as long as lateral 2 pairs] . . . . . *moundi*
-. Metathoracic epimera without a stout seta (Fig. 2); mesosternal furca present only laterally 2
2. Only 2 pairs of long anal setae, mid-dorsal pair reduced to minute papillae less than 10 microns long; median pair of anterior cephalic setae scarcely longer than antennal segment III, lateral 2 pairs equal to length of antennal segment VI (Fig. 3); compound eye with no small facets mesad to row of 3 large facets, ventrally usually without a small facet [head and pronotum brown, abdomen uniformly but variably lighter brown with tube yellow] . . . . . *caenosus*
-. All 3 pairs of anal setae long, but mid-dorsal pair scarcely one-third as long as lateral pairs; median pair of anterior cephalic setae about as long as antennal segments III+V, lateral 2 pairs at least 1.5 times as long as antennal segment VI (Figs 4, 5); compound eye, mesad of 3 large facets, with row of 4 or 5 small facets, ventrally with one small, isolated facet [Lord Howe Island] 3
3. Head largely yellow with anterior and anterolateral margins light brown (Fig. 4); anal setae mid-dorsal pair about 0.3 times as long as tube . . . . . *bulbosus* **sp.n.**

-. Head and pronotum uniformly dark brown (Figs 2, 5, 6); anal setae mid-dorsal pair about 0.5 times as long as tube 5
5. Fore femora and tibiae uniformly dark brown . . . . . *goweri* **sp.n.**
-. Fore femora and fore tibiae uniformly pale, fore tibiae rarely weakly shaded . . . . . *leukos* **sp.n.**

Baenothrips bulbosus **sp.n.**
(Figs 4, 9, 12)

Female aptera: With red pigment internally on head anterior and lateral margins, also scattered pigment in prothorax, and small red areas laterally in abdominal segments III–VIII. Body, legs and antennae largely yellow; head deeply shaded at anterior and anterolateral margins, pronotum weakly shaded; tube with anal ring dark. Head anterior margin with 3 prominent tubercles, median one with pair of long capitate setae, lateral ones each with 2 similar setae (Fig. 4); dorsal surface weakly tuberculate; compound eyes dorsally with 4–5 small facets mesad of 3 large facets, ventrally with a single isolated small facet. Maxillary stylets retracted to postocular setae, about one-third of head width apart, with slender maxillary bridge. Antennae 8-segmented, III–V broadly joined but distinct from each other (Fig. 9); III asymmetric, with sub-basal ridge; III with one sense cone, IV with 2 sense cones. Pronotum transverse, with weak irregular sculpture and about 20 small setae; notopleural sutures not developed, epimeral setae pale and broadly expanded. Metanotum with no sculpture, with 30–40 minute setae. Metathoracic epimera slightly swollen, weakly tuberculate. Prosternum with about 10 small setae in irregular transverse row, sternites weakly sclerotised and poorly defined, except slender spinasternum prominent. Mesothoracic furca reduced to pair of small lateral invaginations. Pelta fully transverse between the large spiracles, without sculpture; tergites II–VIII usually without sculpture except close to antecostal ridge, III–VIII each with pair of pale, flattened posteroangular setae; spiracle on VIII very small; IX longer than wide without prominent setae (Fig. 12); tube long and slender but slightly wider at base and apex, median dorsal anal setae much more slender than the longer lateral pairs.

Measurements (holotype female in microns). Body length 2000. Head, length 190; maximum width 165; median setal pair 80; lateral setal pairs 60. Pronotum, length 100; width 180; posteroangular setae 25. Tergite IX, length 185; maximum width 225. Tube, length 370; anal setae mid-dorsal pair 135; lateral pairs 800. Antennal segments III–VIII length 30, 25, 25, 23, 20, 20.

Male not known.

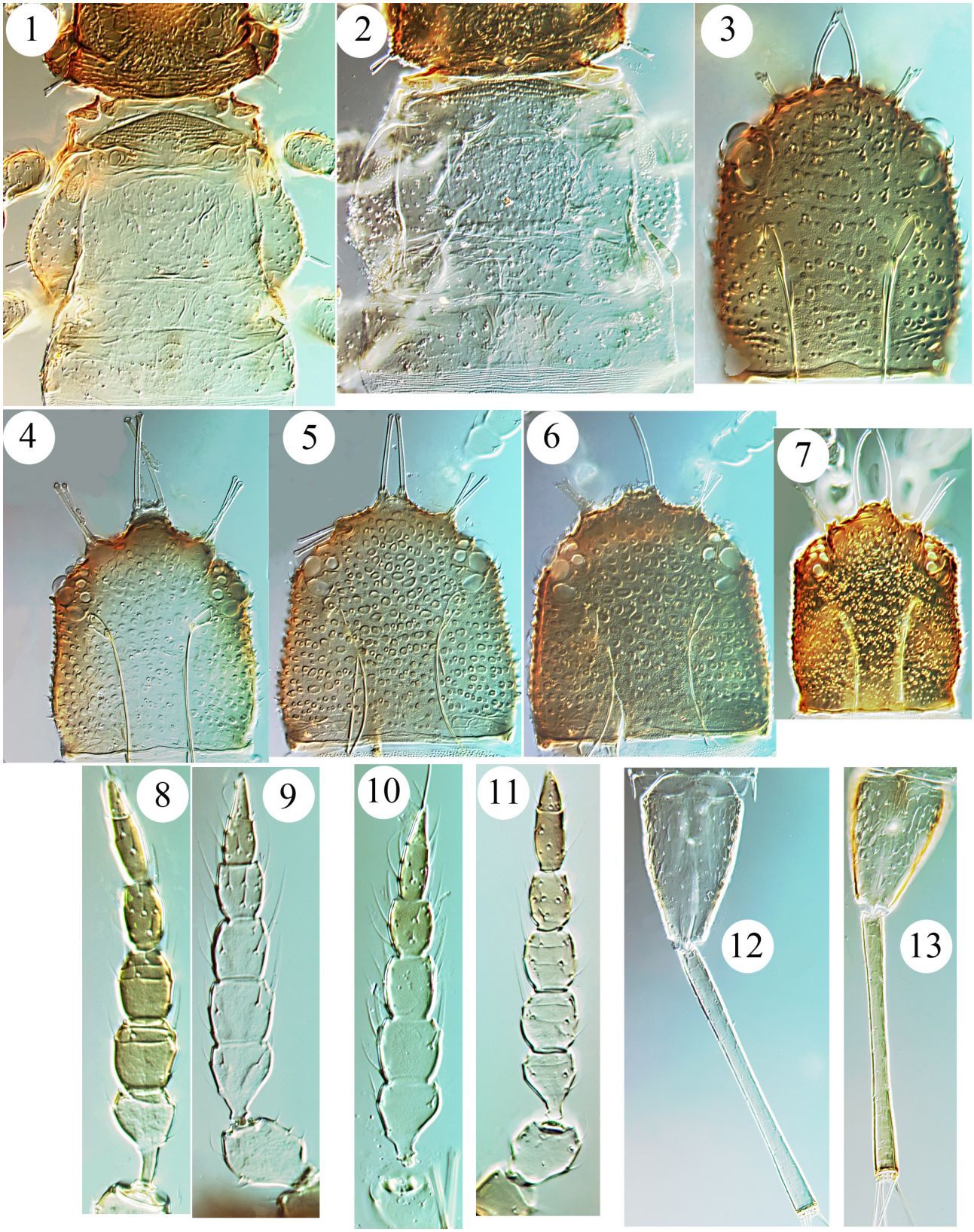
Specimens studied. Holotype female aptera, Lord Howe Island, Smokers Trail, from base of grasses, 27.xii.2007 (LAM 5144), in ANIC.

Paratypes, all Lord Howe Island: 2 females taken with holotype; Soldiers Creek, 2 females from dead twigs, 21.xi.1996; Rocky Run, 4 females from base of grasses, 22.xii.2001; Goat House, 1 female from dead branch, 25.xii.2001; Transit Hill, 2 females from grasses, 26.xii.2007; Erskine Valley, 1 female from leaf litter, 2.xii.2000, 1 female from grass tussock, 21.xii.2007; Smokers Ridge, 1 female from grasses, 24.xii.2011.

Comments. The body colour of this species is unique in the genus, but the arrangement of the compound eyes, with a row of small facets mesad of the large facets, occurs also in the following two new species as well as in *B. moundi* (Fig. 7). However, *B. caenosus* has only the single row of large facets (Fig. 3).

Baenothrips goweri **sp.n.**
(Figs 2, 5, 10)

Female aptera. Body strongly bicoloured, head, pronotum and fore legs dark brown, rest of body mainly pale; mesonotum anterior half light brown, tergites III–VIII light brown laterally and with pair of weak shadings medially; antennal segments I–V pale, VI-VIII light brown. Anterior margin of head with 3 tubercles bearing long setae; dorsal surface of head tuberculate (Fig. 5); compound eyes dorsally with 4–5 small facets mesad of 3 large facets, ventrally with a single isolated small facet. Maxillary stylets retracted to postocular setae, about one-third of head width apart, with slender maxillary bridge. Antennae 8-segmented, III–V broadly joined but distinct from each other (Fig. 10); III asymmetric, with weak sub-basal ridge; III apparently without a sense cone, IV with 2 sense cones. Pronotum transverse, with irregular sculpture and about 20 minute setae; notopleural sutures not developed, epimeral setae pale and broadly expanded (Fig. 2). Mesonotum anterior half finely tuberculate. Metanotum with no sculpture, with 30-40 minute setae. Metathoracic epimera slightly swollen, weakly tuberculate. Prosternal basantra small and lateral,



FIGURES 1–13. *Baenothrips* species. Metanotum and tergites I–II 1–2: **(1)** *moundi*; **(2)** *goweri*. Head 3–7: **(3)** *caenosus*; **(4)** *bulbosus*; **(5)** *goweri*; **(6)** *leukos*; **(7)** *moundi*. Antenna 8–11: **(8)** *caenosus*; **(9)** *bulbosus*; **(10)** *goweri*; **(11)** *moundi*. Tergites IX–X: **(12)** *bulbosus*; **(13)** *moundi*.

ferna well-developed; spinasternum long and slender, mesopresternum transverse and very slender; metathoracic sternopleural sutures absent. Mesothoracic furca reduced to pair of small lateral invaginations. Pelta fully transverse between the large spiracles, with weak sculpture; tergites II–VIII with weak irregular sculpture, III–VIII each with pair of pale, flattened posteroangular setae; spiracle on VIII very small; IX longer than wide without prominent setae; tube long and slender, median dorsal anal setae much more slender than the longer lateral pairs.

Measurements (holotype female in microns). Body length 1750. Head, length 185; maximum width 175; median setal pair 60; lateral setal pairs 40. Pronotum, length 115; width 210; posteroangular setae 25. Tergite IX, length 140; maximum width 150. Tube, length 250; anal setae mid-dorsal pair 80; lateral pairs 600. Antennal segments III–VIII length 35, 25, 25, 23, 25, 20.

Male aptera. Structurally similar to female, but smaller and paler.

Specimens studied. Holotype female aptera, Lord Howe Island, Mt Gower, Erskine Valley, from leaf litter, 2.xii.2000, in ANIC.

Paratypes, all Lord Howe Island: 5 females 1 male, taken with holotype; 1 female, same site in leaf litter, 10.xii.2000; Goat House, 4 females in litter, 24.xi.2000; Intermediate Hill, 3 females 1 male in litter, 3.xii.2000.

Comments. Although generally similar in structure to *bulbosus* **sp.n.** this species has retained the sharply bicoloured appearance that is quite common amongst *Baenothrips* species.

Baenothrips leukos **sp.n.**

(Fig. 6)

Female and male apterae. The fore legs of this species are fully white, with no trace of brown. Apart from this, both sexes of this species are apparently identical in structure, sculpture and chaetotaxy to *goweri* described above. The two species were found at similar sites on Mt Gower, but no specimens exhibiting intermediate colour patterns have been seen. As discussed further below, *leukos* is therefore interpreted here as representing a distinct species.

Measurements (holotype female in microns). Body length 1450. Head, length 175; maximum width 165; median setal pair 55; lateral setal pairs 30. Pronotum, length 105; width 200; posteroangular setae 20. Tergite IX, length 125; maximum width 100. Tube, length 220; anal setae mid-dorsal pair 140; lateral pairs 450. Antennal segments III–VIII length 35, 25, 25, 23, 23, 20.

Specimens studied. Holotype female aptera, Lord Howe Island, Mt Gower, from leaf litter, xii.2000 in ANIC.

Paratypes, all from leaf litter on Lord Howe Island: 2 females taken with holotype; Erskine Valley, 4 females, 2.xii.2000, 1 male from grass tussock, 21.xii.2007; Rocky Run, 1 male from base of grasses, 22.xii.2001.

Comments. Found at similar sites on the slopes of Mt Gower, no structural differences could be found between the specimens listed and those of *B. goweri*, apart from the startling difference in colour of the fore legs.

Suborder Terebrantia

Eight families are recognised worldwide in this suborder, and five of these are known from Australia (Mound & Tree 2020). However, representatives of only two of these families have been found on Lord Howe Island, involving a total of 20 terebrantiate species (Table 1). The family Aeolothripidae is represented on the island by a single predatory species, *Desmothrips reedi*. This ant-mimicking thrips is widespread in eastern Australia and has been found on Lord Howe Island living at the base of Kikuyu grass (*Cenchrus clandestinus*). The other 19 species are all members of the Thripidae and include species of all four recognised subfamilies. Three species of Panchaetothripinae have been found, of which *Helionothrips spinosus* is an Australian endemic that is host-specific on *Smilax australis*, although *Heliothrips haemorrhoidalis* and *Hercinothrips bicinctus* are worldwide pest species. The single recorded species of Sericothripinae, *Hydatothrips aliceae*, is considered an endemic, and is apparently specific to the leaves of *Parsonsia howeana* that is itself endemic to the island. However, the endemicity of the three recorded species of Dendrothripinae is more doubtful, because all three of them are recorded as breeding on *Trophis scandens* [Moraceae], a plant that is widespread in eastern and northern Australia. Of these three, *Dendrothrips howei* and *Ensiferothrips secundus* are not known from anywhere else, although *Pseudodendrothrips gillespiei* has also been found at Taree on the New South Wales coast. The remaining 12 species are all members of the Thripinae

(Table 1). Five of them are worldwide tramp or pest species, and four that are marked with the symbol ‡ in Table 1 are considered native to Australia. Of the three remaining species, *Parabaliothrips newmani*, has been found mating and breeding only on the young buds of *Ficus macrophylla columnaris*, a subspecies that is the native fig tree of Lord Howe Island. *Parabaliothrips newmani* was described originally from a tree of this subspecies planted in the Botanic Gardens at Sydney, and the thrips has not been found on the nominate subspecies of *F. macrophylla* that is more common in Sydney and in eastern Australia. This thrips breeds in the terminal leaf-buds of *columnaris*. It is presumably endemic to Lord Howe Island, but along with its host was transplanted subsequently to the Botanic Gardens on the mainland. The final two Thripinae species are endemic members of the worldwide genus *Scirtothrips*. These were found on the youngest, unfurling, fronds of *Cyathea* tree ferns, and these species are here considered in more detail. The four species of *Cyathea* that are endemic to Lord Howe Island are all widely distributed on the slopes of Mt Gower at various altitudes, and any host specificity by the *Scirtothrips* amongst these four fern species was not detected.

Scirtothrips Shull

Worldwide, this genus comprises just over 100 described species (ThripsWiki 2022), and in Australia there are 21 named species (Hoddle & Mound 2003), plus an unknown number of undescribed species judging from the slide collections at the Australian National Insect Collection. Three species of this genus have been found on Lord Howe Island. One of these, *S. albomaculatus* Bianchi, was described from New Caledonia but has been taken widely in eastern Australia between southern Queensland and South Australia on various plants (Mound & Tree 2020). On Lord Howe Island this species was found breeding commonly on the leaves of the shrub *Dodonaea viscosa* [Sapindaceae]. The other two species are here newly described. They were found living on the young fronds of ferns—one on *Cyathea* and the other taken from an unidentified fern. These two species have widely spaced transverse sculpture lines on the pronotum, and this character state seems to be shared amongst *Scirtothrips* species only by two species known from tree ferns in Australia and New Zealand. The second of these two new species is remarkable in being the only known member of the genus *Scirtothrips* that lacks closely spaced rows of microtrichia on the abdominal tergites.

Key to *Scirtothrips* species from Lord Howe Island

1. Pronotum closely striate, striae separated by no more than base of a discal seta (Fig. 14); ocellar region transversely striate, setae pair III arising close to anterolateral sides of triangle; metanotal median setae arising at anterior margin; fore wing second vein with 3–8 setae; antennal segment III more than twice as long as wide . . . . . *albomaculatus*
-. Pronotum broadly striate, striae wider apart than base of any discal seta (Figs 15, 16); ocellar region without or with very weak striae, setae pair III arising between or behind midpoints of hind ocelli; metanotal median setae arising behind anterior margin (Fig. 17); fore wing second vein with 4 (or 3) widely spaced setae; antennal segment III slightly less than 2.0 times as long as wide 2
2. Body pale brown; tergites II–VII lateral thirds with up to 10 transverse sculpture lines each bearing many microtrichia (Figs 18, 19); sternites with numerous microtrichia lateral to marginal setae pair S2 (Fig. 20); ocellar triangle with no sculpture lines (Fig. 15) . . . . . *cyatheae* **sp.n.**
- Body yellow, only distal antennal segments brown; tergites II–VII without microtrichia on transverse sculpture lines (Figs 21, 22); sternites without microtrichia, or with a few lateral to marginal setae pair S3; ocellar triangle with faint irregular reticulation (Fig. 16). . . . . *gymnos* **sp.n.**

Scirtothrips cyatheae sp.n.

(Figs 15, 17–20, 23, 24)

Female macroptera. Body colour (in life) medium brown, paler on tarsi, base of antennal segment III and apex of segment II; fore wings brown with major setae dark. Antennae 8-segmented (Fig. 24), forked sense cone on III and IV not reaching more than one-third the length of succeeding segment; inner sense cone on VI extends almost to apex of VIII. Head with ocellar triangle lacking sculpture lines (Fig. 15); ocellar setae pair III no longer

than a posterior ocellus, varying in position from just in front of, to clearly posterior to, the tangent between hind margins of the hind ocelli; postocular setae I–III shorter than ocellar setae pair III. Pronotum transversely reticulate, distance between transverse striae commonly more than twice the diameter of a discal seta base (Fig. 15); 4 pairs of posteromarginal setae, S2 shorter than diameter of antennal segment II, S4 minute. Metanotum reticulate, median setae short and arising posterior to anterior margin (Fig. 17). Fore wing second vein with 4 (rarely 3) setae; first vein with group of 3 setae sub-basally, then about 4 setae, and 3 (or 4) setae on distal half; clavus with 4 veinal and one discal setae; distal posteromarginal cilia almost straight but with apical thirds weakly wavy. Abdominal tergites II–VIII with setae S1 arising closer together than their length (Fig. 18); lateral microtrichial fields with 3 discal setae; VIII with long marginal comb but no discal microtrichia medially (Fig. 19); IX–X with no discal microtrichia. Sternites with lateral microtrichial fields usually not extending mesad of marginal setal pair S2.

Measurements (holotype female in microns). Distended body length 870. Head, length 65; width across eyes 115; ocellar setae III 10. Pronotum, length 90, width 140; posteromarginal setae S1 10, S2 20, S3 20, S4 10. Metanotum median setae 12, submedian setae 25. Fore wing, length 530. Tergite median setae length, on III 10, on VII 15, on VIII 40. Antennal segments III–VIII length 30, 25, 30, 40, 8, 10.

Male: Colour and sculpture similar to female; tergite IX with pair of drepanae extending to midpoint of segment X.

Larva II: Abdomen and pterothorax densely covered with minute tubercles (Fig. 23), head and pronotum with fewer of these tubercles but lacking sclerotised plates.

Specimens studied. Holotype female, **Australia, Lord Howe Island**, Mt Gower, Erskine Valley, from *Cyathea* young frond, 21.xii.2007 (LAM 5130), in ANIC.

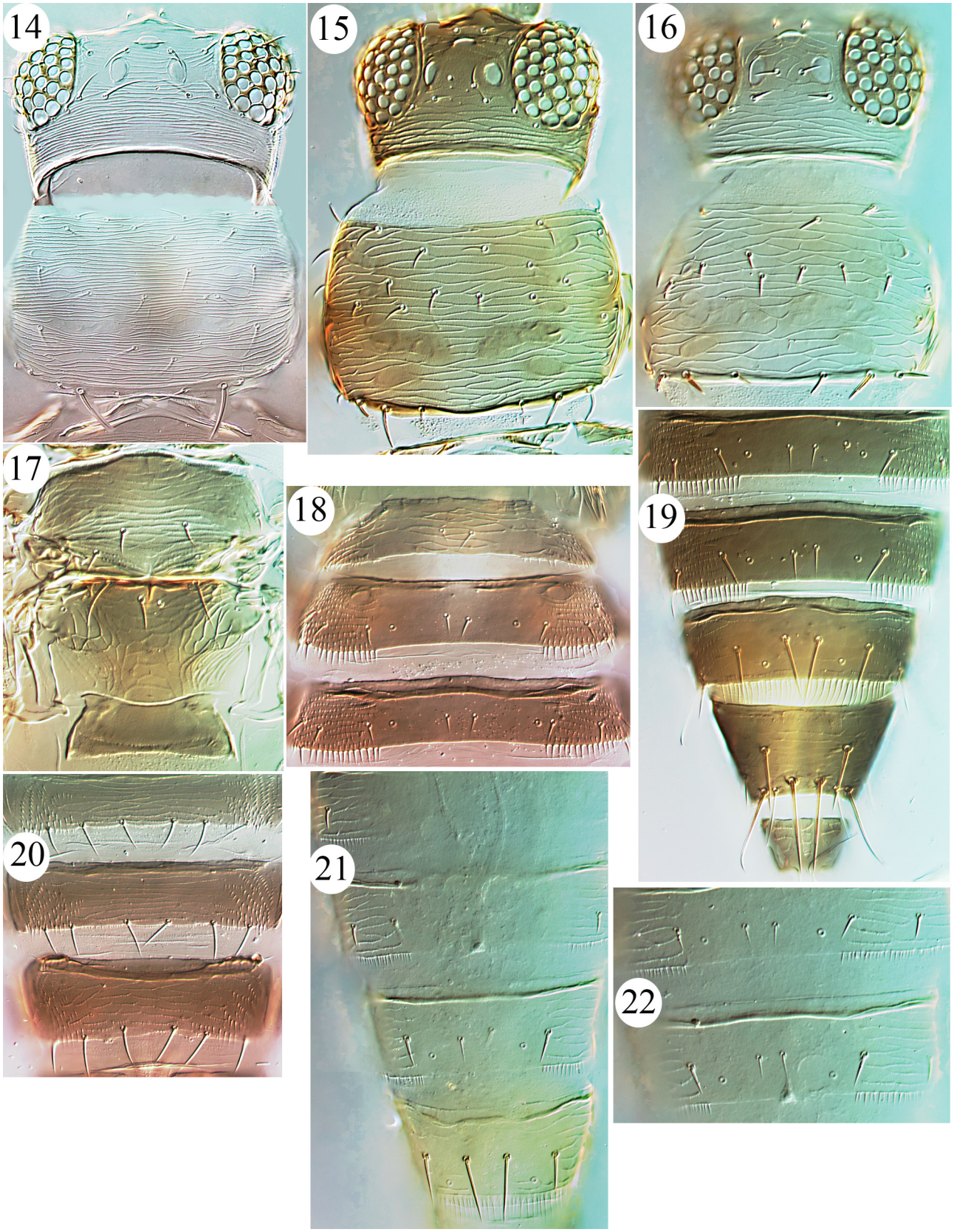
Paratypes, all Lord Howe Island: 1 male, 7 females (also larvae) taken with holotype; same locality and host plant, 11 females, 27.xii.2001. Rocky Run, 3 males, 5 females (also larvae), from *Cyathea* young fronds, 22.xii.2001; same locality and host plant, 6 males, 5 females (also larvae), 24.xii.2007. Soldiers Creek, 1 male, 3 females, from ferns, 25.xii.2001.

Comments. This species is unusual among member of the genus *Scirtothrips* in having the pronotal sculpture lines widely spaced (Fig. 15). It shares this condition not only with the new species described below, but also with *S. frondis*, a species that lives on the young fronds of tree ferns in eastern Australia (Mound & Tree 2020), as well as *S. pan* that has a similar host association in New Zealand (Mound *et al*. 2017). From these it differs in being brown rather than mainly yellow in colour, and in having no sculpture lines within the ocellar triangle. From *frondis* it further differs in having ocellar setae pair III slightly more posterior in relation to the hind ocelli, and from *pan* it differs in having much shorter setae on the head and first abdominal tergite. The second instar of *frondis* also lacks the sclerotised plates with reticulate sculpture that occur in many species of *Scirtothrips*.

Scirtothrips gymnos **sp.n.**

(Figs 16, 21, 22)

Female macroptera. Body colour yellow with small amount of faintly red internal pigment; fore wings uniformly light brown with darker major setae; antennal segments I–III much paler than IV-VIII. Antennae 8-segmented, forked sense cone on III and IV not reaching more than one-third the length of succeeding segment; inner sense cone on VI extends almost to apex of VIII. Head with ocellar triangle with weak reticulate sculpture lines (Fig. 16); ocellar setae pair III weak and shorter than a posterior ocellus, just in front of the tangent between the hind margins of hind ocelli; postocular setae I–II shorter than ocellar setae pair III, postocular setae III not developed. Pronotum transversely reticulate, distance between transverse striae commonly more than twice the diameter of a discal seta base (Fig. 16); 4 pairs of posteromarginal setae, S2 shorter than diameter of antennal segment II, S4 minute. Metanotum reticulate, median setae short and arising posterior to anterior margin but varying in position.



FIGURES 14–22. *Scirtothrips* species. Head & pronotum 14–16: **(14)** *albomaculatus*; **(15)** *cyatheae*; **(16)** *gymnos*. Female *cyatheae* 17–20: **(17)** Metanotum; **(18)** Tergites I–III; **(19)** Tergites VI–X; **(20)** Sternites VI–VIII. Female *gymnos* 21–22: **(21)** Tergites IV–VIII; **(22)** Tergites V–VI.

Fore wing second vein with 4 setae; first vein with group of 3 setae sub-basally, then about 4 setae, and 3–5 setae on distal half; clavus with 4 veinal and one discal setae; distal posteromarginal cilia almost straight but with apical thirds weakly wavy. Abdominal tergites II–VII with setae S1 small and arising slightly further apart than their length (Fig. 22); lateral thirds with 3 discal setae, but transverse sculpture lines lacking any prominent microtrichia although posterior margin laterally with comb (Figs 21, 22); VIII with S1 setae long, posteromarginal comb long but no discal microtrichia medially (Fig. 21); IX–X with no discal microtrichia. Sternites with lateral microtrichial rows either absent or scarcely extending mesad of marginal setal pair S3.

Measurements (holotype female in microns). Distended body length 900. Head, length 55; width across eyes 120; ocellar setae III 12. Pronotum, length 80, width 130; posteromarginal setae S1 12, S2 30, S3 12, S4 8. Metanotum median setae ?, submedian setae 25. Fore wing, length 500. Tergite median setae length, on III 10, on VII 15, on VIII 40. Antennal segments III–VIII length 35, 32, 30, 40, 8, 8.

Male: Not known.

Specimens studied. Holotype female, **Australia, Lord Howe Island**, Soldiers Creek, from ferns, 25.xii.2001 (LAM 4084) in ANIC.

Paratypes: 6 females taken with holotype.

Comments. This species is unique among member of the genus *Scirtothrips* in lacking rows of microtrichia on the tergites, and it also has very few such rows on the sternites. The other character states are typical of this genus, and the sculpture on the pronotum suggests that this species is closely related to *cyatheae* describe above.

FIGURES 23–24. *Scirtothrips cyatheae*. **(23)** Larva II abdomen. **(24)** Female antenna.

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TABLE 1. Check list of Lord Howe Island Thysanoptera

*Indicates presumed LHI endemic.

‡Indicates Australian native.

AEOLOTHRIPIDAE

‡*Desmothrips reedi* Mound, 1967

THRIPIDAE

Panchaetothripinae

‡*Helionothrips spinosus* Wilson, 1975

Heliothrips haemorrhoidalis (Bouché, 1933)

Hercinothrips bicinctus (Bagnall, 1919)

Dendrothripinae

**Dendrothrips howei* Mound, 1999

**Ensiferothrips secundus* Mound, 1999

**Pseudodendrothrips gillespiei* Mound, 1999

Sericothripinae

**Hydatothrips aliceae* Mound & Tree, 2009

Thripinae

Anaphothrips obscurus (Müller, 1776)

Anaphothrips sudanensis Trybom, 1911

Aptinothrips rufus (Haliday, 1836)

‡*Bolacothrips pulcher* (Girault, 1929)

**Parabaliothrips newmani* Gillespie, Mound & Wang, 2002

‡*Pezothrips kellyanus* (Bagnall, 1916)

‡*Scirtothrips albomaculatus* Bianchi, 1945

**Scirtothrips cyatheae* Mound & Wells, 2022

.....continued on the next page

TABLE 1. (Continued)

**Scirtothrips gymnos* Mound & Wells, 2022
Taeniothrips eucharii (Whetzel, 1923)
‡*Thrips imaginis* Bagnall, 1926
Thrips tabaci Lindeman, 1889

PHLAEOTHRIPIDAE
Idolothripinae
‡*Carientothrips semirufus* (Girault, 1928)
Carientothrips loisthus Mound, 1974
‡*Nesothrips lativentris* (Karny, 1913)
[=*Bolothrips australiensis* Moulton, 1968]
‡*Nesothrips propinquus* (Bagnall, 1916)

Phlaeothripinae
‡*Baenothrips moundi* (Stannard, 1970)
**Baenothrips bulbosus* Mound & Wells, 2022
**Baenothrips goweri* Mound & Wells, 2022
**Baenothrips leukos* Mound & Wells, 2022
‡*Deplorothrips howei* Mound & Tree, 2016
‡*Deplorothrips makrus* Mound & Tree, 2016
Haplothrips ganglbaueri Schmutz, 1913
[= *Haplothrips angustus* Hood, 1919]
**Haplothrips howei* Mound & Minaei, 2007
**Hoplandrothrips howei* Mound & Tree, 2013
Hoplothrips orientalis (Ananthakrishnan, 1969)
Karnyothrips melaleucus (Bagnall, 1911)
Macrophthalmothrips argus (Karny, 1920)
**Psalidothrips howei* Wang, Mound & Tree, 2019
‡*Stephanothrips barretti* Mound, 1972
‡*Strepterothrips tuberculatus* (Girault, 1929)